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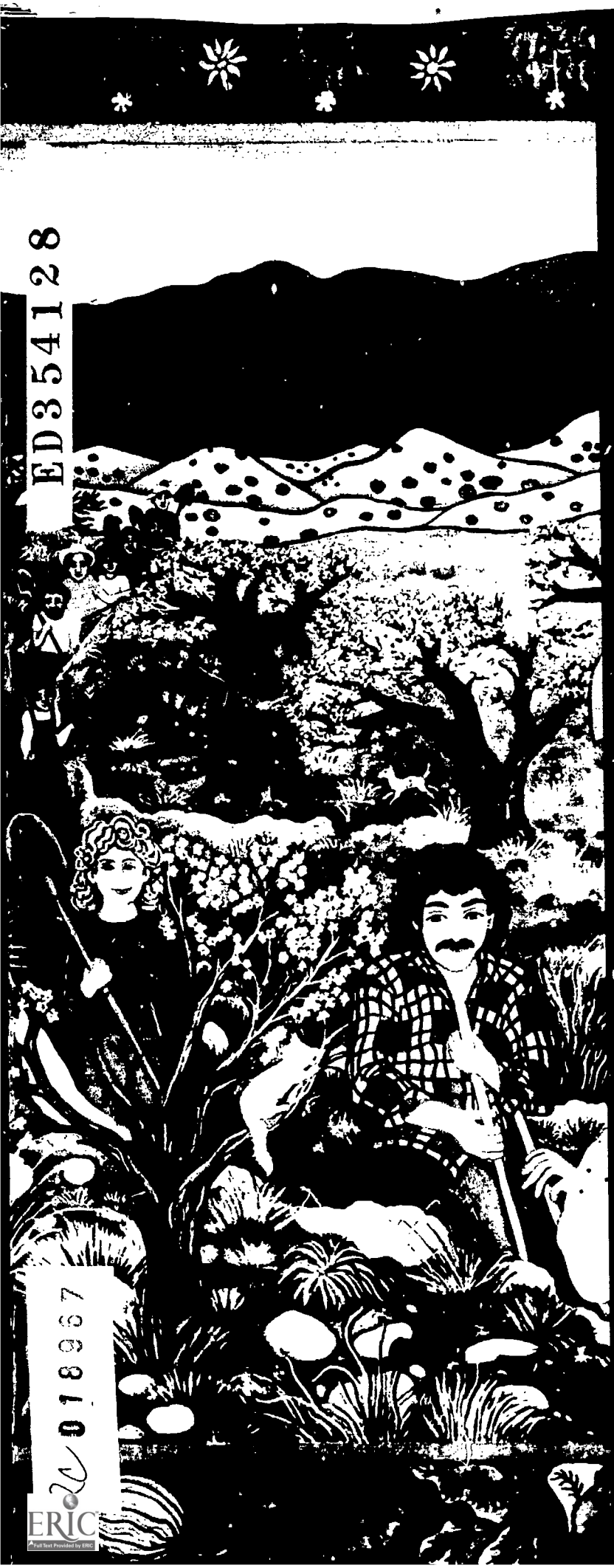
ABSTRACT

This proceedings contains 11 papers that focus on issues and problems of rural communities in the Southwest. Papers include: (1) "Dilemmas of a New Age: A Half-Millennium of Landscape Change in New Mexico and the Southwest," by Paul F. Starrs; (2) "American Indians Today," by C. Matthew Snipp; (3) "The Southwest: Global Issues in a Regional Setting," by F. Lee Brown and Jose A. Rivera; (4) "Misunderstanding the West in General and New Mexico in Particular," by Peirce Lewis; (5) "Putting Columbus in His Place," by William Howarth; (6) "The New Mexico Rural Economy: One Person's Portrait," by Robert O. Coppedge; (7) "One Generation of Self-Determination: Native American Economic Self-Reliance in New Mexico," by Theodore S. Jojola and Herman Agoyo; (8) "Hispanic Americans in the Rural Economy: Conditions, Issues and Probable Future Adjustments," by Refugio I. Rochin; (9) "Information Technologies and Rural Economic Development," by Don A. Dillman; (10) "Size, Function, and Structure: Jurisdictional Size Effects on Public Sector Performance," by Ronald J. Oakerson; and (11) "Large Metropolitan Areas: Their Functions and Prospects," by Edwin S. Mills. (SV)

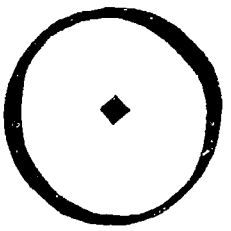


National Rural Studies Committee

a proceedings

Las Vegas, New Mexico
May 14-16, 1992

National Rural Studies Committee



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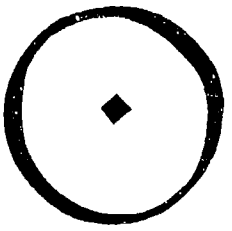
Preface



These proceedings are for the fifth annual regional meeting of the National Rural Studies Committee. It will be the final meeting of the Committee of this nature. These meetings have had the ambitious objective of addressing major, fundamental problems of rural America generally while at the same time investigating local rural problems. These investigations of local problems have included scholarly presentations, conversations with local people, and field trips.

The NRSC has become increasingly sophisticated in conducting these meetings and in what it has learned to expect from them. The Committee recognizes that enormous diversity exists in rural America even as it has seen additional facets of this diversity from place to place. The Committee knows that rural places and people cannot be understood in isolation from their history, from the Nation as a whole, or from the global economy. We are coming to understand how deep and persuasive is the myth that rural is synonymous with agriculture and farming. Certainly we know that only a small percentage of rural residents can be found on farms. We also know of the declining relative economic importance of agriculture region by region as well as nationally. We are only gradually coming to realize what the decline of farming has meant to rural communities, rural education, and small towns. We are increasingly impressed by the extent to which agriculture and farm-

ing dominate the thinking, the activities, and the mores of many of the institutions needed to serve the countryside. Anyone who would understand the rural America of the future must confront the question, "What do we want from the countryside?" When the answer to this question is compared with what the countryside has provided in the past, we will then have some notion of how contemporary rural problems should be addressed. Only then can we visualize how rural institutions should change and evolve.

There are temptations to be resisted in the study of the countryside. The term "rural" has both desirable and undesirable connotations, some of which may not be applicable to present or future conditions. Thus, our implicit values may influence our observations. Sentiment and nostalgia are understandable emotions, but not necessarily helpful in comprehending the countryside as it is today, much less in imagining a future upon which to base realistic expectations. Norman Rockwell painted wonderful pictures of the America of another era. It is more important to identify the values which influence our feelings toward his paintings than it is to reproduce or preserve the setting, wearing apparel, and other artifacts of a bygone period. We have many rural traditions. Some are based on social relations that have universal application; others have use mainly in the context of a rural America which no longer exists and which cannot be restored. Thus, the way we view the fascinating rural diversity of our Nation should reflect the discrimination and sophistication of informed humanists and social scientists as well as the common sense and judgment of rural people who are addressing their problems in realistic and inspiring ways.

The meeting at Las Vegas, New Mexico highlighted both the grandeur and the complexity of the Southwest. It made us aware of cultural and national diversity as we learned of Hispanic, Chicano, and Native American views. Those rural people who are the most proud of their origins and the most secure in their identity are often the least threatened by the need to adapt to economic and social change. Perceptive rural people know they must relate to global economies and metropolitan societies if they are to address their fundamental problems. Such people recognize the importance of good schools, responsive government and progressive economies. This meeting provided important insights into and specific information about the process of achieving these services. For example, we learned that these desirable social creations are not necessarily functions of size. Or, to state the matter more precisely, small and large enterprises not only can co-exist but they can also be mutually reinforcing.

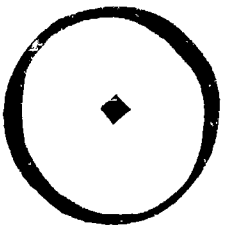
The NRSC now embarks on a new phase of its work. It must draw on what it has learned from these regional meetings and from its other undertakings to deliver on the fundamental reason for its being in existence, which is to influence those in higher education to focus their attention and their intellects on the pressing problems facing rural people and communities. It would be interesting indeed to continue these regional type meetings and perfect the techniques we have used to investigate particular rural issues while relating these findings to more general and pervasive matters. This would not be the best use of our talents and resources, however, given the commitment we have made to the W.K. Kellogg Foundation and to ourselves.

Emery N. Castle, Chair
National Rural Studies Committee

Contents

Dilemmas of a new age—A half-millennium of landscape change in New Mexico and the Southwest

Paul F. Starrs*



From the air even a glancing look at the arid West of the United States takes in a land where the gaps between settlements are large and city lights are few. The quality of space in the Southwest is different from the rest of the United States, and the inquiet relationship between urban and rural parts is a product of a changing region colliding with the special relationship that long-term westerners claim to maintain with "their" land. A long-ago established pattern of land use with few competing alternatives, of wilderness and frontier living and sparse settlement, is true today while daily becoming less definitive. That this changes year by year, census decade by census decade, as the southwesterly migration to the Sunbelt plays forward, is without a doubt true. There is also no denying that words like "frontier" and "wilderness" are salted with meaning that is in the eyes of the beholder, so the arid West has long been evaluated using terms others imposed.

For more than a century—and in northern New Mexico, for about 400 years—the arid West was set apart from the rest of North America. This is variously the "rugged" part of the continent, the "handsome" side of the United States, or the Wild West, where Bernard DeVoto wrote sternly, if simply, of the region as the "plundered province." Each epithet fits, and none is in-

*University of Nevada, Reno

appropriate. Still, the most important element of life in New Mexico and the Southwest is change itself. The alteration does not come especially rapidly, but the clock of change ticks on, inescapable, and not always wanted. Western landscapes are always "in progress," works in modification, and more so than other parts of the United States. Such is the story of change itself, whether in New Mexico or throughout the arid West.

Even defining the West can be a mite ticklish. Geographically, there are mostly only subtle keys that distinguish the Southwest and New Mexico from other parts of what is generally dubbed the "intermountain west." The dry one-third of the United States runs from the piedmont of the Rocky Mountains (and the foothill margins of the Great Plains), west to (at least) the Sierra Nevada-Cascade mountains of California, Oregon, and Washington. Significant parts of the Pacific Northwest are more closely allied to the arid West than the moist "Pacific Slope." Eastern Oregon, a dry cattle ranching and mining country, has to be included, and although a gorge rises in the throats of some westerners, California in almost all its significant components is pure "western." Physically, the arid West is distinctive, and culturally it is a land apart (Map).

So what constitutes the "West?" There is aridity itself, first of all, for through most of the realm only in the mountains does more than 20 inches of precipitation fall in an "average" year. The Federal government retains control (whether the proprietary rôle is "ownership" is a touchy question) of significant proportions of western land. Deeded private land is scarce, a scattering of green fields or suburbs from the air, by comparison with the public or "reserved" acreage. The military landscape is especially substantial and imperious. A far more than token part of the West is in parks, or wildlife refuges, while other sections are custodial reservations for Native Americans. Here is the frontier, its economies long based on the exploitation of natural resources, although that is increasingly less so (and herein lies a rub). The land is home to distinctive ecological modes, as Donald Worster has noted—take first the cowboy or sheepherder, and then consider the irrigator and water engineer: if you will, a pastoral west and a hydraulic west (Worster 1987). Different languages and ethnicities are especially a part of someplace like the Southwest—until a decade or two ago, Spanish took precedence over English in New Mexico—but Native American dialects, or tongues sustained by small enclaves of ethnic settlers, holding up against the pressures of homogenization, are also cherished. Part of the difference is purely emotional and sensual: the West is fast growing, and it gives a feel that the most oblivious traveler cannot help but notice: space no longer matters so much.

Water

> The word 'rival,' as a matter of fact, evolved from the Latin rivalis, meaning 'one living on the opposite bank of a stream from another.'
>
> *...And the Desert Shall Rejoice*
> Maass & Anderson

The common obsessions of old-time westerners are land and water. There is much land, although it is not always easily obtained or kept, but there is nowhere near sufficient water to satisfy desires. It goes almost without saying that there is certainly water sufficient for a West without interlopers—native plants and animals are well-adapted to precisely as much water as was available from normal hydrologic processes, and before Euro-Americans arrived, the Native Americans had a rough peace with the natural water supply. The problem in the West, especially now, is that people settle where the water is not, and engineer around natural limits.

Water has filled many a use in the West, furnishing transportation for the likes of John Wesley Powell; an idée fixe for John C. Frémont, searching for the mythical Rio Buenaventura; a desperate biological need for William Lewis Manley and the 49ers crossing Death Valley. For individuals, water enough could be found. But water for larger enterprises has not been so available. Mining requires access to water for removing, processing, and transporting ore. Irrigation is the massive consumer of western water, absorbing between eighty and ninety percent of all the developed water in the West. As it is increasingly practiced in the West, livestock ranching—the agronomic practice most perfectly suited to arid lands—is an enormous water user not because animals drink a great deal, but because irrigated pastures and feeds like alfalfa are grown on watered fields. Even tourism is a massive consumer. Attempts to control water, and thereby dominate all subsequent uses of land, are themes common to western literature, history, and even film.

Urban water

Then there is urban industry and cities themselves. Compared to the exotic activities of ranching or sluicing irrigation water across a dry field, defense industry manufacturing or computer assembly may seem tepid fare. They are nonetheless big-money activities in the Southwest especially as firms leave California for places like Albuquerque, El Paso, Phoenix, Tucson, Salt Lake City, St. George, Reno, and Boulder where more workers are available (especially sought are educated women). In Arizona, manufacturing produces five times the income of agriculture, and tourism employs ten times as many people as mining. Among the first concerns expressed by the site assessment team of any enterprise is "what's the water like?" Cities trying to attract firms are learning to have an answer at hand, for with industry and manufacturing come new work forces, new home-building, and fresh service sector jobs. In the West, that is the essence of economic health. The erosion of people from other parts of the United States to the arid West has gone from trickle to torrent in the last three decades, and shows few signs of backing down.

And cities stand at the pinnacle of western water. Cities and their people have the wherewithal and the political influence (read: votes) to capture water, by eminent domain or purchase, from rural water users. Today, there is no luxury quite comparable to a swimming pool or a golf course in the arid Southwest, as a flight into Phoenix or Tucson, where eighty percent of Arizona's population lives, instantly attests. Water is success. The State of Arizona is a testament to the triumph of hydraulic engineering: Colorado River water from the still-be-

San Francisco Chronicle, July 7, 1987

ing-completed Central Arizona Project, an undertaking once advanced as a boon to rural Arizonans, now flows to Phoenix and the Valley of the Sun itself. New Mexico has some of the oldest publicly-built dams in the United States—with several rendered useless by siltation of the Rio Grande. Without water (and the evaporative or "swamp" cooler that preceded today's air conditioner) Phoenix (and Tucson, Tempe, or Truth or Consequences) would have a population a fifth or a tenth its current population (Cunningham 1985). Water doesn't add to the quality of life in the arid West, water IS the quality of life.

Historically, water was needed for even the smallest town, with the sparest of water users. The original town plat for Santa Fe, Tucson, Albuquerque, or even Las Vegas, New Mexico, was gridded around ditch systems that brought a combination of potable and irrigation waters. Urban water users always retained first right to water, but only for sustenance needs. The links of city and agriculture slowly dissolved in the Southwest, as towns grew larger and began developing their own separate and competing water systems, in part for health reasons. But the pattern of developing water for urban use was set; Mormons embraced it as Indian pueblos had before, and so did cities throughout the arid West. While Los Angeles set the standard with its reaches east, northeast, and to the north for water, other cities in the West were not far behind, and Arizona and New Mexico, especially, have taken the laws and customs that large California cities exploited in their search for water and turned them to still more sophisticated use. And more and more, competition between cities and rural users for water is the rule, rather than the exception.

Water management

With water essential in the arid West, and settlers of the West appearing with a bewildering variety of backgrounds, it comes as little surprise that systems for managing water, moving it around, sharing it, and restricting its uses are diverse as well. Although the appropriation of water came first, laws were only moments behind, and western water legislation is so complex that when the editors of High Country News—the Paonia, Colorado-based newspaper that has commented on the western environmental scene for twenty years—published a book entitled *Western Water Made Simple*, more than a few jaded onlookers chuckled at an oxymoronic title, while simultaneously adding it to must-read lists.

Two bodies of theory dominate western water law—appropriative and riparian. Riparian law follows on English common law, and holds that owners of land along a stream share rights to that water with other neighbors, who will use the water on adjoining land, to the exclusion of more distant users. Appropriative water law is desert law, loosely taken from the Hispanic tradition, and advances from a view that it is better for one person to have enough water than for everyone to share in too little water equally. The right to use water goes, then, to the first person to put it to beneficial use, regardless of whether the individual uses the water on the land from which it is taken. Additional differences are numerous, and complicated. States adopted one code or another, or in the case of California, combined them—and created a body of law so complex that even water attorneys rarely know how a case under adjudication is likely to come out.

Among the ironies of western water is a tacit assumption in law that cultural differences really have no place in determining how water is allocated. The irony is powerful because the culture of water runs deep and has a physical expression everywhere in the West. Legal combat of Hispanic New Mexicans working to preserve access to traditional water rights is entrenched; the import of old Spanish and Mexican water laws are increasingly acknowledged, if not accepted. Books like John Nichols' *The Milagro Beanfield War*, Bill DeBuys and Alex Harris' *River of Traps*, or Stanley Crawford's lucid *Mayordomo*, testify to the cultural roots of Hispanic water use (Crawford 1988). The rights of groups within Navajo, Apache, Hopi, and various Pueblo Indian nations to develop water as they see fit are contested not just by industry, government, and other claimants, but increasingly, by environmental groups, who find themselves at odds with Native American groups they'd long assumed were "natural allies." Native Americans feel they deserve to develop their waters as they see fit—and some claim a primordial right to water that State Engineers and the Federal government are loathe to acknowledge.

Rural rights to water

The word "rights" is assuming an ever-more important place in the western lexicon, especially as rural areas acknowledge that what they had assumed was

theirs in perpetuity can be taken away with the whimsied sweep of a pen by urban legislators. Ranchers posit their usufructory right to graze public lands—a right they claim is based on, in some cases, a hundred or more years of use and tradition. In water the same argument is heard, although a new voice also echoes: there is the public trust doctrine, which stipulates, in its theory, that government is required to sustain natural resources (including clean air, streams, forests, and rangelands) in good condition, since they are held in trust for future publics. This is an urban argument, although offered supposedly to benefit the countryside. No single opinion is certifiably "correct" and all are argued.

Water is among the Southwest's most enduring and contentious topics. And it constantly evolves. The latest variant involves water marketing. The idea is simple: water already contracted for by rural farmers can be sold to cities, usually at an enormous markup, while the farmer leaves the fields untilled (or plants to less water-intensive varieties) and pockets the cash. The cities benefit by getting water unobtainable otherwise without an enormous investment in water purchasing and pipelines and purification. Farmers benefit with a secure income for doing nothing, a time-honored tradition of subsidy that redounds especially to large growers (above a certain scale, they are no longer "farmers"). And the environment benefits because unneeded crops are not grown, nor extra pesticides applied, nor lands cultivated unduly. But the essential challenges to water marketing are also quite reasonable, and symbolic of the West's current state of mind: why should a few growers, already benefiting from access to subsidized water, be allowed to take profits in the millions for doing nothing? And perhaps even more to the point, if the argument is that cities "need" the water and farmers can be pressured into giving it up, how is this remaking the West? How large should cities be allowed to grow—and if water no longer limits urban expansion, what will?

Rural residents of late display an attitude very much of trepidation in their dealings with the cities and urban people of the arid West. The struggle over water—the West's lifeblood—is suggestive. Rural folks have every reason to be afraid; their view of water, land, agriculture, and the whole of the rural western natural resources economy, is something that contemporary migrants to the arid West, who hail from many parts of the country and the world, don't understand. A changed vision of the West supplants the old. It is not like change in the northeast or Midwest, the southeast or the Pacific Northwest. This is change driven by a constant infusion of new blood, of outsiders who bring in new concerns, different ideas of what is "appropriate," who consider it entirely reasonable to make a green city paradise of a desert land. The scantily veiled utopian impulse is to remake the earth in a style to which people would like to become accustomed. No tradition, past, or physical limitation seems sufficient to slow the pace. Cash and water is the means to an end.

Federal landlords and livestock ranching

> If, indeed, the cow outfit serves any metaphysical purpose, it is an enormous stage for the presentation of an unending morality play in which a creature of unrestricted autonomy sits on the back of a creature of feverish volatility and together they struggle to subjugate a creature whose chief characteristic is perverse intractability. So uncanny is the intuition of the cow that it can almost always sense what the rider wants it to do, and do the opposite. The cow's flaw is that it is so addicted to this course of action that a shrewd hand can turn the animal's perversity against itself.
>
> *The Fiddleback*
> Owen Ulph

After water, the second western obsession is land, and much of it belongs to one government body or another. Many a Southwestern activity is rooted in exploitation by individuals of public properties. The statistics are simple, if only in terms of Federal lands. Nevada is 87 percent federally controlled; Utah 64 percent; Idaho 63 percent; Oregon 52 percent; Wyoming 48 percent; California 45 percent; Arizona 43 percent; Colorado 36 percent; New Mexico 33 percent; Montana 30 percent. That means that many of the lands not actively in crops or cities are controlled by the Federal government. Anyone who wants to make use of these lands is required, by law, to obtain agreement from the appropriate government entity.

Since the older western economies were based on natural resource exploitation, an ongoing negotiation was required between resource users and government, and often, a co-option of government to whole-hearted support for resource exploitation. Sometimes rather too much was given away, or the reins left too free. By 1900, and certainly by the 1930s, federal and state governments asserted a right to control the use of public lands, and the battle was drawn. It continues, pitting government resource managers against environmentalists and resource users. In the last decade the debate has grown notably louder. The supposed dominant doctrine, since the mid-1970s, advocates "multiple use," with no single group entitled to exclusive use of public resources. What most marks the contest is a refusal to find a middle ground. Livestock ranchers, miners, loggers, and the companies they represent fear that to budge an inch is to lose a mile, and the most extreme environmentalist position is Earth First!'s "No compromise in the defense of mother Earth." A militant unwillingness to compromise by all hands seems a singularly self-destructive attitude to outsiders, but it has slackened little.

Before the 1848 Treaty of Guadalupe Hidalgo, which ceded the Southwest and California from Mexico to the United States, a different problem faced the Spanish and Mexican governments. They wanted to establish a Hispanic presence in the borderlands. Large tracts of land were turned over to individual settlers who had performed service to the government, and other grants went to communities. Grazing was the largest use, although some intensive irrigated agriculture was normal, usually near the cities and pueblos. Grazing fit. It was extensive, taking place over very large areas of land, and based on a limited market for hides and tallow. Individuals might pool their land with other landowners to graze livestock in common, and the community grazing lands were maintained as a commons, carefully managed. They created a distinctive landscape of small irrigated agriculture, extensive grazing, of presidios and churches, establishing the elastic outer boundaries of the Hispanic Empire.

When livestock ranching was adopted by English-speaking settlers moving West, they borrowed a number of the Hispanic grazing techniques and moved onto public lands, using them freely, as a form of commons. Some of the lands were titled up, but since the United States Congress took a dim (and visibly racist) attitude toward Hispanic land holding practices, it was impossible for land claimants to obtain anywhere near the acreage they needed to graze their animals on private lands. They continued using public lands and, eventually, began paying the federal government a token fee for a non-exclusive use of the land.

The cowboy complex and riposte

The economy of livestock grazing, especially of cattle, was distinctive and has achieved a certain worldwide cachet in the cowboy, or pastoral, economy. About 17 percent of the cattle in the United States spend some part of their life on public lands, almost all of which lie in the West (only three percent of the feed for American livestock comes from public lands, but public lands are the great breeding grounds for cattle, and those early months are critical). Like the western manipulation of water, this use of public lands is increasingly seen as suspect. The historic damage wrought by livestock (and their owners) on public lands is considerable, and slow to heal. A vocal contingent of environmental activists is protesting that this use of public lands is destructive, unwarranted, and that, since livestock ranchers have no titular right to graze, their animals should be removed from public lands: "Cattle Free By '93," and "Out the Door by '94," are familiar slogans (HCN 1992). Moves to boost the fee that ranchers pay to graze is an additional ploy against the livestock and public lands economy.

The anti-grazing movement, driven by literary figures like Edward Abbey and Page Stegner working in concert with urban westerners, produces a body of commentary that, if nothing else, earns points for clever titling: books like *Sacred Cows at the Public Trough*, *The Waste of the West: Public Lands Ranching*, Jeremy Rifkin's *Beyond Beef: The Rise and Fall of Cattle Culture*; or articles like Abbey's "Even the Bad Guys Wear White Hats," Philip Fradkin's "The Eating of the West," or Dyan Zaslowsky's "A Public Beef," get the message across. Sentiment against grazing is driven by a vivid distaste for livestock, an admiration for unsullied wildlife, and a strong sense of self-righteousness which holds that livestock ranchers are getting away with something on public lands. The Wildlife Society, Sierra Club, Earth First!, Earth Island Institute, Audubon Society, and the Natural Resources Defense Council form a goal-oriented collaboration against ranching that is having localized success. Nor is a panicked and at times vitriolic response from livestock grazing associations helping its cause in the least.

And there is some sense to all this. In so wealthy a country as the United States, perhaps there is no intrinsic reason or need for some 35,000 livestock ranchers with grazing permits (and family—boost the total to 100,000 participants, all-told) to use public lands. That they have contributed a distinctive culture, an important (essential) boost to rural western economies, that many are better than fair stewards of the land, and that some have been doing so for decades, does not really matter. In the rewriting of the western credo, ranching may not amount to a hill of beans, compared to the dramatic number of residents appearing in the cities of Colorado, Utah, Arizona, New Mexico, Texas, Nevada, and, of course, California. Precisely that point is made repeatedly by revisionist western historians bent on recasting the legends of the frontier west into something more realistic: the modern West is of cities and urban concerns.

Preserving what for whom?

But perhaps there is something in livestock ranching deserving of preservation, after all. The contest between ranchers and environmentalists, between resource users (miners or loggers or irrigators could as easily be substituted) and government moves forward. The conflict is to a surprising extent another urban/rural contest, with city-based activists with small sympathy for rural economies and ways of life taking exception to the exploitation of public (read "our") land. Livestock ranchers also have a point. The first occupants of many western lands after the displacement of Native Americans were generally ranchers or migratory graziers, who have adapted to an alien land more truly and effectively than many farmers or miners. Ranchers show all the signs of embracing a true land ethic (Jorgensen 1984, Jackson 1960).

Even within the body of government resource managers, the picture is changing. A hundred years ago, in the era of Will C. Barnes, Albert Potter, Gifford Pinchot, H.R. Hochmuth, and Charles Hendricks, the charge of Forest Service employees was to safeguard local communities while sustaining the health of rangelands. Resource managers lived in the rural communities, with a respected place there, and this neatly sidestepped the remote view that was to come of progressive resource managers as scientifically dispassionate outsiders, supposed to make decisions with aplomb (read Ivan Doig's *English Creek*, for a literary view). The relationship of managers to resource users has grown so contentious and fraught that some resource professionals, working for the Bureau of Land Management or the United States Forest Service, are threatened with bodily harm.

Perhaps nowhere is the relationship between land management professionals and land users so decayed as in northern New Mexico. The Carson and Santa Fe National Forests are officially part of Forest Service Region 3, but within the Service, northern New Mexico is known as Region 3A, because almost all the Forest Service's inviolate rules are bent to breaking in the Rio Arriba country of the Rio Grande. For ninety years, conflict has been rife between Hispanics who assert ownership, or at least use rights, for forest land and the U.S. Forest Service, which was given control when title was denied to the Hispanic claimants. Bombs placed in Forest Service local offices, bullets shot through windows, employees hauled from pickups and beaten, fences cut, and a constant flurry of harsh words are part of an ongoing pattern of distrust (deBuys 1985).

Urban refugees and new coalitions

New immigrants arrive in a steady stream, part of the pattern of western reverse migrants abandoning "city"

life and its travails to move to exurban areas perceived as more healthy, safer (usually for children), offering a quality of life not available in even the medium-sized western cities. This confidence in the bucolic advantages of western rural environments is touching to observers, if somewhat misguided. Yet precisely this movement of people (of late especially with money) to Los Alamos, Taos, Santa Fe, and vicinity has spawned a new generation of freshly-rural residents, while fomenting a sense of dismay in many of the longer-time inhabitants. They warily watch the usual suite of problems including escalating land values and property taxes, impossible strains on rural schools, hospitals, and roads, and a rapid dilution of rural solidarity into a culturally-mixed hodgepodge. The same story applies to the Red Rock Canyon country or Prescott, near Phoenix, or to the Carson Valley near Reno, or to the Sierra Nevada foothills in California, or to once-small towns in the mid-ranges of the Rocky Mountains near Denver that brim with new settlers.

Urban people moving to rural areas are numerous, generally rather wealthier than the natives, and bring with them a body of skills and a sense of empowerment

...one of the uses most often proposed for public lands is no use at all...

that are alien to many of the rural residents of longer standing. These are not newly arrived bumpkins or rubes—they are educated people who have access to sophisticated techniques of organizing, politicking, and lobbying. Industry, government, and other special interest organizations that propose projects or changes in areas where these "reverse migrants" form a measurable part of the population are learning to beware, at some cost. Urban refugees show a marked distaste for change. Once settled in their chosen environment, they'd prefer to slam closed the barn door; something that is profoundly frustrating to other residents who have a more sanguine attitude toward innovation and rural development. "Exurbanites" leaving cities for a better life in the rural West are both a conspicuous boon and an enduring threat to rural tradition. Whether telecommuters or modern rustics, they are city people living in rural areas and not "rural Westerners." Their land ethic is different or absent, they are tied to (and often living on) money from "outside," and will not and can't adopt "rural values..." it is for other reasons that they are there.

The old-time community of rural settlers whose lives and economies are based on natural resource use find their world in a swirl of change. The economics of resource use are less profitable as the costs of exploiting those resources build. Many of the new expenses are simply a factoring-in of environmental costs that used to go uncalculated. But other costs are added as ranchers and miners and loggers and even growers find that there is competition for resources where a decade or two ago there was none. Especially troubling to these communities is that one of the uses most often proposed for public lands is no use at all—the removal or cessation of all the activities that made the communities in the first place, under pressure from environmental advocates or government managers who are taking a new look at the larger effects of resource exploitation. The human costs of this pollarding of rural culture are neatly compartmentalized, but no less severe.

The arid West as colony

> [The westerner] is the first American who has worked out a communal adaptation to his country, abandoning the hope that any crossroads might become Chicago. The long pull may show—history has its precedents—that the dispossessed have the laugh on their conquerors.
>
> *The West: A Plundered Province*

When Bernard DeVoto wrote of the western United States as a "plundered province" he addressed the peculiar relationship of west to east, of colony to colonizer, of resource supplier to the resource's extractor. The arid West, DeVoto argued, was both mendicant and tributary—aside from providing coal and oil and beef and lamb and scenery and recreational (think about the word) opportunities, the region was also the taker of hundreds of pork barrel projects. DeVoto's analysis, published in 1934, is still partly true, but the arid West more and more leads the country, instead of following behind.

Western resources like water and rangelands are part of the basic fabric, the makeup, of the arid West. Water is oversubscribed and rangelands are either in a few private hands or are a vast public property whose use as grazing land is under challenge. Many of the West's other elemental resources have been much developed in the last hundred years—timber, energy, and mineral resources come to mind. Their utilization was often financed by business interests from the coasts (California or East), or by foreign enterprises, furthering the West's sense of itself as a victimized colony without sufficient self-control.

This lack of control has long troubled rural westerners. With the Federal government, based in regional offices or even more remote in Washington, D.C., the custodian of 300 million acres of western land, the impression of outsiders dominating impotent communities has only grown. The strongest western movement of the last two decades is a renewed insistence from communities that they be granted additional voice in their destiny, returning them some of the independence that was once so much a part of the western mystique.

The Sagebrush Rebellion, centered in Nevada but extending though much of the Southwest, was a 1970s and 1980s expression of disfavor with the colonial policies of the federal government, and simultaneously, an attempt to wrest control of land from centralized authority. The question of empowerment, of the right to control a region's destiny, is much in the news. The topic is complicated because in considerable part it is also born of the familiar rural suspicion of urban interests. Rural westerners view the principle of "one person one vote" as a reality with viperous threat to their long-term survival. Cities have the weight of numbers.

The frontier and the city

Much of the arid West remains a frontier. If the old (and conservative) Census Bureau definition of the frontier as a region with fewer than two people per square mile holds true, then 150 counties—all within the West—are still frontier (Edmondson & Fost 1991, Popper 1984). The area involved is one-quarter of the United States, and it is home to less than one-quarter of one percent of the United States population. Chunks of Nevada, Utah, New Mexico, Montana, Idaho, and Wyoming qualify. But the vast majority of the population in the arid West is urban, following census definitions. In California and Arizona, the proportion is over 90 percent. For Nevada, Colorado, Texas, and Utah, more than 80 percent is urban. More than seventy percent of the residents of New Mexico, Oregon, and Washington are urban.

The split between the urban and rural west is, then, only likely to become more pronounced. The cities draw. Rural areas attract, as well, but not nearly so fast and in much smaller numbers than the urban areas. Movement within the West is considerable. But there is also migration from outside. The preternatually quick population growth of Nevada and Arizona over the last 20 years (in percent), or the unequaled growth of California (in raw numbers), are sign and substance of a changing relationship between the rest of the United States and the arid lands of the West.

The arid West is not just a colony any more. Much as Los Angeles was an enormous magnet to migrants through most of this century, the greater West is now drawing new residents. Jobs are not all of the attraction. An important part of this movement is the search for a better way to live—"lifestyle migrants" are crucial. The parklands (national and state), the public lands (Forest Service and BLM), the wildlife refuges, the greenbelts and conservation easements increasingly being accumulated by private conservation groups, promise potential westerners that the land they're moving to will not too soon be spoiled.

Open space may be the key. It offers opportunity, deferred choices, a bank of potential, that is very different from the "geography of hope" that Wallace Stegner wrote about thirty years ago (Stegner 1980). He was writing of wilderness—not of open space for its own sake. The question that seems most pertinent to me is whether all the groups that make up the residents of the arid West will ever agree about the West's open spaces. Much of that land is in a few private hands or public, so choices about what will happen to it are not necessarily up to the public.

Cultural Diversities

The Southwest echoes the arid West's great mix of people and cultures. Northern New Mexico offers an enclave of Castilian-Spanish-speaking residents who place their cultural roots in southern and western Spain. Tucson and Phoenix are as much Latin American as of the United States, in terms of population, and the same can be said for New Mexico. The Pueblos of upper Rio Grande New Mexico are urban settlements of Native Americans that have been dense with people for a thousand years, and the Southwest as a whole boasts a Native American population that is larger than in any other region of the United States. Within the Euro-American residents are Italians, Basques, Mormons, and dozens of other settler-groups. The age blocks of the population come in bewildering variety—the numerous children of the Hispanic Southwest; the scads of Mormon young; the retired sunbirds from along the Colorado River; the established middle-age working communities from across the region. The demography shows immense local variation, and learning to read it is to apprehend the diversity of the Southwest itself (Wilkinson 1992).

Yet there are only halting efforts, across the arid West and Southwest, to understand what these different groups—urban, rural, Indian, Hispanic, Asian, African-American, Anglo, young and old, wealthy and poor—have in common or might want to see done differently. The Federal government is among the worst culprits; resource use, recreation, and management programs have for a hundred years been sculpted following the doctrines of "progressive resource management," which is a by-word for control by and for a small elite of educated, white, and Washington, D.C.-based career professionals, who typically manage for what is "best for the resource." Demands are beginning to build for a break in the monopoly—that is part of the insistence and self-righteousness of the rural protests against government management programs.

Another part of the problem is the vast assortment of factions, each of which has its own vision of what might be an appropriate future for the arid West and its public, private, and industry lands. The duel for influence is developing real teeth, and in an always-ominous sign, lawyers are involved. That, precisely, is one of the reasons why resource management decisions have so often been left up to government agencies and their interpretations of statute. Resource use attitudes are changing. Some of these changes will please resource exploiters; others will offer more solace to forces favoring preservation over use.

Diversity in landscape is the final major question that remains for the arid West. There is a brilliant variety of creations that are distinctly western. While some are borrowed from other parts of the United States, there is no question that in the West many are homegrown. Geographers, landscape architects, sociologists, and environmental historians may puzzle over some of these, but their significance is inescapable. The lasting debt is to J.B. Jackson who more than anyone else has assessed the Southwest and the geographical significance of its landscapes. He has given us pause to think about the mobile homes that were initially an artifact of the rural west, but are now ubiquitous. The open, lazy western grid, with space so little prized, gets equal notice. The landscapes of mining, of land division, of Hispanic and Pueblo adobe, are the stuff of Jackson's commentary. The water-supplying acequias, the ranch roads, and the distinctive forms of ranch buildings that are quintessentially "western" all have earned evaluation. This is the fabric of the West, the material landscape that is the perfect and unbiased expression of the people who live there.

Jackson is most useful because he offers additional lessons for considering the difficult question of a rural western environment in the throes of conversion into a pawn of the cities. Perhaps, he notes, letting go is enough...while learning to appreciate the new settlements and settlers of the arid West (Jackson 1985).

> The story of the dying of small rural communities in every part of the world has become familiar to us all over the last century and a half. It is most impressive, most regrettable when it tells of the decay of a well-known and well-loved landscape, like that of New England or New Mexico, but the moral of the story is in almost every case the same: existence for people in the country became more and more difficult, more and more joyless and without reward. Low pay, monotonous work, a sense of being isolated and forgotten, a sense of diminishing hope for the future afflicted one village, one farmstead after another. For more than a century, here in America, we have seen it happening, so perhaps it is not too early for us to look elsewhere in the countryside to become aware of new communities, the new installations that are evolving in that rural landscape. ...We can see the emergence, all over the state, of a new kind of community—new in that it represents a different kind of relationship with the environment, a deliberate confrontation with elements in the landscape that earlier generations sought to avoid.

The geography of the arid West, and of New Mexico and the Southwest especially, is an epic coat of many colors, complex and at times fraught with violent disagreement. It is changing fast, and in ways so novel as to be almost unpredictable. What can be foretold are the severe penalties that rural parts of the West will pay, as communities that once were rural enclaves are "discovered," exciting new cities are born, built in a haze of freon-coolant, mulberry and cottonwood pollen, humidity rising from golf courses, traffic, wall murals, and a flurry of languages. Not all will become a Taos an Aspen or a Sedona...pinnacles for a "new age consciousness." The communities will be challenged and some will fold or be unrecognizable in a matter of years. And the economies that once supported them—ranching, mining, small-holder farming, timber—are going to be tested to the point of disappearance, unless they can reach some accommodation with the newcomers who do not understand, or particularly want to be taught, about what these older western societies need to exist. They may perish. Others will take their place. But it will not be the same, and perhaps it shouldn't be.

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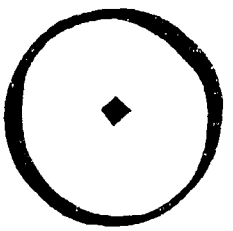
American Indians today

C. Matthew Snipp*



A century ago, American Indians were deemed a "vanishing race" and it was widely believed that American Indians would soon follow the passenger pigeon and the buffalo into extinction. This belief was not unjustified. By the end of the 19th century, American Indians were a shattered, dispirited people. Disease, warfare, famine, and outright genocide had reduced their numbers within a few generations from millions to less than a quarter million in 1890[1]. Once a self-governing, self-sufficient people, American Indians across the nation had been forced to give up their homes, their land, and subordinate themselves to federal authorities. Under BIA[2] supervision, the forced resettlement to reservation lands or the Indian territory meant a demoralizing life of destitution, hunger, and often complete dependency on the federal government for material needs.

Reform-minded citizens of the time urged measures that would assimilate Indians into mainstream society. In response, the federal government embarked on a campaign designed to "humanely" hasten the extinction of

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[1] The American Indian population probably numbered around 5-7 million in 1500 (Thornton 1987, Snipp 1989). This number is possibly too conservative compared with higher estimates reaching 18 million (Dobyns 1983)

[2] Bureau of Indian Affairs (BIA).

Figure 1

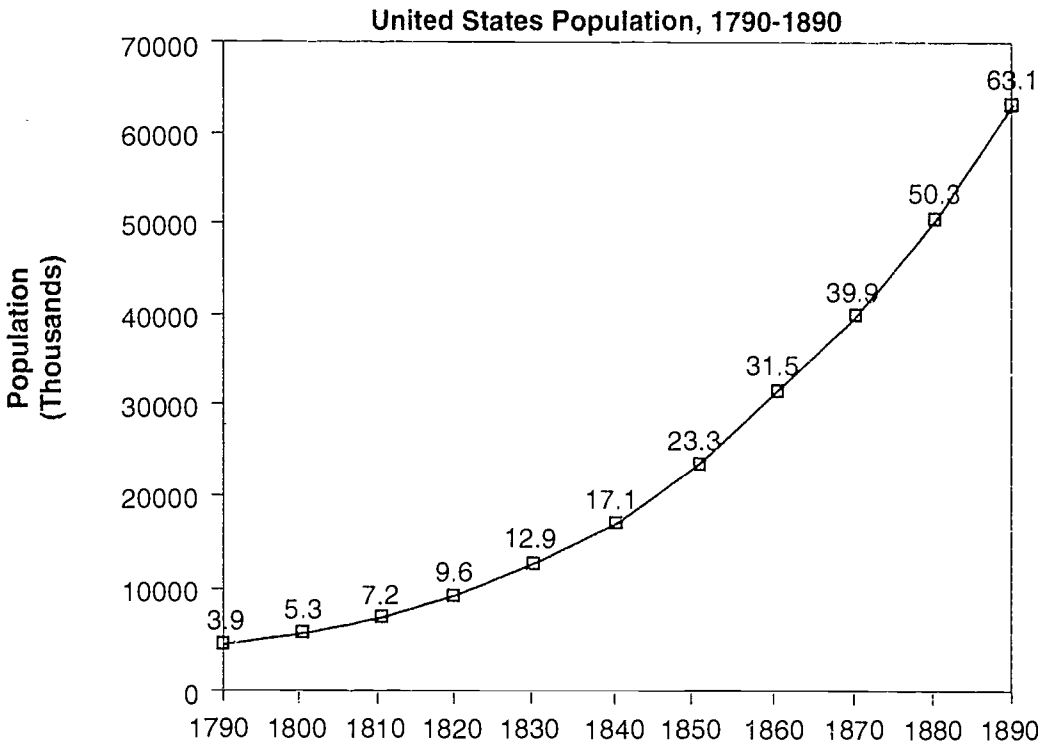
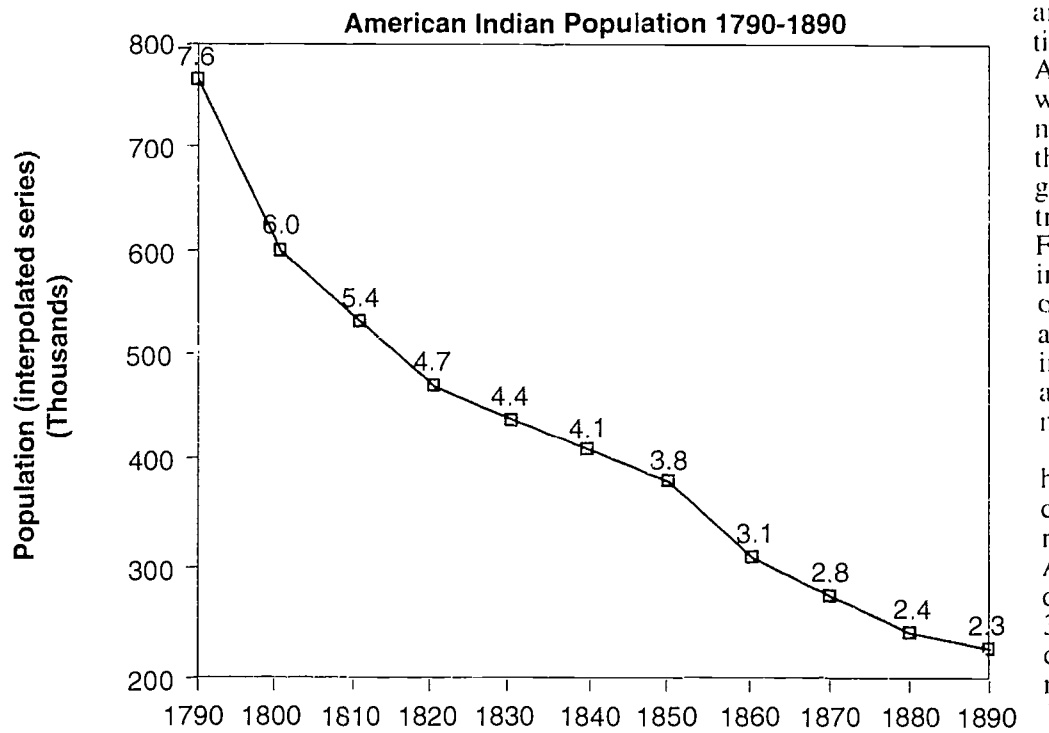


Figure 2



American Indians by exterminating all vestiges of tribal culture and traditions (Hoxie 1984). This objective guided federal Indian policy for well over a half-century. Despite the paternalistic and often brutally repressive measures aimed at Indians for most of this century, they have not "vanished."

Today, American Indians are more numerous than they have been for several centuries. They are still one of the most destitute groups in American society but tribes have more autonomy and are now more self-sufficient than at any time since the last century. In many rural areas, American Indians, and especially tribal governments, have become increasingly more important and increasingly more visible by virtue of their growing political and economic power. In the ethnic mosaic of this nation, there is perhaps no other group that has a greater presence in rural America than American Indians.

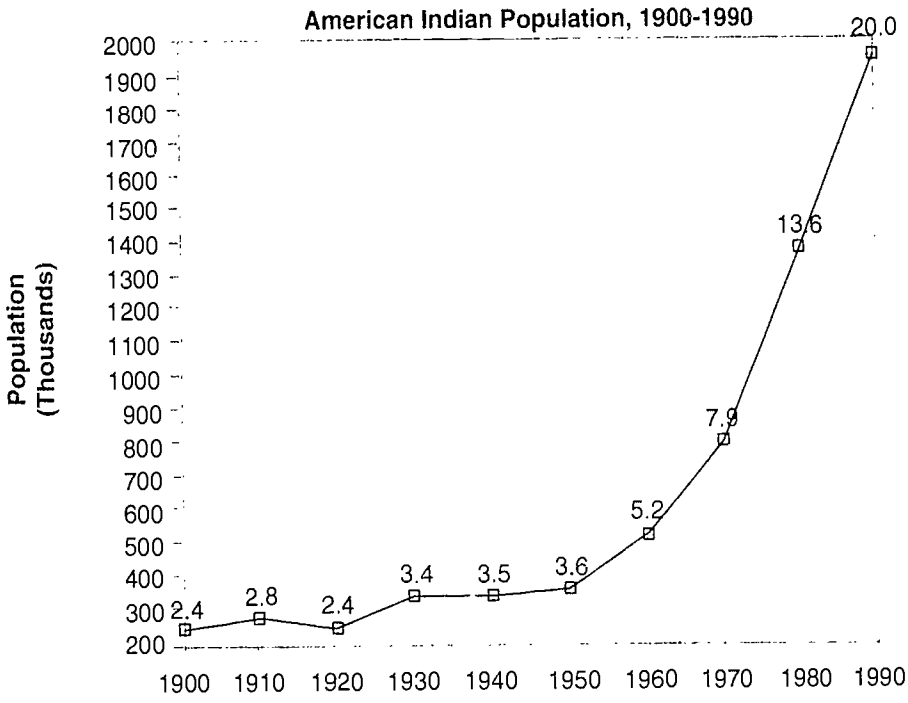
The American Indian Population

Population size

After the arrival of Europeans, the American Indian population collapsed precipitously and declined continuously until the late nineteenth century. As disastrous as this decline was in its own right, it was made even more calamitous by the massive numbers of immigrants arriving to settle on tribal lands (see Figure 1 and Figure 2). As one group gained in numerical strength while the other faltered, the conflicts and final outcome accompanying these demographic trends are well-known and hardly need recounting.

These trends are important, however, for establishing a context in which to view the remarkable comeback of the American Indian population during this century. As Figure 3 illustrates, the American Indian population has grown nearly continuously since 1900. Except for an influenza epidemic in 1918 that caused serious population losses, the American Indian population grew moderately though steadily through the first half of this century. In fact, the low rate of growth is somewhat unexpected because American Indian death rates were declining rapidly, and birth rates were increasing rapidly; a higher rate of growth might have been expected from these trends

Figure 3



(Snipp 1989, Thornton et al. 1992). However, American Indians have been heavily inter-married with the nonIndian population (mainly whites, see Sandefur and McKinnell 1986, Snipp 1989) and it is possible that the children of racially exogamous marriages acquired the ethnic identity of the nonIndian parent, especially for Indian mothers married to nonIndian fathers. In the first half of this century, a white identity was considerably more desirable than that of American Indian.

In years after World War II, the American Indian population has grown at a spectacular rate. The rate of increase has far exceeded what is physically possible given the number of births in relation to deaths. There are two reasons for this growth.

One important reason is that in 1960 the Census Bureau changed its procedures and began using racial self-identification. Prior to 1960, Census enumerators determined the race of respondents. Needless to say, many persons who did not have the stereotypical American Indian phenotype were not identified as American Indians in the census, and substantial undercounts were especially problematic in urban areas where Indians could be confused with a variety of other ethnic populations.

Another factor contributing to growth in the Indian population has been shifting ethnic boundaries and especially persons switching their identity to American Indian from some other racial identification (Passell 1976, Passell and Berman 1986, Snipp 1989). Little is known with certainty about persons who have changed their racial identity to American Indian. However, the political mobilization of American Indians in the 1960s and 1970s along with so-called "ethnic pride" movements may have lifted some of the stigma attached to an American Indian racial identity. This would be especially true for persons of mixed ancestry who may have formerly declined to disclose or acknowledge their American Indian background.

Distribution

Besides their numbers, the distribution of the American Indian population is another important demographic matter. As Figure 4 illustrates, American Indians are heavily concentrated in the West; this includes states in the Southwest such as Arizona and New Mexico, the Northern Plains such as Montana and Wyoming, and the west coast of Washington, Oregon and California. The concentration of American Indians in these states is not coincidental. For most of the nineteenth century, American Indians in the east were forcibly moved West and those already in the West were re-settled to even more remote locations. Oklahoma, which is the former Indian territory, has the nation's largest Indian population. Oklahoma is part of the South and this accounts for this region's large Indian population. Otherwise, the American Indian population in the rest of the South is relatively sparse. Finally, in the Midwest, American Indians are primarily concentrated in states such as Wisconsin, Minnesota, North and South Dakota, and to a lesser extent in Michigan, Nebraska, and Iowa.

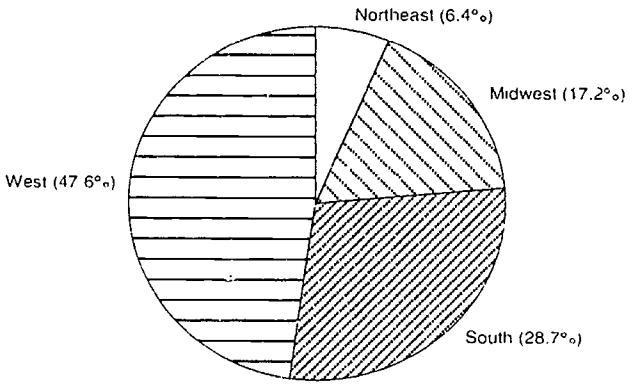
In 1980, about half of the American Indian population lived in "Indian Country:" reservations, trust lands, Alaska Native villages, and lands near reservations. The data from the 1990 census are not yet available. However, reservation population estimates have been released and these are shown in Table 1 for the largest reservations. As these numbers indicate, population growth on some reservations such as Navajo, Fort Apache, Osage, and Blackfeet have been substantial. The increase on these reservations exceeds what is possible from natural increase and clearly indicates population growth from in-migration. Interestingly, the Pine Ridge in South Dakota is the only reservation with a recorded population loss—this reservation is also one of the poorest places in the nation. These numbers also suggest that there are perhaps proportionally fewer American Indians in "Indian Country," but the decline is very small and possibly inconsequential. In 1980, about 14 percent of the American Indian population resided on one of these large reservations. Ten years later, this percentage had declined only slightly over one percent to 13 percent in 1990.

Population characteristics

The American Indian population is composed of over 300 tribes and is extremely diverse but social and economic disadvantages are a common denominator. At this time, up-to-date information about the American Indian population is extremely limited because the decennial

Figure 4

American Indian Residences, 1990



census is the only comprehensive source of data. These data are not expected to become available until late 1992. Nonetheless, there is little reason to believe that conditions among American Indians have changed dramatically since 1980 so it is useful to review data for 1980 by way of showing the likely socioeconomic circumstances of American Indians in 1990.

Education is a crucial measure of human capital for economic development as well as a predictor of personal success in the labor market. As the numbers in Table 2 clearly show, education is a resource sorely lacking among American Indians. These percentages show the educational experience of American Indians in relation to blacks and whites and there is no question that Indians lag far behind whites by any measure. American Indian youth drop out of high school at alarmingly high rates. About 26 percent of American Indians ages 16 to 19 are not in school and have not completed the 12th grade, compared with 16 percent of blacks and 12 percent of whites. Surprisingly, American Indians are more likely to have graduated from high school than blacks. Either American Indians eventually complete their schooling with a GED or diploma, or this foreshadows a significant reduction in high school completion rates for American Indians.

Table 2 also shows that American Indians seldom complete four years or more of college. High drop-out rates and disrupted school experiences undoubtedly are major contributors to this problem. Another possible reason is that American Indians are concentrated in two-year, post-secondary vocational education programs. However, this does not appear to be especially problematic. As Table 3 shows, in 1984 for example, about 55 percent of American Indians in post-secondary education were enrolled in two-year programs, while 45 percent were attending four-year institutions.

Nonetheless, the lack of schooling and collective disadvantages confronting American Indians translate into considerable economic hardship. The unemployment rate for American Indians in early 1980 was 13 percent compared with 12 and 6 percent for blacks and whites respectively (see Table 4). Although American Indians have slightly higher unemployment than blacks, they have slightly higher family income and lower levels of poverty. These differences are slight but one possible explanation for them is that more black families than Indian families are headed by single women. Or alternatively, more Indian families than black families have the advantage of having a male (and hence better paid) worker in the home (Snipp 1989).

Public policy and American Indians

The current economic circumstances of American Indians in many ways reflect a long history of federal efforts to subordinate an otherwise self-governing, self-sufficient people. This eventually culminated in widespread welfare dependency that took root in the late 19th century. These efforts are reflected in five major eras of federal-Indian relations: removal, allotment, the Indian New Deal, termination and relocation, and self-determination.

Removal

In the early nineteenth century, the population of the United States expanded rapidly at the same time that the federal government increased its political and military capabilities. After the War

Table 1. Population sizes of the fifteen largest American Indian Reservations

Reservation	1980	1990	Change
Navajo (AZ,NM,UT)	104,968	143,405	36.6
Pine Ridge (SD)	11,882	11,166	-6.0
Fort Apache (AZ)	6,880	9,825	42.8
Gila River (AZ)	7,067	9,116	29.0
Papago (AZ)	6,959	8,480	21.9
Rosebud (SD)	5,688	8,043	4.4
San Carlos (AZ)	5,872	7,110	21.8
Zuni Pueblo (NM)	5,988	7,073	18.1
Hopi (AZ)	6,601	7,061	7.0
Blackfeet (MT)	5,080	7,025	38.3
Yakima (WA)	4,983	6,307	26.6
Osage (OK)	4,479	6,161	37.6
Fort Peck (MT)	4,273	5,782	35.3
Eastern Cherokee (NC)	4,844	5,388	11.2
Standing Rock (ND,SD)	4,800	4,870	1.5
Total of 15 reservations	190,364	246,812	29.7
Percentage of U.S. Indian population	13.9	12.6	

Source: U.S. Bureau of the Census, Mimeo

Table 2. Educational Characteristics of American Indians and Alaska Natives, Blacks and Whites

	American Indians and Alaska Natives	Blacks	Whites
High school drop outsa	26.0%	15.5	12.1
High school graduatesb	55.5%	51.2	68.8
College graduatesb	7.7%	8.4	17.1

Source: U.S. Bureau of the Census

[a] Persons age 16 to 19 not enrolled in school without 12 years of schooling

[b] Adults age 25 and over

Table 3. American Indian enrollment 1976-1984 in public and private two-year and four-year institutions.

	1976	1978	1980	1982	1984
Public					
Four year	37.2	34.9	34.6	35.9	35.8
Two year	51.5	53.0	53.8	53.7	50.9
Private					
Four year	8.9	10.0	9.4	8.3	9.6
Two year	2.4	2.1	2.2	2.1	3.8
Total	100.0	100.0	100.0	100.0	100.0

Source: Center for Education Statistics (1987), Table 2

Table 4. Unemployment, income, and poverty among American Indians and Alaska Natives, Blacks, and Whites, 1980.

	American Indians and Alaska Natives	Blacks	Whites
Unemployment rate	13.2%	11.8%	5.8%
Percent of persons in poverty	27.5%	29.9%	9.4%
Median family income[a]	$13,724	$12,598	$20,835

Source: U.S. Bureau of the Census

[a] 1979 dollars

of 1812, the federal government increasingly pressured tribes settled east of the Appalachian mountains to move west to the territory acquired in the Louisiana purchase. Initially, the federal government used bargaining and negotiation to accomplish removal, but many tribes resisted (Prucha 1984).

The election of Andrew Jackson by a frontier constituency signaled the beginning of more forceful measures to accomplish removal. In 1830, Congress passed the Indian Removal Act which mandated the eventual removal of the eastern tribes to points west of the Mississippi River, in an area which was to become the Indian Territory and is now the state of Oklahoma. This began a long process ridden with conflict and bloodshed. Dozens of tribes were forcibly removed from the eastern half of the United States to the Indian Territory and newly created reservations in the West. As the nation expanded beyond the Mississippi river, tribes in the Plains, Southwest and West Coast were forcibly settled and quarantined on isolated reservations. This was accompanied by the so-called Indian Wars—a bloody chapter in the history of white-Indian relations (Prucha 1984, Utley 1984).

Allotment

Near the end of the nineteenth century, efforts to isolate American Indians on reservations and the Indian territory finally achieved their goal, marking the end of these lethal policies. The Indian population also was near extinction. Their numbers had declined steadily throughout the nineteenth century, leading most observers to predict their disappearance early in the next century (Hoxie 1984). Reformers urged the federal government to adopt measures that would humanely ease American Indians into extinction. The federal government responded by creating boarding schools and the allotment acts—both were intended to "civilize" American Indians.

American Indian boarding schools were established for the purpose of resocializing Indian children and ultimately, to eradicate all vestiges of tribal culture. Indian children were forbidden their native attire and native foods, and were not allowed to speak their native language or practice traditional religion. Instead, they were issued EuroAmerican clothes, and expected to speak English and become Christians. The curriculum of these schools taught vocational arts along with "civilization" courses. The psychological toll of these dehumanizing programs is difficult to calculate. However, the impact of allotment policies has been clear and is still evident today.

In 1887, the General Allotment Act was signed into law. The 1887 Allotment Act and subsequent legislation was so named because it mandated that tribal lands were to be allotted to individual American Indians in fee simple title. Surplus lands left over from allotment were to be sold on the open market. Allotted Indians also received citizenship, farm implements, and encouragement from Indian agents to adopt farming as a livelihood —in an era when American agriculture first began its decline (Carlson 1981, Hoxie 1984, Prucha 1984).

For a variety of reasons, Indian lands were not completely liquidated by allotment. Many Indians did not receive allotments, and relatively few changed their lifestyles to become farmers. Nonetheless, the allotment era was a disaster in at least two ways. One is that a significant number of allotees eventually lost their land. Tax foreclosures, real estate fraud, and the need for cash were the most common ways that American Indians lost what was, for most of them, their last remaining asset (Hoxie 1984). This took a heavy toll on Indian lands. Under allotment, about 90 million acres of Indian land was lost, or about two-thirds of the land belonging to tribes in 1887 (O'Brien 1989).

This created a second problem that continues to vex many reservations —"checkerboarding." Reservations subjected to allotment are typically a crazy quilt of tribal lands, privately owned "fee" land, and trust land belonging to individual Indian families. Reservation checkerboarding presents enormous administrative problems for reservation officials trying to develop land use management plans, zoning ordinances, or economic development projects that require the construction of physical infrastructure. Some reservations have implemented

land acquisition programs to re-attach lost fee lands to their land base.

The Indian New Deal

The Indian New Deal was a short-lived but profoundly important shift in federal Indian policy. The Indian New Deal was implemented in the early 1930s along with the other New Deal programs under the Roosevelt administration. The Indian New Deal was important for at least three reasons.

It signaled the end of the disastrous allotment era. The Indian New Deal repudiated allotment as a policy. It also signaled a new respect for American Indian tribal culture. Instead of continuing its futile efforts to detribalize American Indians, the federal government acknowledged that tribal culture was worthy of respect. Much of this change was the work of John Collier, a long-time Indian rights advocate appointed by FDR to serve as Commissioner of Indian Affairs (Prucha 2984).

A second important element in the Indian New Deal is that it offered some relief from the Great Depression and brought essential infrastructure development on many reservations. The Indian New Deal continued policy initiatives nearly identical to those created by Roosevelt's New Deal. This included projects for controlling soil erosion, building hydroelectric dams, roads, and other public facilities. These projects created jobs in programs such as the Civilian Conservation Corps and the Public Works Administration.

An especially important and enduring legacy of the Indian New Deal was the passage of the Indian Reorganization Act of 1934. Until the passage of this legislation, Indian self-government had been forbidden by law. This act allowed tribal governments, for the first time in decades, to reconstitute themselves for the purpose of overseeing reservation affairs. Critics charge that this law imposed an alien form of government, representative democracy, on traditional tribal authority, and on some reservations, this has been a source of conflict (O'Brien 1989). Some reservations also rejected the IRA for this reason, but now have tribal governments authorized under different legislation. Nonetheless, because it recognized tribal rights of self-government, the IRA was a landmark piece of legislation.

Termination and relocation

After World War II, the federal government moved to dissolve its long-standing relationship with Indian tribes. The policies it adopted to accomplish this objective sought to settle outstanding legal claims made by the tribes, terminate the special status of reservations, and help reservation Indians relocate to urban areas—hence the description "Termination and Relocation" (Fixico 1986). These measures were implemented by the Indian Claims Commission (ICC), House Concurrent Resolution 108, and the BIA's Direct Employment Assistance program.

The Indian Claims Commission was a special tribunal created in 1946 to settle legal claims that tribes had made against the federal government. It was established to hasten the process of claims resolution and to avoid having them bogged down in federal court. In reality, the ICC became bogged down with prolonged cases. In 1978, the ICC was dissolved by Congress. At that time, there were 133 unresolved claims out of an original 617 that were first heard by the ICC three decades earlier (Fixico 1986, p. 186). These unresolved claims were transferred to the Federal Court of Claims.

Congress also moved to terminate the federal government's relationship with Indian tribes with the passage of House Concurrent Resolution (HCR) 108 in 1953. This resolution called for steps that eventually would abolish all reservations and abolish all special programs serving American Indians. It also established a priority list of reservations slated for immediate termination. However, this bill and subsequent attempts to abolish reservations were vigorously opposed. Only two reservations were actually terminated, the Klamath in Oregon and the Menominee in Wisconsin, and in 1975 the Menominee reservation was restored with its trust status—the Klamath reservation is still without recognition.

The BIA encouraged reservation Indians to relocate and seek work in urban job markets. In part, this was prompted by the desperate economic prospects on most reservations, and was part of the federal government's effort to "get out of the Indian business." The BIA's relocation programs began modestly in the late 1940s but quickly expanded in the early 1950s (Prucha 1984, Fixico 1986). These programs aided reservation Indians in moving to pre-selected cities such as Los Angeles and Chicago, where they were assisted in finding housing and employment. Between 1952 and 1972, the BIA relocated more than 100,000 American Indians (Sorkin 1978). Critics of these programs charge that few Indians benefited from relocation. And in fact, many relocatees dropped out of the program and returned to their reservations (Fixico 1986). One of the most damning criticisms is that relocation accomplished little more than transforming poverty-stricken reservation Indians into poverty-stricken urban Indians.

Self-determination

Many of the policies enacted during the Termination and Relocation era were steadfastly opposed by American Indian leaders and their supporters. As these programs became stalled, critics attacked them for being harmful, ineffective, or both. By the mid-1960s, these policies had very little serious support. Perhaps bolstered by the gains of the civil rights movement, American Indian leaders and their supporters made self-determination the first priority on their political agendas. For these activists, self-determination meant that Indian people would have the autonomy to control their own affairs, free from the paternalism of the federal government.

The idea of self-determination was well received by members of Congress sympathetic to American Indians. It also was consistent with the "New Federalism" of the Nixon administration. This support became the impetus for repudiating policies of Termination and Relocation, a process that culminated in 1975 with the passage of the American Indian Self-Determination and Education Assistance Act.

This legislation reflected a profound shift in federal Indian policy. For the first time since this nation's founding, American Indians were authorized to oversee the af-

fairs of their own communities, free of federal intervention. In practice, the Self-Determination Act established measures that would allow tribal governments to assume a larger role in reservation administration. However, this does not mean that the BIA is no longer present on most reservations.

Many tribes have assumed a substantial amount of control over reservation administration in programs for welfare assistance, housing, job training, education, natural resource conservation, and the maintenance of reservation roads and bridges (Snipp and Summers 1991). Some reservations also have their own police forces and game wardens, issue licenses and levy taxes. The Onondaga tribe in upstate New York have taken their sovereignty one step further by issuing internationally recognized passports. Yet there is a great deal of variability in how much autonomy tribes have over reservation affairs. Some tribes have nearly complete control over their reservations, especially large and well-organized reservations, while smaller reservations with limited resources often depend heavily on BIA services.

The recent expansion of tribal self-determination appeared in 1987 with amendments to the Indian Self-Determination and Education Assistance Act. These amendments set the stage for the Self-Governance Demonstration Project in which tribes assume virtually 100 percent of the functions performed by the BIA. This project began with seven tribes but in 1991 negotiations were concluded with thirteen additional tribes, bringing to 20 the number participating in this project.

Economic development in Indian country

Welfare dependency has been a fact of life in Indian country since tribes were interned on reservations and forced to depend on military rations for survival. Since then, this dependency has become considerably more complex and manifest in federal programs such as the War on Poverty efforts or the projects sponsored by the Comprehensive Employment and Training Act of the 1960s and 1970s. The abrupt termination of many of these programs in the early 1980s reminded tribal leaders of the uncertainty of federal largesse, and the need for financial independence.

Economic development has been increasingly seen as an alternative strategy for raising tribal revenues to deal with reservation problems. Efforts to stimulate economic activity on reservations are not a new idea. However, since the late 1970s, reservations have been pursuing a variety of alternatives, some closely tied to the unique legal and political status of reservations. Economic development in Indian country can be viewed in terms of the resources available for development—natural and human—along with the strategies that have been used to develop them.

Natural resources

There are 278 federally recognized American Indian reservations ranging in size from less than 100 acres to the Navajo reservation: 16 million acres covering parts of Arizona, Utah and New Mexico, about the size of West Virginia. These reservations account for most of the 56.2 million acres of Indian lands supervised by the federal government. These reservations are extremely diverse in terms of the natural resources they possess but the four major types of resources include agricultural land, timber, water, and mineral resources.

Agricultural land. Since the late nineteenth century, the federal government has encouraged American Indians to adopt agriculture. Yet the policies of this era actually caused declines in Indian agriculture (Carlson 1981). There is a long history of failed attempts to establish tribal farms and livestock herds. Some tribes suffered disastrous land losses during allotment. Other tribes, such as those in the southwest, had practiced agriculture for centuries but they refused to adopt nonIndian technologies and their collective farm systems were disrupted by allotment.

For most of this century, nonIndians have been responsible for agricultural production on tribal lands. For example, when members of the Ute tribe in Utah refused to become farmers, Indian agents leased their lands to nearby Mormon farmers. This is typical of how agricultural land was, and continues to be managed on most reservations. That is, agricultural lands are leased and farmed primarily by nonIndians. One study in particular found that nonIndians cultivated the most productive farmland while Indians were more likely to control less productive grazing land (Levitan and Johnston 1975).

The productivity of tribal agricultural land is a serious problem. Not surprisingly, reservations were established in places unattractive for farming and few reservations have highly productive lands. For example, the BIA

...reservations were established in places unattractive for farming

classifies less than one percent of all reservation lands as highly productive and less than five percent of the giant Navajo reservation has highly productive farm land. For the average reservation, this amounts to about one acre of productive agricultural land per resident (Summers n.d.).

Despite these problems, there are notable exceptions. For example, the Passamaquoddy tribe in Maine used funds from land claims settlements to acquire and develop a high quality blueberry farm that supplies gourmet markets, premium hotels, and Ben and Jerry's Ice Cream. The Ak Chin reservation south of Phoenix has what is undoubtedly the largest and most profitable agribusiness with over 10,000 acres of cotton and alfalfa in production (White 1990).

Timber. Although agricultural production is not widespread on many reservations, timber production is considerably more common. This timber is often cut and processed outside the reservation, but a growing number of reservations have built mills to produce finished lumber. One of the oldest of these mills was established on the Menominee reservation in Wisconsin.

Historically, the BIA has had primary responsibility for overseeing tribal forests and for the harvesting and sale of tribal timber. In 1989, 237 federal reservations possessed nearly 16 million acres of forest land with po-

tentially harvestable timber. Perhaps more significant is that in 1989, 149 or slightly over half of all federal reservations had about 6 million acres in commercial forests. This is not an inconsequential resource as its total harvested value is estimated at $158 million.

In the 1970s and 1980s, the BIA was the subject of numerous complaints as well as congressional investigations regarding its management of tribal forests. These complaints alleged fraud and mismanagement, and in particular, "sweetheart" deals between BIA employees and lumber companies, improper accounting, and incompetent resource management (Richardson and Farrell 1983). These complaints, along with growing tribal self-determination, have meant that tribes are considerably more involved in the management of this resource; and a number of tribes have instituted specialized forestry programs.

Water. The *Winters* doctrine, a principle stemming from a Supreme Court decision over tribal water rights, guarantees that tribes have prior claims on water destined for their reservation. In the arid western U.S., this gives reservations a powerful claim on a scarce and vital resource. This is perhaps most important for reservation development and especially in water-intensive projects such as agriculture. However, developing water for lease or sale off the reservation is tangled in the complex legal web of water use and riparian rights, and has not been extensively pursued. Nonetheless, it is possible for tribes with extensive water rights, such as the Navajo, to lease their water to the arid cities of the southwest, just as large growers have found it more profitable to lease their water than to use it for farming. Water also can be used to produce revenue in other ways; for instance the Salish-Kootenai in Montana sell hydroelectric power from a dam on their reservation.

Minerals. The minerals available on reservation lands run the gamut from gravel to zinc and copper to energy resources: uranium, coal, petroleum, and natural gas. Needless to say, the immense potential wealth associated with the latter has attracted the most attention. By some estimates, 40 percent of all uranium and 30 percent of the strippable coal west of the Mississippi is located on tribal lands (Jorgensen et al. 1978).

Despite the enormous real and potential value of these resources, the tribes possessing coal and petroleum are not significantly wealthier than other tribes (Snipp 1988). There are a number of reasons for this situation. One is that some tribes, such as the northern Cheyenne in Montana, view mining as a violation of their sacred relationship with the land. In fact, this belief is frequently a source of conflict among tribal members who adhere to traditional tribal beliefs and less traditional tribal members who wish to develop the resources. A more important reason is that for many years the BIA failed to exercise proper oversight in the process of making leases. BIA oversights caused millions of tons of coal to be sold at prices far below market value (Richardson and Farrell 1985, Snipp 1988).

Congressional inquiries and complaints by tribal leaders resulted in revamping BIA leasing procedures. The tribes also became more active in the negotiations for lease agreements. One important way the tribes became more involved in leasing was in the creation of the Council of Energy Resource Tribes (CERT). CERT was formed in 1975 for the purpose of increasing tribal involvement in lease negotiations and for providing technical assistance to aid tribes in negotiations. (Ambler 1990). Since the formation of CERT, many old leases have been re-negotiated, and tribal involvement has considerably improved the prices received for energy resources. However, a sluggish world market for coal and petroleum has dampened the enthusiasm for exploiting these resources.

The tribes have not had much direct involvement in mining the resources on their reservations. The capital required for mining operations vastly exceed tribal resources. However, some tribes such as the Crow have investigated limited partnerships with energy companies, as well as imposing severance taxes on extracted resources.

Human resources

Besides sheer numbers of able-bodied workers, education, training, and work experience are the best indicators of the human capital reserves belonging to reservations. The low levels of educational attainment and labor force participation already have been noted and need no further comment—they bespeak the limited human resources for reservation development. The shortage of job opportunities in reservation communities further exacerbates the shortage of human capital as the best educated, most able-bodied workers leave the reservation for employment elsewhere.

Many tribes have decided to address the scarcity of human capital on their reservations by establishing tribal colleges. The first tribal college was established in 1968 by the Navajo tribe. During the next twenty years, another 23 tribal colleges were established on reservations across the western United States. Most of these institutions are small facilities with two-year community college programs. A few, such as Sinte Galeska College in South Dakota, have a limited number of four year programs. Almost without exception, these institutions depend heavily on federal funding and struggle to have facilities and personnel adequate to meet accreditation standards. Because

...the advent of tribal colleges is a development of potentially profound importance.

the students attending these schools have few economic resources, revenue from tuition or property taxes is minimal to nonexistent.

Although relatively new, tribal colleges have the potential to play a key role in the human resource development on reservations. The students attending these colleges are typically older. They frequently have very poor academic preparation and are returning to upgrade their basic skills, obtain vocational training, or acquire a GED. The students who typically attend tribal colleges are not being diverted from educational opportunities elsewhere. They are students who would not be attending college under most circumstances, except that the presence of a tribal college gives them an opportunity to do so (Carnegie Foundation 1989).

In 1989, an estimated 4,400 full-time equivalent students were enrolled at the 24 tribal colleges (Carnegie Foundation 1989). The actual number of students in tribal colleges is in fact higher because most are not attending in full-time programs. Considering that low educational levels and a lack of human resources have been one of the main obstacles to economic development on most reservations, the advent of tribal colleges is a development of potentially profound importance. These institutions are training persons who in the past would have been labeled "hard-core unemployed." Their proximity also means they are well-situated to coordinate program curriculum with the specific needs of economic development projects. Many of these potential opportunities are yet to be realized, but an infrastructure now exists where there was nothing only a few years ago.

Conventional development strategies

Since the 1950s, and even earlier in some areas, federal officials and tribal leaders adopted more or less "textbook" models for economic development. Like other rural communities, tribes have tried to attract industry by emphasizing a low-wage workforce, non-existent taxes, or by building infrastructure such as roads or industrial parks. Unlike other rural communities, they have tried to start their own businesses in construction, light manufacturing, agriculture, and a hodge-podge of other activities. There also have been a variety of efforts to encourage entrepreneurship. Many of these efforts reached a peak under the Economic Development Administration (EDA) and the Small Business Administration (SBA). Federal cutbacks in the early 1980s significantly reduced these programs though some continue to offer assistance. Currently, most conventional development strategies focus on tribal operations or individual entrepreneurs.

Tribal operations. The activities of tribes in promoting economic development are divided between attracting industries from outside the reservation and developing their own business start-ups. Attracting industries owned by nonIndians is a strategy that has been a mixed success. The goal of attracting outside industries often is job creation, making labor intensive and low-wage industries most appealing. Light manufacturing, such as electronics assembly plants, have been located on a number of reservations. A fish hook factory was briefly located in the Pine Ridge reservation in South Dakota. However, this strategy is problematic for at least two reasons.

One is that the jobs created by such firms are typically low-skill, low-wage jobs with few benefits. Management jobs are seldom filled by Indians. While these firms have the virtue of providing employment, they do not often yield a significantly improved standard of living. Making the welfare poor into the working poor can be considered an improvement but it is a small one nonetheless.

A second problem with such industries is that they pit reservation workers against workers in developing nations. Like other rural communities, a number of reservations have watched local industries join the exodus overseas to obtain cheap labor. Some tribes, however, have been able to resist this trend. According to Chief Philip Martin of the Mississippi Choctaw, his tribe has been successful with light manufacturing because they offer superior workmanship to compensate for lower offshore labor costs.

Tribally owned businesses face other dilemmas. One crucial problem is deciding whether a tribal business will operate to maximize employment, or whether it will seek to become an efficient, highly competitive enterprise. In theory, there is no necessary conflict between these goals. But in practice, such a conflict often exists when decisions about layoffs or dismissing incompetent employees must be made.

The decision to choose between jobs or profits is often made more complicated by another problem—tribal politics. Like other communities, there are often disagreements among American Indians about the best course of action for tribal government. In connection with economic development, disputes may arise over the types of development, who is involved, and the disposition of jobs and revenues. Decisions that are politically astute may be disastrous for tribal enterprises.

Some tribes have attempted to deal with this conflict by establishing business committees separate from the tribal government. This is intended to distance business decisions from tribal politics but too often it merely shifts political disputes from the arena of tribal government to the business committee. Cornell and Kalt (1990) argue that political development is a necessary antecedent to economic development. For tribal governments to successfully undertake complex economic development projects, they must be able to exercise a great deal of administrative expertise as well as having the political stability to carry out long range plans. Cornell and Kalt (1990) echo others (e.g. Vinje 1989) when they also note that economic development projects must be consistent with tribal culture, especially with the political culture of the tribe. Tribes accustomed to diffuse, decentralized decision-making processes will not accommodate economic development projects organized with a highly centralized management plan.

Reservation entrepreneurship. A 1984 Presidential Commission discouraged the involvement of tribal governments in business enterprises, and recommended that entrepreneurship would most benefit reservation economies. However, the federal government has done very little to actually increase private enterprise by reservation Indians. American Indians desiring to start their own businesses face many of the same obstacles confronting nonIndians trying to start a small business.

However, American Indian entrepreneurs face particularly difficult problems raising investment capital. Finding start-up capital is especially problematic for two reasons. One should be obvious: most American Indians have extremely limited financial resources to rely upon and this makes it difficult to obtain the personal equity expected by bank loan officers. A second problem is that reservation and other Indian lands are held in a trust by the federal government. This means that American Indians cannot sell their land, nor can they use it for collateral. In many ways, this arrangement is beneficial for preserving the remaining lands of American Indians but at the same time it is an obstacle that nonIndian entrepreneurs are not burdened with.

An experimental project for raising investment capital has been developed on the Pine Ridge reservation in

South Dakota. With support from the First Nations Foundation, the Lakota Fund is a project that encourages the development of "micro-enterprises." This project is modeled after another developed in Bangladesh and it begins by encouraging the formation of small borrower groups. Members of these groups take out small loans, usually less than $1000, for the purpose of producing goods and services for sale; thread and fabric might be purchased to produce quilts, for example. While individuals are the loan recipients, the group is responsible for loan re-payments and the default rate is very low, less than 10 percent. The Lakota Fund also works with these groups by offering technical assistance in marketing and other business practices.

The Lakota Fund plays an important role in promoting reservation entrepreneurship by teaching basic skills needed for business. However, the projects it funds are extremely small ("micro"), they generate small amounts of income, and it is not clear whether the projects it sponsors will eventually become sizable businesses with paid employees. Nonetheless, it is an important experiment that deserves careful attention as a development model for other tribal communities.

Unconventional development strategies

Unconventional development strategies are so-named because they are development strategies based on the special legal and political status of American Indians-hence they are not options for economic development by nonIndians. This approach to economic development has become more common in the late 1970s and 1980s, possibly because there has been less federal support for conventional development projects. This approach also has been called the "legal road to economic development" (Olson 1989) and central to this strategy is the doctrine of tribal sovereignty.

Tribal sovereignty is a concept implicit in much of the preceding discussion because it is a central organizing principle in federal-Indian relations. The legal theory behind tribal sovereignty dates back to the founding of the United States and early decisions of the Supreme Court (Barsh and Henderson 1980). Briefly, tribal sovereignty means that by treaty and other agreements tribes have reserved certain legal rights of self-government. This provides tribal governments with a measure of self rule subject to the authority of the federal government and exempt from most state and all local authority. With only a few exceptions, tribal governments have most of the same powers as state governments.

The so-called "legal road to economic development" exploits the powers of tribal sovereignty, treaty rights, and other legal agreements for the sake of developing a market niche for tribal enterprises. The ability to use tribal sovereignty for creating a market niche is crucial for having a successful enterprise. And, indeed, there are a number of successful operations stemming from treaty rights, land claim settlements and the use of tribal sovereignty to create a market niche.

Two of the best known developments stemming from treaty rights settlements are located in Maine and in the Puget Sound region of Washington State. In 1975, the Passamaquoddy and Penobscot tribes of Maine won a major court victory and a ruling that these tribes might be eligible to claim up to two-thirds of the state. After protracted negotiations, a federal task force concluded negotiations with these tribes with a settlement of $82 million. With this settlement, the tribes purchased lands, established investment portfolios, and initiated economic development projects. The Passamaquoddy invested a full third of their settlement in economic development projects such as a construction firm, cement factory, and blueberry farm. These projects were meant to produce income for tribal services and jobs for tribal members. Since the settlement, some of these projects have been more successful than others, but they have been sufficiently capitalized and well-managed that they are counted as successes by the tribe (White 1990).

The state of Washington in the 1950s and the 1960s was the site of protracted struggles over Indian fishing rights. These struggles culminated in the court case of *U.S. v. Washington*, also known as the Boldt Decision. In 1974, federal judge George Boldt rendered a verdict that treaties signed with the Puget Sound tribes entitled them to 50 percent of the salmon harvested in this region each year in perpetuity. This was a major victory for these tribes, who shortly afterwards initiated economic development projects based on fishing. The Lummi and the Quinault in particular have vertically integrated aquaculture programs with fish hatcheries and fish processing plants. These tribes play key roles in Puget Sound conservation efforts and have a major stake in improving fisheries production. Furthermore, these activities are also a major source of tribal employment and revenue.

Because tribal sovereignty gives tribal governments the right to legislate for themselves, another direction in the legal road to economic development has been for tribes to make available goods and services restricted by local and state laws. In the mid-1970s, retail tobacco shops with products exempt from local and state taxes began appearing on Indian land across the U.S. These are typically small shops with only a few employees and are operated either by individuals or tribal governments. Little systematic data exists about these shops but anecdotally they are usually profitable operations, although the revenue they produce is not spectacular. They are nonetheless controversial because state and local governments resent the loss of tax revenues and local merchants complain about unfair competition.

However, compared to gambling, the controversy and revenues generated by tobacco shops are negligible. In 1978, the Florida Seminole won in court the right to operate a high stakes bingo hall on their reservation. This enterprise was enormously successful and produced revenues in the millions of dollars. The success of the Seminole was quickly noticed by other tribes and within a few years reservations across the country were engaged in high stakes bingo. By the mid-1980s, many tribes were testing the legal waters by offering other types of gambling explicitly outlawed outside their reservations. After a series of legal tangles and complaints by state governments and by tribal officials, Congress enacted the Indian Gaming Act of 1988.

The Indian Gaming Act set the ground rules for tribes desiring to have gambling on their reservation and created the Indian Gaming Commission to oversee reservation gambling. The law establishes different classes of

gaming and permits reservation gambling if the games offered are not fundamentally different from the gambling permitted outside the reservation in activities such as state lotteries. This law represents a mixed victory for the tribes because, while they do not have the unconditional right to offer gambling, it institutionalizes gambling and protects it from state and local interference.

The future of reservation gambling is unclear. It has been a huge success for some tribes, especially those close to large urban areas. On reservations in remote places, it has been less successful and has attracted mainly a reservation clientele instead of wealthier nonIndian players. Reservation gambling also has become more competitive between reservations and from outside the reservation as more states liberalize their restrictions on gambling. These developments may eventually shrink tribal revenues from gaming but in the short-run they have been an enormous cash resource for many tribes.

A handful of tribes have also passed legislation skirting state and local zoning and environmental protection laws. However, these measures have proved as controversial on the reservation as they have been outside the reservation. A proposal to place a nuclear waste facility on the Pine Ridge reservation produced a heated conflict, as did a proposal for toxic waste that was summarily rejected by the Mississippi Choctaw. The Mescalero Apache are currently considering a nuclear waste storage facility but this is also becoming controversial on and off the reservation.

Concluding remarks

Though small in number, American Indians have an enduring place in American society, and perhaps nowhere are they more visible than in rural areas. This visibility stems from the growing numbers of American Indians occupying reservation and other trust lands. Beginning in the 1950s tribal governments have had a larger role in reservation affairs than their original resettlement on reservation lands.

The challenges facing tribal governments are daunting. American Indians are among the poorest groups in this nation. Reservation Indians have substantial needs for improved housing, adequate health care, educational opportunities, and employment. Tribal governments are also responsible for developing and maintaining reservation infra-structure. In the face of declining federal assistance, tribal governments are assuming an ever-larger burden. On a handful of reservations, tribal governments have assumed completely the tasks once performed by the BIA.

As tribes have taken greater responsibility for their communities, they also have struggled with the problems of raising revenues and providing economic opportunities for their people. Reservation land bases provide many reservations with resources for development. However, these resources are not always abundant, much less unlimited, and they have not always been well managed. It will be yet another challenge for tribes to explore ways of efficiently managing their existing resources. Legal challenges also face tribes seeking to exploit unconventional resources, such as gambling revenues. Their success depends on many complicated legal and political contingencies. Despite the many obstacles confronting American Indian tribes, their history of resilience and persistence in the face of adversity is good cause to be cautiously optimistic about what the future holds.

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The Southwest: Global issues in a regional setting

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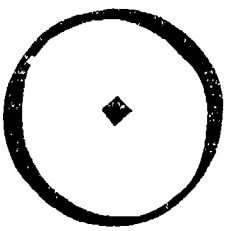

At different times during the past two decades, the Southwest[1] region of the United States has been portrayed alternately as a prime candidate for a "national sacrifice area" and as part of a proposed "national wilderness and cultural park." The radical difference between these perceived extremes of destruction and preservation is a reflection of the character of this region which is simultaneously rich in natural resources but fragile in the sensitivity of its ecosystems and diverse cultures.

At the one extreme, during a period of national crisis following various international energy events (the 1970s and early 1980s), the oil, gas, coal, uranium, and oil shale resources of the region have been perceived as key to the national salvation of a country which momentarily was committed to energy independence. More recently (in the mid to late 1980s and early 1990s), as national concern for environmental and cultural preservation has sharply waxed, the long-term future of the region has been cast as a preserve in which its large metropolitan areas will eventually dwindle and disappear as the natural aridity of the region reasserts its dominance.

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[1] *The Southwest Under Stress*, Allen V. Kneese and F. Lee Brown. Published for Resources For the Future by Johns Hopkins Press, 1981.

Table 1. Population: Southwest region (in thousands)

Area	1970	(Rate)c	1980	(Rate)	1990	(Rate)
United States	203,302	(1.26)	226,546	(1.09)	248,710	(.94)
Mexico	48,225	(3.30)	66,847	(3.32)	88,335	(2.06)
Arizona	1,775	(3.15)	2,718	(4.35)	3,665	(3.03)
Colorado	2,210	(2.34)	2,890	(2.72)	3,294	(1.32)
New Mexico	1,017	(.67)	1,303	(2.51)	1,515	(1.52)
Utah	1,059	(1.74)	1,461	(3.27)	1,723	(1.66)
Apache Co.,AZ	32	(.60)	52	(4.90)	62	(1.69)
Navajo Co.,AZ	48	(2.30)	68	(3.55)	78	(1.39)
Dolores Co., CO	2	(-2.87)	2	(.10)	2	(-0.97)
Montezuma Co.,CO	13	(-0.79)	17	(2.46)	19	(1.24)
San Juan Co.,NM	53	(-0.15)	81	(4.48)	92	(1.18)
McKinley Co.,NM	43	(1.51)	56	(2.71)	61	(.73)
San Juan Co.,UT	10	(.61)	12	(2.46)	13	(.30)
Mora County, NM	5	(-2.51)	4	(-1.05)	4	(.14)
Rio Arriba Co., NM	25	(.37)	29	(1.52)	34	(1.61)
San Miguel Co., NM	22	(-6.46)	23	(.36)	26	(1.24)
Albuquerque, NM	244	(1.94)	332	(3.13)	385	(1.49)
Denver, CO	515	(.41)	492	(-0.44)	468	(-0.51)
Phoenix, AZ	582	(2.85)	790	(3.11)	983	(2.22)
Salt Lake City, UT	176	(-0.74)	163	(-0.76)	160	(-0.19)
Tucson, AZ	263	(2.13)	331	(2.32)	405	(2.06)

[c]The rates of change reported are the annual compound rate for the previous decade.

There can be few other regions, nationally at least, in which the inherently paradoxical phrase of "sustainable development" comes closer to, and perhaps even reaches, a contradiction in terms. Although the principal scene of action has largely shifted from the Four Corners area of the region to its border with Mexico, the tension is the same. What should be the balance between the utilitarian objectives and forces within a diverse society and the natural character of the region's ecosystems? And, how is that balance to be achieved?

In this paper, we will summarily discuss the last two decades of regional experience with these questions. We will focus particularly on water resources and on the culturally sensitive subregion of northern New Mexico in which the traditional Native American and Hispanic societies have come into increasing conflict with the more recent "Anglo" immigrants to the region.

For the early part of this story, heavy reliance is placed upon the results of a large, interdisciplinary research program, principally sponsored by Resources For the Future and led by Allen Kneese, termed the "Southwest Under Stress," which culminated in a book of the same name.[2] The latter part of the story rests on the current research of the authors and others and has yet to be summarized in a single document.

The issues of development and sustainability faced in the southwestern United States and the northern reaches of Mexico are the same issues under intense global scrutiny and debate throughout the industrialized and developing nations of the world. In fact, the Rio Grande, in its lower reaches, may be the only river in the world which is the border between a G-7 country and a developing nation. The issues are the same, but they stand out in sharp relief in the wide and arid expanses of the Southwest.

Let us look at five global issues of "sustainable development" as they occur in the region. They are: 1) population growth, 2) economic disparity, 3) cultural conflict, 4) environmental preservation, and 5) aridity/climate change. Following a general discussion of each issue at the regional level, we will then focus even more specifically on these issues as they play out in northern New Mexico, of which Las Vegas is a part.

Population growth

Table 1 selectively sketches a demographic portrait of the Southwest in terms of population levels and growth over the past three decades. Using the growth rates of the United States and Mexico as benchmarks, the relatively rapid population growth of the region (as reflected in the four individual states) can be clearly seen.

In the seventies and eighties, Arizona exceeded even Mexico in the rate of growth, and Utah came very close itself in the eighties. With the exception of New Mexico in the 1960s, all four states substantially surpassed national U.S. growth rates in all periods. Social and ecological response to increased population, therefore, re-

[2] *The Southwest Under Stress*, Allen V. Kneese and F. Lee Brown, Published for Resources For the Future by Johns Hopkins Press, 1981.

mains a regional issue even though the rates of growth have slowed signficantly in the 1980s.

The state numbers, while informative, mask the intraregional differences to which reference was made at the beginning of this paper. Namely, during the decade of the seventies, the focal point of change and impact was the Four Corners area of the region. The first seven counties (Apache, Navajo, Dolores, Montezuma, San Juan, NM, McKinley, and San Juan, UT) listed in the table are part of what was termed the "Poverty Diagonal" in the *Southwest Under Stress* assessment mentioned above. These are the counties which immediately surround Four Corners[3] proper.

Without exception these counties exhibit the population boom pattern of the seventies in relationship to the growth experience of each county in the decades just before and after the "energy crisis." Generally rural in nature, these counties were heavily impacted during this period only to experience a sharp falloff in growth subsequently. Of course, the counties also differ among themselves with varying ranges of growth, or even decline in the case of Dolores. As will be discussed in the next section, the same pattern is reflected in per capita income.

The major cities of the region exhibit similar demographic patterns with the exception of Denver and Salt Lake, both of which are surrounded by large and growing surburban communities which the city boundaries do not encompass. The fluctuations in population growth rates are, of course, less pronounced in the urban centers reflecting their more diversified economies.

Virtually all of the issues of population growth, particularly those related to transient extraction of natural resources, came to play in this region during the 1970s including inadequate public facilities, high rates of divorce, suicide, morbidity, and mortality, environmental damage, and cultural conflict just to name a few. In turn, these boom era difficulties were compounded by the bust era of economic stagnation, overbuilt public facilities which could not be maintained, and the inevitable environmental "hangover" reflected in uranium waste tailings, abandoned mines, toxic pollution of land and watercourses, and the like.

As noted, the scene of action has now shifted to the border region of Arizona and New Mexico as well as the corresponding areas of California, Mexico, and Texas. We will not follow that path in this paper except to say that many of the same problems are being repeated in this region but under conditions of poverty and pollution which may be even worse and are likely to be more sustained than the Four Corners experience of the 1970s.

Instead, we turn to another area of the region which has exhibited more "stability" in the ironic sense that its stresses and problems have been more continuous than volatile. The last three counties in Table 1 are part of what is termed "northern New Mexico" within this state. Las Vegas, an important community to this region, is the county seat of San Miguel County.

[3]Four Corners is the only point in the United States at which four states come together. Geographically, it is near the center of the four state region also.

These counties, and others in the area, have exhibited a different pattern of population change in which the sixties saw declines, or small growth, with subsequent decades showing reversals of this downward trend, though nothing near the spectacular rates of increase previously experienced in some of the Four Corners counties. The change here has been more gradual, but the stress on the area nevertheless continues to build as will be described in the sections that follow.

Economic disparity

Table 2 reports per capita income figures for 1969, 1979, and 1989 as a percentage of U.S. per capita income. The same regional subunits are utilized that appeared in Table 1. And the same overall pattern of relatively higher incomes during the seventies, in contrast with the sixties and eighties, appears. However, another feature of this data is even more striking. Without exception all of the rural counties are well below, even dramatically so, the respective state level per capita incomes.

Although the phenomenon is certainly not peculiar to the Southwest, most of the counties (particularly Apache, AZ; McKinley and Mora, NM, and San Juan, UT) are extremely poor in relative terms. In 1969, the percent of the population in some of these counties which lived below the poverty line ranged as high as

Table 2. Relative per capita income in Southwest (percent of U.S.)

Area	1969	1979	1989
United States	100.0%	100.0%	100.0%
Mexico	NA	NA	19.9%
Arizona	93.8%	96.5%	96.6%
Colorado	99.3%	109.6%	102.9%
New Mexico	78.0%	83.9%	79.1%
Utah	86.1%	86.4%	77.9%
Apache Co.,AZ	40.8%	45.8%	40.5%
Navajo Co.,AZ	53.7%	61.5%	56.1%
Dolores Co.,CO	80.6%	73.8%	59.3%
Montezuma Co.,CO	69.7%	81.7%	69.9%
McKinley Co.,NM	54.7%	57.5%	43.9%
San Juan Co.,NM	70.1%	79.7%	64.3%
San Juan Co.,UT	54.3%	50.7%	42.7%
Mora Co.,NM	33.4%	46.7%	42.9%
Rio Arriba Co.,NM	48.4%	54.0%	52.0%
San Miguel Co.,NM	48.0%	53.5%	50.1%
Albuquerque	98.9%	102.0%	100.6%
Denver	112.1%	117.2%	108.9%
Phoenix	105.6%	103.5%	103.8%
Salt Lake	104.2%	101.6%	92.8%
Tucson	91.8%	89.6%	85.6%

40.1% in McKinley County, NM[4] and 52.7% in Apache County, AZ. And the same pattern apparently persists today as reflected in recently released poverty figures for some New Mexico counties.

Of course, there is much greater disparity when the single figure reported for Mexico (19.9%) is considered. Consequently, the disparity in incomes and other economic measures that exists between the U.S. and Mexico in the border counties and cities is so great that it is readily visible to even the most casual tourist driving along the interstate highway in El Paso which parallels the U.S.-Mexico border.

In seeking a distributional balance within global or regional societies, a certain degree of inequality is obviously unavoidable. However, as is the case with the economic differentials experienced in the inner cities, it is impossible to believe that this degree of disparity, particularly along the border, constitutes any sort of social equilibrium in the "global village" of today. Even apart from normative prescriptions, these differentials are a major force for change and, once again, the global issue has a strong manifestation in the Southwest.

Cultural conflict

Table 3 presents a percentage breakdown of total population numbers by ethnicity for the same regional subunits which have been reported in each of the previous tables. Although differences in ethnicity do not inevitably produce cultural conflict, when cultural values are sharply different and stereotyping is common, the potential is present. And the Southwest has its share or more of this tension. A good illustration of the conflicting cultural values occurs in connection with water and will be discussed in some detail in the sections below.

With the exception of New Mexico, the region as a whole is predominantly "Anglo," as the regional colloquialism collectively describes all those of White ethnicity. New Mexico at the time of the 1990 Census was on the verge of becoming this country's second (after Hawaii) "majority minority" state and by some estimates has actually reached that status recently. And there are a number of counties within the region whose populations are predominantly of Hispanic or Native American ethnicity. Parts or all of the counties of Apache and Navajo, AZ; McKinley and San Juan, NM; and San Juan, UT comprise the Navajo Nation, the largest tribe in the country.

The ethnicity boundaries, then, are at least in part sharply discernable locationally and are frequently represented in political coalitions even when a single ethnicity may not be dominant in a particular political unit. New Mexico, as a principal example, has experienced considerable difficulty in drawing congressional and legislative boundaries after each of the recent censuses. Many anecdotal illustrations could be provided of the conflicts which occur as a result of cultural differences, and when these differences are further sharpened by economic differentials, the potential for conflict becomes even greater.

[4] *Southwest Under Stress*, p 26.

Table 3. Ethnicity: Southwest region (1990)

Area	% White	% Hispanic Background	% American Indian, etc.	% Other Ethnicity
Arizona	71.7%	18.8%	5.2%	4.4%
		-5-		
Colorado	80.7%	12.9%	.7%	5.7%
New Mexico	50.4%	38.2%	8.5%	2.9%
Utah	91.2%	4.9%	1.3%	2.6%
Apache Co.,AZ	18.4%	4.2%	77.0%	.4%
Navajo Co.,AZ	40.2%	7.3%	51.2%	1.2%
Dolores Co.,CO	94.1%	3.2%	0.0%	2.7%
Montezuma Co.,CO	80.0%	8.6%	11.0%	.4%
McKinley Co.,NM	15.8%	12.8%	70.4%	1.0%
San Juan Co.,NM	50.0%	13.1%	36.1%	.7%
San Juan Co.,UT	42.4%	3.5%	53.7%	.4%
Mora Co.,NM	14.4%	84.9%	.3%	.3%
Rio Arriba Co.,NM	12.7%	72.6%	14.1%	.6%
San Miguel Co.,NM	18.2%	79.6%	.7%	1.5%
Albuquerque	58.3%	34.5%	2.6%	4.6%
Denver	61.4%	23.0%	.8%	14.8%
Phoenix	71.8%	20.0%	1.6%	6.6%
Salt Lake	82.6%	9.7%	1.4%	6.3%
Tucson	63.4%	29.3%	1.1%	6.3%

[1] The rates of change reported are the annual compound rate for the previous decade.

Environmental preservation

The Southwest has been the battleground for some of the most visible disputes over environmental preservation ranging from the once proposed hydroelectric facilities planned for the Colorado River within the Grand Canyon to the air quality battles over coal-fired power plants and copper smelters near national parks, monuments, and wilderness areas in the 1970s.[5] It was largely these battles which inspired the phrase "national sacrifice areas" in the context of very high scenarios for coal mining, electrical generation, coal gasification, oil shale production and uranium mining and milling that were developed in the late seventies following the oil embargo of 1973.

With the conspicuous exception of the Navajo Generating Station near Page, Arizona and the issue of its effect upon visibility in the Grand Canyon, most of these battles are over in the region. Instead, the environmental concerns have shifted to ecological preservation, groundwater quality, and urban air quality symptomatic of what has occurred nationally. As a point of current illustration, consider the Sevilleta

[5] Some plants were built, e.g. the Four Corners Power Plant; others were not, e.g. the Kaiparowits plant.

Long-term Ecological Research (LTER) site in central New Mexico.

The combination of this intersection of major biomes with the effect of the El Nino climatological phenomenon makes this area an extraordinarily rich laboratory for investigating the effects of shifting hydrological regimes upon habitat. This area is one of two regions in the country with the greatest variability in precipitation, and the advance and retreat of these intersecting biomes can be observed as it happens.

Water/Climate change

That the Southwest is predominantly a semiarid to arid region is visually clear to the casual observer. Of course, precipitation varies enormously over the contours of the region so that desert and forested highlands can be juxtaposed virtually next to one another. Of all natural conditions, water scarcity has probably had the strongest role in shaping the social character of the region. The states of the Southwest, like the West more generally, evolved a very different body of law governing water use than exists in the more water affluent regions east of the hundredth meridian.

Prior appropriation is based on the principle that the first party to put a quantity of water to "beneficial use," whether it be a miner pumping and transporting water some miles from a streambed or a riparian farmer, has first claim on the water in times of shortage. In fact, once use is established and maintained, the party has a property right to the water which is transferable as a commodity in the marketplace. The only exceptions to the rule of priority are federal enclaves and tribes, and the unresolved claims of the latter are a major feature in the modern water arena.

Through application of the appropriation doctrine, the naturally occurring surface flows of the rivers of the Southwest have become virtually fully appropriated so that the Colorado River no longer reaches the Sea of Cortez (Gulf of California) and the Rio Grande has now become two rivers in one basin with the first ending (consumed) before it reaches Ft. Quitman, Texas, only to resume again as runoff from Mexican tributaries reenters the main stem.

Many of the ultimate uses of the water occur outside the hydrologic basin in which they naturally arise as a large series of dams, reservoirs, tunnels, and canals move the water from its area of origin to urban and agricultural uses in Denver, the Imperial Valley, Los Angeles, Phoenix, Albuquerque, etc. Yet, as described in Table 1 above, the region continues to grow demographically, as it does economically. With existing supplies fully utilized, the region has turned to reallocation, or water transfers, as well as conservation practices, to extend the utility of the resource.

Originally, in the 1970s, energy uses were seen as the principal new demander for water in the marketplace, but the construction of new energy facilities, whether coal-fired electrical plants, coal gasification facilities, oil shale retorts, or uranium mines sharply dwindled as the nation moved away from a strategy of energy independence. The replacement force driving increasing water demand became instead the cities of the region which, based on the frequently employed presumption of growth indefinitely into the future, not only begin to purchase or otherwise obtain needed current supplies but also supplies sufficient to support optimistic plans for further growth.

Sectorially, the main source of new urban water has been agriculture which has been far and away the bulk user of water throughout the region for most of the twentieth century, withdrawing from eighty to ninety percent of all water in all states of the region. Irrigation water from a small farm or large ranch goes a long way in supplying municipal and industrial users.

Cities or their agents have sought water through purchase, negotiation, litigation, occasionally outright condemnation, or any other means imagination might invent. Almost invariably, the water prospectively or actually reallocated comes from a rural agricultural owner, whether it be the Vermejo Conservancy District northeast of here, a Rio Grande basin acequia northwest of here, or the Middle Rio Grande Conservancy District south of here. It is no longer even clear that interstate compacts, approved by Congress, will prevent transfers of water rights from rural uses to new and higher valued municipal and industrial uses.

Yet, water is not universally perceived to be a **commodity** in the region as the U.S. Supreme Court declared it to be in its 1983 *Sporhase* decision. Traditional cultures, as well as long established Anglo ranchers and farmers, perceive water as having more **community** value than economic, whether it be for religious reasons as "the lifeblood of Mother Earth;" social reasons as the glue which holds a traditional Hispanic farming village together; or sheer survival in which control of water is seen as control over one's future. These differences will be more concretely documented in the following section.

These conflicting values as well as equity and environmental concerns have focused considerable attention on the third-party effects of water transfers, even leading to a recently released (March, 1992) National Research Council report on these third-party effects.[6] In response to *Sporhase*, states have modified their laws governing transfers of water rights so that "public welfare" criteria, not dissimilar from "basin of origin" legislation in California, may be employed to prevent a water transfer. The early experience with this broadened basis for contesting transfers is limited, but one example that occurred in northern New Mexico involving an acequia will be described below.

When the prospect of climate change due to global warming is imposed upon the region's existing aridity, the results could be wrenching. One illustrative scenario[7] projected the possibility of a 56.5 percent reduction in water supply in the Lower Colorado and 39.6 percent in the Upper Basin. The Rio Grande was affected even more strongly. Should those scenarios ever be realized, the disruption in the region's water affairs, economy, and society would likely be sufficient to overturn existing international treaties, compacts, and other seemingly immutable institutions.

[6] *Water Transfers in the West: Efficiency, Equity, and the Environment*, National Academy Press, 1992.

[7] National Academy of Science, Carbon Dioxide Assessment Committee, *Changing Climate*, Washington, D.C. 1983.

To more clearly illustrate the importance of water to rural areas in the region, let us more fully describe the situation of traditional Native American pueblos and Hispanic villages in northern New Mexico and southern Colorado. As noted above, these communities generally value water differently from the Anglo societies in the region.

Traditional water communities in the region

Effective water management and allocation will require inclusion of the historic and cultural water rights of indigenous communities in the region. As foreseen fifteen years ago, the economic future of the region cannot be sustained by reliance on the extractive industries. Rather, the long-term economic welfare will be determined by how effectively the region manages its renewable, natural, cultural and human resources: climate, landscapes, ecosystems and the culturally diverse human settlements.[8] In terms of water and land resources, increased stresses in the decades ahead include not just the competition from the extractive industries but also from the growing metropolitan centers, recreational projects, commercialized agriculture and other water dependent sources. Pressures to transfer water rights in the direction of higher economic value uses will continue to grow and impact adversely on the historic and cultural uses of land and water.

Native American pueblos and Hispanic villages value land and water from a perspective quite unique and different from that of other constituencies—as described below—but their concerns have been little understood or not integrated into the public policy discourse. Whereas municipalities, extractive industries, recreational ventures, environmental institutions, and commercial agriculturalists effectively present their views by way of their staff planners, hydrologists, lawyers and lobbyists, the traditional water-users of the region do not have an organized or institutional framework to articulate their positions on a consistent or coherent basis.

Although numerous issues divide the traditional water-user groups, they do share similar values, customs and practices, particularly in regard to the community *acequia* (ditch) as a water control system and management institution. Unique to New Mexico and southern Colorado, community acequias (irrigation ditches which divert water from major streams and tributaries) date back to the period of settlement by land grant petitioners who incorporated and amalgamated the water control practices of Native Americans already in the region with the water management techniques derived from Moorish Spain.[9]

Constructed of locally available materials such as forest timber, brush and rocks at the diversion point, these irrigation works include an earthen *presa* (dam) and inlet works, the *acequia madre* (mother ditch or main canal), *compuertas* (headgates), *canoas* (log fumes for arroyo crossings), *sangrías* (lateral ditches cut perpendicular from the main canal to irrigate individual parcels of land), and a *desague* channel which drains surplus water back to the stream source.

Working without the benefit of surveying instruments or machinery, and relying instead on hand tools such as wooden plows, spades, hoes, and rawhides pulled by oxen or mules, early settlers engineered the irrigation works by employing simple techniques of gravity flow which diverted water upstream from their fields, traversing the ditch around trees, large boulders, hills and other physical obstacles. Frequently, gravity flow was determined by simply allowing water to run along its natural course at key intervals and channeling the ditch accordingly. Arroyos and other low elevations were either filled in or spanned by the use of hand-hewn flumes cut out of forest timber and supported by trestles of shorter logs arranged in a crib configuration to elevate and support the *canoas*. Higher points such as hilly areas were either dug through or avoided altogether by going around them.

No precise count of active ditches exists, but most estimates indicate the presence of well over 1,000 systems. Governed by elected commissioners and a *mayordomo*, the community acequia is a recognized political subdivision of the State of New Mexico, and in the great majority of villages, this status makes the ditch association the only form of local government at the subcounty level. Moreover, federal law PL 99-662 recently (1986) directed the Secretary of the Army "to consider the historic Acequia systems ... of the southwestern United States as public entities," a "public entity status [which] will allow the officials of these Acequia systems to enter into agreements and serve as local sponsors of water-related projects of the Secretary" [Water Resources Development Act of 1986].

The gravity-flow construction accounts for the serpentine characteristics of most community acequias. The technique kept initial costs low, but operations, upkeep and maintenance problems continue: spring floods perennially weaken or wash away the earthen dams; silt, debris and sedimentation obstruct flow of irrigation water at the inlet works, the sluiceway ditch, and throughout the main delivery system; and seepage through porous soils, erosion, and damaged flumes or pipes at crossing points divert water from its intended course. The annual *limpia* or ditch cleaning, a spring ritual by the mayordomo and the *parciantes* (water users), attempts to make the delivery system usable again, but more substantial repairs and improvements from time to time are inevitable, usually under emergency or crisis conditions.

Despite the annual problems with seepage and flooding, most communities refuse to upgrade their ancient water conveyance system by way of concrete lining and other engineering solutions. Even though government subsidies exist to build modern diversion structures and to line the main canals, many acequia communities simply prefer the traditional system of earthen ditches due to cultural preferences for a system of acequia management which bonds the community not only during the annual spring cleaning but throughout the seasonal changes of the year.[10]

[8] Southwest Region Under Stress Project, 1973-78, as reported in Allen V. Knesse and F. Lee Brown, *The Southwest Under Stress* (Baltimore: John Hopkins University Press, 1981), p. 5.

[9] See Wells A. Hutchins, "The Community Acequia: Its Origin and Development," *The Southwestern Historical Quarterly*, Vol. 31, July 1927-April, 1928.

[10] See Stanley Crawford, *Mayordomo: Chronicle of an Acequia in Northern New Mexico* (Albuquerque: University of New Mexico Press, 1988).

Interviews, oral histories, and other testimony abound with poignant reminders of the community and spiritual value of water:

> From where we come from in the Indian community, we are adding to it, *the necessity of spirituality* .... an intangible. There's not a one of us that [was] not born from the bag of waters from the womb. And this is what the Indians are saying. This ball we call the Earth is our Mother. We were born from it by a bag of waters. *That* is what we mean by our spirituality. And all the rain and water coming off the mountain are veins from that womb to restore our life .... Water *is* our life. We came from water; we will return back to dust .... [To call water] a property right to us is very distant thinking.[11]

To Native American pueblos, water is not a commodity to be sold or traded in the marketplace but a source of livelihood, a value echoed by neighboring Hispanic villagers:

> .... yo mejor prefiero un acre de tierra con el derecho del agua que mucho dinero, porque de allí puedo vivir; y con el dinero ... no cuenta mucho en estos días. [I prefer to have an acre of land with water rights more than to have a lot of money because from there I can maintain a livelihood; with money ... not much can be counted on nowadays.][12]

The reverence for the life sustaining powers of water, as perceived by the traditional water communities of the region, is in stark juxtaposition to the doctrine of prior appropriation and other water laws introduced by Anglo Americans. These more recent concepts allow water to be severed permanently from the land and to be bought and sold as property commodities in the free market, including the transfer of community water to other uses with alleged "higher value uses." If continued uncontested, acequia officials are concerned that the actions of other stakeholders, aided by prevailing doctrines, laws, regulations and the courts, will distrub and perhaps destroy their time-tested systems of land and water management which sustain their local economies and perpetuate the culture.

To outside observers and stakeholders, the earthen ditches are antiquated, provide marginal economic returns at best, and at worst, block inevitable development associated with urbanization, recreational tourism, and commercial agriculture. These competing stakeholders apparently have yet to realize or fully appreciate the superior adaptation to the natural physiography made possible by gavity flow irrigation in the fragile ecosystems characteristic of the region. A study of Hispanic cultural ecology in the Cañones Valley of northcentral New Mexico provides a striking contrast between the rectangular grid system of commercial Anglo agriculture and the Hispanic village system of land tenure and water distribution:

> The rectangular grid system of defining land units assumes that one unit will be essentially the same as the next; no allowance is made for regional topography, hydrology or climate. Thus, the system was unsuitable for adapting man to the environments of the uplands ... characterized by great variations in land forms, altitude, climate, and vegetation ... [where] valuable natural resources are distributed in a highly irregular fashion .... Therefore, from an ecological perspective the superiority of the Hispanic system of land tenure for a subsistence economy is clear.[13]

The Cañones study reveals that the agricultural practices and irrigation methods provided cultural, practical as well as ecological solutions of adaptation to the natural environment. To these and other villages of the uplands communities, water is essential to continued economic subsistence and is an integral part of the permanent resource base. To sever water rights from the land is tantamount to extinguishing all life forms in the ecosystem. This conclusion helps to explain why potential water transfers to uses outside the acequia communities are often protested with such fierce intensity, as illustrated in a number of case studies during the last twenty years.

In the Taos Valley, for example, real estate developments since the late sixties have caused land and water rights prices to skyrocket to meet the demand for second homes, condominiums, lodges and other recreational facilities in proximity to the world class ski resort. One study of this area reported that land in the Río Hondo watershed area increased in price from $1,000 per acre in 1965 to $25,000 or higher by 1986.[14] New projects of this type often rely on water rights transfers from area acequias or from underground wells, reason enough for traditional water users to oppose the proposed developments as was done during the "Condo War" in Valdez, New Mexico, during the early 1980s.[15] A documentary account by anthropologist Sylvia Rodríguez recorded the community's alarm when a development project proposed to transfer water from the San Antonio ditch to an underground well needed to supply domestic water for a planned condominium. Among other negative impacts, Rodríguez captured the deleterious effect the water transfer would have on the survival of the time-tested acequia system of collective labor and maintenance:

> ... each time a parcel loses its water rights, a proportional amount of labor and ditch fees is also lost to the system as a whole, thereby increasing the burden of maintenance upon the remaining parciantes. Each member is a link in the chain of community water use and control, and each time a member and his quota of water and labor are lost, the overall chain is weakened.[16]

The same point was raised in Río Arriba county to the west of Taos when the Ensenada community ditch association protested a proposed water transfer in 1982 where the applicant, Tierra Grande Corporation, requested a diversion of 61.32 acre feet of water from the Nutrias Creek to create a recreational lake for use by a planned subdivision housing complex. After its creation, the lake project, if approved, would require annual

[11] Herb Blatchford, remarks at Upper Río Grande Water Policy Symposium, Ghost Ranch Conference Center, September 11, 1985.

[12] Andre Martínez, Oral History Transcript, Southwest Hispanic Research Institute, University of New Mexico, p. 9 (September 28, 1988 interview).

[13] John R. Van Ness, "Hispanic Land Grants: Ecology and Subsistence in the Uplands of Northern New Mexico and Southern Colorado," in Charles L. Briggs and John R. Van Ness eds., *Land, Water and Culture* (Albuquerque: University of New Mexico Press, 1987), p. 194.

[14] Sylvia Rodríguez, "*Acequias*, Resouces Domains, and the Economic Future of the Río Arriba," paper prsented at the Annual Meeting of The National Association of Chicano Studies, El Paso, Texas, April 11, 1986, p. 9.

[15] See Sylvia Rodríguez' detailed ethnographic account of the Valdez "Condo War" in "Land, Water and Ethnic Identity in Taos," chapter in Charles L. Briggs and John R. Van Ness, op. cit., pp. 313-403.

[16] *Ibid*, p. 356.

diversions of 13.32 acre feet, permanently retiring 14.02 acres of ancestral acequia farmland irrigated with waters from Nutrias Creek.[17] Although the applicant contended in state district court that the subdivision project and lake would support the "public interest" in terms of jobs created for a new tourism economy, the acequia members argued a contrary public interest position by claiming that the retirement of a portion of the agricultural lands and appurtenant water rights would burden the remaining association members with increased responsibilities for ditch maintenance due to the loss of acequia lands of two local property owners contracted for the impending sale.

For the time being, the ditch members won the appeal when presiding Judge Art Encinias reversed the approval previously granted by the State Engineer:

> Northern New Mexicans possess a fierce pride over their history, traditions and culture .... it is simply assumed by the Applicants that greater economic benefits are more desirable than the preservation of a cultural identity .... to transfer water rights, devoted for more than a century to agricultural purposes, in order to construct a playground for those who can pay is a poor trade, indeed.[18]

Even though the Encinias decision was later reversed by the state court of appeals on a technical point related to the effective date of when public interest arguments could be considered by statute, acequia officials throughout the region believe that the publicity of the case served to define better the central role of the community acequia as a cultural institution worthy of preservation and legal protection in the future.

Surveys conducted in northern New Mexico and southern Colorado during the last ten years have confirmed the importance of water resources to the goal of cultural survival and community maintenance. In the fall of 1983, for example, extended interviews with 98 community leaders in the bi-state region revealed that the great majority of respondents replied negatively when asked: "How do people in your area feel about selling water rights?" More than 80% opposed the sales of water rights and would opt not to sell theirs. Combined with qualitative responses obtained during this survey, the research team concluded that the opposition to water rights sales was "rooted in social and cultural concerns rather than economics .... [people] thought in terms of preservation of Hispanic culture, ... of rural life, and related values."[19]

A more recent survey in one of the Colorado counties (summer 1990), probed attitudes of rural Hispanics toward environmental issues and economic development associated with a private sector proposal to develop a strip-mine and cyanide leaching operation for the mining of gold-bearing ore in the foothills of the Sangre de Cristo mountain range. Again, the applicant in this case wanted to transfer water rights from area ditches and underground sources in order to operate the mining facilities claiming that their venture would create jobs and stimulate the depressed economy of the rural county. Of the 209 respondents in the community survey, only 17.6% supported the opening of the mine, 5.4% were undecided and fully 77% were opposed.[20]

The survey also asked residents to comment on another project in the county that would mine and then export water to urban areas from the valley's aquifer at the rate of 200,000 acre feet per year. When asked about the probable impact the exportation of water would have on valley communities, the respondents overwhelmingly expressed concern (88%) that the project would lead to a decline of agriculture without creating new jobs (99%).[21] As alternatives, the residents favored economic development projects more compatible with the historic and cultural lifestyles of the valley: arts and crafts (99%), agriculture (99%), culturally sensitive tourism (91.5%), and small business development (99%).[22]

The historic and cultural values associated with acequia community waters continue to be asserted in other forums and with increasing sophistication. During the recent water rights adjudication suits in the Río Pueblo de Taos and Río Hondo, a coalition of community acequia associations filed a motion (3/18/91) and an affidavit with the federal district court claiming legal recognition for "time immemorial" customs and traditions. Heretofore, since enactment of the surface water code of 1907, adjudication proceedings in New Mexico had considered only technical hydrographic data to identify water rights owners, quantify water rights of all legal owners, and assign relative priority dates across all owners in a stream, with the oldest right having the first right.

The affidavit itself was a historic first: the doctrine of prior appropriation and its use of the priority date system for allocating water would be voluntarily suspended by the community ditch commissioners who had filed the affidavit. Instead, the commissioners declared they would follow the "repartimiento" system of "dividing" water according to local customs and traditions where water is shared by all, regardless of priority date:

> ... the aforesaid acequias by and through their duly elected commissioners agree that they will continue to follow and be bound by their customary divisions and allocations of water and agree that they will not make calls or demands for water between and among themselves based upon priority dates.[23]

The commissioners then presented testimony before the Special Master to verify the practice of dividing acequia waters according to the local customs of sharing. Typical arrangements noted in the hearing transcripts included:

[17] See account of *Sleeper vs. Ensenada Land and Water Association* in Charles T. DuMars and Michele Minnis, "New Mexico Water Law: Determining Public Welfare Values in Water Rights Allocation," *Arizona Law Review*, vol. 31, No. 4, 1989, pp. 817-839.

[18] Judge Art Encinias cited in DuMars and Minnis, p. 826.

[19] F. Lee Brown and Helen M. Ingram, *Water and Poverty in the Southwest* (Tucson: University of Arizona Press, 1987), p. 80

[20] Devón G. Peña and Louis McFarland, "Survey of Environmental Attitudes in Costilla County, San Luis Valley, Colorado," Preliminary Field Report No. 1, The Río Grande Bioregions Project, Colorado College, September 1990, p. 11.

[21] *Ibid*, p. 14.

[22] *Ibid*, pp. 14-15.

[23] Affidavit in the United States District Court for the District of New Mexico, Exhibit 1, "Motion to Adjudicate Local or Community Customs of Water Division or Allocation Between and Among Acequias on the Río Lucero and Arroyo Seco," No. CIV-7898 C and No. CIV-7939 C, filed March 18, 1991.

> We share the water .... based on need. If we feel that a field needs some water, we can help that person .... those are customs that were developed and used by our ancestors.[24]

> When [the flow is] low, nobody has any. When it's high, everybody has some. That's always the way it was too. If there's a cup of water there, we will share it.[25]

> If you end up with different priority dates, I think we'd have a nightmare trying to run water through all kinds of ditches at different points.[26]

In the end, the acequia commissioners were not successful in moving the court to adjudicate and incorporate local community customs of water division in the Final Decree. However, they did manage to get the attorney for the Office of the State Engineer to concede three important stipulations read into the record:

> 1. Article 8 of the Treaty of Guadalupe Hidalgo protects water rights which were valid under the prior sovereigns of Spain and Mexico as of 1846;
>
> 2. Under Spanish and Mexican law, water allocations or repartimiento de aguas, were [based] on equity, common good, need, noninjury to [other] parties and earlier use, not on first use alone; and
>
> 3. In northern New Mexico water has traditionally been shared in times of shortage so that every acequia would have some water.[27]

The strategy employed by the coalition of acequia associations in this adjudication suit demonstrates the lengths to which acequia officials will go to retain and maintain water rights *in the community*. Whereas the system of priority dates isolates each water right and therefore facilitates the transfer for development or other uses, the relinquishing of specific priority dates in favor of a shared water supply would discourage the sale of water rights outside the community.

In the future, acequia officials likely will continue to assert the community value of water in other forums and with other refined strategies. As market pressures to transfer water to other uses continue to increase, we can expect a concomitant rise in efforts and actions by the traditional water-users to assert their historic claims, customs and rights. The value differences are fundamentally at odds and cannot be expected to go away — conflict no doubt will continue. What is more important is for the discourse to be informed as to all sides of the issue. Perhaps then the diverse set of values can be accommodated and costly litigation avoided.

As a starting point, water-based planning needs to incorporate the social infrastructure and cultural ecology of the region alongside the technical and economic components of planning. Sustainable cultural communities, in the long run, foster rather than hinder other forms of economic development. Without them, the amenities needed for a regional program of industry attraction (to the urban centers), cultural tourism (sustainable), and other development strategies will dry up, literally. Rural studies programs at land grant universities and other institutions of higher education can make a distinct contribution by way of innovative rural development curricula, interdisciplinary research, and pro-active outreach services which value and validate cultural diversity in the regional context.

Then and now

We began this paper with a review of global issues which appear in sharp form within the Southwest region. Over the last fifteen years, the locus for some of these issues may have shifted from one subregion to another and the principal stimulus for continued stress upon natural and social systems by these issues may have changed from "energy independence" to urban growth. Nevertheless, the region remains a crucible in which resolution of these stresses will eventually occur in one form or another.

The Southwest can be characterized as a region of "edges," illustrated by the intersecting biomes of the LTER site or, alternatively, as a region at the margin of sustainability, illustrated most cogently by the mining of groundwater aquifers by growing cities. In this perspective the Southwest becomes a "precursor" or laboratory nationally and, in conjunction with Mexico, internationally in its response to global issues. Can the region find a path which simultaneously improves the welfare of its human society and preserves the natural systems which gave birth to and sustain all lifeforms in the first instance? A successful answer in this region could provide valuable insight nationally and internationally.

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[24] State of New Mexico vs. Eduardo Abeyta and Celso Arellano, et. al., United States District Court for the District of New Mexico, Transcript, May 20, 1991 Candido Valerio testimony, p. 109.

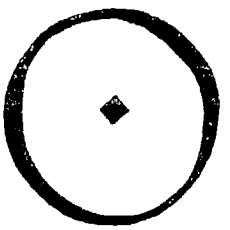
[25] *Ibid.*, Transcript, May 20, 1991, Esequiel Trujillo testimony, p. 233.

[26] *Ibid.*, Transcript, May 21, 1991, Palemon Martínez testimony, p. 25.

[27] *Ibid.*, Transcript, May 20, 1991, Charlotte Benson Crossland, pp. 16-17.

Misunderstanding the West in general and New Mexico in particular

Peirce Lewis*



Of all American regions, the arid and mountainous West is the most famous, but is also the most misunderstood. No region has more persistently gripped the public imagination, no region has seemed so insistently alluring, no region has been so shrouded in myth and error. Misunderstanding the West is a long-standing American habit—not just of distant Easterners, but of many Westerners too—and that misunderstanding has caused endless trouble. Countless migrants have moved to the West, expecting one thing and finding another. Time and again, migrants to the West have tried to bend a new and unfamiliar land to meet their mistaken expectations, and their efforts have visited ruin on land and people alike. Governments have pursued policies and spent huge sums of money on a West that exists mainly in the imagination, so that policies have gone awry, money has been wasted, and a good deal of the West has been damaged in the process. Misunderstanding the West, in short, is a chronic and costly American failing, and it runs as a common theme through all four of these papers.

Mistakes about the West

Our chronic misunderstandings of the West, it seems to me, are rooted in a set of long-standing mistakes about the physical and human geography of the region.

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The first mistake —and perhaps the most basic —is to view the West as a roomy spacious place, with plenty of elbow room for newcomers who want to come and settle there. That view is easy to understand: any traveler from the East who crosses the plains and mountains to the west coast is left with an overwhelming sense of big sky and empty land. What the casual traveler often fails to notice is that the humanized West is a very crowded place. The key to living in the West, as Paul Starrs and José Rivera both remind us, is water, for without it, land is worthless —indeed, uninhabitable. Water is scarce in most of the West; to find it in abundance is uncommon, and where water occurs in quantity, people congregate, often in great numbers. The human west, as Donald Meinig has remarked, is a collection of oases,[1] and oases (like the Nile Valley) often tend to be very crowded places: green refuges in a brown wilderness. New Mexico is typical: the overwhelming majority of people inhabit a narrow ribbon of green along the Rio Grande, just as in Colorado all of the important towns and most of the state's population are concentrated in the Colorado Piedmont, a thin belt of well-watered land that hugs the eastern edge of the Rockies.[2]

A second mistake is to see the West as a land rich in resources. From earliest times, that mistake has been encouraged by boosters; Horace Greeley was only the most famous of many. But Western resources tend to be very unevenly distributed —both in terms of geography and in terms of ownership. One of the most vivid and misleading images in American folklore is the solitary Forty-Niner, panning gold from the bed of the Feather River with a tin pie-plate. The Forty-Niner stands for what all of the West is supposed to stand for: the ability of the self-reliant newcomer to wring a fortune from Western bounty through courage, hard work, and individual enterprise. The truth of the matter, alas, turned out quite differently, as Forty Niners and others have discovered to their grief. By the time most would-be miners arrived in California, the easy gold had already been scooped up, and the richest claims had already been staked. To make matters worse, serious long-term gold-mining was not a task for dilettantes or amateurs. Big money was not made by scooping nuggets from stream gravel; big-time mining meant driving deep shafts through hard rock, and that required the investment of serious capital. As in the East, therefore, money did not often come to the impecunious, no matter how brave and self-reliant they might be; instead, money came to those who already had money, and who knew how to manipulate it. William Randolph Hearst, one of California's first self-made millionaires, was fairly representative of a whole genre. He made his fortune from the silver mines of the Comstock Lode near Reno, not from digging holes in the ground, but by arranging the financing that paid for others to do the digging. Similar stories can be told about other resources: oil, copper, timber, and —of course—land, most of which ended up in the hands of a very few rich landowners, like the Southern Pacific Railroad Company, or the United States Government. The story of the Joads was characteristic: poor people moving to California in hopes of starting a little farm, only to discover that all the arable land was owned by a few large owners, none of whom had any intention of sharing the bounty.

The most precious resource, *water*, was precisely the hardest to own and most expensive to obtain. The owners of water were the owners of wealth, but from the beginning in the West, very few people got water or wealth without money and power to start out with —and the willingness to use that money and power ruthlessly. The city of Los Angeles showed how that was done early in the 20th century, when a shortage of water threatened to stifle the boom that had enriched the real-estate speculators who were the city's leading citizens. To put a permanent end to the drought, Los Angeles manipulators reached northward 200 miles to seize control of the water-rich Owens Valley on the east side of the Sierra Nevada, and then built a colossal aqueduct which guaranteed the city a virtually unlimited supply of water. The methods used to acquire and build the Owens Valley water system have been described variously as larcenous and piratical, but that was judged immaterial by Los Angeles power brokers. The act of aquatic piracy guaranteed enormous fortunes to those who happened to be lucky enough to hold irrigable land in the Los Angeles basin. Nobody in the city's booming real estate business apologized for high-jacking Owens Valley water; nobody even thought of apologizing. Those who engineered the Owens Valley water grab were simply following time-honored rules of getting rich from Western resources: buy early, buy cheap, corner the market, and rake in the profits.

...all the arable land was owned by a few large owners who had no intention of sharing the bounty.

A third mistake—and a consequence of the first two—is to see the West as a land of widespread opportunity. The fact is quite otherwise. Opportunity is not widespread—not in geographic terms anyway. Indeed, most of the non-urban West (one hesitates to call it "rural") still functions like a 19th Century colony, a sparsely populated region whose main function is to provide semi-finished raw materials (things like lumber, beef, or copper) which are then shipped off to metropolitan markets far away. As in most colonies, much of the West has traditionally been held by absentee owners—big mining companies, big railroads, and big government agencies—none of which have shown much tendency to treat land with tender loving care. There are two obvious results of such absentee ownership. The

[1] D. W. Meinig has written extensively and perceptively about the West. For a summary of his ideas about the West as a collection of oases, see "American Wests: Preface to a Geographical Interpretation," *Annals of the Association of American Geographers* 62 (2) 1972, pp. 159-184. Reprinted in John Fraser Hart, *Regions of the United States*, New York: Harper and Row, 1976.

[2] It is hard for the ordinary motorist to grasp the true emptiness of the West, since people tend to live alongside roads, and the roadside is most of what the motorist sees. The way to see and appreciate Western emptiness is look out of the airplane window on a trip, say, from Phoenix to Salt Lake City — or, vicariously, on any good-quality roadmap.

first, as Bernard de Voto wrote half a century ago, is that the West has been a "plundered province"[3]—and if it doesn't look plundered to the casual traveler, it is only because the West is so big, and the plunder is so widely distributed and casually accepted. But environmental sensitivity is not the rule in a big land with few people —and environmental surveillance was extremely difficult, even if surveillance had been in vogue (which it usually was not). The second consequence has been that economic opportunity in the West is seldom found in rural areas; in fact, the West has precious little territory that can be called "rural"—at least in any sense that would have meaning to an Easterner. Opportunity lies in the oasis cities of the West—and the bigger the city, the more magnetic it seems. That is the reason that Los Angeles continues to attract migrants from all over the country and all over the world, despite the city's manifold and well-publicized woes. In the West, bigness begets bigness. Despite E. F. Schumacher, most Westerners do not believe that small is beautiful.

The fourth and last mistake is to view the West as a kind of quintessential American melting pot —the ultimate destination for migrants from all corners of the nation and the world. Popular magazines are fond of pointing out that Los Angeles has the largest number of Mexicans living outside of Mexico, more Samoans than live in Samoa, more American Indians than on most reservations, and so on. Despite all the publicity about upward mobility among new arrivals from Korea and VietNam, ethnic mixing remains the exception; segregation remains the rule. Far from being a melting pot, most of the West is a shattered mosaic of different people, living next to one another in adjacent spaces. Just as turn-of-the-century New York had its Chinatowns and Little Italys, contemporary Los Angeles has its Little Tokyo, Korea-town, Watts, Hispanic East L.A. —none of them integrated neighborhoods. And what is true of Los Angeles is equally true on a smaller scale in less publicized places like Stockton and Modesto and Albuquerque, each with sizeable Hispanic, Indian, Black or other ethnic ghettos.

Ethnic segregation is equally the rule in non-urban areas. In western Kansas and eastern Colorado, for example —Dust Bowl country of the western Plains —a host of little towns sprang up overnight in the 1880s, often populated by small homogeneous groups from the same province or village in eastern Europe. Once settled, further migration dried up —so that homogeneous towns stayed homogeneous, isolated little patches of exotic ethnicity. Today, western Kansas is scattered with villages and hamlets, each dominated by the ageing descendents of the original settlers: third-generation Slovenians in one, third-generation Ruthenians in another, third-generation Galicians in yet another, and so on. Western Kansas, like much of the "rural" West, is no melting pot; at best it is a very lumpy goulash.

Misunderstanding New Mexico

If the West is a misunderstood region, New Mexico is the most misunderstood part of the West. Indeed, to many Americans outside the state, New Mexico is literally a foreign country.[4] Throughout most of its history, New Mexico has been marginal to the main cultures that settled it: Indian, Hispanic, and Anglo-American.[5]

New Mexico's Indian population is, per capita one of the largest of any American state. Except for highly visible roadside Indian bingo parlors and gift shops, most of the Indian population is invisible to the casual visitor, as well as to Anglo and Hispanic inhabitants of New Mexico. That is no accident: if, as Matthew Snipp remarks, Indians are the "vanishing Americans," the desert reservations of the Southwest are easy places to vanish into. For the eyes of the Anglo establishment that runs the country from the east and west coast, New Mexico's large and widespread Indian population is geographically very easy to ignore—and convenient to forget.

The same is true of New Mexico's Hispanic people, even though Hispanics constitute the majority of the state's population. That has been true for about four centuries—since the earliest arrival of people from Spain. Spain's concern with New Mexico was sporadic at best. The jewels in Spain's imperial crown were Mexico and Peru, the ancient seats of Aztec and Inca population, and the richest sources of gold and silver for the Spanish treasury. Encouraged by their successes in Mexico and Peru, Spanish explorers and missionaries had reached north and south from those great imperial seats in search of more gold and more converts. But the successes were not repeated, despite energetic exploration from Patagonia to the southern Rockies. New Mexico was the northernmost extent of the Spanish reach; Hispanic populations dwindle rapidly north of the Colorado state line. Over the course of time, the tentacles of empire withered, as imperial overlords in Madrid, Mexico City, and Lima gradually lost interest in far-flung territories where there was no gold, and native people tended to be obstreperous. Thus it was that the Spanish settled the northern Rio Grande Valley, and maintained control over it, but seldom with much enthusiasm. By the time Spanish settlement had spread northward to the edge of the Colorado Rockies, the imperial energy was exhausted —and spread no farther. The upper Rio Grande valley was, from the Spanish standpoint, a dead-end —and easily forgotten.

Under the Spanish, then, New Mexico was a place to be held absent-mindedly —a north-south route of empire that ultimately led nowhere. The arrival of westering Americans turned it, however, into a crossroads. The American lunge for the Pacific threw two U.S.-owned east-west railroads across the older north-south Spanish route along the Rio Grande. One of those railroads was the ATSF, "The Santa Fe Line" (the Atcheson, Topeka, and the Santa Fe), headed for Guaymas on the Mexican coast of the Gulf of Lower California, and to Chihuahua to link up with the Mexican National Railway system.

[3]The phrase evidently originated in De Voto's essay, "The Plundered Province," published in the August 1934 issue of *Harpers Magazine*.

[4]*The Wall Street Journal* recently ran an indignant letter from a New Mexico resident, complaining that the price of his subscription to a national magazine had been assessed a surcharge to pay for foreign postage rates. The letter-writter went on to assert that such things happen to New Mexicans all the time.

[5]An excellent treatment of this subject is D. W. Meinig's *Southwest: Three Peoples in Geographical Change, 1600-1970*. New York: Oxford University Press, 1971.

The Santa Fe Railroad created a whole new pattern of human geography in northern New Mexico. Despite its name, the railroad bypassed the Sangre de Cristo Mountains and Santa Fe as well, instead crossing the Rio Grande at Albuquerque, which promptly became the main route junction in northern New Mexico, and, consequently, the biggest city in the territory. (The second railroad was the Southern Pacific, which crossed the Rio Grande en route to Los Angeles just north of the Mexican border, and turned El Paso into a southern equivalent of Albuquerque). In this redrawing of New Mexican geography by railroads, Santa Fe was simply brushed aside. While the old colonial town ultimately got a spur to link it with the ATSF mainline, and keep its status as political capital, Santa Fe was not in the economic mainstream, and remained a sleepy provincial town, antique reminder of an older time. Santa Fe's atmosphere of somnolent antiquity would eventually pay off when it was later "discovered" by artists, latter-day hippies, and tourists—but that would not happen until late in the 20th Century.

As seen from New Mexico, these railroad projects announced a new day in the region's demographic and economic history, and marked a watershed between old and new. As seen from the railroad board-rooms in New York and Los Angeles, however, New Mexico was an incidental way-station, merely one of several handy watering spots between Atlantic America and its newly acquired Pacific littoral. During most of its history under U. S. control, New Mexico has remained isolated and marginal, an exotic artifact of Indian and Hispanic population, overlain by a thin scattering of Anglo-American population in a few odd places, tourist centers like Santa Fe, route junctions like Albuquerque, or nuclear bomb-factories like Los Alamos (which was deliberately located in the mountains of New Mexico precisely because it was isolated from the national mainstream). Most of the state remains innocently untouched by mainstream Anglo-dominated America. But that is nothing new. New Mexico has always been a marginal place.

And the future of New Mexico?

One can argue whether marginality is a good thing or not. In economic terms, of course, marginal places are often poor —and it is no coincidence that New Mexico is one of the poorest states in the American union —no accident that a wealthy, self-admiring place like contemporary Santa Fe bears little resemblance to the rest of the state. And along with economic poverty has come political impoverishment. New Mexico has little clout in the national political arena; like most of the non-urban West, it has traditionally been a place to be casually exploited but usually forgotten.

It is in marginal places, however, where ancient fragile cultures have their best chance to survive the onslaught of modernity. Just as the isolated swamps of the Mississippi delta provided refuge for America's last indigenous French-speaking culture, the off-road mountains and deserts of New Mexico have given refuge to antique Hispanic and Indian cultures that survive nowhere else in the rapidly modernizing United States. If we value the preservation of old cultures, if we genuinely value ethnic and cultural diversity, then the isolation and marginality of New Mexico may turn out to be a kind of blessing.

But impoverished places like New Mexico are ill equipped to fend off the power of the metropolis. Pressures for change are visibly coming. New Mexico, after all, lies squarely between Texas and California, two of America's most aggressive expansionist regional cultures. While they have not yet overrun New Mexico, both are clearly on the march. Texans long ago moved into eastern New Mexico in such numbers that the Pecos Valley between Clovis and Carlsbad is known as "Little Texas," and Cloudcroft has long been a mountain retreat for summer people from Dallas and Houston. To the west, much of Arizona (including Phoenix and Tucson) has already been converted into a vast suburb of southern California.

It would be rash to predict the exact form of change that is destined for New Mexico, but Santa Fe may give us a hint —with its expensive neo-adobe real estate, its nouvelle Mexican cuisine, and its efflorescence of high-style boutiques with branches in Beverley Hills, Grosse Pointe, and Aspen. The fragile old Hispanic and Indian cultures of New Mexico are obviously no match for this kind of thing, their picturesque poverty no match for the muscular acquisitive wealth of Los Angeles and Houston. A good many people (among them, many New Mexicans) will find these changes welcome, as more and more of New Mexico takes on the trappings of America's dominant urban culture. But for many members of those older cultures, the changes will be unsettling, cruel, and destructive.

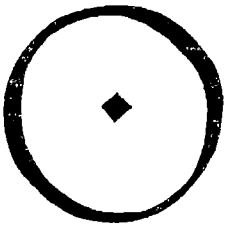
along with economic poverty has come political impoverishment

But changes are coming, as they have come again and again throughout New Mexico's 400 year encounter with a far-off metropolitan world. Change is not the question. Rather, the question is the sort of change. It could be that the peddlers of real estate will continue their efforts to turn the upper Rio Grande valley into a new version of Phoenix or Tucson —a suburb of California or Texas or the metropolis in general —and in some parts of northern New Mexico that is already happening, Santa Fe and Taos being egregious examples. It could be that enough "natives" will adopt metropolitan ways that they will learn how to peddle their picturesqueness to seasonal tourists —and that is happening too, from "Old Town" Albuquerque to the Indian gift shops at freeway interchanges. What is not plausible, however, is that fragile old indigenous cultures can remain independent as they engage the powerful forces from outside the region. The real question, I think, is whether, during the course of that engagement, indigenous New Mexico can retain its identity and dignity without staying poor and isolated. The recent history of people in colonial regions elsewhere in the "developing" world does not encourage one to be optimistic.[6]

[6]John Nichols' *The Milagro Beanfield War* (New York: Ballentine Books, 1974), makes the same point forcefully and dramatically. It is a kind of black joke that many reviewers dismiss it as light comedy.

Putting Columbus in his place

William Howarth *



October 12. Columbus Day

It was a miracle that Columbus found America, but it would have been more the miracle if he had not.

Mark Twain, from
Pudd'nhead Wilson's Calendar

On the morning of Friday, November 2, 1492, the Admiral sent out from the *Santa Maria* four men—two Spaniards, a Guanahani, and a Cubano—to explore the interior of Cuba and find the Great Khan. In silent, single file they passed along the beach, then into a dark green wall of jungle. The Indians moved ahead, their raven hair and nude copper skin dappled by light and shadow. The Spaniards paced behind, throwing wary glances at the foliage. Words failed here, though they knew several languages. One Spaniard spoke Hebrew, Chaldean, and some Arabic; the other understood native signs. The Indians had a common tongue, and they knew what the pale men wanted: gold, spices, and the Khan, in that order.

From the moment these strangers had arrived at Guanahani three weeks ago, they had not behaved like human beings. Their canoes bore tall poles and long strands of twisted hemp, and from them hung great cloaks that sighed and sucked in the wind, like a man's chest when he struggles to breathe. The strangers had rough skin covered with hair. They wore shining hats and heavy garments streaked with dirt and sweat. They

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shouted and made ugly faces. They smelled bad. They came from a place far across the water, where the sun rose. They were clearly gods, and the heavens had sent them for a reason.

The Admiral, a Genoan born Cristobal de Colon and later called Columbus, thought the natives' reverence was a good sign. Reaching these shores had sorely tested his own faith, for since departing land in the Azores, he had sailed 33 days without knowing his exact geographical locus. During that time he could gauge his latitude but not longitude, because no existing charts estimated the east-west distances accurately. So he had navigated by inspired dead-reckoning, relying on his eye for wind and current to estimate a course and keep the fleet of three Spanish caravels tracking south-southwest.

His journey was brave yet cracked, for Columbus believed in that common error of early geographers, that the earth was round and compact. In the second century A.D. Ptolemy had computed the globe as 6,000 miles short of its actual girth, a mistake that placed Asia in the western hemisphere. Columbus thus reasoned that a short route to the east lay due west, only 3,000 miles across the Atlantic. After 33 days out from the Azores he could not imagine he was anywhere but near Cathay, the southeast coast of China. His actual location was the Bahamas, on a small isle called Guanahani (or Guacanagari) in the Lucayan chain. The natives were timid and respectful, their ancestry clearly Asiatic. Deeming himself in the east Indies, he dubbed the people *los indios* and put them directly to work.

Three weeks later, when he sent emissaries into Cuba with gifts and a letter, Columbus thought they would find the Great Khan, descendant of the monarch who greeted Marco Polo in 1275. In a few days the men returned with mixed news: they had located spices and new foods, but no Khan and little gold. Many natives wore nose and ear-rings, but they said the gold mines lay far away—and pointed in all directions. Columbus inferred that gold was abundant, and that finding it was just a matter of exploration. He brushed aside other native tales, of one-eyed cannibals who drank blood and ate men's genitals. As he wrote in his diary, the people here were simple and naked, "quite lacking in evil and not warlike." [1]

Ignoring their battle scars and horror stories, Columbus saw the Indians as an Adamic race, and they thought he was a god from heaven. In fact he was just of average height, with a long nose, ruddy face, and snowy hair. But in those early hours of contact each side saw more, viewing the other as signs of ancient augury. In that sense the Americas were not "new" or "undiscovered" to anyone, just coincidental—like a stone tripped over at night. Mark Twain saw the irony: it was no "miracle" Columbus found America, for how on earth could he miss it? Upon meeting, both races hauled out old, familiar stories to make sense of their surprise. The response may be typically human, but in this exchange the natives were sorely handicapped. Their tales were oral, intangibly spun on air; while the European wrote his words *down*, on blank pages of history.

Inscription, whether marking letters on paper or entering names in a register, is an act of control and enclosure, especially as it gathers into monitored form the loose or disparate, the remote and exotic. Concluding the diary entry for November 4, Columbus tells his readers (Ferdinand and Isabella, monarchs of Spain), that the Indians are wealthy and pious, and thus ripe for conversion—if priests will learn the native tongue. Hence he will bring to Spain some specimen Indians, conscripting both sexes because the women "will teach our men much of their language, which is identical in all of these islands of India."

Lost in America, Columbus searched for a language that would decipher this baffling, unwritten world. After all, literacy got him there; first by reading Pythagoras and Aristotle, Strabo and Pliny; and then by scanning the sky or sea for telltale signs of place. That clump of weeds—did it mean land? Where is the shoal water? How far have we gone? On the journey he prevailed each day by making charts, writing entries in his diary, and reading Scripture. Once during a lengthy calm his men feared they would not reach home, but then "the sea rose high and without wind," just as when Moses led the Jews from Egypt. Because a great Book interpreted history, Columbus thought his pages had a similar function. We may now see his situation differently (he had drifted into the Atlantic Gyre, a current that circles from the Bahamas to Spain), but our view is a reading, as well.

In quarreling over the merits of a Quincentary, few observers have noted that the political charges now leveled at Columbus are also largely verbal. Did his arrival destroy millions of "native" Americans? Should Berkeley, California, ignore its "Sons of Italy" and call October 12 "Indigenous People's Day?" Names and phrases invented by later migrants have replaced his, and in that process the Admiral's original, stunned sight of landfall has faded away. Every generation puts him in its place, not in his. During the romantic era, as wagon wheels churned dustily west, Columbus was a heroic, progressive Discoverer. In today's sullen postcolonial world he is Euro-Plague, spreading the genocide and ecocide that ruined a pristine Eden.

We tend to misread Columbus because his life and mind were so badly recorded. The *Diario* of his first voyage, a story that made him legendary, is not an original document but an abstract made forty years later by Bartolome de las Casas, a Dominican bishop. "Abstract" is a misnomer, for Las Casas recast the lost original with broad paraphrase, freely weaving his own belief and bias into the textual fabric. The result is a deconstructor's delight, its pages crowded with indeterminancy. Did Columbus originally write in Spanish? In the first person? In the past or present tense? Las Casas scribbles confused asides, blots out word choices, sways between what he and the Admiral say happened, or wished to happen, at any given time. The point of view shifts with Conradian fluidity:

> *The Indian informed him by signs* about many lands and islands that were in those regions. *The Admiral thought* of tak-

[1] All quotations are from *The* Diario *of Christopher Columbus's First Voyage to America, 1492-1493*, Abstracted by Fray Bartolome De Las Casas; Transcribed and Translated into English, with Notes and a Concordance of the Spanish, by Oliver Dunn and James E. Kelley, Jr. (Norman: University of Oklahoma Press, 1989).

> ing him to the sovereigns, and *he says* that because he had the ship hauled out of the water on land, and not wishing to anger him, he let him go, *the Indian saying* that when dawn came he would return. He never did. (italics supplied)

On a close look, the scene dissolves into spectral divination. Las Casas reads Columbus, Columbus the Indian, and the Indian says (or signs?) one thing, but does quite another. Precisely what anyone heard, thought, said, or did that day is unknown—unless to Las Casas, a priest well-trained in amplifying testamentary words.

This problem rises early in the diary as Columbus sails west, computing his daily distances. Las Casas notes the recurrence of two different figures, actual and reported:

> He made 15 leagues that day and he decided to report less than those actually traveled so in case the voyage were long the men would not be frightened and lose courage.

Now perhaps in the original diary two sets of numbers did appear, but did the Admiral also say he was lying? Why admit that in *writing* and risk later discovery? The diary's recent editors think Columbus may have used dual numbers to help his crew, who were more familiar with Portuguese than Spanish standards of measurement. But the diary suggests a darker purpose:

> ...he always pretended to the men that they were making little way so the voyage would not appear long to them. So he wrote that voyage in two ways: the shorter was the pretended; and the longer, the true.

Who wrote these lines, the author or his abstractor? We cannot know, because the diary text so constantly shifts between direct and indirect reporting. On his return voyage, the diary insists that Columbus pretended greater distances in order to "remain the master of the route to India." Duplicity may well represent his style as a leader and writer, but it also suits a priest long habituated to court and church intrigue, and to the evidentiary standards of Renaissance history.

But is that a fair picture of Las Casas? In the eyes of later historians, he seems a credible witness. He knew Columbus personally, described his looks and character candidly, and gave an estimate of his place in history that is notable for its even-handed praise and censure. Las Casas also knew the Indies at first hand, and his experience in the New World was atypical. He went to Cuba in 1502 and, as an *encomendero*, ran a plantation with Indian slave-converts. After he became a Dominican in 1510 (the first New World ordination), he served as principal missionary to Cuba and became appalled at the Spaniards' cruel treatment of native people. On frequent trips to Spain he pleaded for more humane policies, defending the Indians as rational, just beings, not inferior but merely an "uncultivated soil" that, depending on its treatment, would bring forth either weeds or fruit.

This liberal, utilitarian view earned Las Casas enemies in the Spanish court and a formal denunciation by the Inquisition. His response was to write a record for posterity. Sometime between 1527 and 1539 he made his synoptic abstract of the Columbus *Diario* of 1492-93, and during a long retirement at the Dominican College in Valladolid, Las Casas set down his monumental *Historia de las Indias*, a detailed, condemnatory account of mutilation, torture, rape, and other injustices perpetrated by Spanish colonists upon the ostensibly "savage" Indians. Las Casas died in 1566, at the age of 92, and his writings (not published until the early 1800s), encouraged later revolutionaries, such as Simon de Bolivar, to break from the hold of European dominion.[2]

That background only complicates our understanding of Las Casas' relation to the Columbus *Diario*, for a strong-minded apostle may not be an unbiased scribe. Las Casas makes it difficult for us to locate an "author" in the diary, since the deeds and thoughts it attributes to Columbus are quite equivocal. At base his story is about dreams: armed with expectancy, he sails into the unknown, meets a strange people, then resists or revises them in writing, according to their powers of revelation. Although he plans to keep a running account of the expedition "very diligently" for his patrons, that project often founders. Times and places grow vague and he omits tiresome repetitions, such as the rites of meeting and presenting gifts to natives. All too often he flatters Ferdinand and Isabella, but then Columbus had wooed them for seven years and needed to sustain their patronage. If he tells his sponsors what happened, he also says what they need to hear: that Christendom has found a way to the East, free of Muslim interference.

Many events launched the Renaissance, but none more decisively than Spain's defeat and expulsion of the Moors in early 1492. Uniting their two Iberian kingdoms, Ferdinand and Isabella had cast out the guardians of ancient art and science, but no matter—what now counted was the ideological purity and fiscal power of a rising Christian state. Spain approved the search for a western route to the Indies to end making risky trips around Africa or through Islamic lands. Yet in his mind Columbus was not just promoting Spain, but saving Asia from infidel perdition. His means of salvation was very clear, the imperious written word.

When he came ashore on October 12 (with his *escriviano*, or clerk-purser), Columbus took possession of Guanahani by reciting prayers, reading formal declarations, and giving "testimonials made there in writing." These scribal rites concluded, he distributed red caps and glass beads to the natives, thinking they were "better . . . converted to our Holy Faith by love than force." The Indians took these "things of small value" and offered him parts of their world: parrots, cotton thread, tobacco, and corn.

Was his act of possession legal? Not if the island belonged to a Great Khan. Through Columbus, Spain had seized some of "Asia" on the self-justifying grounds of cultural superiority. Columbus at first saw "the Indians" as a primitive race, unlettered and ignorant of abstract values. Ignorant himself of their language, he did not know if they greeted him out of wonder or terror. When a god makes an offer, the wise mortal shows gratitude. If the natives did not understand him well, their own gifts conveyed a strong sense of self and place. Corn and tobacco were the islands' most useful and sacred sub-

[2] For a recent estimate of Las Casas as historian and scribe, see John Noble Wilford, *The Mysterious History of Columbus* (New York: Alfred A. Knopf, 1991).

stances, and that reverence was widely shared across "the new world."

The silence about early America prevailed largely because its natives lost their alphabet. For many thousands of years they spoke through song, story, painting, and carving; and by 800 B.C. the inhabitants of meso-America had developed glyphs to contain and convey ideas. Literacy bloomed most vividly during the classic eras of Mayan, Aztecan, and Incan people. While the Mediterranean world prospered these "pre-Columbians" also farmed, built pyramids, wrote calendars and epic poems; yet after 700 A.D. they fell into steep decline. At the time of European contact the natives were no longer a powerful, literate civilization. Much of their written lore was lost or destroyed, and only in recent years have scholars recovered shards of the early language and history.

In the northern lands that Columbus never saw, native people told a different story. After eons of following the seasonal migrations of wild game, many Indians had settled into a pastoral life centered on corn, a food cultivated from Canada to Chile. By 1492 North America was home to an estimated populace of two million, spread widely (one person in 3,000 acres) and grouped in some 300 language groups. They had basic technology and adapted well to many natural settings, from desert canyons to lush woodlands. Tribal and clannish, they held to local places but used trading networks to exchange goods and ideas. Tribes communicated with signs, and in time that language should have evolved into literacy—as it had for neolithic Europeans over the course of 2,000 years.

Through his encounter with native people, Columbus began to see and even write some aspects of their untold story. Those he met in the Indies were Arawaks, long resident and well advanced in culture. Initially he patronized them, with two divergent themes: they were naked wretches, to be pitied as objects of charity; or they were simple innocents, quite unversed in the arts of war, trade, or worship. Against those strong prejudices, his diary also noted that the natives wore gold, spoke of battles, carved religious masks, and traded goods shrewdly. After he saw large, well-kept farms and villages on Cuba and Hispaniola, his tone of condescension moderated. In writing (and probably re-reading) the diary entries, a tension developed between his beliefs and senses. The inscriptive, didactic powers of text began to yield to inquiry and exploration, more tentative impulses. Although Columbus wanted to see the Indians on familiar terms, as inferiors ripe for command and conversion, the diary increasingly depicted resistant, secretive strangers, not easily duped and so more equivalent to him than anticipated. In his pages the natives began to emerge as a people well suited to their place.

They were especially devious about gold, the commodity Columbus pursued with obsessive zeal. Nothing spoke to him more strongly of Asia than the Indians' golden ornaments, which he thought lavish and alluring. Yet although "guileless and generous with all they possess," the natives would not share this wealth. Perhaps they had religious scruples about gold, or recognized its rarity, or simply did not know its source. (Deposits lay in Haiti, but the gold may also have traveled long trade routes from Mexico or the Andes.) All his queries met evasive answers: the gold was near; it was far; it was always elsewhere. Some tales were sheer hyperbole. An elder on Tortuga described "within a hundred or more leagues....an island that was all gold...such a quantity that it is collected and separated as with a sieve; and they melt it and make bars and a thousand objects." The credulous Admiral soon hauled anchor and departed. Gold became his journey's fleece and grail, dictating an aimless itinerary in the islands, the near-mutiny of one commander, and some far-fetched claims of finding gold dust at "Rio del Oro." A few days before departure he was still tracking rumors about "an exceedingly great quantity of gold" in Hispaniola, "where he could get it for nothing." That search continued on all four of his voyages, but the Indies never yielded him much treasure.

In this failure Columbus was most betrayed by his alien values and language. Although the Arawaks spoke readily to each other with words, totems, and smoke signals; the Admiral had to rely on clumsy miming,

...Columbus...was trained to regard nature as groceries.

much of it lost on the natives. Their dialects confused him, as when "Cibao" sounded to his ear "Cipangu," the name Marco Polo used for Japan. In Spanish, "Cibao" swiftly became "Cuba." The language barrier blinded him to many racial differences in thought and behavior. In an oral culture language is regarded as primary and mysterious, like the half-light of dreams. Language pre-exists nature; its words of "sky, earth, water" call forth a creator, who in turn speaks "corn, fish, man," the beings that share kinship in names. A most sacred element is corn, often called Our Mother because the plant provides food, shelter, clothing, and survival.

When the natives gave him corn and tobacco, they offered natural objects that said "life and peace," but Columbus heard little because he was trained to regard nature as groceries. The oral traditions of his race had vanished centuries ago into literacy, a force that drove western cultures into long-term development, prosperity, and global exploitation. In his traditions the earth was blank: one assumed a superior position above it and marked lines that made it into property, gave it a material shape in space and time, let it provide a background that threw human achievement into greater relief. The great Book in his life constantly repeated this story. On the first day God appears in a void and speaks, to create nature and divide earth from heaven. Through his life and death Christ speaks the word of God: seek not the earth, but the Kingdom of Heaven. On the last day nature collapses with the reading and writing of oracles, and earth rejoins heaven. Shaped by those stories, Columbus read his Bible, inscribed his signature with religious symbols, and kept the faith that he must master distant oceans and lands.

Yet in his actual experience of discovery also lay the possibility of revision, the shifts of attitude that may

come during a journey. What changed Columbus most deeply was not the people he met, but their place. The diary reflects his constant reading and writing of landscape, which became a natural mentor. At the outset he clearly showed a pious, grasping need to turn "India" into a familiar setting. He spread his faith across the land, naming places San Salvador, Villa de Navidad, and leaving giant wooden crosses at many harbors he entered. To assure the material purpose of his mission he calculated the worth of "all things of value" by sizing up the depths of bays, the tonnage of stone quarries, the yield of pearls from local oysters. His common point of reference was Spain, recollected in frequent allusions to the countryside of Castile and Cordoba, also his patrons' homelands. These analogies, and the Spanish names he freely wrote onto charts, helped him to repatriate the new world, subdue it by colonizing its strangeness.

But in the midst of such strong shaping Columbus also relaxed into purely appreciative accounts of natural scenery, from high mountains to cold, fast-running streams. A newcomer to the tropics, he found many sights so exotic that he could not describe them with platitudes:

> And I saw many trees very different from ours, and among them many which had branches of many kinds, and all on one trunk. And one little branch is of one kind, and another of another, and so different that it is the greatest wonder in the world how much diversity there is between one kind and another; that is to say, one branch has leaves like those of cane, and another like those of mastic, and thus on a single tree [there are] five or six of these kinds, and all very different. Nor are they grafted, because one might say that grafting does it. Rather, these trees are wild, nor do these people take care of them.

The identity of this tree is uncertain (a banyan, perhaps), but not his evident desire to report the discovery fairly. Some novelties overwhelmed his language, for he saw many new species of fruit, such as citrus, pineapple, papapaya, mango, yet lacked their names: "that I do not recognize them burdens me with the greatest sorrow in the world." He delighted in the Indies' beauty and freshness, expressed in the lush green verdure, the sweet aromas of flowers, the long cascades of jungle waterfalls. Enjoying the warmth of a tropical fall and winter, he was far from the cold, drab hills of Spain and learning to enjoy the difference.

Because the language of home could not fully contain such experience, at times he wrote descriptions that he knew were ignorant and paltry, and he lamented not being able to say what he saw or felt. The truth about the Indies kept exceeding his grasp: each day, there appeared countless islands, filled with thousands of kinds of trees, with the highest mountains and deepest harbors he had ever seen. Often he apologized to his sovereign readers for such rapture, fearing "he may be judged to be an excessive magnifier of what is true." That temptation doubtless existed, since he needed to justify the cost of his expedition, but in less tactical hours he simply enjoyed the land for its own sake. The pace of exploration slowed as he savored new places. He missed favorable wind or tide for departures "because of the desire and delight that he had received from seeing and looking at the beauty and freshness of those lands." At times Las Casas failed to echo the Admiral's enthusiasm, passing over descriptions with a flat "He says marvelous things of the beauty of the land and of the trees . . . ." For his part, Columbus was enchanted by the Indies. Although he had claimed them as a possession, they remained so elusive that "a thousand tongues would not suffice to tell it or his hand to write it."

He had but one tongue, and the Indians had the other. His failure to learn their words greatly frustrated and isolated Columbus, confining him to wild guesses about their views, which he increasingly wanted to comprehend. At first he was not sure if one or more languages prevailed in the islands, a condition that would greatly affect the process of settlement and conversion. In time he began to understand words and signs more fully. Through some discussions with informants he found that strong differences existed between the island dialects. They had many words for "gold" and also for its legendary keepers, the fierce and much feared "Caribs."

The Caribs, an exceptionally handsome tribe with bronze skins, high cheekbones, and straight black hair, were anything but timid or respectful. On a first meeting they instantly attacked the Spaniards, only to be driven off with sharp sallies of sword and crossbow. Caribs dwelled principally on Dominica and terrorized the other islands by conducting slave raids. Horrifying stories spread about their vicious ways: they were cannibals, the tales said, who castrated male slaves to fatten them, and bred the female slaves to produce fresh viands. They were also rumored to possess much gold, which encouraged Columbus to plan a raid of his own. He postponed that encounter for the second voyage, when fresh crews and supplies would give him more tactical advantage.

After marking Christmas and the New Year, he reluctantly set a return course for Spain on January 4, 1493. The homeward journey proved to be far more dangerous than his stay in the tropics. Winter storms in the mid-Atlantic nearly crushed the fleet, and for four days Columbus thought he would perish, his great story going to the bottom untold. Clearly, this hard passage was an ultimate test of his faith. He prayed, vowed to make pilgrimages, and mortified his flesh with long hours of exposure to the elements, taking no sleep or food. In the diary he conducted agonizing, prayerful discourse about his fears: he would die, never see his family, not tell Your Highnesses of finding a route to the Indies. All this was God's doing, of course, but how it hurt to die in obscurity. Perhaps writing was a way out. On the night of February 14,

> . . . he took a parchment and wrote on it all that he could about everything that he had found, greatly beseeching him who might find it to take it to the sovereigns. He wrapped it in a well-tied, waxed cloth and ordered a large wooden barrel brought and he put the parchment in it without anyone learning what it was, except that everyone thought it was some act of devotion; and he ordered it thrown into the sea.

With this act, the navigator became a full-fledged author. The parchment was his final testament, an expression of willed experience set free to find others who might read, understand, and preserve it. Writing was an act of devotion, bread cast upon the waters, and had it survived this gospel might well have given us a far dif-

ferent, more actualized image of Columbus than we have today.

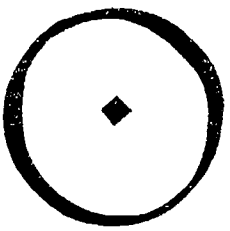
He was spared, and lived on to experience days of triumph, failure, and even comical anti-climax. After limping into the Azores, he sent ashore for a grateful pilgrimage 100 men, whom local authorities promptly arrested. Later still, on reaching Portugal, Columbus had to fend off a king who claimed the Indies as his own. With an effective mixture of bluff and fast talk the Admiral eluded both traps, came home to his Spanish patrons, and delivered the jubilant news: a miracle had occurred, as ordained by Our Lord, without whom nothing is done, "as one may understand through this writing."

Thus Columbus ended a first voyage into history, one that challenged his faith in European standards by exposing him to native people and a tropical place, so unlike his origins. The story recorded in his *Diario* raises all the problems of property and possession that govern colonial experience. In the conflict he recorded between native and invading cultures lies a long train of events that converged in North America and ran a violent way over the next four centuries. By 1892 the Europeans had won, destroying most of the natives through disease, warfare, and displacement. Settlement of the continent killed off other aboriginal species, from the buffalo to the grasslands, until the once open country was "Kansas," neatly marked with survey lines, roads, fences, and fields.

Behind this material conquest stood the triumph of an ideology that empowered written abstraction and ignored natural behavior. But the Columbus story also reveals that text, for all its force of captivity, also has the potential of emancipating an author and culture from old views. The very loss of wild America produced strong reactions to its settlement, and to the defeat of native people, that gives our history and literature its brooding sense of tragic pastoralism, echoed from *Moby-Dick* down to *The Grapes of Wrath* and *Dances With Wolves*. That sense that Americans broke and spent an Eden inspired Henry Thoreau's counter-intuition, "In Wildness is the preservation of the world." To Thoreau, himself a discoverer who worked in obscurity, Columbus raised fundamental questions of why human beings hunger to seek and know: "to what end does the world go on," Thoreau asked, "and why was America discovered?" The answer appears to lie in learning not to possess places, but comprehend them. Open lands remain unwritten, and in that capacity are sacred. As Thoreau wrote, "though the world is so old, and so many books have been written, each object appears wholly unexplored. The whole world is an America, a New World."

The New Mexico rural economy One person's portrait

Robert O. Coppedge*



Population trends and characteristics

Population growth in New Mexico has been rapid over the past several decades. From 1970 to 1990, population rose from 1,017,055 to 1,515,069, an increase of about 49 percent (Table 1). This places New Mexico among the fastest growing states in the country. U.S. population growth was 21 percent in the same period. This county and city, San Miguel and Las Vegas, have gained 17 and 7 percent respectively.

Despite rapid population growth, the state's per capita income ranking has not been improving. Population growth has not brought prosperity to the state. Twenty years ago New Mexico was 42nd nationally in per capita income (6). In 1989 we were 46th (4). All New Mexico counties, with only one exception, fall below the national average. Per capita income in New Mexico for 1990 was 77 percent of the national level (Table 2). San Miguel County had a 1989 per capita income of $9,020, the fourth poorest in the state and about half the national average of $17,594.

The state is definitely rural. Its image and future are directly linked to rural characteristics. All but six of the 29 nonmetropolitan counties have shared in state's population growth. Nonmetropolitan counties grew by nearly 40 percent from 1970 to 1990 (Table 3). Of the total population, 48 percent were in metropolitan counties, and 52 percent were in nonmetropolitan (rural) counties. Several of the larger nonmetropolitan counties are not adjacent to metropolitan counties, a result of our diverse resource base.

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Table 1. Population

	United States	New Mexico	San Miguel County	Las Vegas City
1910	92,407,000	327,301	22,930	6,934
1920	106,461,000	360,350	22,867	8,206
1930	123,188,000	423,317	23,636	9,097
1940	132,122,000	531,818	27,910	12,362
1950	151,684,000	681,187	26,512	13,763
1960	180,671,000	951,023	23,468	13,818
1970	204,879,000	1,017,055	21,951	13,835
1980	226,545,805	1,303,302	22,751	14,322
1990	248,709,873	1,515,069	25,743	14,753

Sources: United States: *Historical Statistics of the U.S.: Colonial Times to 1970 and 1980 Census*, United States Bureau of the Census.

New Mexico: *1991 Statistical Abstract of the United States, Population Abstract of the United States.*

San Miguel County: *New Mexico Statistical Abstract 1989* and *Population Abstract of the United States.*

Las Vegas City: *Population Abstract of the United States.*

(3).

Table 2. Per capita income

	United States	New Mexico	San Miguel County
	dollars		
1969	3,808	2,888	1,806
1970	4,051	3,145	1,997
1971	4,296	3,374	2,080
1972	4,665	3,698	2,243
1973	5,182	4,077	2,547
1974	5,648	4,488	2,825
1975	6,073	4,948	3,192
1976	6,651	5,404	3,513
1977	7,294	5,967	3,890
1978	8,136	6,728	4,514
1979	9,033	7,461	4,927
1980	9,919	8,169	5,321
1981	10,949	9,020	5,894
1982	11,482	9,503	6,485
1983	12,100	9,837	6,723
1984	13,116	10,495	6,991
1985	13,899	11,188	7,513
1986	14,597	11,432	7,784
1987	15,425	11,872	8,151
1988	16,510	12,468	8,359
1989	17,592	13,221	9,020
1990	18,685	14,428	na

Sources: United States: *1991 Statistical Abstract of the United States* (and earlier years)

New Mexico: *1991 Statistical Abstract of the United States* (and earlier years). *Regional Economic Information System*, April 1991, Bureau of Economic Analysis

San Miguel County: *New Mexico Labor Market Review*, Employment Security Dept. (February 1992 and earlier issues)

Table 3. New Mexico population by nonmetropolitan and metropolitan county

	1990	1980	1970
NONMETROPOLITAN COUNTIES:			
Catron	2,563	2,720	2,198
Chaves	57,849	51,103	43,335
Cibola [2]	23,794	30,346	20,125
Colfax	12,925	13,667	12,170
Curry	42,207	42,019	39,517
De Baca	2,252	2,454	2,547
Eddy	48,605	47,855	41,119
Grant	27,676	26,204	22,030
Guadalupe	4,156	4,496	4,969
Harding	987	1,090	1,348
Hidalgo	5,958	6,049	4,734
Lea	55,765	55,993	49,554
Lincoln	12,219	10,997	7,560
Luna	18,110	15,585	11,706
McKinley	60,686	56,536	43,208
Mora	4,264	4,205	4,673
Otero	51,928	44,665	41,097
Quay	10,823	10,577	10,903
Rio Arriba	34,365	29,282	25,170
Roosevelt	16,702	15,695	16,479
Sandoval	63,319	34,400	17,492
San Juan	91,605	81,433	52,517
San Miguel	25,743	22,751	21,951
Sierra	9,912	8,454	7,189
Socorro	14,764	12,566	9,763
Taos	23,118	19,456	17,516
Torrance	10,285	7,491	5,290
Union	4,124	4,725	4,925
Valencia	45,235	30,769	20,451
Nonmetro Counties	**781,939**	**693,583**	**561,536**
Percent of Total	52	53	55
METROPOLITAN COUNTIES:			
Bernalillo	480,577	420,261	315,774
Dona Ana	135,510	96,340	69,773
Los Alamos	18,115	17,599	15,198
Santa Fe	98,928	75,519	54,774
Metro Counties	**733,130**	**609,719**	**455,519**
Percent of Total	48	47	45
NEW MEXICO	1,515,069	1,303,302	1,017,055

[2] Valencia was split to form two new counties, Cibola and Valencia on June 19, 1981

Source: (3)

Metropolitan counties contain rural areas outside the urbanized central cities, and when only urban city limits are considered, rather than metropolitan counties, the rural picture is even more vivid. Small towns are prevalent in the state. There are three metropolitan cities with populations over 50,000 (Table 4). The remaining 96 incorporated rural communities and unincorporated rural areas contain 1,012,348 people, or two thirds of the total population.

Table 4. New Mexico city population

	1990	1980	1970	% Change 1980-90
Alamogordo	27,596	24,024	23,035	14.9
Albuquerque	384,736	332,920	244,501	15.6
Angel Fire	93	68	na	36.8
Artesia	10,610	10,385	10,315	2.2
Aztec	5,479	5,512	3,354	-0.6
Bayard	2,598	3,036	2,908	-14.4
Belen	6,547	5,617	4,823	16.6
Bernalillo	5,960	3,002	2,016	98.5
Bloomfield	5,214	4,881	1,574	6.8
Bosque Farms	3,791	3,353	na	13.1
Capitan	842	762	439	10.5
Carlsbad	24,952	25,496	21,297	-2.1
Carrizozo	1,075	1,222	1,123	-12.0
Causey	57	81	150	-29.6
Central	1,835	1,968	1,864	-6.8
Chama	1,048	1,090	899	-3.9
Cimarron	774	888	927	-12.8
Clayton	2,484	2,968	2,931	-16.3
Cloudcroft	636	521	525	22.1
Clovis	30,954	31,194	28,495	-0.8
Columbus	641	414	241	54.8
Corona	215	236	262	-8.9
Corrales [1]	5,453	3,348	na	62.9
Cuba	760	609	415	24.8
Deming	10,970	9,964	8,343	10.1
Des Moines	168	178	204	-5.6
Dexter	898	882	746	1.8
Dora	167	168	196	-0.6
Eagle Nest	189	202	na	-6.4
Elida	201	202	233	-0.5
Encino	131	155	250	-15.5
Espanola [2]	8,389	7,296	4,528	15.0
Estancia	792	830	721	-4.6
Eunice	2,676	2,970	2,641	-9.9
Farmington	33,997	32,677	21,979	4.0
Floyd	117	146	248	-19.9
Folsom	71	73	75	-2.7
Fort Sumner	1,269	1,421	1,615	-10.7
Gallup	19,154	18,167	14,596	5.4
Grady	110	122	104	-9.8
Grants	8,626	11,439	8,768	-24.6
Grenville	24	39	21	-38.5
Hagerman	961	936	953	2.7
Hatch	1,136	1,028	867	10.5
Hobbs	29,115	29,187	26,025	-0.2
Hope	101	111	90	-9.0
House	85	117	119	-27.4
Hurley	1,534	1,616	1,796	-5.1
Jal	2,156	2,675	2,602	-19.4
Jemez Springs	413	316	356	30.7
Lake Arthur	336	327	306	2.8
Las Cruces	62,126	46,999	37,857	32.2
Las Vegas	14,753	14,322	13,835	3.0
Logan	870	735	386	18.4
Lordsburg	2,951	3,195	3,429	-7.6
Los Lunas	6,013	4,097	973	46.8
Los Ranchos de Albuquerque	3,955	2,739	1,900	44.4
Loving	1,243	1,355	1,192	-8.3
Lovington	9,322	9,727	8,915	-4.2
Magdalena	861	1,022	652	-15.8
Maxwell	247	316	393	-21.8
Melrose	662	649	636	2.0
Mesilla	1,975	2,029	1,713	-2.7
Milan	1,911	3,747	2,222	-49.0
Moriarty	1,399	1,276	758	9.6
Mosquero [3]	164	197	244	-16.8
Mountainair	926	1,170	1,022	-20.9
Pecos	1,012	885	598	14.4
Portales	10,690	9,940	10,554	7.5
Questa	1,707	1,202	1,095	42.0
Raton	7,372	8,225	6,962	-10.4
Red River	387	332	na	16.6
Reserve	319	439	na	-27.3
Rio Rancho	32,505	9,985	na	225.5
Roswell	44,654	39,676	33,908	12.5
Roy	362	381	476	-5.0
Ruidoso	4,600	4,260	2,216	8.0
Ruidoso Downs	920	949	702	-3.1
San Jon	277	341	308	-18.8
San Ysidro	233	199	182	17.1
Santa Fe	55,859	49,299	41,167	13.3
Santa Rosa	2,263	2,469	2,485	-8.3
Silver City	10,683	10,474	8,557	2.0
Socorro	8,159	7,173	5,849	13.7
Springer	1,262	1,657	1,574	-23.8
Sunland Park	8,179	4,313	na	89.6
Taos	4,065	3,369	2,475	20.7
Tatum	768	896	982	-14.3
Texico	966	958	772	0.8
Tijeras	340	311	na	9.3
Truth or Consequences	6,221	5,219	4,656	19.2
Tucumcari	6,831	6,765	7,189	1.0
Tularosa	2,615	2,536	2,851	3.1
Vaughn	633	737	867	-14.1
Virden	108	246	151	-56.1
Wagon Mound	319	416	630	-23.3
Willard	183	166	209	10.2
Williamsburg	456	433	367	5.3

* Estimates are for incorporated cities. Los Alamos which has a city/county form of government is not included in the above table.
na = not available
[1] Includes both Bernalillo County and Sandoval County portions
[2] Includes both Rio Arriba County and Santa Fe County portions
[3] Includes both Harding County and San Miquel County portions
Source: (3)

Most of the jobs are in metropolitan counties, reflecting in part declines in traditional rural industries such as mining, agriculture, and forest-related industries. Metropolitan counties afforded 350,600 jobs in 1990, while nonmetropolitan jobs totaled 224,700 (Table 5). Many workers apparently elect to live outside central cities, and commute to jobs, since nonmetropolitan counties had the greater population.

Minority populations are prominent in the state. Hispanics are 38 percent of our total population, the highest percent in the nation (Table 6). Native American population, at 12 percent, is second highest in the nation. Minority populations are at least half of the total population. Minorities constitute a majority of the population in many low income rural areas. In San Miguel County, the 1990 Census of Population indicated that 80 percent of the population was of Hispanic origin, and 30.2 percent of the total population was below the poverty level, compared to 20.6 percent below the poverty level in the state as a whole (for the total population). Both state and county estimates of the percent of the population below the poverty level were higher than in 1980.

Rural economic characteristics

The top rural industries in terms of employment or sales depends on the definition of "industry." For example, the top three employers in nonmetropolitan counties are Government (26 percent), Wholesale & Retail Trade (24 percent), and Services (21 percent) (Table 7). Mining is fourth (7 percent) in this data series. Agricultural employment is in a different data series, but if included would nudge out mining for fourth place (8 percent) in terms of employment.

This categorization is by SIC code. Other categorization methods often involve double counting. For example, when agriculturalists are determining the importance of the food and fiber system, employment is counted from farms, ranches, and a number of SIC categories (e.g., manufacturing, wholesale & retail trade, and services). Without belaboring the definition issue, for purposes of this document the most important economic reasons for existence of most rural areas in New Mexico must include agricultural production, tourism, mining (including oil & gas), and timber production. Government, Trade, and Services relate to these resource-based sectors.

The economy of the state's rural areas has been traditionally based in natural resources and the land. These resources include oil and gas, coal, molybdenum, copper, and uranium. Agriculture and timber complete the resource-based scenario for the rural economic base. Another significant source of rural income is tourism, which is based on the beauty of our natural resources, climate, and cultural amenities.

With the possible exception of tourism, there have been major ups and downs in many communities which base their livelihood on natural resources and the land. In fact, a downward trend is evident in most of the related industries, depending on the measure used. In late 1991 and 1992, announcements were made around the state regarding employment cutbacks related to copper and molybdenum mining, oil and gas extraction, manufacturing, timber harvest, and lumber production. Communities dependent on uranium have been in the doldrums for several years, and coal mining communities experience continual uncertainty. Potash mining, a major activity in southeastern New Mexico is currently looking better, but its path has been difficult at times.

Table 5. New Mexico civilian labor force, by county (annual averages) 1990 by nonmetropolitan and metropolitan county [1]

	Civilian Labor Force	Employment	Unemployment Rate (%)
	.....number....		percent
NONMETROPOLITAN COUNTIES:			
Catron	1,285	1,112	13.5
Chaves	23,670	22,435	5.2
Cibola	8,731	7,703	11.8
Colfax	6,332	5,845	7.7
Curry	16,418	15,375	6.4
De Baca	976	909	6.9
Eddy	19,991	18,610	6.9
Grant	10,478	9,592	8.5
Guadalupe	1,683	1,489	11.5
Harding	367	312	15.0
Hidalgo	2,744	2,582	5.9
Lea	21,330	20,216	5.2
Lincoln	6,508	6,145	5.6
Luna	6,074	5,289	12.9
McKinley	18,539	16,621	9.5
Mora	1,219	932	23.5
Otero	18,557	17,235	7.1
Quay	4,713	4,370	7.3
Rio Arriba	13,431	11,627	13.4
Roosevelt	7,553	7,250	4.0
Sandoval	29,191	27,388	6.2
San Juan	34,429	31,395	8.8
San Miguel	9,781	8,849	9.5
Sierra	2,764	2,618	5.3
Socorro	6,118	5,698	6.9
Taos	10,600	9,062	14.5
Torrance	3,785	3,484	8.0
Union	2,009	1,913	4.8
Valencia	16,244	14,925	8.1
Nonmetropolitan Counties	**305,340**	**280,981**	**8.0**
METROPOLITAN COUNTIES:			
Bernalillo	264,817	251,592	5.0
Dona Ana	59,168	55,207	6.7
Los Alamos	13,644	13,439	1.5
Santa Fe	57,032	54,780	3.9
Metropolitan Counties	**394,661**	**375,018**	**5.0**
New Mexico [2]	**700,000**	**656,000**	**6.3**

[1] Estimates made in accordance with the U.S. Dept. of Labor

[2] State annual average numbers may not calculate due to rounding

Source: (3)

Note: Detail may not add to totals because of rounding

Table 6. Detailed race characteristics and Hispanic origin, 1990

	United States (1980)	New Mexico	San Miguel County	Las Vegas City
RACE				
White	1,890,535,012	1,146,028	16,392	9,113
Black	26,482,349	30,210	170	104
American Indian	1,478,523	134,355	222	129
Asian or Pacific Islander	3,726,440	14,124	151	91
Other	5,767,668	190,352	8,808	5,316
HISPANIC ORIGIN				
Not of Hispanic Origin	211,937,132	935,845	5,252	2,657
Hispanic Origin (*Total*)	14,608,673	579,224	20,491	12,096
Mexican	8,740,439	328,836	6,084	3,822
Puerto Rican	2,013,945	2,635	27	17
Cuban	803,226	903	12	7
Other Hispanic Origin	3,051,063	246,850	14,368	8,250
HISPANIC ORIGIN BY RACE				
Not of Hispanic Origin				
White	180,256,366	764,164	4,689	2,279
Black	26,104,173	27,642	145	91
American Indian	*	128,068	168	101
Asian	*	12,587	116	68
Other	5,576,593	3,384	134	118
Hispanic Origin				
White	8,115,256	381,865	11,703	6,834
Black	390,852	2,568	25	13
American Indian	*	6,287	54	28
Asian	*	1,537	35	23
Other	6,102,565	186,968	8,674	5,198

* This information was not determined in the 1980 Census

Source: *1990 Census of Population and Housing*, Bureau of the Census, U.S. Dept. of

Table 7. 1990 Nonagricultural wage and salary employment by sector by nonmetropolitan and metropolitan county

	Nonmetropolitan Counties		Metropolitan Counties	
Employment Sector	number	percent	number	percent
Total	222,992	100	351,132	100
Manufacturing	14,966	7	26,721	8
Mining	15,457	7	136	<1
Contract Construction	10,982	5	18,221	5
Transportation, Communications, Utilities	13,641	6	15,329	4
Wholesale & Retail Trade	54,495	24	82,329	23
Finance, Insurance, & Real Estate	7,822	4	17,818	5
Services & Miscellaneous	47,503	21	99,049	28
Government	58,126	26	91,529	26
1990 Statewide Agricultural Employment*				**18,201**

*Proprietors and Wage and Salary Workers.

Source: (3, 10)

Tourism will continue to provide income opportunities for many communities. The challenge here will be to target higher wage jobs and reduce seasonal fluctuations. We do have year round recreational opportunities, but these a e not evenly dispersed.

Two other sources of economic activity in rural areas have been the railroad and federal government. Many communities in the state owe their original existence in part to the railroad. As the railroad declined, many rural communities declined or were forced to depend on other economic sectors.

The state has a great number of defense related jobs, and as changes in federal priorities occur, rural areas are likely to suffer disproportionately. From 1970-1988 military employment dropped 3 percent in the state but 6 percent in rural areas. Again, rural areas have a tendency to bear the brunt of change.

Overall, New Mexico has been a leader in per capita federal expenditures. In 1990, the state was 43 percent higher than the U.S. per capita average, and was ranked number 3 nationally (10).

The Federal government presence is also noticeable when land ownership is considered. Over a third of New Mexico land is owned by the Federal government, and in nine counties over half the land is federally owned (Table 8). Seven of these nine counties are in nonmetropolitan areas. Federal issues such as grazing rights, grazing fees, the Mexican spotted owl, timber sales, and multiple use are subjects of much concern in most areas of the state.

New Mexico's economy, both rural and in total, has sometimes been described as a colonial economy. Other, more prosperous regions are seen as "mining" the state's raw resources. The state in turn buys back high-priced finished products. Recent discussion in some rural communities centers upon a supposed characteristic of such colonial economies, that is, the tendency for more affluent areas to influence the location of certain undesirable activities to rural areas. One might thus explain the recent appearance in rural areas of municipal sewage sludge disposal, medical waste incinerators, nuclear waste sites, and prisons. It is a relevant question as to whether this colonial mentality and status is forced upon rural areas, and the state in total, or whether our behavior encourages such treatment. It seems to be a combination of the two.

In this context there is increasing recognition of the need to add more value to New Mexico products before exporting.

Table 8. New Mexico land ownership by nonmetropolitan and metropolitan County

	Total	Federal	State	Indian	Private
	acres				
NONMETROPOLITAN COUNTIES:					
Catron	4,414,720	2,799,004	533,037	0	1,082,679
Chaves	3,900,800	1,265,500	703,706	0	1,931,594
Colfax	2,413,440	15,740	278,186	0	2,119,511
Curry	898,560	3,862	60,667	0	834,031
De Baca	1,541,240	90,848	243,570	0	1,179,822
Eddy	2,675,200	1,648,563	477,730	0	548,907
Grant	2,540,800	1,294,877	367,685	0	878,238
Guadalupe	1,919,360	120,053	177,810	0	1,621,497
Harding	1,368,320	70,506	344,981	0	952,833
Hidalgo	2,206,080	893,679	354,431	0	957,970
Lea	2,812,160	466,952	873,748	0	1,471,460
Lincoln	3,109,760	1,103,482	300,841	0	1,705,437
Luna	1,892,480	786,150	534,951	0	571,379
McKinley	3,495,040	564,580	183,974	2,158,410	588,076
Mora	1,244,160	107,642	81,638	0	1,054,880
Otero	4,248,320	2,886,626	449,908	460,255	451,531
Quay	1,845,120	14,535	237,714	0	1,592,871
Rio Arriba	3,765,120	1,953,173	108,530	646,932	1,056,485
Roosevelt	1,572,480	38,517	211,140	0	1,322,823
Sandoval	2,378,880	987,297	80,192	650,380	661,011
San Juan	3,530,240	1,039,281	168,416	2,110,692	211,851
San Miguel	3,050,880	394,215	173,808	0	2,482,857
Sierra	2,700,160	1,830,310	361,195	0	508,665
Socorro	4,240,640	2,318,458	609,547	56,680	1,255,955
Taos	1,444,480	733,325	97,144	62,288	551,723
Torrance	2,147,200	207,787	299,805	16,300	1,623,308
Union	2,442,880	58,725	441,946	0	1,942,209
Valencia*	3,621,120	700,034	251,746	849,551	1,819,789
Total Nonmetropolitan Counties**	**73,419,640**	**24,393,721**	**9,008,046**	**7,011,488**	**32,979,392**
% of State Total	94.29%	91.24%	95.70%	95.41%	95.96%
METROPOLITAN COUNTIES:					
Bernalillo	748,160	154,590	32,201	222,527	338,842
Dona Ana	2,434,560	1,821,515	286,910	0	326,135
Los Alamos	69,120	64,448	0	0	4,672
Santa Fe	1,221,760	336,157	85,857	79,458	720,198
Total Metropolitan Counties	**4,473,600**	**2,376,710**	**404,968**	**301,985**	**1,389,847**
% of State Total**	5.75%	8.89%	4.30%	4.11%	4.04%
STATE TOTAL	77,866,240	26,735,431	9,413,017	7,348,563	34,369,229

* Includes Cibola County

** Sum of subtotals may not match state total due to rounding errors

Source: Developed from Williams, J.L., ed., *New Mexico in Maps*, 1986, p. 261

Food products are a good example that fit many rural areas of this state. Farm and ranch production may increase, but will likely not supply a large number of additional higher paying jobs in agricultural production. The real opportunity for economic growth related to agriculture is probably in value-added to agricultural products, especially food processing. Mexican food products are indigenous to New Mexico, but, for example, we export our green chile to other states to process into salsa, which we then buy in the grocery store. Not only are we failing to process for a strong in-state demand, but we're not claiming a large enough share of a growing national and even world-wide demand. We have the image and inherent ability to produce and aggressively market many Mexican food products.

Business characteristics

New Mexico is a state of small businesses. Using the U.S. Small Business Administration definition of less than 500 employees, there are only 38 large businesses among the 35,376 businesses in the state (Table 9). Twenty-four of the 38 big businesses in the state are in metropolitan counties, so rural New Mexico is small business in character. In 17 nonmetropolitan counties, *total* employment is less than 500 (Table 10). Even when small is defined as less than 20 employees, 90% of businesses in nonmetropolitan counties are small.

Programs in rural development

Attention is increasingly being focused on rural areas within the state. Within the last few years, strategic economic development planning has become more important at both the state and local levels. Statewide ("top down") planning has progressed to a regional basis as implementation strategies for state programs are developed. At the same time, and more important, a growing number of "bottom-up" local planning efforts for economic development have shown the commitment of local leaders. Local and state leaders in general recognize the desirability of top-down and bottom-up efforts being complementary to each other. The top-down will never work without local acceptance and ownership.

It is generally recognized by many that success in rural development over the long term requires several things. A working model currently followed by some in the state contains the following four elements.

Table 9. Number of businesses by employee size class* by nonmetropolitan and metropolitan County, 1989

County	Total	employee size class 1-19	20-99	100-499	500+
NONMETROPOLITAN COUNTIES:					
Catron	53	52	1	0	0
Chaves	1,348	1,212	117	17	2
Cibola	319	284	31	4	0
Colfax	398	370	25	3	0
Curry	1,013	910	95	8	0
De Baca	68	67	1	0	0
Eddy	1,185	1,069	100	15	1
Grant	587	532	47	7	1
Guadalupe	102	92	9	1	0
Harding	16	16	0	0	0
Hidalgo	114	104	9	0	1
Lea	1,509	1,341	155	13	0
Lincoln	488	463	22	3	0
Luna	335	305	28	2	0
McKinley	944	821	108	14	1
Mora	32	31	1	0	0
Otero	950	855	82	12	1
Quay	293	266	25	2	0
Rio Arriba	478	440	35	3	0
Roosevelt	348	318	28	2	0
Sandoval	711	649	57	4	1
San Juan	1,882	1,669	187	22	4
San Miguel	406	368	34	3	1
Sierra	210	196	14	0	0
Socorro	258	230	25	3	0
Taos	777	719	53	5	0
Torrance	148	141	7	0	0
Union	129	123	5	1	0
Valencia	641	600	36	4	1
Total Nonmetropolitan	**15,742**	**14,243**	**1,337**	**148**	**14**
% of State Total	44.66%	45.50%	38.71%	32.17%	36.84%
METROPOLITAN COUNTIES:					
Bernalillo	13,316	11,490	1,561	245	20
Dona Ana	2,560	2,284	244	31	1
Los Alamos	417	382	30	4	1
Santa Fe	3,217	2,901	282	32	2
Total Metropolitan	**19,510**	**17,057**	**2,117**	**312**	**24**
% of State Total	55.34%	54.50%	61.29%	67.83%	63.16%
Statewide**	124	82	30	12	-
STATE TOTAL	35,376	31,382	3,484	472	38

* Excludes government employees, railroad employees, self-employed persons, etc.

** Statewide businesses have no classification by county

Source: Developed from County Business Patterns - 1989

Issues(s) of importance: local residents believe in the issue to the extent they'll put *effort* into it.

Local leadership: someone who will stick their head up and volunteer to lead. It's not unusual for such a brave soul to experience frustration in this endeavor.

Sustained activity and commitment: the efforts continue over time, surviving even leadership transitions. We see a lot of one or two year efforts dying out after a few successes.

Continued outside assistance: regular input and commitment from outside agencies or experts *in response* to local initiative. Local residents must establish and own the programs.

This model allows common orientation for many of the assistance providers to rural communities. Community goals are set and implemented locally, with outside assistance. A new public-private service providers partnership (discussed later) accepts these elements as crucial to local success, and works with communities accordingly.

The first characteristic,an *issue of importance*, is crucial. When an issue does arise, it must receive attention and rise towards the top of the list of issues local leaders (new or emerging) believe important. Until local residents believe in the importance of their problem, little can be done. Likewise, community leaders must believe their actions will make a difference. Sometimes educational programs can raise the awareness level of citizens to develop the broad-based support crucial to success.

The second characteristic, *local leadership*, recognizes that leadership in small New Mexico communities is often volunteer, without pay and often without adequate recognition. There must be a local champion. A common trait of these volunteers is their willingness to donate time, effort, and often some of their own money to help the community. The volunteer can be a banker, homemaker, business person, retiree, rancher, county extension agent, or anyone else willing to volunteer.

Sustained activity and commitment, the third characteristic, emphasizes the long term nature of rural development. To build a critical mass of activity takes time. Economic development results often take years to be realized. To start, stop, and restart wastes energy, discourages participants, and can destroy good efforts begun in the past. A long term commitment in the community that will survive leadership transition is imperative.

Continued outside assistance brings into focus the need for regular input from outside experts, agencies, and organizations. State and federal agencies fit in this category, as resources to help identify and implement local goals. The outside resource can help fill gaps in local capabilities and provide links to, and coordination with other assistance providers. Sources of assistance are sometimes not well known in small towns. The encouragement of an outsider can be especially useful when success seems remote, and examples can be provided of other small communities and their victories.

Development has been limited by competition and failure to cooperate among service providers to rural ar-

Table 10. Number of Businesses by Industry in New Mexico's Nonmetropolitan & Metropolitan Counties, 1989

Counties	Agricultural Services, Forestry, and Fishing	Mining	Construction	Manufacturing	Transportation and Public Utilities	Wholesale Trades	Retail Trade	Finance, Insurance, and Real Estate	Services	Unclassified	Totals
NONMETROPOLITAN:											
Catron	1	1	2	9	4	-	16	2	9	9	53
Chaves	14	57	116	34	54	89	338	134	412	100	1,348
Cibola	3	9	24	17	20	21	98	15	100	12	319
Colfax	4	4	48	15	20	17	129	33	112	16	398
Curry	12	1	89	28	49	69	303	88	312	62	1,013
De Baca	1	1	12	3	3	2	21	5	14	6	68
Eddy	12	70	98	25	76	70	286	79	376	93	1,185
Grant	5	11	52	14	23	29	161	38	193	61	587
Guadalupe	-	-	5	1	3	4	44	3	37	5	102
Harding	-	1	2	1	1	1	4	2	2	2	16
Hidalgo	-	2	6	3	11	5	49	7	25	6	114
Lea	11	144	110	46	76	148	363	96	414	101	1,509
Lincoln	5	5	43	15	18	17	144	43	144	54	488
Luna	5	2	22	10	13	20	107	19	103	34	335
McKinley	2	6	54	32	38	62	360	51	279	60	944
Mora	-	-	5	1	2	-	11	1	10	2	32
Otero	11	1	108	30	51	42	273	72	290	72	950
Quay	2	-	24	4	22	10	100	17	89	25	293
Rio Arriba	3	5	51	20	20	15	142	29	157	36	478
Roosevelt	5	1	40	15	24	23	91	22	96	31	348
Sandoval	17	3	125	46	27	16	160	56	206	55	711
San Juan	16	115	180	52	93	146	497	112	551	120	1,882
San Miguel	2	3	40	13	11	13	138	26	126	34	406
Sierra	2	2	20	2	11	7	76	18	51	21	210
Socorro	1	1	25	8	14	9	78	17	84	21	258
Taos	6	5	76	31	18	23	241	50	244	83	777
Torrance	3	1	15	9	20	3	48	10	29	10	148
Union	3	1	10	5	9	7	39	7	38	10	129
Valencia	10	2	100	21	21	28	159	46	187	67	641
Total Nonmetropolitan Counties	**156**	**454**	**1,502**	**510**	**752**	**896**	**4,476**	**1,098**	**4,690**	**1,208**	**15,742**
% State Total	43.94%	89.02%	42.95%	38.84%	57.10%	39.01%	50.62%	37.88%	40.58%	45.36%	
METROPOLITAN COUNTIES:											
Bernalillo	118	33	1,310	586	368	1,129	2,820	1,247	4,788	917	13,316
Dona Ana	41	4	307	85	93	132	622	223	837	216	2,560
Los Alamos	6	-	33	10	19	13	98	40	181	17	417
Santa Fe	34	19	345	122	85	127	827	291	1,062	305	3,217
Total Metropolitan Counties	**199**	**56**	**1,995**	**803**	**565**	**1,401**	**4,367**	**1,801**	**6,868**	**1,455**	**19,510**
% State Total	56.06%	10.98%	57.05%	61.16%	42.90%	60.99%	49.38%	62.12%	59.42%	54.64%	
STATE TOTAL*	355	510	3,497	1,313	1,317	2,297	8,843	2,899	11,558	2,663	35,376

* State total includes an additional 124 statewide businesses not listed in this table

Source: New Mexico County Business Patterns - 1989

eas. One of the more promising recent efforts to address rural needs in New Mexico is a still-maturing partnership of state and federal government, major universities and colleges, and the private sector. This program has about a five-year history. Operating under the name *REAL* (Rural Economic Assistance Link), this partnership includes the New Mexico Department of Economic Development, New Mexico State University's Cooperative Extension Service and Geography and Planning Department, the University of New Mexico School of Architecture and Planning, the U.S. Small Business Administration, the New Mexico Small Business Development Center, Plains Electric, Southwestern Public Service Company, and U.S. WEST. Recent evaluations of this effort have revealed a number of attainments.

The state has recognized the broad nature of rural development. The example is *REAL*. *REAL* has provided assistance in the past two years relative to the major community development challenges facing distressed rural areas: physical infrastructure, leadership education and development, health care, economic development planning, business development, and housing.

New Mexico Rural Development Council

We are a new state this year under the President's Initiative on Rural Development. Given the strengths and weaknesses of rural New Mexico, the proposed New Mexico Rural Development Council mission statement is *To develop and enhance the cooperative efforts of state, federal, tribal, and local governments with the private sector to revitalize rural New Mexico by effectively utilizing public and private resources to support locally identified priorities.*

The following *preliminary* goals will be used as the basis for development of the New Mexico Rural Development Council Strategic Plan.

- Develop a comprehensive approach that links entities involved in the rural development process.
- Foster leadership at the local level.
- Identify and support the elimination of barriers which may hinder development in rural communities.
- Encourage innovative but practical rural development projects which address the needs of rural areas.
- Promote the responsible use and conservation of rural New Mexico's natural resources and environment while preserving the quality of cultural and traditional rural life.
- Improve employment opportunities, income, and the well-being of rural New Mexico by strengthening our capacity to compete in national and international development efforts.
- Establish a Rural Development Review Panel consistent with the provisions of the 1990 Farm Bill.

Conclusions and opinions

Rural people in New Mexico are probably very similar to those in other parts of the country. They share for example, an "...ambivalence towards the three R's—retirement communities, outdoor recreation enterprises, and rural residences for urban people" (11). Clashes between the old and the new, the native and the recent inmigrant are very real.

My perception, however, is that New Mexico differs markedly from other states, at least in the degree if not in the kind of stress felt. This is particularly true in major cultural or lifestyle changes occurring in the state which may belong in the "rural residences for urban people," but at least represent a major subcategory. Our population increases, but not our per capita income. These changes can best be described by examples:

- Santa Fe and Taos artist colonies expanding to Las Vegas and the Hondo Valley.
- Retirees coming home to New Mexico or retirees reacting to undesirable conditions in Phoenix or Tucson who settle throughout the state.
- A movie producer locating in Hillsboro, and commuting to California.
- Counter culture people settling everywhere.
- Highly trained and skilled dropouts content with minimum wage employment. Ph.D.s waiting tables in restaurants by choice.

The obstacles to development of rural economies tend to be people-related rather than natural resource based. Reasons for rural existence today are much less tied to physical products taken from the land. Residents are not always stakeholders in the community's economic health. The quasi-colonial behavior by and toward New Mexico limits economic improvement.

The solutions include local residents accepting leadership, and accessing qualified assistance from outside agencies in line with the local mission, goal, and culture. Local control is necessary.

Resource providers (the outside agencies) must form effective partnerships, reduce turf wars, and work together. These agencies must also reject historical solutions which have proven unfruitful. The New Mexico *REAL* partnership is an example of an effective effort. The President's Initiative on Rural Development, and the resulting State Rural Development Councils, offer some hope at the state and federal government level. The question is whether or not politics and jealousies can be set aside, and rural clientele served in a selfless manner.

In the final analysis, despite all our studies and good intentions, we cannot force positive change from outside because locals must take the lead. Positive change must be defined by local conditions and local residents, and local leaders must thus define the context within which we as "experts" and technical resource providers can operate.

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One generation of self-determination: Native American economic self-reliance in New Mexico

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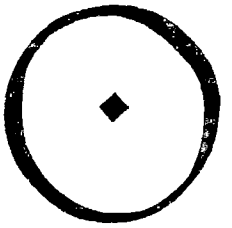

Background

The Native American people and their communities continue to survive in the face of a major recession in New Mexico. Whereas New Mexico has suffered a significant loss of people due to the downturn in the extractive industries, Native American communities have maintained their populations and continue to grow. Such growth is indicative of the resiliency of the tribal communities of the Southwest to weather such shifts in socio-economic change, but it is also indicative of the fact that Native Americans will continue to maintain their populations in spite of circumstances outside of their reservations.

The propensity of the New Mexico Indian communities to share the genuine expression of their cultures is what has elevated a demographic minority—134,355 American Indians in New Mexico constituting 8.9 percent of the total New Mexico population—into the economic majority (with cultural tourism cited as being the largest factor in New Mexico's business economy).[1] In the last decade, Native Americans have made significant strides in the economy of the state. Major activities have included local ventures in cultural and recreational tourism.

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Unlike the extractive industries which predominated earlier and which were managed by outsiders, this change has required the tribes to restructure the way they conduct business for themselves. Enterprises, therefore, are not solely dependent on the economic appropriation of natural resources and land. Rather, they have shifted toward the maintenance of an expanding population. The cultural integrity of the Native American people in the Southwest is becoming its chief asset. In other words, the most precious resource of the tribes continues to be its people.

This paper, however, will deal less with the specifics of the various enterprises which exist on reservation communities. Instead, it will examine the policy foundations upon which changes have been spawned.

Policy developments

The provisions upon which services such as health, education, and other specific reparations are federally obligated to the tribes has long been established. Many of these provisions were embodied in the Wheeler-Howard Act of of 1934 (also known as the Indian Reorganization Act).[2] The legacy of this policy, however, had proven to be a mixed blessing. Although a majority of tribes had reorganized under provisions of the Wheeler-Howard Act and adopted formal tribal constitutions, tribal government was regulated almost exclusively under the wardship and management of the Bureau of Indian Affairs (BIA).

For the most part, tribal governments, such as those of the Pueblos of New Mexico, functioned minimally along both religious and socio-economic levels. Their governments functioned almost exclusively within the home of the tribal governor. Tribal officials were not paid and each successive regime simply transfered boxes or a special 'trunk' containing important papers. For the most important matters, tribal officials or delegations were assembled to confer with the BIA Agency Superintendent. In matters requiring the utmost authority, visiting delegations were occasionally sent to regional (area) offices and to Washington, DC in order to conduct discussions with BIA or Department of Interior 'chiefs.'

This style of tribal government continued without significant change for many decades. This engendered a rather lax and informal attitude toward the tribes at the state level and in many instances tribal governments were simply ignored. For example, it was not until the 1948 federal court voting rights suit by a Pueblo native, Miguel Trujillo, that Native American suffrage rights were established in the State of New Mexico. Until this suit was won, the State Constitution denied the right of Native American people to vote in state elections on the basis that reservation lands were exempt from taxation. In the next year, a similar policy was consequently reversed in the State of Arizona as well.

In 1953, the socio-economic situation of the tribes in New Mexico was abysmal. This was the year that Congress passed House Concurrent Resolution 108 which resulted in the termination of federal wardship among some reservations who were determined to be economically self-sufficient. The pervading rationale was aptly summed up by a quote from one reservation superintendent who indicated that the formation of reservations was "providing a place that afforded an opportunity for them [Native Americans] to become adjusted to the accepted pattern of civilization." [3]

The federal government shifted its support toward programs which were designed to remove and relocate native people into highly urban areas and services within the reservations were minimized. The Native American labor force was being readied for technical and vocational trade occupations. Because job opportunities for such trades did not exist on Indian reservations, the labor force was essentially being relocated into the urban market.[4]

In the case of the New Mexico tribes there was only one urban center, Albuquerque. Relatively speaking, however, Albuquerque was small in comparison to other major regional urban centers such as Denver, Pheonix, and Tucson. As a result, there was comparatively little urban migration to Albuquerque which perhaps in the longer term would have been economically more beneficial to the surrounding Native American communities. Instead, large segments of the younger labor force were relocated to destinations far removed from their communities. In many instances, relocated families never returned to their original homes.

Essentially, it took the Native American youth to agitate for policy reform. Many such youth, who were returning to the reservations after having served in the military, sought a direct role in community development. The most pivotal forum in this movement was a Native American youth agenda formulated during a 1960 American Indian Conference at the University of Chicago. Organized by an anthropologist, Sol Tax, the conference established a new Indian nationalism which iterated the need to take control of federal/Indian policy development at the tribal level.[5]

In 1960, the United States Court of Appeals indicated that "Indian Tribes... have a status higher than that of States."[6] This was followed by a series of War on Poverty pronouncements by President Lyndon Johnson and fundamental change in Native American self-determination was signalled. Unbeknown to policy makers, an important move had already been made in 1955 when health care was quietly transferred from the BIA into the Division of Indian Health within the US Department of Health, Education, and Welfare. This transfer would portend the demise of the BIA's monopoly on tribal policy.

Program initiatives under the War on Poverty had a resounding effect on tribal community development. Unlike the paternalistic regime of the earlier BIA policies, tribes were given the opportunity to initiate their own reforms. This was a fundamental change in self-determination because it brought direct participation and deci-

[1] 1990 Census of Population and Housing, U.S. Department of Commerce, Bureau of the Census. In 1990, tourism was estimated to be a $2.3 billion dollar industry in New Mexico employing 53,000 people in the state (Ditmer: 1991).

[2] Pg. XXIII, Cohen: 1942. Felix S. Cohen's Handbook of Federal Indian Law, Albuquerque: University of New Mexico (1986 reprint).

[3] Pg. 5, Orfield: n.d.

[4] Pg. 155, Fixico: 1986.

[5] Pg. 36, Steiner: 1968.

[6] *Native American Church v. Navajo Tribal Council*, 1960. See pg. 20 in Levitan & Hetrick: 1971.

sion making within the auspices of the tribes. In addition, the once informal tribal governments were forced to develop their own bureaucracies and the structure of tribal operations became more legitimized.

Perhaps the lead agency in War on Poverty programs which was most responsible for actualizing self-determination were the Indian Community Action Programs (ICAP) of the Office of Economic Opportunity (OEO). With the passage of the Economic Opportunity Act in 1964, many tribes designated Community Action Agency boards. The projects supported by this program were varied and extensive. For example, Project Head Start was the largest component of ICAP. By 1970, when this component was transferred to the US Office of Education, 59 reservations had established Head Start operations.[7] Other initiatives included community organization, education, health, manpower, housing, and legal service among others.[8]

OEO had significant impacts in other ways besides the support of program initiatives. Perhaps the most understated aspect was the development of leadership among tribal communities. Individuals who might have otherwise left the reservation for urban economic opportunities were now being retained and trained in managerial and technical capacities. Particularly when OEO was coordinated with other self-reliance initiatives like the Volunteers in Service to America (VISTA), many local self-help projects were established which had direct bearing on tribal community development.

In addition, OEO established consortiums with major universities to provide technical training and technical assistance. In certain cases, special education programs like the American Indian Law Program at the University of New Mexico were established. This provided both first time access to non-traditional degrees and provided strategic resources necessary for the tribes to pursue their own litigation. Although, technically, this was not a leadership program, many of the original participants would continue to complete their J.D.s and to serve in tribal government.

On July 8th, 1970, Nixon in a Presidential message officially repudiated the termination policy. It was thereby noted in his pronouncement that of all the Interior Department programs, only 1.5 percent were under Indian control while only 2.4 percent of the Department of Health, Education and Welfare health programs were Indian run.[9] The pronouncement had also come at the heels of American Indian Movement militancy which had grown out of the Native American youth agenda in response to the Civil Rights movement. Such pressure prompted the Nixon administration to activate an advisory body comprised of tribal chairmen and chaired by Vice President Agnew (the National Council on Indian Opportunity). Under such auspices, the advisory body made a series of recommendations intended to shift the BIA away from a management to a service organization.

On December 15th, 1970, President Nixon signed significant legislation returning 48,000 acres (Blue Lake) to the Pueblo of Taos. This event signalled the complete turnabout of assimilationist policies and served as a milestone for other federal agencies to shift their policies. The long term objectives of this policy shift, as stated by the American Indian Policy Review Commission (AIPRC), were simple, but politically and economically difficult to attain. These were:

1) Adequate education for everyone;
2) Full employment; and,
3) A system of tribal taxation.

The AIPRC in its report to Congress had verified that "dependency on the federal government increased from 1968 to 1972."[10] In 1973, however, the tribes had received their first opportunity to break this dependency. In this year Indian control was given both an impetus and major sums of money under the auspices of the Indian Action Team and The Comprehensive Employment and Training Act (CETA). Under provisions of the Indian Manpower Programs (CETA Title III, Section 302), classroom training, on the job training, work experience and public service employment were provided to over 50,000 qualifying Native Americans nationwide. It was estimated that $985.58 in expenditures per person were had through this program.[11]

In addition, heads of industry were reconvened by the White House and the Department of Interior to advise them on the merits of business investment on reservations. Such ventures had been instituted as early as 1955, most with disastrous results.[12] The most successful of such collaborations became the Fairchild Camera and Instrument Corporation assembly plant which had been established on the Navajo reservation in 1965. By 1974, Fairchild was the largest industrial employer in the entire southwest region employing 1,200 Navajos during its peak operations. Ultimately, though, 1975 saw the end of the Fairchild operations as the result of corporate backlash against unionization.[13] Such joint ventureships, however, were in the minority. Instead, tribes were expected to fund their own tribal operations from revenues obtained from natural resource extraction within their meager landbases.

In 1974, the Native American Programs Act created additional programs which were specifically designed for "increasing the capabilities of Native American groups to provide services for its members."[14] About 33 million dollars were appropriated in 1978 and 'average' awards of $125,000 were given. The changes wrought by such programs in the various Indian reservations were substantial. For example, the Pueblo of Zuni was the first Indian tribe to completely transform its tribal operations by assuming complete responsibility for the administration and supervision of all BIA programs and personnel. The consequent onslaught of new programs and initiatives directed by the Zuni tribe was enormous. Between 1970 and 1981, the number of tribal employees increased 900 percent and its tribal operations expanded from three to seventy-one.[15] Simi-

[7] Pg. 91, Levitan and Hetrick: 1971.
[8] Pg. 211, Tyler: 1973.
[9] Pgs. 35-37, Forbes: 1981.
[10] Pg. 18, AIPRC: 1976
[11] Pg. 116, Ibid.
[12] Pg. 119, Ibid.
[13] Pg. 156, Dunbar-Ortiz: 1984.
[14] Pg. 117, Jones: 1982.
[15] Pg. 130, *Twentieth Century Zuni Political and Economic Development in Relation to Federal Indian Policy*, T.J. Fergusson, et.al. In Snipp: 1989.

lar situations were to follow among other tribes.

Among the major tribal funding initiatives among federal agencies in 1977 were the following:

Bureau of Sport Fisheries and Wildlife;
Department of Labor;
Economic Development Administration (EDA);
Farmers Home Administration;
Forest Service;
Housing and Urban Development (HUD);
Office of Economic Opportunity (OEO);
Rural Electrification Administration;
Small Business Administration; and
U.S. Geological Survey.[16]

The most important coordinating activity which issued forth during this period was the EDA's "Indian Desk." Because of the complexities of administrating and the overlap of the goals and objectives of these agencies, the Indian Desk was created to help network and coordinate the various initiatives. As the result of this coordination, new initiatives were developed which would otherwise have gone unnoticed if the agencies continued to operate in isolation.

The capstone of this era was the passage of the Indian Self-Determination and Education Assistance Act in 1975. The legislation allowed tribes to contract services principally from the Bureau of Indian Affairs, Indian Health Service and education offices. Programs were consequently decentralized and infrastructure to support tribal operations on the reservations were significantly improved. The tribal offices were taken from the home and placed in large building complexes. Programs were consolidated from remote sites and placed in areas which were easily accessible to the tribal residents. For the first time in history, federal/tribal operations were visible to the general public.

For the first time in history, federal/tribal operations were visible to the general public

Another important aspect of economic self-determination was Indian preference in hiring. This policy had been established in Section 12 of the Indian Reorganization Act of 1934. This section extended a preference of employment to "qualified persons of at least one-fourth degree or more Indian blood." In 1971, this policy was strengthened by the BIA.[17] Employment opportunities were moreover reinforced by programs such as the Comprehensive and Employment Training Act (CETA) under the auspices of the Department of Labor. Its guiding principle was "that any activity must increase the employability of participants."[18]

The downside of this policy, however, was the creation of a distinct "managerial class."[19] The Bureau of Indian Affairs continued to be the major employer of native people nationally. In 1989, it was estimated that the BIA employed some fifteen thousand civil servants and according to congressional sources, only 12¢ of every federal dollar designated for Indian programs had directly been received by a Native American. Nearly half of all Native American incomes were attributed to federal and tribal jobs.[20] This predicament was basically the source of the infamous statement made by then Secretary of Interior, James Watt: "If you want an example of the failures of socialism, don't go to Russia. Come to America and go to the Indian reservations."

Whereas the federal infrastructure became so large as to completely dominate the labor force on some reservations, its needs also became complex and cumbersome. Particularly at those times when the sources of federal funds fluctuated with the mood of Congress, employment on the reservation went through tremendous funding swings. When President Ronald Reagan told a group of Soviet students in 1984, "Maybe we made a mistake. Maybe we should not have humored [Native Americans] in wanting to stay in that kind of primitive lifestyle. Maybe we should have said, 'No, come join us,'" an enormous downturn was realized.

A new interpretation based on "self-determination toward self-termination" was instituted during the Reagan administration. Whereas programs for Native Americans comprised just .04 percent of the total federal budget in 1982, the Reagan administration reduced Indian programs by 2.5 percent of the total budget cuts.[21] The result was an immediate and a severe downturn in the reservation economies.[22] Unemployment rates escalated in the reservations and social services were severely curtailed. In an attempt to present a normal facade, federal agencies revised their definitions thereby effectively making the pool of qualified applicants smaller. The most insidious of these was the requirement for a specified period of continuous residency on the reservation.

In addition, the few extractive enterprises which were the mainstay of several tribes were curtailed as a result of sagging prices in the national and world market for strategic minerals. Massive operations, such as the Jackpile uranium mine at Laguna Pueblo, closed. At its peak, over 400 Laguna Indian were employed by Anaconda Industries with the entire operation employing 3000 people. In 1980, after a series of slowdowns, the mine was permanently closed.

This downturn came at the heels of a ruling by the US Supreme Court in 1982 which ruled in favor of tribes exercising their authority to impose severance taxes on the value of oil, gas, coal and other minerals on their reservations. Proactive organizations which were instrumental in winning these suits, such as the Native American Rights Fund and the Council of Energy Resource Tribes (CERT), savored their victories with bittersweet irony. What followed was the loss of their operating budgets. CERT, for instance, lost two thirds of its operating budget in 1984 as a result of the Reagan "bootstrap and safety net" cutbacks.[23]

[16] Pg. 88, AIPRC: 1977, vol. 1.

[17] Pg. 225, Tyler: 1973.

[18] Pg. 204, Jones: 1982.

[19] Pg. 199, *The Era of Indian Self-Determination: An Overview*, Philip S. Deloria, Philp: 1986.

[20] Pg. 274, White: 1990.

[21] Pg. 69, *Reaganomics on the Reservation*, Denver Post: 1983.

[22] See Chapter entitled *Termination by Accountants: The Reagan Indian Policy*, by C. Patrick Morris, Pgs. 63-98, In Lyden & Legters: 1992.

[23] Pg. 18, *Empty Promises, Misplaced Trusts*, Denver Post: 1983.

In the end, boom and bust cycles have only served to reinforce the dependency relationship between the tribes and the federal government.[24] As a result, tribal governments continue to be reluctant to dissolve this relationship for fear of the consequences.

Tribal community development in the Southwest

Federal programs, such as those designed for the War on Poverty, have provided the foundation for Indian self-determination. Initially such general programs have been available only to individuals, towns and states. The introduction of self-determination provisions within key legislation has allowed tribes to participate. As a result, Native American communities experience greater change than if development had been confined to the traditional sources of Indian funding.

Because most tribes had small populations they could hardly expect to receive sufficient amounts of funds to meet the social, education, recreation, employment and economic infrastructure needs of their communities. The dollars provided by the Indian desk of the OEO were allocated to the tribes on a per-capita basis. In order to compensate for such shortcomings, tribes reorganized and formed business enterprise consortiums or intertribal councils. This allowed them to "pool" their overall populations for purposes of reformulating per capita expenditures, sharing specialized human resources and centralizing staff.

Examples of such consortiums are the Eight Northern Indian Pueblo Council (ENIPC),[25] the Sandoval Indian Pueblo Community Action Program[26] and the All Indian Pueblo Council (AIPC).[27] AIPC has been in existence for millennia as a regional political tribal confederation among the Pueblos. However, it was only in 1965 that AIPC was officially incorporated along with the ENIPC. With the exception of AIPC, therefore, these consortiums were formed for the specific task of delivering training, preparing and administering grants, and developing business plans for the various communities.

During the initial phase and at its peak period, AIPC administered programs which had budgets amounting to just under 12 million dollars. Eventually, many of these programs were relocated directly by the Pueblos and/or their respective consortiums. By 1987, AIPCs annual budget had been reduced to 2.5 million dollars reflecting, by in large, the decentralization of programs into their consortia to their respective communities. This gave more impetus for the local councils to expand. For example, ENIPC currently employs 172 people (80.2 percent Indian, 4.5 percent Hispanic, and 5.2 percent Anglo) in an array of positions necessary for the administration and the delivery of services. Among the major program areas are:

Crime Victims Reparation,
Domestic Violence Intervention,
Economic Development Planning,
Educational Counseling and Tutorial Services,
Elderly Service Centers,
Employment and Training,
Environmental Services,
Food and Nutrition,
GED and Literacy,
Head Start,
Home Improvement and Weatherization,
Scholarships,
Treatment and Prevention of Alcoholism,
Tribal Administration, and
Youth Services.

The above programs represent approximately 5 million dollars of the operating budget of ENIPC. The annual payroll is 1.4 million dollars, all from federal or state funding sources. Among the various agencies which are contracted directly by ENIPC are the:

Department of Agriculture,
Department of Commerce (EDA),
Department of Education
Department of Health and Human Services,
Department of Interior (BIA)
Department of Labor,
Environmental Protection Agency,
National Endowment for the Arts,
NM Energy, Minerals and Natural Resources Department,
NM Human Services Department,
NM State Agency on Aging,
NM State Coalition for Literacy,
NM State Crimes Reparation Commission,
NM State Economic Development and Tourism Department, and
NM State Health and Environmental Department.

But whereas the public sector has been integral to the diversification of program activities in Native American communities, the private sector has been woefully inadequate. Although ENIPC, for example, has attempted to sustain joint venture profit-making enterprises few, if any, enterprises have succeeded. Among the most ambitious were such ventures as the Northern Pueblos Enterprises (basically a home construction company), the Adobe Manufacturing Company, a Hydroponics enterprise and the Artisans Guild. None of these enterprises, however, lasted for more than a decade.

There were a variety of factors, which combined, contributed to the failure of these operations. In a larger sense, these also represent barriers to be overcome by local tribes in their attempts to become economically self-reliant. The first of these is poor business management. In this sense, local tribal governments are ill equipped to inject new dollars to keep businesses abreast of outside competitors. There are no funds for research and development and information which is strategic for making business decisions is lacking in the otherwise insular reservations. Although the tribes have a long and successful track record in basic administration and accounting, they do not have the depth of expertise necessary to make strategic decisions and to adjust production as a response to the business market.

[24] Pg. 19. Report of the NM Advisory Committee to the US Commission on Civil Rights: 1982.

[25] Membership is comprised from the Taos, Picuris, San Juan, Santa Clara, San Ildefonso, Pojoaque, Nambe and Tesuque Pueblos.

[26] Membership is comprised from the Jemez, Zia, Sandia, Santa Ana and Cochiti Pueblos.

[27] Membership includes the previous Pueblos and in addition includes the Isleta, Santo Domingo, San Felipe, Acoma, Laguna and Zuni Pueblos.

Second, there is a general lack of training and business experience on the part of board members. This shortcoming has evolved over the course of a highly paternalistic relationship with the federal government as well as the centralization of local authority within the tribal councils and tribal governors. The predicament is often one where conservative decision making results in conservative policies. Recently, however, tribes have been experimenting with different styles of management and policymaking bodies. In some instances, business decisions have been separated from the tribal government through the establishment of tribal business committees and the office of the tribal business manager. These bodies are given direct mandates by the tribal council to deal with matters pertaining to business and economic development. Such matters are often made in the face of a reactionary tribal government and have tended to focus business inquiries from the outside as well.

Thirdly, there is a lack of coordination and timely support from various agencies. A case in point is the Small Business Administration whose failure to provide bonding for various construction enterprises has disqualified them from bidding on various construction jobs. Given the multiservice dimensions of the various service providers in the local communities, the task of coordinating schedules among federal agencies is monumental. The overall result is a lack of comprehensive planning within the reservations. Frequently, projects are disconnected and developed without regard to supporting infrastructure. Tribes face the prospect of over-extending their resource base and in the case of the human resources, there continues to be a mismatch between those strategic skills necessary for business development and the longer range effort to educate a workforce that can handle such tasks.

The need to establish businesses within Native American communities is great. Self-determination is not self-actualized, but will only succeed with a clearly articulated and heavily diversified partnership between the tribes and outside agencies. Federalism, which was solely confined to a few agencies and special Native American entitlements creates centralized dependency. If there is anything which the achievements since 1975 have demonstrated, it is that self-determination is based on appropriating resources from as many agencies as possible in ways which are consistent with a single set of community goals and objectives.

The common denominator throughout the various self-determination policies continues to be the tribes' own human resources. Although major strides have been made to bring the various programs into the reservation, a more concerted effort to provide "adequate education for everyone" is necessary. In a more comprehensive sense, the various tribal communities can expect that their populations will remain stable or even grow. As the latest round of economic development incentives in cultural and recreational tourism is proving, equitable participation simply will not mean providing a job for everyone. Rather the development should strive toward providing income and benefits which will allow individuals to sustain their unique cultures and identities.

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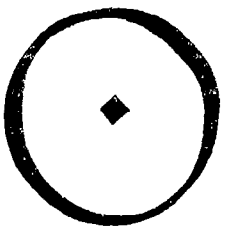
Hispanic Americans in the rural economy: Conditions, issues and probable future adjustments

Refugio I. Rochin*



Fields of pain

> The families who harvest California's fruits and vegetables are no better off today than the fictional Joad family immortalized in John Steinbeck's classic, Grapes of Wrath. In some respects conditions are worse. The Joads were citizens. Today's farmworkers are almost exclusively from Mexico. They speak little English. Many are here illegally and therefore easily exploited. They live in barns, eaves and plywood shacks amid hunger and squalor. They work with pesticides more dangerous than anything the Joads might have encountered... But workers desperate to feed their families don't complain because they know there are too many others willing to take their place. They fear being blacklisted [by labor contractors and employers]. They fear deportation.
>
> Editorial, The Sacramento Bee
> December 16, 1991 (p.B14)

Thus begins another oft-repeated chapter in the life of California's farmworkers, a life of working in "fields of pain." In a few words the situation of rural workers is described and left for others to "solve." In many respects the situation is true but, unfortunately, it is stereotypical and narrow. While California's Mexican farmworkers face many forms of exploitation, what I am concerned about are the important ramifications that are often ignored.

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In my eighteen years as a professor in the University of California, I have found that most Anglos and non-Hispanics usually think of rural Chicanos as poor farmworkers only. Few people have asked me about Mexican-Americans or Chicanos as owner-operators of farms or as non-farm rural residents. Few have wanted to know if Hispanic-Americans have another legacy in rural America that could be incorporated into school curriculums. Instead, most non-Hispanics regard all rural Chicanos as poor, downtrodden Mexican immigrants who come to work as hired hands.

My presentation is to deliver this message: when we address conditions of rural Hispanic-Americans, Mexican-Americans, Latinos, Chicanos, etc., we should no longer stereotype them as migrant and seasonal workers, illegal aliens, and transient groups only. Instead, we should view rural Hispanics as Americans who are part of a larger demographic trend which is changing the balance of power and socioeconomic relations between different ethnic groups. Also, when we study rural Hispanics, we must think in terms of their attributes, characteristics and unique differences which contribute to the United States. Rural Hispanics should not connote social problems. They are U.S. assets, not liabilities.

Table 1. Change in the Hispanic origin population, by type of origin, March 1982 to 1991* (Numbers in thousands)

Origin	March 1991	March 1982**	Percent change, 1982-1991**	Percent of Hispanics 1991
Mexican	13,421	9,642	39	63
Puerto Rican	2,382	2,051	16	11
Cuban	1,055	950	11	5
Central and South American	2,951	1,523	94	13
Other Hispanic	1,628	1,198	36	8
Total Hispanic Population	21,437	15,364	40	100

*Data are for the civilian non-institutional population of the United States.

**Simple average.

Source: U.S. Bureau of the Census, Current Population Reports, Series P-20, No. 455, *The Hispanic Population in the United States*, March 1991, U.S. Government Printing Office, Washington, D.C. 1991.

In this paper, I attempt to clarify my message by addressing several distinctions; including, for example, the demographics, social features, and issues of rural Hispanic-Americans. My paper has three parts. I begin in Part I with general information on the national traits of the Hispanic population of the United States, as well as its sub-groups—Mexican, Puerto Rican Cuban, Central and South American and "other Hispanics" (persons identifying themselves as Spanish, Spanish-American, Hispano, Latino etc.). This information shows the diversity among Hispanic-Americans and their different concerns. Part II focuses on the history and contemporary roles of Hispanics in "rural" America. Here I comment on the often ignored contributions of Hispanics to U.S. farming, crop and livestock production; the origins of migrant and seasonal workers; the unionization of farm labor; immigration and related issues of mechanization; and the formation of rural colonias. Southwest communities with majority populations of Hispanic-Americans. My intent in Part II is to get away from the narrow view of Mexican-Americans as mainly migrant and seasonal workers. Part III provides a brief discussion of Mexican-Americans in agriculture. In this section I argue that U.S. agriculture is going through a phase of "Mexicanization" instead of the predicted "mechanization" of the 1970s and 1980s. In this regard, I mention briefly the implications for U.S. agriculture and workers of a Free Trade Agreement between Mexico and the United States.

Part I. Hispanic-Americans

Overview

Hispanic-Americans are of many racial, religious, economic, and cultural backgrounds and they experience widely varying levels of prosperity and success in the United States. The ancestors of some lived in parts of the United States long before these regions became part of the nation. This is particularly evident in northern New Mexico and adjoining Colorado where "Hispanos" can trace their heritage back to the 17th Century. Many other Hispanics are first and second generation Americans.

Immigration has considerable bearing on the status of Hispanic-Americans. Nearly one-half of all Hispanic-Americans are foreign born. In 1989 the United States admitted just over 1 million Hispanic immigrants. More than half were from Mexico (400,000) and Central America (101,000). More than half of these Hispanic immigrants intended to reside in California (U.S. Statistical Abstract, 1991 p. 11).

In 1991 the U.S. Census Bureau counted over 21.4 million Hispanic Americans, a 40 percent increase since 1982 (Table 1). Between 1982 and 1991 the Mexican-American population increased 39 percent to 13.4 million (Table 1). This rate was faster than the rate for Puerto Ricans (16 percent and 2.4 million) or Cubans (11 percent and 1 million), and much faster than the national growth rate of about10 percent. But Central and South American Hispanics grew the fastest, at 94 percent to 3 million. The U.S. Census Bureau projections expect the Hispanic population to increase by 27 percent and to reach 25.2 million by the turn of the century, bringing their share of the total U.S. population to 10 percent in the year 2000.

Geographic Distribution

Hispanic-Americans are found all over the United States, but 85 percent reside in just nine states and half in two states alone: California (7.7 million) and Texas (4.3 million) (1991 U.S. Statistical Abstract,). According to the U.S. Census Bureau, Mexican Americans (Chicanos) comprise 63 percent of all U.S. Hispanics and are highly concentrated in the Southwestern states of California, Texas, Arizona, New Mexico and Colorado. That the Hispanic presence in the Southwest is

overwhelmingly Chicano is indicated by the fact that 83 percent of all southwestern Hispanics were of Mexican origin in 1990. Puerto Rican Americans are the second-largest Hispanic subgroup, at just 11 percent, but they dominate the Hispanic population of New York City. Cuban Americans are the majority of Hispanics in south Florida, although they are just 5 percent of all U.S. Hispanics. Central and South Americans are 13 percent of U.S. Hispanics, but are not as geographically concentrated as the other groups. The remaining 8 percent trace their lineage to Spain or are persons identifying themselves generally as Hispanic, Spanish, Hispano, Latino, and so on. (Source: U.S. Bureau of the Census, March 1991.)

Age and education

The Hispanic population's median age of just over 24 years is about eight years lower than the median age of non-Hispanics (32). Mexicans are the youngest Hispanic subgroup, with a median age of just 24, according to the Census Bureau's Current Population Survey (March 1991). Cubans are the oldest, with a median age of 39. Cubans are also the best educated Hispanic subgroup: 20 percent of Cuban Americans aged 25 and older have attended at least four years of college. This share slips to 15 percent for "other" Hispanics, 10 percent for Puerto Ricans, and 5 percent for Mexicans.

Low levels of educational attainment characterize a high proportion of Hispanics. Their educational deficiencies are far more serious than for African-Americans and Native Americans. Nearly 40 percent of Hispanic youngsters drop out of high school, for example, compared with about 17 percent of African-Americans and 14 percent of Whites (Bean and Tienda,1987). As is the case with African-Americans, action by both the public and private sectors is needed to break the cycle of under-achievement in schooling which affects increasing numbers of Hispanic Americans.

Workforce participation

About 9.5 million (7.6 percent) of the U.S. labor force is Hispanic American (U.S. Census, March 1991). From 1980 to 1987 the number of Hispanics at work jumped 43 percent or 2.3 million, accounting for nearly 20 percent of the nation's employment growth, compared with a growth of 15 percent for African Americans.

The greatest increase in the Hispanic workers was among those of Mexican origin, followed by "other Hispanics" (Cattan, 1988).

Looking ahead, Hispanics are estimated by the Hudson Institute to account for about 22 percent of the growth of the labor force between now and the year 2000; altogether, a growth of about 5.0 million additional Hispanic workers (Johnston, 1987). Hispanics' rate of increase alone is estimated at 74 percent, increasing their share in the total work force to 10.2 percent in 2000.

In March 1991, the labor force participation rate of Hispanic males was higher than that of non-Hispanic males (78 percent versus 74 percent) (U.S Bureau of the Census, March, 1991). In contrast, the labor force participation rate for non-Hispanic females was higher than that of Hispanic females (57 percent and 51 percent, respectively). However, the unemployment rate of Hispanic males in March 1991 was higher than that of non-Hispanic males (10.6 percent and 7.8 percent, respectively). A similar pattern is evident among females, about 9.2 percent unemployment for Hispanic females versus 5.9 percent for non-Hispanic females. In essence, Hispanic-American adults are very active in the labor force. But despite their "labor force participation," defined by "persons working or looking for work," many end up unemployed for much of the year.

Occupational patterns

Occupationally, Hispanic men and women have different patterns of employment compared to non-Hispanic men and women. In 1991 nearly 50 percent of Hispanic males (16 and over) were employed as "operators, fabricators and laborers" and " in precision production, craft and repair" occupations (U.S. Census, March 1991). On the other hand, fewer than 40 percent of non-Hispanic men were employed in these areas. Hispanic males are more likely to be employed in "farming, forestry, and fishing" than non-Hispanic males, 8.6 percent versus 3.7 percent, respectively. For females, the percent of Hispanics employed in "farming, forestry, and fishing" was 1.2 percent compared to 0.9 percent for non-Hispanic females (U.S. Bureau of the Census, March, 1991).

Both Hispanic and non-Hispanic women are usually concentrated in "technical, sales and administrative support" occupations, 39.8 and 44.3 percent, respectively in 1991. However, far more non-Hispanic women are in "managerial and professional specialty" than Hispanic women, 28.0 percent compared to 15.8 percent in 1991 (U.S. Bureau of the Census, March 1991).

Income and poverty

In 1991, the median income of Hispanic families ($23,400) was about 64 percent of the median of non-Hispanic families ($36,300). In 1980, the median income of Hispanic families was 67 percent of that of non-Hispanic families, $20,297 to $30,211, respectively. Clearly, the median income of Hispanic families is falling further behind that of non-Hispanics.

Hispanic families are more likely to be in poverty than non-Hispanic families. Based on 1990 income figures, 25 percent of Hispanic families fell below the poverty level, as compared to 9.5 percent of non-Hispanic families. Since Hispanic families were larger in 1991 than non-Hispanic families (3.80 persons and 3.13 persons, respectively), Hispanic families contain more children in poverty. In fact, over one-third (38.4 percent) of Hispanic children were living in poverty in 1990 as compared to about one-fifth (18.3 percent) of non-Hispanic children (U.S. Bureau of the Census, March 1991).

Summation

Hispanic-Americans constitute a significant, heterogeneous and complex set of people who themselves come from different national origins. They are concentrated geographically by ethnic origin and experience high rates of unemployment, poverty, and educational deprivation. But they are young. If new efforts to educate and employ Hispanic-Americans are to succeed

where earlier efforts have failed, then these efforts will have to respond to their geographic concentrations and different cultural backgrounds and conditions. The challenge will be to address many recent immigrants who speak Spanish and end up in low wage occupations. Schooling, educational attainment and employment issues will need high priority in order to effectively engage Hispanic-Americans in the U.S. economy. Especially now as their numbers become increasingly important in the labor force.

Part II. Hispanics of rural America[1]

Rural population: An overview

Little is written about the general status of Hispanics in rural America except for their work as migrant and seasonal farm workers. As a group, however, there are approximately 2.0 million Hispanics who reside permanently in nonmetropolitan counties of America (Lyson, 1991). Compared to rural Whites (52 million) and Blacks (5 million) Hispanics constitute a small proportion of the rural population. But in the 1980s, the number of Hispanics residing on rural farms increased by 59,000 from 78,000 while the rural farm population of Whites declined by over a half million residents (Table 2). Moreover, since 1987 the number of "rural farm" Hispanics has been greater than the number of "rural farm" Blacks, 137,000 to 88,000, respectively (Table 2).

Table 2. White, Black, and Hispanic population by rural residence: 1980-1987 (Numbers in thousands)

	Rural		Rural Farm		Annual Percent Change
	1980	1989	1980	1989	Rural Farm
White	54,087	60,920	5,432	4,678	-1.6
Black	3,899	4,148	111	88	-2.5
Hispanic	1,471	1,782	78	137	+6.5

Source: U.S. Bureau of the Census, "Residents of Farms and Rural Areas: 1989"

Note: The Rural Nonfarm Population can be calculated by subtracting the Rural Farm from the Rural Population.

Just as in the cities, rural Hispanics tend to fare worse than their white neighbors. To begin with, rural Hispanics are employed in a much narrower band of industries and occupations, especially in the West. As indicated by Lyson (1991), over 20 percent of Hispanic men (25 years old or older) hold an agriculturally related job and few are employed in "services" or "trade." Employment of rural white men in the West, on the other hand, is more evenly distributed across industries. Rural Hispanic women in the West, like Hispanic men, are overrepresented in agriculture, "quadruple the ratio of non-Hispanic white women in agriculture" (Lyson, p. 11). Nonetheless, approximately 40 percent of rural Hispanic men work in construction and manufacturing and a majority of rural Hispanic women (53.6 percent) work in "services" (Lyson, 1991, p. 10). Although both Hispanic men and women are disproportionately employed in agriculture, they can be found in other occupations.

Related to these occupational patterns are unequal household incomes between Hispanic and White workers. As indicated in Table 3, relatively more Hispanic households have incomes lower than $7,500 than White households. Also, few rural Hispanic households had incomes above $40,000 compared to White households. Moreover, between 1979 and 1987, the income distribution for rural Hispanics worsened as fewer Hispanic households were in the top income quintile and more were in the lower quintiles (Table 3).

Table 3. Income distribution for rural White and Hispanic households, 1979-1987

	White		Hispanic	
Quintile	1979	1987	1979	1987
Top 20%	22.9	15.0	11.7	6.6
Next 20%	25.6	21.2	17.1	15.3
Middle 20%	23.9	24.0	23.1	20.9
Next 20%	17.3	22.7	27.8	31.2
Bottom 20%	10.3	17.1	19.3	26.0
Percent of households with income in 1979 and 1987:				
Less than $7,500*	9.9	10.4	14.5	15.4
More than $40,000*	23.6	23.7	14.6	12.3

*1987 dollars

Source: Lyson, 1991; modified from Table 2

Not surprising, poverty rates are significantly higher for rural Hispanics compared to rural Whites. In 1989, rural poverty rates were 40 percent for African-Americans, 35 percent for Mexican-Americans, and 30 percent for American Indians. Poverty rates for rural Whites stood at nearly 13 percent in the same year (Snipp, et al., 1992).

The low incomes of rural Hispanic workers are also reflected by the counties they live in. According to Lyson (1991), rural Hispanics are highly concentrated within the nation's poorest nonmetropolitan counties. On the basis of Lyson's ranking of U.S. counties from top to bottom based on the average income of their workers, the average income rank of the 82 counties in which Hispanics account for more than 30 percent of the population would be 2,339 out of 3,094 U.S. counties. The majority of such Hispanic counties are in the Southwest, mostly in Texas along the U.S.-Mexico border.

Features of Hispanics in agriculture

Some of the social and economic characteristics of Hispanics employed in agriculture in 1980 are noteworthy. In line (1), Table 4, we see that less than half of the Hispanics who worked in agriculture lived in rural areas, 102,877 out of 255,265. This suggests that many commuted to work in agriculture. Line (2) compares the ages of different Hispanics working in agriculture and line (3) the number employed by residence. Also, line (4) indicates that Hispanics living on farms, employed in agriculture, had higher median incomes than rural Hispanics who did not live on farms. Moreover, the incidence of poverty was relatively lower for Hispanics living on farms, line (7). Apparently, the level of schooling completed is relatively low for nonfarm residents compared to farm residents, line (8). Combining that information suggests that Hispanics with farm ownership or farm

[1]Some of this section is based on Rochin and de la Torre, 1991.

residence live better than Hispanics who do not live on farms but who work in agriculture nonetheless. Judging from the data in lines (9) and (10), Hispanics in agriculture are often from abroad, which suggests that they are more than likely recent immigrants.

Table 4. Social and economic characteristics of Hispanic persons employed in agriculture: 1980

	Total Employed in Agriculture	Total in Rural Areas Employed in Agriculture	Total Living On Farms and Employed in Agriculture
(1) Persons 16 years and older	255,265	102,877	15,874
(2) Median Age of (1)	32.6	33.5	36.0
(3) Number of (1) With Income	238,958	96,653	14,956
(4) Median Income of (3)	$6,651	$6,760	$7,720
(5) Mean of (3)	$7,799	$7,725	$9,584
(6) Number of (1) in Poverty	67,407	30,497	3,633
(7) Percent of (1) in Poverty	26.4	29.6	22.9
(8) Percent High School Graduates	15.9	14.3	20.3
(9) Number of (1) with Residence in 1975:			
In Same House	101,052	43,779	7,935
In Different House in U. S.	107,737	39,572	5,875
Abroad	43,887	17,629	2,032
(10) Percent of (1) Abroad in 1975	17.2	17.1	12.8

Source: U.S. Bureau of the Census, "Characteristics of the Rural and Farm-Related Population." Subject Reports PC 80-2-9C. The totals include farmworkers and farm operators and managers.

Historic roles

History provides an explanation for the conditions described above. It is not an accident of nature that rural Hispanics are concentrated in the Southwest and in agricultural roles. Moreover, nowhere else has the presence of Mexican Americans been stronger than in the southwest borderlands, where Mexican Americans have been concentrated. But as noted by Carey McWilliams in his revealing book *Factories in the Field* (1971):

> It should never be forgotten that, with the exception of the Indians, Mexicans are the only minority in the United States who were annexed by conquest; the only minority. Indians again excepted, whose rights were specifically safeguarded by treaty provision (p. 103).

That annexation by conquest, however, took all the states of the Southwest away from Mexico and transferred rights of property and U.S. residence away from our earliest Hispanic-Americans. Thus disenfranchised, Mexican Americans were subjected to a harsh future reality, one of deprived riches and inheritances. Even U.S. history books disassociated the development of the Southwest from its Hispanic contributors. The brief account which follows shows how the Mexican legacy of denial and deprivation evolved in the southwest.

Legacy of riches and denial

Less than 150 years ago the vast stretches of the southwest belonged to Mexico and 30 years before that time to Spain. A system of Catholic missions first opened up the Southwest, beginning in San Diego in 1769. The missionaries were devoted to converting California Indians to Catholicism, making them loyal Spanish subjects. Although there is considerable controversy and misgiving about this role of Spaniards in the Southwest, they did make numerous contributions to American farms and ranches. During the mission period, lasting to the early 1830s, the Southwest's first farms and gardens were established, patterned largely after what the missionaries had known in Spain, adapted to a raw new land with what the Spaniards learned from American and Mexican Indians. The Spanish priests and early Mexican settlers developed and disseminated America's first grapes, raisins, apricots, peaches, plums, oranges, lemons, wheat, barley, olives and figs. They also learned to assimilate and adapted the Mesoamerican products of cotton, henequen, and the nutritional indigenous diet of corn, beans, squash (pumpkin), tomatoes, chili peppers, avocados, vanilla, chocolate and a variety of other fruits and vegetables, which are today a part of our agricultural wealth.

The Spaniards, and later the Mexicans who took over the Southwest territory from Spain in 1822, also established the system of large farm estates or *ranchos*. The missions were the training grounds for the first agricultural work force in California, the mission Indians. As Indians were forced or indentured to labor on vast ranchos of several thousand acres each (and there were over 800 land grants recorded), they and *mestizo's* (mixed Spanish-Mexican-Indian blood) developed western techniques of large scale ranching and agriculture. In ranching, Mexicans introduced the rodeo, bronco-busting of the mustang, chaps, spurs, calaboose, stampede, barbecue, and many other ideas we think of as being typically American. In agriculture, our Hispanic forerunners introduced riparian rights and water saving irrigation systems and technologies for the arid Southwest.

So how did the Southwestern Hispanics lose all of this? As described by Acuña (1988), Barrera (1979), McWilliams (1971), Galarza (1976), and others, the annexation by U.S. conquest resulted in the subsequent denial of Hispanic roles in the development of the Southwest. As they have shown, the Treaty of Guadalupe Hidalgo of 1848 and the Gadsden Purchase of 1853 resulted in the United States' take-over of most of California, New Mexico, Colorado, Nevada, Arizona and lower Utah. California was the first to become a state in 1850, due in large part to the Gold Rush and a flood of immigrants from the eastern states. Other states joined the union and perpetuated a practice of treating the Southwest as newly conquered and developed terrain.

The rush of U.S. easterners after gold, coupled with completion of the transcontinental railroad in 1869, opened more areas of the Southwest, with the railroad tycoons getting the lion's share of land. In California's

central valley and south, the Southern Pacific Railroad became the largest landowner in the state with over 20 million acres. In California, former Mexicans (called "Californios") were reduced to a relatively small fraction of the state's population between 1860 and 1900.

Legislative action and contrived judicial proceedings dispossessed nearly all Hispanic title holders to Spanish and Mexican land grants, even though the Treaty of Guadalupe Hidalgo contained provisions to honor the former titles. Instead of land remaining in Hispanic hands, extremely large tracts of land went to Anglo settlers. Moreover, the Homestead Act of 1862 gave thousands of Anglo and European settlers 160-acre parcels. Hispanic land losses in New Mexico continue to be disputed to this date (Knowlton, 1985). And in a few nitches of the Southwest, there are still signs that the Hispanic legacy continues in farming and rural communities (Crawford, 1988).

The return of Mexicans as migrant workers

U.S. economic historians note that much of the West's agricultural wealth was due to three "faceless" factors: (1) natural resources; water, climate, land; (2) management and technology; and (3) an abundant labor supply. That is, U.S. economic historians tend to ignore the contributions of different racial and ethnic groups in studying development. But the last factor, of course, refers to the Mexican workers who played a prominent and ever-present role in agricultural development. How did this role begin?

From 1910 to 1917, Mexico was profoundly transformed by its peasant revolution and cries for agrarian reform. The revolution coincided with a growing demand for labor in U.S. agriculture that resulted in a steady flow of Mexican migrants into the United States. By the mid-1920s, Mexican migrants replaced previous farm workers of Chinese, Japanese, Hindu, and other nationalities who had been recruited near the turn of the century to meet the farmers' demands for agricultural labor (Fuller, 1991).

Readily available in growing numbers, Mexican refugees were actively recruited and encouraged to migrate by the organized efforts of growers and agricultural associations. By the 1930s, and thereafter, Mexicans were the largest single group in the fields of California. Their low wages and skilled hard work fueled much American agricultural prosperity. In the 1940s, World War II augmented the need for farm labor to harvest labor-intensive crops. In response, the United States negotiated a deal with Mexico to enable Mexican farm workers to work legally in the United States under temporary contract arrangements (i.e. the Foreign Farm Worker Program). More than 1 million workers would come to the United States to work in the so-called Bracero (translated: hired hands) program during the next years until 1965. At the height of the program in the 1950s, about 10 percent of the U.S. farm labor force were Mexican-based migrant workers employed throughout the U.S., mostly in the southwestern states. They accounted for 40 to 70 percent of the peak work force in crops such as lettuce, cucumbers, melons, oranges and tomatoes. On December 31, 1964, the Bracero program ended. Nonetheless, farm leaders successfully lobbied Washington to allow for employment of Mexican farm workers under Labor Code Section H2 "Temporary Foreign Worker Certification Program." Accordingly, more workers entered the United States provisionally during times that farmers could prove a domestic labor shortage was imminent and employment of foreign workers would not adversely affect the wages or working conditions of similarly employed U.S. workers. In 1989, about 26,000 jobs were certified under the amended H2A Program (Whitener, 1991, p 14.).

As we enter the 1990s, thousands of workers from Mexico still provide millions of hours of hand labor, in lettuce, cotton, fruits, and vegetables, primarily on some of the large farms Mexicans lost after the Treaty of Guadalupe Hidalgo.

Today, the vast majority of migrant and seasonal farm workers in the Southwest are Mexican Americans, most of whom use the lower Rio Grande Valley of Texas as a home base. The post-Bracero competition for jobs along the Texas-Mexican border, together with the recruitment drive from midwestern labor markets, has long supported the migratory pattern among Mexican workers of Texas winter residence with annual summer migrations to other parts of the United States. From the Texas valley, migrant streams of workers have traveled as much as 4,000 miles annually to the upper mid-west (the Great Lakes region), to the west coast, and some to the eastern sea-board regions.

For a time the USDA conceptualized three distinct streams of migration for purposes of general reference: the eastern, midwestern, and western paths, beginning and fanning out from south Texas. There is no longer such a patterned or uniform geographic migration as was once thought to exist. Various studies and observations of the past decade indicate that migration is now a much more complex, unpatterned, and unpredictable phenomenon (Dement, 1985). Now we find that most Mexican migrants travel an average of less than 500 miles in pursuit of their work. Analyses of enrolled migrant school children have shown that many families do not move along historic paths or streams and do not necessarily move in large groups (Whitener, 1984). Many so-called "Tex-Mex" migrants have settled in states like Michigan, Wisconsin, Indiana and Illinois, and some continue to work in rural communities where they reside. Unchanged is the fact that many Mexican Americans of Texas are hard workers, going great lengths to find jobs, and the region they come from is one of the poorest in the United States (Maril, 1989).

The symbiosis of Mexican immigration and American agriculture

As indicated above in Part I, recent immigration is a trait of most Hispanic-Americans. But immigration has been due to both a supply of and demand for Hispanic (Mexican) workers. For example, U.S. agriculture's persistent need for seasonal harvest workers has always made farm organizations like the Farm Bureau Federation a lobbyist for liberal immigration policies. The Immigration Reform and Control Act (IRCA) that passed Congress in 1986 reflects this historic past. It contained provisions to reestablish bracero-like conditions in the event of a labor shortage in the fields. It provided am-

nesty for SAWs (Seasonal Agricultural Workers) and RAWS (Replenishment Agricultural Workers), covering up to 1 million Mexican workers for farm employment. Today, about 75 percent of California's farm workers were born in Mexico and most of the rest are Mexican American or Chicanos. In California's Central Valley, the state's salad bowl of farm products, 87 percent of the workers were born in Mexico; 6 percent were born in the United States; 7 percent were born outside of the United States and Mexico, according to a 1989 survey (Alvarado, Riley, and Mason, 1990). Moreover, based on 361 persons interviewed, Alvarado et. al. found that 33 percent are U.S. citizens; 59 percent are legally in the United States on visas; and 7 percent are "undocumented" residents. One-half reported coming to work in the United States ten or more years ago; slightly under 8 percent reported coming less than four years ago. Almost all come from farm labor backgrounds (Alvarado et al., 1990).

What made IRCA so significant for Hispanic-Americans were the liberal provisions for becoming legal residents in the United States. The Special Agricultural Worker or SAW program permitted aliens who did at least 90 days of qualifying farm work in the 12 months ending May 1, 1986, to apply for temporary resident status. After December 1, 1990, qualified SAW aliens could become Permanent Resident Aliens, (PRAs), permitting them to become legal U.S. residents earlier than nonfarm illegal aliens granted amnesty under IRCA. Once the SAW aliens obtained status as PRAs, they could live in Mexico or another foreign country and commute seasonally to the United States. The SAW program attracted 1.3 million applicants, 54 percent in California, before ending on November 30, 1988. Eighty-one percent were Mexican applicants. The elimination of fraudulent cases, however, may result in only about 600,000 legally approved SAWs.

Since future recipients of PRA status may leave agriculture, IRCA provided for Replenishment Agricultural Workers (RAWs). RAW workers receive temporary U.S. residence visas provided they do at least 90 days of farm work annually for specially designated agricultural activities. After three years, a RAW can apply for a greencard to become a PRA.

Despite SAWs, RAWs, and older rules in the books (e.g., H2-A DOL provisions) allowing farms to employ immigrant workers, there continues to be a flow of undocumented aliens entering the United States. Most are likely to search for employment in the Southwest, many in agriculture.

Although the effects of liberal immigration policy are perhaps most pronounced in California, Mexican immigrants are also becoming an increasingly important part of agricultural workforces in Texas and Florida, the other leading states in fruit and vegetable production. There are indications from North Carolina, Washington, Wisconsin, and New York that the Hispanic component of the farmworker population is increasing steadily. As yet, there are no reliable data on numbers or characteristics of immigrant farmworkers (Martin, 1988).

Farm labor unions and collective bargaining

Farmworker strife and conflict have usually accompanied periods of enlarged Mexican immigration into America's rural economy (Galarza, 1976). The earliest farm labor strikes in California agriculture in the 20th century were organized by Mexicans: in Oxnard in 1903; in Wheatland in 1913; in the Imperial Valley in 1928; in El Monte in 1933; in San Joaquin cotton fields throughout the 1930s and, of course, within memory of most, Delano grape strikes and boycotts beginning for ten years in 1965. In all cases, Mexican field-workers struck for higher wages and better working conditions and the right to engage in collective bargaining (Sosnick, 1978). However the National Labor Relations Act purposely, and to this date, excluded farm labor from its provisions.

As a result of the conflicts between labor and management in California's fields, in 1975 California legislators passed the first mainland law (Hawaii was first in the nation) recognizing farm labor organizations' rights to collective bargaining. Called the California Agricultural Labor Relations Act, most of its provisions were unprecedented in American history, for example, guaranteed access of unions to farms, and democratic elections of officers (Rochin, 1977 and Fuller, 1991). Between 1975 and 1985 hundreds of contracts were signed between unions representing farm workers and farm employers. Nonetheless, since 1985 labor conflicts have increased over issues involving continued unfair labor practices (discrimination in wages and cheating workers), the use of pesticides, immigration impacts, collective bargaining rights, and exploitation by labor contractors, once the arch-enemy of the United Farm Workers.

Part of the explanation for this recent situation has been the decline of the United Farm Worker union, a largely Chicano and Mexican union. Since 1985, the membership and strength of the UFW has diminished. In California, where it is estimated that the union represented more than 100,000 workers in 1982, there are probably fewer than 15,000 workers organized by the UFW today. According to the union's President Cesar Chavez, it was Former Governor Deukmejian's (Republican) administration which undermined the union by biasing the California Agricultural Labor Relations Board in favor of farmers and by underfunding its operations and slowing its responses to unfair labor practices (see interviews with Breton, 1991 and Johnston-Hernandez, 1991).

I believe that the Immigration Reform and Control Act of 1986 also undermined the union's power by legalizing many more Mexican immigrants. Many who were recently legalized as farmworkers knew very little about the UFW union's past struggle, philosophy and purpose. They did not want to join its activities. As many immigrants were legalized as SAWs and RAWs, there was also an abundant supply of workers competing for jobs and less interested in joining politically oriented groups of workers.

Furthermore, the immigrants from Mexico were no longer those with previous connections to the Bracero Program. They included different indigenous groups who came with different ideas about organizing. One, for example, is the group of Oaxacan (Mixtec Indian) field hands who came to join a campaign to organize Mexican Indians like themselves in California. Known collectively as the Comite Civico Popular Mixteco, the

group which was founded in 1981 in one of Mexico's poorest regions, began an organizing drive in San Diego County in 1988 among Indians who were literally living in the fields, in man-made caves and shrub covered areas near urban communities. Today this group is struggling for recognition and bringing forth issues of racial and economic discrimination, both in Mexico and California.

Hispanic farms and farmers

The 1980 Census of Population identified about 12,000 Hispanic farmers (Table 5). Unlike earlier ethnic farm laborers, Mexican field workers have rarely climbed the ladder toward tenancy and ownership of land. The reasons for this are worth considering. One reason may be that Mexicans immigrated after much of the open land had been hand-picked by earlier immigrants, during times when farming was becoming increasingly capital intensive and technical. Another is the low income earned by Mexican workers, too low to accumulate money to buy land and equipment. Many Mexican workers also returned to Mexico where they would acquire land at lower cost with less financial difficulty.

Table 5 indicates the relative paucity of Hispanic farmers and the high number of workers. Notice the ratio of farmers to workers for each respective group. Nationally, there were 1.26 farmers per farm worker in 1980. The ratio for Whites was 1.87, for African Americans 0.17, and for Hispanics 0.06. While Hispanic Americans and African Americans accounted for 33 percent of the farm workers in 1980, they accounted for less than 2 percent of the nation's farmers. It is very unlikely that federal legislation for farmers helps Hispanics and African Americans in rural America. In fact, rural Hispanic Americans and African Americans are practically all excluded from federal legislation covering farm insurance, subsidies, and credit, because their farms are too small to qualify for this support.

Table 5. Farmers and farmworkers in the 1980 Census of Population by ethnic group

	All Farmers		All Farmworkers		Ratio:
Ethnic Group	Total	Percent of Total	Total	Percent of Total	Farmers to Workers
Total	1,101,060	100	874,784	100	1.26
White	1,065,022	97	568,453	65	1.87
African-American	15,814	1	92,600	11	0.17
Hispanic	11,520	1	189,263	22	0.06

Table 6 presents an overview of selected characteristics of Hispanic farms. Nationally, Hispanic-operated farms have increased in number, from 16,183 in 1982 to 17,476 in 1987. In 1987, Hispanic farm acreage was lower than in 1982 and yet there were more farmers. Harvested crop land also decreased from 1.3 million acres in 1982 to 1.2 million in 1987. The overwhelming number of Hispanic farms (73 percent) are below 219 acres, about one-half of the national average. Moreover, Hispanic farmers are primarily tenants, sharecroppers, and part-owners who rarely have marketed sales above $25,000.

Table 6. Selected characteristics of farms operated by persons of Spanish origin: 1987 and 1982

Number of Farms Held by Hispanics	
1987	17,476
1982	16,183
Land in Farms (acres)	
1987	8,340,701
1982	8,872,066
Harvested Acres of Cropland	
1987	1,148,619
1982	1,226,975
Number of Farms in 1987	
Below 219 acres	12,773
220 to 499 acres	2,006
500 acres or more	2,697
Total	17,476
Number of Acres by Tenure, 1987	
Full Owner	2,745,808
Part Owner	3,999,069
Tenants	1,595,824
Number of Farms by 1987 Market Value of Sales	
Less than $2,500	6,225
$2,500 to $9,999	4,978
$10,000 to $19,999	1,828
$20,000 to $24,999	479
$25,000 or more	3,966

Source: U.S. Census Report, CPS P-27, No. 61, 1988 and 1987 Census of Agriculture.

In Colorado and New Mexico, Hispanic and Anglo farming have been found to differ somewhat in cropping patterns and livestock holdings. Hispanic farmers specialize more in alfalfa and sheep whereas Anglo farmers have more potatoes and cattle (Eckert and Gutierrez, 1990).

Table 7 shows that most Hispanic farms and land in farms are found within seven states: Arizona, California, Colorado, Florida, New Mexico, Texas, and Washington. Combined, they represent 80 percent of all Hispanic farms and 85 percent of land area (see Table 6). In only two states do more than 50 percent of the Hispanic farms have sales of $10,000 or more, namely, California (with 51 percent) and Florida (with 50.2 percent).

During the 1970s, a short-lived movement took place in California to convert Chicano farm workers into owner-operators of cooperative farms, mostly for horticulture production. The efforts were successful so long as the USDA and California's system of Cooperative Extension helped these farmers with technical assistance for production, finance, and marketing. By the mid-1980s most Chicano cooperatives were gone, for a variety of reasons. However, many former cooperative members continued farming as renters and/or sharecroppers, especially in the production of vegetables and strawberries (Rochin, 1985). The sharecropping appears to have been motivated in part by landowners as a way to bypass the state's labor laws, especially the Agricultural

Table 7. Farm operators of Hispanic origin by geographic distribution, 1987

Geographic Area	All Farms		Farms With Sales of $10,000 or more		Percent
	Farms	Land in Farms	Farms	Land in Farms	Farms with > $10,000
U.S. Total (Hispanic)	17,476	8,340,701	6,273	6,393,927	35.9
Selected States					
Arizona	363	364,077	168	325,249	46.3
California	3,471	1,046,104	1,771	970,838	51.0
Colorado	710	402,040	233	281,571	32.8
Florida	624	205,542	313	193,077	50.2
New Mexico	3,013	2,540,060	649	1,727,836	21.5
Texas	5,427	2,444,808	1,421	1,751,470	26.2
Washington	325	61,016	126	56,280	38.8
Subtotal	13,934	7,063,647	4,681	5,306,321	33.6
Subtotal as % of Total	79.7	84.7	74.6	83.0	NA

Source: 1987 Census of Agriculture — Vol. 1 Part 51 "Summary and State Date," Table 35, pp. 414-415.

Labor Relations Act of 1975. As sharecroppers, Chicanos are treated by law as farmers and not as farm workers who can be protected by California's Agricultural Labor Relations Act and other laws covering work conditions and wage rates. Under sharecropping, landlords are protected against federal immigration laws concerning aliens and avoid paying fines, coverage for workers under OSHA, and labor contractor laws. According to Wells (1984)

> Most basically, strawberry sharecropping is a response to a changed balance of power between agricultural labor and capital...In the current context, sharecropping helps landowners cope with the rising cost and uncertainty of labor. Far from hindering rational production, modern sharecropping facilitates and is recreated by capitalist accumulation (1984, pp. 2-3).

Rural colonia settlements

Although most Hispanic Americans live in communities within metropolitan areas, many Hispanics reside in non-metropolitan areas and rural settlements. Hispanic rural residents along the Texas-Mexican border live in unzoned, unprotected squatter communities of campers, tents, and lean-to shelters; just one step away from being completely homeless (Brannon, 1989).

In California, over 500,000 Hispanics live in numerous small rural communities varying in size and complexity from unstructured ranchos to towns and cities. Colorado, New Mexico, and Texas add nearly 1 million rural Hispanics to California's rural number. In California, for which there is data, nearly 70 rural communities have been found to have a majority of Hispanic people in each, ranging from 50 to 98 percent of the population. The average town size is 6,000 people. Most residents of these communities are of Mexican descent and most are farm workers or employees in agribusiness. Recent research (University of California, 1989 and Rochin and Castillo, 1991) indicates that during peak periods in agriculture, the population of Hispanic settlements is substantially enlarged with the presence of migrant farm workers. Since annual earnings in farm employment are typically well below the poverty level, the Hispanic residents in rural settlements constitute a large proportion of California's rural poor (Gwynn, et. al., March 1990).

The concern with these communities is that they show signs of becoming centers of rural underclasses of Hispanics, populated by an impoverished working people laboring to support themselves via the agricultural economy. These communities have relatively low tax bases and hence lack many of the public amenities needed to provide adequate health care, schooling and safety (Rochin and Castillo, 1991).

On the other hand, the subordinate position of colonia residents has been sustained by agribusiness and immigration. The overwhelming dominance of large farms and their dependence upon low-skill labor means a political alliance of agribusiness firms to support liberal immigration. There is and has been little enforcement of immigration laws in agricultural areas, which also means that farmers can take advantage of the massive population growth in Mexico by ensuring an abundant supply of workers. Under these circumstances, farm and agribusiness interests are well-positioned to dictate wages and working conditions and hence the welfare of rural colonias and Chicanos.

Summation

Given its history and growing size, the characteristics and conditions of the Hispanic American community in rural America have critical social, economic, and political implications. In considering these, it is important to separate image from reality. The popular image is one of migrant and seasonal workers working temporarily in farmers' fields before moving on to other employment. The image is also of a young, single male, uneducated, but prone to unionization and membership in the UFW.

These images no longer hold. Rural Hispanics have changed in character and so have their conditions. Many Hispanics are rural residents with non-farm employment. The formation of colonias shows an increasingly permanent and settled rural Hispanic or Chicano population. Because of IRCA and previous historical patterns of immigration, Mexican immigrants are here to stay. The newcomers include Mexican Indians, urban Mexicans and people of all ages. More Mexican women have immigrated than in times before.

The Mexican settlement is geographically concentrated in rural areas. Today their communities conduct daily business in Spanish and many have fewer opportunities for learning English, if they wanted to. Within colonias, education is a perplexing problem. Although many Mexicans recently entering the U.S. have more schooling than previously, education among most non-Hispanic Americans has advanced even more. We know little about the educational and income mobility of colonia residents.

Part III: Trends of Hispanic-Americans in agriculture

Patterns of change

Hispanic Americans have become increasingly important in rural America because of several evolutionary changes. What was once a rural society of predominantly white persons of European origin has now become a society of widespread racial and ethnic diversity. What was once a fairly homogeneous rural economy of tremendous strength is now a diverse rural economy that is dwindling in importance relative to GNP and national employment. In short, rural America is vastly different from fifty years ago and so is America's food and fiber system.

Agriculture's national role for income generation and employment continues to shrink. Total hired employment in agriculture has declined steadily from an annual average of about 3.7 million workers, in 1960, to about 2.5 million today (Table 8). That is a remarkable decline, especially considering the amount of output and surplus that is produced by our agricultural sector. Today, there is no state where agriculture is the most important source of employment or generator of income for workers.

Along with the decline in agricultural employment has been a steady decline in the number of people living and working on farms (Whitener, 1991). In 1960 the farm population of 15.6 million represented 8.7 percent of the nation's total. In 1970 it was 4.8 percent. In 1985 the farm population was estimated at 5.3 million people, and constituted less than 2 percent of total population nationwide (Table 8).

Implications of larger and fewer farms for rural Hispanics

Along with the decline in the mid-sized farms has come the concomitant reduction in family farm labor, and the associated decline in the farm population. This trend suggests that we will face a decreasing number of young people, domestic workers in particular, who will be available to work on America's farms.

These changes have several implications for farm labor and Hispanic Americans (Rochin, 1989). With larger farms, we can expect that farm skill requirements will gradually rise, on average, throughout the United States. Larger farms will require more workers for more specialized tasks, because large farming operations will tend to be more profit driven and more apt to use new technology with more productive workers. This pattern is particularly evident in California.

The trend is also implicitly evident in Table 8, wherein we see a steady decline in people employed less than 150 days per year, i.e., those who are usually temporary, semi-skilled harvest workers.

Another implication for farm labor is that the work hours, pay scales, and supervision will be more structured on large farms. In many states already, the conditions of work and supervision are being monitored more closely by federal and state authorities. Maybe there is in this pattern a blessing in disguise for farm labor. In general, as the farm reaches a higher level of size and skilled workers, it will have to be monitored and operated more closely by the profit driven growers and government officials. If the tasks of monitoring are done according to law, then farmworker conditions should improve as well as the conditions facing Chicanos in "fields of pain."

We might now ask, "What about the future of rural Hispanic Americans? Where are they in these trends?" Well, the changing structure of farms that we have observed has plenty to do with the future of Hispanic workers.

There is in the United States a distinct racial and ethnic bias to the employment pattern of hired labor in agriculture (Figure 1). Out West, Hispanic workers are needed by larger farms to perform specialized tasks (Table 9). In the southern states African Americans are concentrated on larger farms. Apparently, larger farms in the West and South tend to employ more ethnic minorities for specialized tasks than do mid- or small-farms (Table 9).

In the Midwest, however, where we also see the decline in mid-size farms, the picture of minority farm labor is not so clear. We know that in the Midwest we do not have a long history of major proportions of minority workers employed on farms. However, we do know that the Midwest is the place of consistent employment of migrant and seasonal workers during the summer, especially of Mexican-origin workers (Valdés, 1991).

Agriculture is an important source of income, employment, and training for Hispanic Americans (Oliveira, 1992). If domestic Hispanic workers (and those who have been legalized as SAWs and RAWs) are going to continue working in agriculture, then we would certainly expect more Mexican workers to be drawn into this sector. I expect that in the South farmers will still be hiring domestic Black workers be-

Table 8. Number of hired farmworkers by days of farmwork: 1960 - 1985* (Numbers in thousands)

	Days of Hired Farm Work					
	Hired Worker Total	Fewer Than 150	150 and Over	% of Total	Farm** Population	% of Total
1960	3,692	2,864	828	22.4	15,638	8.7+
1965	3,099	2,468	631	20.4		
1970	2,487	2,009	478	19.2	9,712	4.8+
1975	2,638	2,055	583	22.1		
1979	2,651	1,893	758	28.6	6,051	2.7
1981	2,492	1,817	675	27.1	5,850	2.6
1983	2,596	1,861	735	28.3	5,789	2.5
1985	2,521	1,732	789	31.3	5,355	2.2

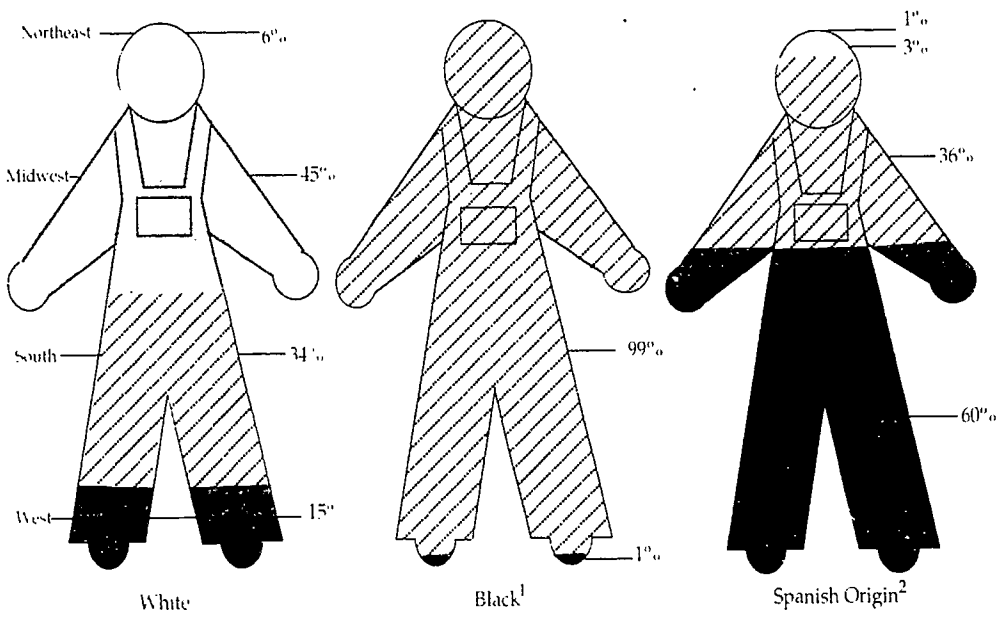
*Source: Oliveira, Victor, J., and E. Jane Cox, "The Agricultural Work Force of 1985: A Statistical Profile" USDA/ERS/Ag. econ. Report 582, Washington, DC, March 1988.

**Source: US Bureau of the Census/USDA "Rural and Farm Population": 1987, CPS, Series P-27, No. 61, Pre-80 Farm Definition (See Appendix).

cause they still constitute a large pool of unskilled labor. I expect in the West that agriculture will be hiring more Hispanic (Mexican) workers because of the large labor supply (especially from Mexico) and established family networks of field laborers. I am not sure what is going to happen in the Midwest with regard to Hispanic workers. Nonetheless, I wonder who is going to be working on Midwest farms, especially if the average farm size continues to specialize and grow and if there is a steady exodus of mid-sized owner-operators out of farming.

FIGURE 1.

Regional Distribution of Farm Residents, by Race and Spanish Origin: 1984



[1] The Black farm population in the Northeast and Midwest was less than 500 and rounds to less than 1 percent

[2] Persons of Spanish origin may be of any race.

Table 9. Demographic and employment characteristics of all hired farmworkers by geographic region, 1985 (thousand)**

Characteristics	U.S.	N.East	Midwest	South	West
All hired Workers	2,522	265	851	826	580
Racial/Ethnic Group:					
White	1,922	249	832	486	356
Hispanic	326	6	11	129	181
Black & Other	274	10	9	211	43
% White	76.2	94.0	97.7	58.8	61.4
% Hispanic	12.9	2.3	1.3	15.6	31.2
% Black & Other	10.9	3.7	1.0	25.6	7.4
Number of Migrant	159	6	47	65	42
(%)	(14.9)	(2.3)	(5.5)	(7.9)	(7.2)
Primary Employment:					
Attending School	718	85	294	199	141
(%)	(28.5)	(32.1)	(34.5)	(24.1)	(24.3)
150 Days Farmwork	789	102	211	260	216
(%)	(31.3)	(38.5)	(24.8)	(21.2)	(37.4)
Non-Farmwork	560	57	212	180	112
(%)	(22.2)	(21.5)	(24.9)	(21.2)	(19.3)
No. in Veg. Fruits & Hort.*	587	67	61	192	267
(%)	(23.3)	(25.3)	(7.2)	(23.2)	(46.0)

*Refers to the crops worked with most on the farm where respondent worked the greatest number days in 1985. The CPS data is collected in March and tends to underestimate Hispanic workers.

[1] Source: Oliveira and Cox, 1988. See Appendix for Regional Breakdown.

Mechanization versus "Mexicanization"

Mechanization has been a traditional weapon for large farms to reduce use of workers and to under-cut the bargaining power of farmworkers. Mechanization gives growers an alternative, albeit an expensive one, to paying higher farm labor wages.

During the demise of the Bracero program in the 1960s, mechanization and its consequences were widely studied. But the predictions raised about declining employment opportunities and declining producer competitiveness never materialized. Martin (1983), for example, warned that: "The $18 billion U.S. fruit and vegetable industry is increasingly reliant on illegal immigrant labor. By postponing mechanization it is becoming vulnerable to cheaper produce from other countries" Martin and Olmstead (1985) later argued strongly for the control of immigration and further development of mechanization. According to Martin and Olmstead: "The illegal or undocumented nature of the farm work force indicates a need to support mechanization research programs in order to create more desirable jobs and to keep the American fruit and vegetable industry competitive in the international economy" (Science p. 606).

Instead of mechanization, "Mexicanization" followed, a term coined by Palerm (1991) in his study of Mexican and Chicano colonias. It was certainly confirmed by IRCA's provisions. In describing how Mexicanization works, Palerm (1991) pointed out that there is in effect a long-standing culture of migration between Mexico and the United States where we have the same workers going back and forth to the same employment areas and employers,

then passing this tradition on from generation to generation of Mexican farmworkers.

This process has created a stabilization of California's agricultural labor force that we rarely talk about. It has also contributed to the growth of colonias and the increasing numbers of rural residents of Mexican origin. The process involves large numbers, upwards of 1 million persons entering annually from Mexico to rural America. And the process is unchecked and growing.

Implications of "Mexicanization"

Five decades of Mexican workers in the U.S. agricultural economy (dating back to the Bracero era) have driven most other U.S. workers who have options out of seasonal migratory farmwork, and out of rural communities. Mexicans and Chicanos are now shouldering the bulk of fruit and vegetable harvesting responsibility in those states where this production is concentrated. Recruitment for available jobs is done largely through Mexican families and friends and by labor contractors whose Mexican roots and residential connections enable them to muster hundreds of workers from villages in Mexico and Central America on short notice, and literally guarantee their arrival at harvest sites in California or Washington within a four day period.

Spanish is increasingly becoming the language of the fields, spoken by labor contractors and workers and rarely by farm operators or by most Black or White U.S. citizens or Asian immigrants in search of farm employment. The implication is that if an individual cannot speak Spanish, their prospects for obtaining migratory or seasonal farmwork are almost non-existent.

Likewise, Mexican/Chicano farmworkers who speak Spanish only and who have little formal education or English training, may face unsurmountable obstacles when and if they attempt to make the transition to the world of nonfarm employment. By settling into colonias, they become bound to rural communities of protection and culture. But they also become increasingly isolated from the rest of the United States which is non-Hispanic.

The free trade agreement

U.S.-Mexican relations are improving, especially with regard to the possibility of reducing trade barriers between nations. At this time, Mexican, Canadian and U.S. negotiators are working on NAFTA, the North American Free Trade Agreement. It is unlikely to be followed in the short run by the migration of goods and services rather than labor. For the United States, the likelihood of reduced immigration and "Mexicanization" is weak even with NAFTA. Both the supply of Mexican workers and the demand for them are strong at this time. Some studies have predicted that the jobs in Mexico will be produced gradually over the 1990s and will depend upon Mexico's policies for "privatization" and its investment climate for U.S. dollars (Rochin, 1992). At the same time, however, Mexico is abolishing its system of farm *ejidos* (which guaranteed usufruct to land without title) by allowing its farmers to both own and sell their land. If Mexican peasants sell their land, then where will they go? If landlessness occurs – as feared by Mexican academics – then will social pressures mount in Mexico resulting in a greater push of workers to the United States and into colonias? For now, we have no answers.

Summation

Farming and the size and number of farms are very different today compared to the 1940s and earlier. The trend toward fewer mid-size farms has reduced the number of family workers. The trend towards larger farms has increased the farm sector's hired labor requirement in regions with larger farms. Operators and hired workers must have a variety of skills to perform more sophisticated tasks (operating heavy equipment, computerized drip irrigation systems and applying chemicals). The changing nature of agricultural work has probably made many tasks more risky and unhealthy.

The numbers, activities and working conditions of the agricultural labor force are very different from previous decades. In the West, however, the diversity of jobs has not changed the composition of workers. Many more are Mexican, but many are trained in a wide variety of tasks. While many hired farmworkers are harvesting fruits and vegetables, many others are shearing sheep, pruning roses and Christmas trees, cultivating mushrooms, stocking fish ponds and herding cattle.

Apparently, the "Mexicanization" of agriculture will prevail for more years. With the free trade agreement in effect, the flow of immigrants from Mexico will heighten the "Mexicanization" process. As this process continues, the likely place of rural settlement will be within colonias. Such communities will need increasing public attention as they will be responsible for the human capital formation of the future's labor force of Hispanic-Americans.

Conclusions

At the beginning of this paper I stated my plan to broaden the focus of rural Hispanic Americans and to avoid the single issue of migrant and seasonal farmwork. I believe it is now clear that rural Latinos, Chicanos, etc., constitute a diverse population within a larger demographic trend that is changing social and power relationships between people. By the year 2000, Hispanic Americans will be called upon to carry a bigger role in sustaining the wealth of this country.

I am not suggesting a move away from studies and policies of farmworkers. The "Mexicanization" of "fields of pain" is a questionable phenomenon whereby workers are employed in back-breaking jobs when mechanical implements can do the job. Mexican-Americans in agriculture are still exploited and work under inhumane conditions which include unsuspected toxic chemicals and high rates of sickness and accidents. Child labor is still evident and little is done to assure children's education and preparation for a technical society. Few children are taught the legacy of their ancestors or the contributions they made to American food and fiber. Hence, few have much knowledge of their history, which could be a source of inspiration.

Immigration will continue to be an issue related to rural Hispanics. Immigration from Mexico is most profound and significant in the Southwest. It is more complex today with the influx of Mixtecs and other Indians from poor regions of Mexico. The realization that half

the Hispanic Americans are foreign born should signal the need for policies that deal with acculturation (but not assimilation), English-language training and ethnic relations.

The current discussions between Mexico, Canada and the United States for a North American Free Trade Agreement (NAFTA) portend possible impacts in our agriculture. I expect the agreement to get Congressional approval by June 1993. I also expect U.S. agricultural producers to face a phased-in, 5-10 year period of tariff and non-tariff reductions. There should be ample time for more studies of the NAFTA's impacts on immigration, labor requirements for U.S. fruits and vegetables and environmental matters. Rural Chicanos will be affected but so will immigrant Mexican workers.

Rural settlement and colonia formation are here and now. Chicanos are the majority in a significant number of border communities and in towns in primary agricultural areas like California's Central Valley. But higher education and Colleges of Agriculture have not responded to the potential for recruiting and educating rural Latinos from these neighboring towns to study agriculture and natural resources. The migrant farmworker image is too strong in the mind-set of Anglo educators. Speaking from personal experience, very few of my U.C. Davis colleagues in agriculture imagine Latinos as scientists and future leaders in agriculture. They are mesmerized by the farmworker syndrome and not sensitized to the positive strengths of Chicanos.

Public policy analysts have sought for decades to improve the lot of migrant and seasonal farmworkers. Now they must broaden their focus and work on ways to improve the lot of rural Chicanos and Latinos. Such analysts will have to learn more about the global economy, patterns of international migration and about the processes of "Mexicanization" of fields and colonia formation. They may have to learn Spanish!

Focusing exclusively on farmworkers will only deal with a part of a population and not the whole population that has much to offer rural America. But also, rather than addressing a disadvantaged population presenting endless social problems, Hispanic Americans should be looked upon as a potential source of strength for the society and economy of the nation. There is a need to encourage the production of "success stories" and progressive practices of Hispanic farm producers, labor organizers, etc., who represent what's right in American agriculture.

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Appendix

Definitions and explanations

Farm population. In the Current Population Survey, the farm population as currently defined consists of all persons living in rural territory on places which sold or normally would have sold $1,000 or more of agricultural products in the reporting year (for the CPS the preceding 12 months). Persons in summer camps, motels, and tourist camps, and those living on rented places where no land is used for farming, are classified as nonfarm. The current definition was introduced into the P-27 series beginning with the 1978 farm population report.

Under the previous farm definition, the farm population consisted of all persons living in rural territory on places of 10 or more acres if at least $50 worth of agricultural products were sold from the place in the reporting year. It also included those living on places of under 10 acres if at least $250 worth of agricultural products were sold from the place in the reporting year.

Persons living on farms located within the boundaries of urban territory are not included in the farm population. Urban territory includes all places with a population of 2,500 or more and the densely settled urbanized areas defined around large cities.

Nonfarm population. The nonfarm population includes rural persons not living on farms plus the urban population.

Geographic regions. The four major regions of the United States for which data are presented represent groups of States as follows:

Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.

Midwest: (formerly North Central): Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.

South: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia.

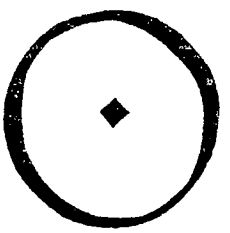
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

Race. The population is divided into three groups on the basis of race: White, Black, and "other races." The last category includes Indians, Japanese, Chinese, and any other race except White and Black.

Spanish origin. Spanish origin in federal reports is determined on the basis of a question that asked for self-identification of the person's origin or descent. Respondents were asked to select their origin (or the origin of some other household member) from a "flash card" listing ethnic origins. Persons of Spanish origin, in particular, were those who indicate that their origin was Mexican, Puerto Rican, Cuban, Central American or other Spanish origin.

Information technologies and rural economic development

Don A. Dillman*



Information technologies are critical to future rural economic development. Failure to bring networked computer work stations and improved telecommunications services to rural America will unnecessarily hasten the decline of rural places.

However, information technologies themselves are no guarantee that rural economic development will occur. Other powerful forces are also acting to influence the distribution of America's work and places of residence. Indeed, bringing information technologies to rural America may have short-run negative rural economic development consequences. The relationship that is evolving between information technologies and rural economic development is both complex and uncertain. It is also open to intervention.

The emergence of the global world economy suggests the potential for distance, the traditional barrier to full rural participation in the national economy, to become less important in the production of goods and services. Harlan Cleveland optimistically describes the passing of remoteness as one of the great unheralded macro-trends of our extraordinary time.

> Distant farmsteads can be connected to the central cortex of their commodity exchanges, political authorities, and global markets. The fusion of rapid microprocessing and global telecommunications presents nearly all of us with the choice between relevance and remoteness. (Cleveland, p.27)

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Overnight delivery from virtually any point in the United States to any other and two-day delivery to most countries of the world are overcoming remoteness. Satellite access to CNN and other news sources, nationwide distribution of *The New York Times* and *USA Today*, and instant facsimile access to everywhere from anywhere makes it possible to overcome some of the current information disadvantages of rural America. The tendency towards more job creation by small businesses, the downsizing of large corporations, and greater reliance on outsourcing also mean that small communities are increasingly able to accommodate new businesses that are willing to locate there.

The necessity for traditional factory assembly lines has given way to the possibility of information-age assembly processes that flow through non-contiguous work stations. From the standpoint of technology it is no more difficult to pass information, increasingly the key element in the creation of value, to and from work stations located at great distance from one another than it is to pass that information from one desk to another in the same room. It can now be argued that the "telecommunications" distance between an urban office building and a remote rural community is about the same as the distance between those adjacent desks.

The creation of many information-intensive businesses in rural places demonstrates that such businesses can exist and thrive there. (Parker, et al. 1990) Examples exist throughout rural America—a telemarketing firm in Breda, Iowa, a computer software firm in Ketchum, Idaho, an employment search firm in Missoula, Montana, a national cookie firm in Park City, Utah, an upscale candy manufacturer in Durango, Colorado, accounting firms in rural Mississippi, and various telemarketers in South Central Nebraska. National clothing marketers in central Maine and southern Wisconsin are other examples. Some of these businesses were homegrown; others were brought to their locations by entrepreneurs seeking an escape from their metropolitan locations in search of a preferred lifestyle.

However, the existence of numerous rural examples of such businesses does not necessarily herald the beginning of a trend that will revitalize rural America. Other powerful forces are also acting upon rural places that run counter to the development possibilities associated with utilization of information technologies. In this paper I will describe the nature of some of those forces and outline three scenarios for how information technologies may influence rural development. I will also outline four critical issues that must be addressed if information technologies are to be utilized to foster rural economic development to a significant degree.

Definitions and perspectives

This is not the place for an extended treatment of the meaning of rural development, a concept which many others have struggled to define. For purposes of this paper, rural economic development corresponds to "place" development, and not simply "people" development. Moving people to urban places in order that they might get a better education and ultimately a better job (as did this writer and millions of others) is sometimes viewed as rural economic development but not as I use the term in this paper. Intentionally de-populating the great plains to recreate a "buffalo commons" (Popper and Popper, 1989) might from a certain perspective be viewed as economic development, but not rural economic development as I use the term here.

I also find it difficult to restrain myself to the economic aspects of development. My general view of development is that of improving the overall lot of people in rural places. By overall well-being I go beyond economic well-being to include health, access to educational opportunities, recreational opportunities, and the other reasonable and realistic wants that rural people and would-be rural dwellers hold as part of their aspirations. Improved returns for human labor is a critical part of what rural development is about but by no means its entirety. However, inasmuch as I have addressed many non-economic quality-of-life issues elsewhere, with others, (Parker et al. 1989) I will limit my focus in this paper mostly to matters pertaining directly to economic development issues.

I was asked to focus on telecommunications in this paper, but have taken the liberty of expanding the concept to "information technologies," or "telematics" to be more precise (Dillman, 1992) The expansion is necessary. We live in an era in which telecommunications, broadcast media, and computer technologies are being combined into a single infrastructure for developing, sending, receiving, sorting, and utilizing information. This convergence of technologies is made possible by revolutions in computer power and transmission technologies, undergirded by the increasing digitization of information. Digitization is the common language that makes them operable and inseparable in their practical applications. (Beninger, 1986) To speak of telecommunications alone is much like attempting to describe the importance of freeways without reference to vehicles and their contents.

The perspective taken in this paper departs somewhat from traditional academic perspectives, which often attempt to extrapolate the future based upon existing technologies and well-established trends. Information technologies have only recently burst dramatically onto the scene as a major transformational force influencing social and economic life. Useful personal computers date from only the early 1980s, and we are still in the infancy of trying to understand their impact on the world in which we live. For this reason, many of the ideas in this paper are necessarily speculative and I have included some discussion of the technologies themselves.

Importance of information technologies to rural development

Information technologies are important to rural development because the object of their application is a resource, i.e. information, which is being increasingly substituted for energy, labor, natural resources, and time in the production of all manners of goods and services, as well as consumption activities. Computer-aided design allows the production of automobiles that are thousands of pounds lighter, far more fuel-efficient, less likely to break down, and which inform via digital displays and sounds when servicing is needed. Information technologies make possible instant air travel reserva-

tions and seat assignments, and the utilization of complex, frequently changing fares designed to achieve more efficient operation of airlines. (Dillman, 1985)

Information technologies also undergird development of the global economy whereby businesses in dozens of countries can compete for customers in dozens of other countries. These technologies are both the originator and controller of just-in-time-delivery and outsourcing (purchase of components from external suppliers, even very complex ones for which there is little tolerance for error) that replace warehouses and in-house production. Information technologies allow the use of remotely located software that re-tools machines for very small production runs on a demand basis, eliminating the resource-consuming need to guess demand and store large inventories in anticipation of sales.

Information technologies have been a major factor influencing the social and economic organization of rural America throughout this century. In the first third of the century, the telephone contributed to economic efficiency in rural America through the infamous party line—farmers could organize cooperative work efforts, check market prices, and save large amounts of time by not having to depend as much upon trips to towns and each other's homes by horse and wagon. In the middle third of this century, the telephone, radio, and television contributed to the development of a mass society, facilitating the development of large corporations and the mass production and consumption of inexpensive goods and services, that brought rural Americans into the mainstream of American society. In particular, the development of long distance voice phone underpinned these new organizational and production methods, making it possible to coordinate hierarchically organized units with great effectiveness. (Dillman and Beck, 1988; Dillman, 1990)

The convergence of advanced computer and transmission capabilities, and in particular machine to machine communication, provides a basis for new forms of effective organization. Long distance outsourcing and coordination of production activities are predicated upon sending massive amounts of information very quickly between distant locations. Facsimile transmission and electronic mail networks substitute for time previously needed to order goods and services. Software and electronic record-keeping systems make it possible to reduce the hierarchical levels within organizations and to eliminate subcomponents that supply products and services that can now be outsourced at less cost with no drop in quality. These kinds of information technology advances and applications underlie the development of an economic order that allows parts of a production process to be widely separated geographically. In a sentence, information technologies have the potential to overcome much of the friction of space, including rural space.

The potential impact of information technologies on rural America stems in large part from changing the rules governing who can produce what and where they can produce it. Small organizations can produce goods and services once produced only by large corporations. The downward trend in the proportion of the U.S. labor force involved in traditional rural occupations, such as agriculture and manufacturing, and the increase in the proportion involved in information-based service activities is one impact. Information technologies make possible telework, i.e. working occasionally or entirely away from the office or factory that utilizes the output of one's work. It also changes opportunities for farmers from the mass production of undifferentiated commodities to the possibility of tailoring production for targeted markets. (Dillman, 1990)

Achieving rural economic development through information technology development depends upon many issues, from improvement of telephone service to acceptance of computer-based work activities. Compared to urban America, rural America has more party lines, less access to digital switching, poorer quality of telephone lines, and less ability to connect with important computer services without paying long distance charges. (Parker et al., 1989; Parker and Hudson, 1992)

Why information technologies often get ignored in efforts to encourage rural development

Information technologies have mostly been ignored as an important issue for rural economic development. (Dillman, 1991) There are several reasons. First, traditional jobs in resource extraction and utilization were viewed as not likely to be affected very much by information technology developments. The growing and harvesting of undifferentiated mass-produced commodities, from corn to wheat, were seen by many as not subject to much change that might warrant the use of computers, better telephone lines, or faster access to information. This position is correct only so long as farmers attempt to grow the same commodity in the same unchanging way to be sold in bulk, a presumption that seems less and less viable. An era that encourages targeted production seems to be developing. (Dillman, 1990)

Virtually all of the growth in rural jobs in the 1980s was in services (with declines occurring in natural resources and manufacturing) an employment area in which information technologies are especially important. However, service jobs have usually been perceived either as McDonalds-type jobs requiring only low skills or jobs that could only serve locally-based industries and people. The idea that services can export to other regions of the country or even the world was not seen as realistic, especially if it relied upon working long distance, i.e. thorough telecommuting. Beyers et al. have produced evidence to the contrary. (1986)

Third, the attention of rural development professionals has been and continues to be focused on other more visible kinds of infrastructure deficits. Rural communities have the country's worst roads, poorest bridges, most inadequate sewage systems, poorest medical services, and most limited access to capital. Continued population decline threatens the existence of school districts and often restricts the available opportunities to high school or less.

Fourth, information technologies have usually been viewed as a private sector issue; inadequate or broken down telephone lines as the problem of the telephone company, not local, state, or even national officials. Regulators have viewed telephone service in terms of consumer cost rather than as a development tool.

Fifth, concern about analog switches and static on telephone lines that restrict their usage for facsimile transmissions or limited long distance calling areas have seemed minor issues in comparison to the highly visible and far more understandable concerns of rural communities. While washed out bridges are easily observed, telephone lines of poor quality so that facsimile communication must proceed at a very low rate (and is therefore more costly and impractical) and analog switches are mostly invisible and, to many people, incomprehensible.

Are information technologies anti-rural development?

It is sometimes argued that information technologies are fundamentally anti-rural development. Two quite different arguments for this position are typically offered. The first argument is that some people who have chosen to live in rural America are attempting to escape precisely what information technologies are heralded as bringing to it. Cable television, *The New York Times* or *USA Today*, cellular telephones and fax messages are so-called urban amenities from which rural living offers an escape. People who are seeking a slower pace of life, a closer linkage to nature, and the charm of folksiness and personalized service from small businesses see information technologies as destroying the communication distance that makes these "quality-of-life issues" possible.

The second argument is quite different. It is a concern that once information technologies are available, they will be used to pull the business out of rural places rather than to bring it in. This argument has considerable merit. Examples range from the novel use of 800 numbers to order pizza for delivery to evidence that branch banks not only collect deposits for shipment to places where larger loans can be made, but that they send accounting work for clients to urban centers, thus eliminating the need for higher skill services once provided locally. The list of services that can be provided effectively and often for lower costs through 800 numbers and other information technology connections continues to grow: prescription drugs, clothing, cash (through ATMs), travel services, and dispatching of service personnel via cellular telephones. In addition, the information technology advantages of certain businesses, e.g. WalMart, with its satellite connection and computerized inventory controls, contribute to making it difficult for locally-based rural businesses to sell the same goods at competitive prices.

Many of the supply and support systems upon which rural-based businesses must depend now require on-line computer capabilities. Some prescription drug, food supply, and other wholesalers no longer accept voice or mail orders for supplies, leaving businesses with no choice but to join the information age, regardless of their location. (Dillman et al, 1989)

Rural America may be described as being caught between the proverbial rock-and-a-hard-spot. To resist information technology innovations leaves rural businesses and people at considerable disadvantage, but to improve the information infrastructure adds a new threat to their existence. In many respects, the threat is far greater than that posed by regional shopping malls.

Thus, it can be argued that information technologies are a two-edged sword that can be used to strengthen or weaken economic life in rural America. (Dillman et al, 1989) The technologies by themselves appear to offer no compelling reason to support or discourage rural as opposed to urban economic development. For this reason it seems likely that other forces may greatly influence how information technologies ultimately affect rural places. Chief among them is the consideration that unlike natural resource utilization and extraction, information technologies are not inherently attracted to rural places.

Forces discouraging the location of businesses in rural America

Very few people really NEED to live in rural America! When farming, forest production, and mining were the major economic activities driving rural economies, these activities existed in rural places because that is where the essential resources were located—people had to come to where the land, forests, and minerals were. There really was not any choice. Nor was there a choice about services—they needed to be provided locally.

Now, only about two percent of the nation's population consists of farmers and in only 500 or fewer of the approximately 2000 rural counties does as much as 20 percent of earnings come from farming. The production of lumber and other forest products no longer depends mostly upon resident communities of foresters, as logging crews move from place to place, and can perhaps as easily work out of cities as small towns.

In addition, service providers are increasingly able to draw customers from distant places. The result is that those few people who need to live in rural places because of their dependence upon natural resources need fewer of their services to be provided locally than ever before. Living in rural America is less mandatory than at any time in our history, except for those who are caught there by historical circumstances and lack the financial resources to leave.

Routine information work can be accomplished in rural America, but there is nothing inherent about it that draws it to rural communities. It can also be done in cities and suburbs.

A number of other important forces suggest that rural communities will not become a residence of choice for very many people. One of these forces is the evolving "norm" for both women and men to work outside of the home in an economy that relies upon a highly specialized division of labor. Rural communities that can provide a job appropriate to the training of one family member often cannot provide a job suitable for the spouse or partner. Living within or nearby a metropolitan area becomes a necessity for professionally-trained members of dual career families. I see little likelihood that this will change, especially in a society in which job commitment to a single firm during one's career also seems less likely. Preserving one's job and educational advancement options increasingly demands that a wife and husband locate where either can make changes without disrupting the other's commitments.

Overlaying these family/work needs is an emerging stratification system that appears to be evolving world-wide, based on differences between high and low value work. Robert Reich categorizes future work as routine production services, in-person services and symbolic-analytic services. (1991) It is the symbolic-analytic or mind workers who solve, identify, and broker problems by manipulating symbols and who perform high value work in the information economy. People who do routine work or provide in-person services are more interchangeable and less able to demand high return for their labor. Mind workers are increasingly a greater "asset" to the companies for which they work than the land, building, or equipment necessary for productive work. Increasingly, these mind workers, whose work gets accomplished while in front of computer work stations and through team work with other symbolic analysts to which they are connected by other information technologies, are able to work for themselves or small companies rather than large corporations. (Reich, 1991)

Although exceptions exist, there is great incentive for mind workers to be located within or near large cities. They need to interact with other specialists, find new clients and co-workers, get additional training for solving new problems, and connect with other countries, either through travel or contact with local representatives. Living in a remote rural location would be a serious drawback to their work. Of equal or greater importance, many if not most mind workers are likely to meet and marry other mind workers with the result that two careers require a metropolitan residence. Small size does not fit well with the specialized mind work opportunities needed by career-oriented partners in a marriage or living arrangement.

Three scenarios for rural America's future

One scenario for the future of rural America is that information technologies do not get used to create rural employment, particularly in services, and the promise of information technologies for overcoming the friction of rural space does not get realized to any substantial degree. Under this scenario, rural areas continue to decline as former natural resource workers continue to migrate to cities and other workers move away as rural areas continue to lose vitality. Retirees eventually live out their lives in rural areas and are also not replaced by new residents. The extreme of this, perhaps, at least for one area of the country, is the Poppers' proposal for the return of the great buffalo commons. (Popper and Popper, 1987) We become only a nation of cities.

Rejection of information technologies will hasten the demise of rural communities in this way. Enthusiastic adoption of information technologies, active seeking of back-office employment opportunities, and efforts to attract mind workers with a desire to live in rural locations may not prevent decline but should help preserve some rural communities, and perhaps enhance the quality of life for those who remain.

Marie Howland, in an analysis of computer work in rural communities, suggests that where such work is occurring rural America may simply be a way station and that such routine work will soon move overseas. (1991) The pattern may follow that of routine manufacturing which earlier made a similar shift first to rural America and then to lower wage countries, partially in response to development of a world-wide telematics infrastructure.

A second (but not necessarily independent) scenario suggests that cities will expand their commute zones even further than at present. This scenario of the future of rural America evolves from joint consideration of the stratification of the world work force, the advantages to symbolic analysts of living in or near cities, and the importance of information technologies to the work of symbolic analysts. It suggests an expanding urban field around major cities, characterized by a donut ring of wealth around cities where symbolic analysts both live and work in desirable surroundings; this ring may surround a center of poverty and be surrounded by a more sparsely populated periphery where poverty, telecommuters, and long-distance commuters are comingled. This outward growth of cities may expand the commute zone around cities so that rural spaces get absorbed, for the most part, into these expanded ring cities which will be relatively sparsely populated near their outer peripheries.

Telecommuting is likely to contribute significantly to the outward expansion of cities. Working a day or two a week at home via computer, and the rest of the time in a centrally located office has a better chance of being accepted as a conventional work pattern than telework from a long distance. It is already happening around some cities. In addition, large cities have adjusted to alternative work schedules that vary the start work time of employees and allow for longer work days compensated for by more days off. Each such adjustment facilitates the feasibility of a residence a little further from the central urban ring. Together these possibilities suggest that the future of some parts of rural America may be the dissolving of local communities as places where people build mutual work, residential, and service dependencies as they become part of a greater urban field. The expansion of commuting rings to 65 miles or more around cities of modest size (perhaps 100,000 people) reveals relatively little leftover space in much of the eastern and southern United States. Under this scenario rural development issues seem likely to become a mostly indistinguishable subset of large city development.

A third scenario might be described as a hodge-podge future. Coates et al. in an article which envisions revival in rural America, identifies several successes. (1992) These successes include: 1) retirement communities, 2) area trade centers, 3) government centers, 4) recreation communities, 5) exurbs, 6) academic communities, and 7) other entrepreneurial towns, and provides examples of each. Examples of these successes are scattered about the country, and suggest resources upon which rural communities can build. Coates et al. then go on to suggest four futures for rural communities, all of which rest heavily on increased use of information technologies. The essence of this hodge-podge scenario is that some remote rural places thrive because of attributes valued in an information society, ranging from outdoor recreational assets to the presence of entrepreneurs who have found particular rural places as desirable locations in which to live, and grow, while many others fail.

Upon close inspection, it becomes apparent that all three scenarios outlined above can co-exist. Growth favors the development of bigger urban fields (somehow the term city seems inadequate) and while many rural communities decline and gradually disappear, others continue to persist and even grow. It is my contention, consistent with the work of Coates et al. (1991), that access to and intensive use of information technologies will be critical to the growth of successful rural communities. However, such growth will not come automatically.

Four challenges for rural development professionals

The utilization of information technologies for rural economic development and improving the overall quality of life for rural people will require addressing four critical issues. The unique problems facing rural America with respect to telephone systems have been described by Parker et al. (1989) and Parker and Hudson (1992). However, the issues go much further, and concern significant technological, cultural, social, political, and institutional issues, as outlined below.

Improve the quality of telephone and other information technology services

Rural Americans and, in particular, those who live outside the incorporated limits of small towns and cities, are more likely to have party lines, place long distance calls through analog switches, and be required to call long distance to obtain local community services, e.g. schools and insurance offices. The smallness of many rural telephone exchange areas makes calling long distance a particularly vexing problem. Whereas most residents of metropolitan areas have local numbers to call in order to connect to data services, most rural residents must pay toll charges to call an access node. Clean lines, and in particular fiber optic lines, are generally not directly accessible in small communities. Further, cable television is, in much of the rural countryside, non-existent.

The issue is not one of seeking telephone lines and television services on a complete par with those that exist between certain urban centers, but achieving an acceptable standard that does not interfere with significant development possibilities. For example, it makes little sense at present to provide every home in rural (or for that matter urban) America with fiber optics, but passing fiber lines through rural communities that are large enough to compete for telecommunications businesses that require fiber access, without providing such access, seems unnecessarily anti-rural development.

At the same time, it needs to be recognized that the information technologies revolution has not reached its conclusion. The major developments of the 1980s were computer power, fiber optics, and facsimile service. The major developments I expect to happen in the 1990s are fairly complete networking of computers that have reason to share information, thereby increasing the importance of toll charge barriers, the increased integration of telephone, broadcast and computer services, and vastly increased use of video telephones (at first, with compressed imaging over ordinary phone lines). It remains to be seen whether cable television companies, which already have coaxial cable to homes (and is therefore better suited to video transmission), or the telecommunication companies (which typically only have twisted wire connections) become the providers of video telephone service. Exactly what happens depends as much on legislative and regulatory activity as on developments in the technologies themselves.

Not all such activity will be at the national level. The state utility regulatory agencies play a particularly important role in what happens in rural areas. (Parker and Hudson, 1992) Steps that these bodies can take to bring quality telephone service to rural America include changing emphasis from minimizing telephone costs to viewing telecommunications as an economic development tool. Washington state is an example of a state in which the utility regulatory agency has taken on such a role, formally adopting economic development objectives, and taking actions to eliminate the remaining party lines, upgrading basic service, and encouraging provision of extended area service. (Parker and Hudson, 1992)

Overcome institutional barriers to the creation of back-office information processing, telecommuting to work, and other new forms of work organizations that prevent employment of rural people in telecommunications-intensive activities

The development of inexpensive long-distance communication and the ability to transfer data files means that work flows from one computer to another need not have the computers located side by side in assembly line fashion or even in the same city. Sending data to be processed from one location to another can be accomplished easily, and has led to experimentation with the concept of electronic cottages or home work. There is also evidence that employees find such work attractive.

The major barriers to such work is the difficulty involved in learning how to organize such work, supervise employees, and gain acceptance by both unions and management. A similar challenge was faced in reverse in the 1800's when efforts were made to bring employees to a single location and manage them effectively.

Most of the experimentation with telecommuting work has been done in urban settings in search of a solution to traffic congestion rather than between urban and rural areas. However, the barrier to linking urban and rural areas in this way is less a technological one than one of policy. Recently, Representative McMillan from the Eastern Shore of Maryland introduced a bill into Congress to encourage telecommuting between there and Washington, DC, but the idea is yet to catch on. Demonstration projects are means of identifying both the barriers and the potential to making rural telecommuting work.

An institutional barrier to utilizing information technologies to their best advantage is the tendency of existing organizations to rely on organizational strategies better suited to a mass society than to the emerging information age. (Dillman and Beck, 1988) For example, when faced with declining populations, and organizational units of declining size, the usual reaction is to pro-

pose joining geographically adjacent units together. (*Des Moines Register*, 1992) A more useful strategy might be to identify ways of networking small units that are not necessarily adjacent so that they might share needed expertise. Joining four small schools together electronically from different areas of the state because the skills of their teachers are different and compatible with deficits in the other districts could prove more useful than linking adjacent districts together physically, regardless of the individual skills of their existing staff. Thinking electronically is difficult for organizations and political systems which are used to thinking hierarchically.

Identify and overcome rural cultural barriers to greater use of information technologies

Rural people and organizations have traditionally maintained a preference towards "local" knowledge as being better than "outside" knowledge as a solution for problems. A legacy from the community control era of the first part of this century, it provided a convenient defense against the invasion of mass society expectations in mid-century. (Dillman and Beck, 1988) So long as the products and services they produced were consumed locally, or turned over to someone or some group higher in the hierarchy of a mass society organization which accepted them on those terms, the bias towards local knowledge was not a serious impediment to economic success.

In a world where the consumers of services and products are likely to live in a different culture with different tastes and preferences, reliance on local knowledge and customs can be a significant barrier to creative design and marketing. The homogeneity of rural areas that contributed to effective economic performance in earlier times now becomes an inhibiter to economic activity.

Rural communities, most of which have experienced an outflow of migrants throughout the century, without much replacement except from other small communities like them, lack experience and perhaps appreciation for different belief systems and ways of doing things. Experience with foreign languages and cultures, so critical to finding markets in a world economy, is in short supply. For lack of an alternative, people in rural communities look to one another to define whether an innovative idea is "good." The heterogeneity of urban America is a more fertile ground for encouraging mind work that will turn into marketable ideas.

For many years I have made it a practice to talk with rural entrepreneurs who seemed to be producing products or services that were being effectively marketed in the world economy. Almost without exception, my queries resulted in a description of time spent outside of rural America, and often outside of U.S. culture. These entrepreneurs frequently had foreign language skills. They utilized the perspective and knowledge they gained when they returned to take over a family business or simply moved to rural America for quality of life reasons and tried to find a way to make a living.

Rural cultural barriers exist to development of demand for how to use computers, for accessing data systems electronically, for obtaining higher levels of education, and for utilizing electronic possibilities for gaining specialized training. Low interest in obtaining greater access to television beyond that provided by the main networks and lack of interest in the usefulness of experiencing or understanding foreign cultures often derive from the limited experiences rural people have outside rural America. Rural ethnocentrism is not very forgiving in an information-intensive global economy.

Develop more appropriate national policies and corresponding initiatives aimed towards rural economic development

In my view, the development of the Cooperative Extension Service under the Smith-Lever Act in 1914 was a brilliant rural economic development innovation. This Act, which placed agricultural and home economics extension agents into rural communities, was the right policy at the right time. It targeted farming, the occupation upon which most rural people at that time were dependent, for technological assistance. Extension agents were placed in local communities where socially they became a part of the community and were a connection point for the infusion of new ideas from agricultural college research to improve farming methods and home life activities. It was almost perfectly designed for the community control era experienced by rural America. Much of the efficiency developed by U.S. agriculture in this century, and thus assurance of an adequate food supply produced by a smaller and smaller portion of our population, came as a result of the Extension Service's efforts.

If one were to start with a fundamental look at what exists and what is needed rather than starting with an analysis of existing institutions that serve rural America, I think a very different kind of development need would be perceived as existing. Most of the rural occupational growth of recent years has been in services. Agriculture is very unlikely to provide many more jobs in rural America, no matter what developmental efforts are made.

A "blue-sky" effort to develop economic opportunities in rural America might focus substantial efforts on helping rural entrepreneurs develop businesses that produce services and products that would be consumed by people in other countries. An inventory of rural America's resources might suggest that certain areas are attractive for early retirees who bring experiences from outside the rural culture that could be capitalized on for development. Rural telephone companies might be expected to hire economic development specialists who would identify how telecommunications services can foster rural economic development, and not be penalized for such activities at rate hearings. These few issues represent but the tip of the iceberg of possibilities.

It is important to distinguish between mind work (to use Reich's term) and more routine information intensive work. Examples of both mind and routine work exist in rural America, but their existence could hardly be called a major trend at this time. Routine information work has moved to some rural places because of the ability to pay lower wages and obtain a reliable work force. Mind workers have moved to some places because of their scenic and recreational qualities such as mountains, lakes, and seashores. In the West, places like

Bend, Oregon, Couer De'Alene, Idaho, and Kalispell, Montana, are examples. With reasonable encouragement, and giving attention to the four challenges outlined above, more such development could happen and bring with it electronically-delivered quality of life amenities. As a nation, I do not think we have as yet thought through how to overcome the potential barriers to information age-based rural economic development.

It is important to note that farmers and other natural resource workers will continue to live and work in rural America. They, too, require advanced telecommunications services, and should not be ignored in rural economic development activities. I worry that so many rural development activities are now driven primarily by agricultural interests that fail to recognize the changing nature of employment in rural America. So long as rural economic development resources and policy proponents exist mostly in the USDA and state departments of agriculture, it seems unlikely that a fresh approach to rural economic development will be generated.

Conclusion

The analysis provided above does not suggest ecstatic optimism that information technologies can prevent the decline of many rural places. Neither does it suggest that most of rural America has no future.

As is often the case, technology problems, the first challenge outlined above, can be solved. The books by Parker et al. (1989) and Parker and Hudson (1991) describe specific changes in national and state policies which, if implemented, can be expected to bring higher quality telecommunications services to most rural communities. I am considerably less optimistic that the other three challenges outlined above can be met. Institutional and cultural barriers are far more difficult to overcome. They require major changes in how people think about work and work skills. National rural policy still appears to be captured by an "agriculture first" mentality that simply does not fit well with the reality of what now constitutes rural America.

The prospects for economic development in parts of rural America do not have to be as bad as they may become. However, any hopes of achieving rural economic development requires different approaches and different concepts than those which have dominated in the past. As I look at rural development activities being undertaken throughout the nation, most of them seem less innovative than they might be, and few take into consideration information technology issues. Whether we are passing by one of the last opportunities for rural place development in the United States remains to be seen.

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Size, function, and structure: Jurisdictional size effects on public sector performance

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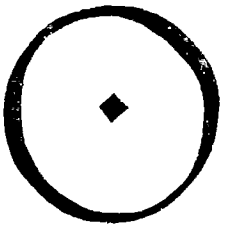

Jurisdictional consolidation of local governments and school districts is a subject that persistently arises in discussions of rural communities. Many local public jurisdictions in rural areas are small, measured by population size, and getting smaller. Rural consolidation proposals are generally driven by a concern with service costs, based on an assumption that there are economies of scale that only larger jurisdictions can capture. They may also reflect a concern with disparities in wealth, in the belief that a larger jurisdiction can both draw on a wider tax base and distribute revenue more equitably. It is important, therefore, to consider what is known about the effects of jurisdictional size on public-sector performance, as well as how this knowledge might apply in rural communities.

In the history of American public administration no topic has been more controversial than jurisdictional size. The wisdom of consolidation has often been accepted as an article of faith by academics and practitioners alike. Beginning early in the century and extending well into the 1960s, the professional study and practice of public administration was closely identified with a consolidation movement aimed at eliminating the vast majority of local governments in the United States. The only substantial "success" achieved was a sharp reduction in the number of independent school districts, down from more than 128,000 in 1932 to less than 15,000 in

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1987. During the same period, the number of municipalities grew by 17 percent from 16,000 to 19,000 and the number of special purpose districts more than doubled, leaping from 14,500 to more than 29,000. Reform efforts have often been directed at metropolitan areas, where suburban growth has frequently been accompanied by an increase in the number of municipalities and special districts.

Nearly 62 percent of the total number of local governments in the United States, however, lie outside Metropolitan Statistical Areas (MSAs), compared to 22.5 percent of the U.S. population (see Table 1). Clearly, the number of local governments per capita is greater in non-metropolitan than in metropolitan America. The majority of small local governments are rural. For example, Janet Fitchen (1991, p. 5) reports that the 3 million people who live in the rural portion of New York State (17 percent of the state's population, in 44 of the state's 62 counties) are served by a large number of small local governments:

> There are 727 townships in rural New York, each with a governmental structure and municipal functions and responsibilities, and 324 incorporated villages. Some municipalities contain very small populations: One township has under 100 people; over 180 villages have populations under 1,000. One whole county contains only 5,000 people, and thirteen more have fewer than 50,000 people. And despite waves of consolidations forced by financial considerations, state pressures, or both, there are still ninety-one hospitals in the forty-four rural counties, and around 300 rural school districts, including some with fewer than 300 children in the entire school, kindergarten through twelfth grade.

Until roughly 20 years ago, there was little systematic research on jurisdictional size effects. There was instead a professional belief system that supported consolidation efforts unambiguously. More recently, a decentralization or community-control movement arose to challenge the more conventional view. The alternative has attracted as little practical political support inside established large jurisdictions (such as central cities) as the consolidation movement has found among the small jurisdictions of the suburbs and rural areas.

In the early 1970s, the Workshop in Political Theory and Policy Analysis at Indiana University began extensive empirical research focusing on the effect of size on police protection—a local public service of high salience in urban America—as a way of testing key propositions, related to size, derived from alternative theoretical perspectives (E. Ostrom 1972). More recently, the Advisory Commission on Intergovernmental Relations (ACIR) has conducted intensive case studies of two complex metropolitan counties—St. Louis County, Missouri, and Allegheny County (Pittsburgh), Pennsylvania—examining, among other issues, the role and function of small units of government in metropolitan areas (ACIR 1988, 1992). Other scholars, operating from congruent theoretical perspectives, have examined the effect of school district size on student performance.

These investigations are summarized below. The central argument used to frame this summary is that the effect of size depends on (a) the *function* that a jurisdiction performs and (b) the multiorganizational *structure* in which jurisdictions are embedded.

Table 1. Number of local governments inside and outside metropolitan statistical areas, 1987.

	Outside MSAs	Inside MSAs
Counties	2,307	735
Municipalities	11,712	7,488
Townships	11,655	5,936
School Districts	8,746	5,975
Special Districts	16,842	12,690
All governments	51,262	31,924
Dependent School Districts	653	839
Population	54,399,500	186,637,900

Source: 1987 Census of Governments.

Functions: Provision and production

The basic functions of local governments with respect to local public goods and services can be sorted into two: provision and production (V. Ostrom, Tiebout, and Warren 1962; Oakerson 1987; ACIR 1987). Provision refers to the process of articulating and aggregating local demand for goods and services; it is the work of citizens, their elected representatives, and (in part) agents such as city managers, all of whom participate in making the following decisions:

- What goods and services should be publicly provided?
- What private activities should be publicly regulated?
- How much public revenue should be raised, and how?
- What quantities of each good or service should be provided and what quality standards should apply?
- Who should produce these goods and services?

Production is the process of transforming resource inputs into desired outputs. It is the work of police driving or walking a beat, teachers in the classroom, and garbage collectors riding the truck, along with the work of their supervisors and managers.

Service production can also be sorted into two types: the production of direct services and production of indirect or auxiliary services (see E. Ostrom, Parks, and Whitaker 1978). Direct services are those supplied directly to citizen-consumers, while indirect services, also called auxiliary or support services, are supplied to the producers of direct services, and thus only indirectly to citizen-consumers. Virtually all local public services, such as police, fire protection, education, streets, and sewers, are composed of a number of different components, direct and indirect.

These functions are not only distinguishable, but also separable. Provision and production can be carried out by different, autonomous organizations. The legal powers required to provide a public service, such as the power to tax, may not be required to produce the service. At the same time, production may require knowledge and skill not required in provision. Provision and production can be linked in a variety of ways: (1) in-house production by the provision unit, (2) production by an overlapping jurisdiction, (3) contracting with either another public agency or a private firm, and (4) production by citizen volunteers. Each of these options applies to any of several service components, so that a provision

unit can choose in-house production for one or more direct-service components, utilize citizen volunteers for other components, and contract out for various indirect-service components with a variety of public and private agencies. Local governments become participants in a local public economy that offers a variety of options for both provision and production of services.

Pure provision units

Many of the smallest local governments in the U.S. are "pure" provision units—jurisdictions that function only to provide, not to produce, services (ACIR 1987, pp. 18-20). An ACIR study of St. Louis County, Missouri, a county of nearly 1 million people and 91 municipalities that lies just west of the City of St. Louis, included 22 municipalities with fewer than 1,000 residents in 1984. Twenty-one reported provision of police protection, but only 1 municipality maintained a full-time police department and 2 others employed part-time police officers. Eighteen contracted for police protection, 6 with the county police and 12 with other municipalities (ACIR 1988, p. 56). Similarly, 18 of 22 reported provision of street maintenance, but only 1 out of 10 responding to a survey produced any street maintenance services in-house, while 9 out of 10 contracted with various private producers (ACIR 1988, p. 86).

Small municipalities in St. Louis County are greatly outnumbered as "pure providers" of residential street maintenance by private subdivisions. In addition to the 18 municipalities noted above, there are some 427 subdivision associations, located in another 27 municipalities, that own their streets and make provision for maintenance, while contracting for production with a combination of overlying municipal street departments and private firms (ACIR 1988, pp. 81-92). Many subdivisions use their powers of ownership to control access to their neighborhood, often chaining off streets to reduce cross traffic

Anthony Downs (1976) has argued that the planning and procurement of public services should be separated from production and delivery in order to avoid commingling producer and consumer interests. Municipal officials who organize and supervise their own police departments or street departments, in this argument, are unable to represent citizen-consumer interests as fully as they might because of partially conflicting producer interests. Both small local governments and private subdivisions functioning as pure provision units satisfy Downs' prescription, and limited evidence lends support to his speculations. Data from St. Louis County suggest that contracting jurisdictions have lower costs. Police contracts tend to be negotiated at below average cost per capita, indicating that competition among producers is generating pressure toward marginal cost pricing (ACIR 1988, pp. 56-57). Available data also suggest that contracting municipalities spend less per household on street maintenance than do municipalities with their own street department, controlling for median household income (ACIR 1988, p. 87).

For many years the ACIR recommended that small, "non-performing" local governments be eliminated, suggesting that many such units existed, especially in metropolitan areas. Non-performing was equated with non-producing, and lack of production was taken as an indication of non-viability. Pure provision units are not inactive or non-performing; they simply perform a different function. They are very active in raising revenue, choosing service levels, and procuring services from various producers, whose performance they monitor and evaluate. Their viability is dependent not only on contracting, but also on the use of part-time, non-professionalized public officials, including elected mayors who tend to municipal business during evenings and on weekends. In 1987, the ACIR repealed its recommendation, recognizing the potential viability of non-producing units as providers (ACIR 1987, p. 55).

Pure provision units do depend, however, on certain structural features of the surrounding public economy—alternative service producers able to capture economies of scale and supplementary, overlying provision units able to address larger communities of interest as necessary. In St. Louis County, fire protection districts both provide and produce direct fire protection services in areas with small municipalities (as well as in unincorporated areas) and the county government provides and produces arterial street maintenance. The organization of arterial street maintenance reflects a larger community of interest than represented in any single municipality, including the larger municipalities (up to 55,000 people) found in St. Louis County.

The reliance on fire protection districts, however, is driven mostly by production considerations, principally economies of scale. Pure provision units also depend on the existence of other agencies, whether public or private, that can operate at a scale sufficient to capture scale economies. The principal incentive to contract for service production is lack of sufficient scale for efficient in-house production. Ordinarily, a large metropolitan area offers ample opportunities for such contracting. One of the major producers of contract police services in St. Louis County is a small municipality that specializes in the production of police patrol.

An alternative to larger scale, professional fire departments is to rely on smaller scale, volunteer departments, such as found in Allegheny County, Pennsylvania (ACIR 1992, pp. 47-48). Outside Pittsburgh, only 2 of 128 municipalities are served by fulltime fire departments, the remainder of the 1-million strong suburban population having organized an estimated 250 volunteer fire companies. Most of the municipalities contribute on the provision side to fire protection; some own the fire station, some pay for a fulltime driver, and many supply equipment. The bulk of the labor cost, however, is covered by the voluntary contributions of community residents, who organize production through private, non-profit community organizations.

In-house production of direct services

The most common service arrangement found in local governments is in-house production, particularly for direct services. The quality of local government performance in relation to direct services depends on the organization of both provision and production. The total effect of size on in-house production of direct services is a combination of jurisdictional size effects, many of which operate through provision, and agency size ef-

fects. The most definitive empirical work has been done on size and production of police services, followed by public education.

Police services

The Workshop in Political Theory and Policy Analysis has conducted an extensive series of studies examining the effects of department size on police services, as a test of the consolidation/community-control theses. Two basic research designs were used: (1) comparisons of a small number of socio-economically matched neighborhoods that are served by very different size departments and (2) studies of a larger number of neighborhoods served by various size departments using statistical controls for neighborhood characteristics. In both cases the comparison neighborhoods were located within the same metropolitan area. Studies of one or the other type were conducted in the Indianapolis, Chicago, St. Louis, Rochester, and Tampa-St. Petersburg areas (see V. Ostrom, Bish, E. Ostrom 1988, pp. 153-161).

For the purpose of illustration the results of one metropolitan area study are presented here before summarizing the conclusions that emerge from the entire series. The study was conducted in 44 St. Louis City and St. Louis County neighborhoods served either by the St. Louis City Police Department, the St. Louis County Police Department, or one of the much smaller municipal police departments located in St. Louis County (see E. Ostrom 1976).

Table 2 displays the standardized regression coefficients (Betas) for the relationship between size of department (measured by the number of sworn officers) and a series of performance variables. The regression equation controlled for the effects of median home values and the percentage of black residents in the neighborhood. Per capita cost was strongly and positively related to size—larger departments tend to spend more money per resident—while the percent of respondents who say that police respond "very rapidly" in their neighborhood was strongly and negatively related to size—smaller departments tend to respond more quickly to calls, at least in the perception of their residents. Smaller departments also tend to be viewed as more honest and more helpful (percent assisted by police), although these tendencies are not as strong. Smaller departments may also be somewhat more likely to be viewed by citizens as "outstanding," although this relationship was not statistically significant. At the same time, citizens served by larger departments are more likely to report having been victimized by crime and to view crime in their neighborhood as increasing—this controlling for the value of owner-occupied housing and the neighborhood's racial composition.

Table 2. Relation between police department size and performance in St. Louis city and county neighborhoods (controlling for median value of owner-occupied housing and percent black residents).

Dependent variables	Size Betas
% Victimized	.29
% Assisted by police	-.35
% See crime increasing	.42
% Say police respond very rapidly	-.64
% Rate job outstanding	- 16
% Agree police honest	-.30
Per Capita cost	.72

Note: All relationships significant at .05 level or less, except for "% rate job outstanding."

Source: Elinor Ostrom (1976), Table 3, p. 55.

The St. Louis data were also analyzed to identify curvilinear size effects—the possibility that performance may increase with size over some size range, than decrease with size beyond a threshold. The results are shown in Table 3. Curvilinear effects are found with respect to the percentage of respondents assisted by police and the percentage stopped by police. Mid-size departments seem to be more active on the street than either small or large departments, with little difference between small and large. Mid-size departments also outperform both small and large in perceived response time and the percentage who rate the police as outstanding. In this case, however, small departments also outperform large departments. Small departments excel on the more subjective indicators, outperforming both mid-size and large departments in terms of police-community relations and perceived equal treatment by police.

Workshop studies have shown that smaller departments tend to allocate more resources to patrol and are able to

Table 3: Percentage of neighborhoods in St. Louis city and county served by small, medium, or large police departments with higher than mean performance levels.

Dependent variables	Small	Medium	Large
% Victimized (below mean)	78	42	45
% Assisted (above mean)	33	67	36
% Stopped by police (above mean)	33	54	36
% Know someone mistreated (below mean)	44	46	63
% Know 1 or more police (above mean)	56	50	27
% See crime increasing (below mean)	78	58	27
% Say police respond very rapidly (above mean)	33	79	9
% Rate job outstanding (above mean)	44	67	9
% Rate police community relations outstanding (above mean)	67	50	9
% Strongly agree police honest (above mean)	56	58	9
% Strongly agree police treat all equally (above mean)	78	46	45

Note: Small = 10 fulltime officers or less. Medium = 11-76 fulltime officers. Large = 436 or 2,200 fulltime officers

Source: Elinor Ostrom (1976), Table 7, p. 69.

achieve much greater patrol densities (on a per capita basis) even though the largest departments almost always have more sworn officers per capita (V. Ostrom, Bish, E. Ostrom 1988, pp. 160-161). This finding is consistent with citizen perceptions of higher response times by smaller departments. Consistently, in every study the Workshop has conducted, small and mid-size departments perform as well or better than large departments on a variety of performance indicators related to police patrol (V. Ostrom, Bish, E. Ostrom 1988, 0. 160). Mid-size departments perform better on some performance measures while small departments perform better on others. In general, very small and even part-time departments ordinarily play a positive role in police service delivery, complementing services available from overlying jurisdictions, such as state or county police.

Public education

The argument for consolidation of school districts has generally rested on suggested links between larger size and various intervening variables, such as spending per pupil, larger facilities, and more extensive curricula, all of which are assumed to be related positively to school performance. However, the direct effect of school-district size on student performance, measured by standardized tests, has generally been shown to be negative. Larger districts, other things equal, translate into lower levels of student performance.

A study of 97 school districts in New York State found that, controlling for expenditure levels and the family background of students, student performance declined as size of district increased (Kiesling 1967). Employing a size threshold of 2,000 students, a study of 144 unified school districts in California found that students in larger districts have lower scores on standardized achievement tests, controlling for family poverty, minority background, and community wealth (Niskanen and Levy 1974). An ACIR study in Allegheny County, Pennsylvania, using district-level performance scores (the percent passing an 8th grade achievement test), found no relationship between size and performance, but also found that many of the smallest districts (with enrollments under 1,500) perform much better than predicted by a student social-background model (ACIR 1992, pp. 58-60).

It is very important to note that while school-district consolidation is usually argued on the basis of an ability to increase certain *inputs* to the production of education, research that relates size to performance does not confirm the presumption that larger size leads to higher *output*. Smaller school districts may have access to resources and processes of education that compensate for the lower-level inputs that advocates of consolidation seek to increase. One possibility is that small districts benefit from greater "social capital" (Coleman 1989; Salamon and Davis-Brown 1990), relationships of trust and reciprocity among members of the local school community. Yet these attributes may also be affected by factors other than size. Because smaller districts often maintain smaller schools, there is a possibility that better student-teacher and student-student relationships, nurtured by the greater ease of getting to know one another and of responding productively to individual differences, may more than compensate for missing aspects of curriculum and facilities (see Barker and Gump 1964).

Table 4. Service production structures in St. Louis County and Allegheny County outside Pittsburgh

Police: Service components	St.Louis County	Suburban Allegheny County
Training	1	1
Crime lab	1	1
Major investigation	1	1
Dispatching	29	52
Patrol	66	120
Providers	91	130

Fire protection: Service components	St.Louis County	Suburban Allegheny County
Training	1	1
Dispatch	19	39
Suppression	42	~252
Providers	91	130

Public education: Service components	St.Louis County	Suburban Allegheny County
Audio visual	1	1
Joint purchasing	1	1
Special education	1	~1
Vocational technical	~5	5
Elementary secondary	23	43

Source: Roger B. Parks and Ronald J. Oakerson (1992). See also ACIR (1988, 1992).

The effects of structure

Although direct services, such as police patrol and classroom education, tend to be produced in-house, indirect or auxiliary services are frequently produced by outside agencies, public or private. Most public services are composed of various service-components, each of which can be produced separately by different agencies, yet coordinated with the production of other components. This leads in most metropolitan areas to the creation of complex service production structures that combine with size and function to affect both efficiency and equity.

Production structures

Table 4 summarizes the service production structures for police, fire protection, and public education in St. Louis County, Missouri, and suburban Allegheny County, Pennsylvania (outside Pittsburgh). The typical structure is one that combines highly differentiated production of direct services (police patrol, fire suppression, and nonspecialized classroom education) with moderately to highly integrated production of support services, depending on the particular component.

The difference between the number of "providers" and the number of "producers" of police patrol—a direct service—reflects the incidence of service contracting. Jurisdictions that do not produce patrol service are unlikely to produce any component of policing: They are

providers only. The number of dispatching units, however, is less than the number of patrol producers. Dispatch tends to be organized as a regional function, although the arrangement varies from one part of the county to another. Some departments contract with adjacent or overlying jurisdictions; others join with nearby departments to create joint dispatch centers. In Allegheny County, dispatch is sometimes produced by regional Councils of Governments. The investigation of major crimes, crime-lab facilities, and training are each produced by a single unit. St. Louis County's Major Case Squad is a criminal investigation unit staffed by officers on assignment from their home departments in the county; the county sheriff's department performs this function in Allegheny County. As often true elsewhere, crime-lab services are produced by a county police or sheriff's department (or by state police). The metropolitan police academies that integrate training in St. Louis and Allegheny Counties are an increasingly common arrangement for producing entry-level and in-service training (see E. Ostrom, Parks, and Whitaker 1978 for an overview of service arrangements in 80 metropolitan areas).

Similar arrangements exist for the production of fire protection. The structure of fire protection in Allegheny County relies heavily on volunteer fire companies, as discussed above. The number of fire suppression "producers" actually exceeds the number of public fire protection "providers." There is often more than one volunteer fire company per municipality, dividing the municipal jurisdiction between them.

The service production structures for police and fire protection are built from the bottom-up, not superimposed from the top-down. Countywide organizations of police chiefs and fire chiefs are usually the major forum, supplemented by county municipal leagues, for discussing problems and creating new organizational arrangements. If a new arrangement requires state legislation, the chief's organization solicits support from the county's legislative delegation. This process is facilitated in St. Louis County by the legislature's practice of enacting what is in effect "special legislation" for St. Louis County.

Production arrangements in public education deviate from this pattern in the case of Allegheny County. While support services such as audio-visual services and joint purchasing are integrated in a single unit in both counties, the pattern of organization in Allegheny County consists of production by the Allegheny Intermediate Unit, one of several such units created by state government throughout Pennsylvania. Intermediate units also produce special-education services. Local school districts are required to contribute to the funding of intermediate units according to a state formula. The units are governed, however, by boards elected by the members of local school district boards. Schools are not required to use an intermediate unit's services, and a few districts make their own arrangements. In St. Louis County, similar support services are produced by an organization called Cooperating School Districts, an association in which membership, while voluntary, is also widespread. Special education in St. Louis County is both provided and produced by a countywide special district; however, many special district personnel work in regular district schools. The special district also provides and produces vocational-technical education; in Allegheny County, this service is produced largely through "jointures," cooperative arrangements created—from the bottom-up—by interlocal agreements among school districts to operate regional vocational-technical schools.

The most striking feature of these service production structures is their similarity across three functions and two states. Provision tends to be highly differentiated, often making use of very small jurisdictions. Production of direct services is less highly differentiated, but is still very reliant on a relatively large number of small agencies. Indirect or support services, as well as more specialized direct services, are much less differentiated and in many cases are fully integrated in a single organization. These structures are closely related to the economics of service production. Service components that benefit more from economies of scale in production are produced by fewer, larger units, while service components that benefit less from economies of scale are produced by a greater number of smaller units. This is a consistent pattern, but one that is found only where the base of the structure consists of relatively small jurisdictions, as in much of suburban America. Where the base of the structure is a large jurisdiction, such as a central city or in some cases a suburban county, the production structure tends to be much less differentiated vertically, that is, the same production units produce more components of each service regardless of differences in scale economies. By contrast, the organizational arrangements found in suburban America more closely resemble the market-based patterns of industrial organization found in the private sector (see V. Ostrom and E. Ostrom, 1965).

Measuring structural effects on efficiency

Roger B. Parks (1985) has studied the effects of production structure on the efficiency of police production, utilizing data from a study of 76 metropolitan areas (SMSAs) in the U.S. He focused on the relative technical efficiency with which police departments in each SMSA transform resource-inputs into two outputs: (1) number of officers on the street and (2) number of reported crimes cleared by arrest. Structural characteristics were measured along these dimensions: (1) relative agency dominance in (a) homicide investigation and (b) radio communications (dispatch) and (2) the multiplicity and autonomy of police patrol producers. His analysis found the *highest technical efficiency* in SMSAs that exhibited *high relative dominance* in both homicide investigation and radio communications combined with *high multiplicity and autonomy* of patrol producers. By the same token, he found the *lowest technical efficiency* in SMSAs characterized by *low relative dominance* in homicide investigation and radio communications combined with *low multiplicity and autonomy* of patrol producers. Production structures like those described above for St. Louis and Allegheny Counties outperformed the more conventional type of structure in which a few large departments produce both direct and indirect service components in-house.

Capital-intensive service structures

The direct services associated with police, fire protection, and public education are labor-intensive; that is, expenditures tend to be dominated by personnel costs. Some direct services, however, are capital intensive, for example, public works such as streets and sewers. Theoretically, such services should exhibit different production structures.

As an illustration, consider sanitary wastewater collection and treatment. The author has studied a variety of arrangements for providing and producing these services in DuPage County, Illinois, a suburban county located in the Chicago metropolitan area, where three major patterns are found: (1) municipal collection and treatment; (2) municipal collection and special-district (or in some areas county) treatment; and (3) special-district collection and treatment (see Oakerson 1991). With a few exceptions, DuPage municipalities tend to be smaller than needed to capture fully the economies of scale associated with treatment. Many municipalities nevertheless operate their own treatment plants. However, a number of municipalities are served by treatment plants operated by overlying special districts or by county government, while each municipality retains responsibility for collection. Special districts tend to provide both collection and treatment in unincorporated areas and, in one case, a special district provides both collection and treatment for its entire jurisdiction, including municipalities.

The latter is the only arrangement likely to take advantage of economies of scale in treatment and at the same time fully internalize the benefits of sewer line maintenance in a single agency. Water inflow caused by inadequate sewer line maintenance significantly increases the costs of treatment. Where collection and treatment are organized by separate jurisdictions, the benefits of sewer line maintenance do not accrue fully to the agency responsible for maintenance. The externality can also be avoided if the treatment agency measures the flow of wastewater from the collecting jurisdiction and charges the collection agency for the flow, rather than separately billing consumers.

In terms of charges to residential users, the most expensive service arrangement in DuPage County tends to be divided responsibility for collection and treatment between municipalities and districts (or county government), followed closely by integrated municipal (or county) collection and treatment. The least cost arrangement appears to be integrated special-district collection and treatment organized on a regional basis (Oakerson 1991).

Sanitary wastewater services illustrate economies of scale related to a direct service (although treatment might also be considered an indirect service supplied to collection producers). Note that the effect of size depends on both function and structure. Somewhat larger units are required to reach an efficient scale of production for sanitary wastewater collection and, in particular, treatment, than is required in the production of police patrol or fire suppression; this is the influence of function. The availability of special districts (or other overlying organizational arrangements) enables small municipalities to be more efficient overall because of their ability to shed functions such as sanitary wastewater collection and treatment; this is the influence of structure. Given this pattern of variation, special-purpose districts are a useful institutional device whereby relatively small jurisdictions can gain access to larger scale organization for the provision or production of selected services.

Structural effects on equity

One of the concerns often voiced about highly differentiated provision, involving numerous, relatively small jurisdictions, is inequality in their ability to raise revenue. Without question, such differentiation can yield some jurisdictions with great wealth and leave others in poverty. Tax base, however, does not always correlate highly with personal income. The greatest source of variation in municipal revenues in St. Louis County is variation in the commercial and industrial property tax base (see ACIR 1988, p. 124). Revenue inequalities, while present, do not correlate well with median household income, poverty rate, or racial composition; residential tax burdens, however, tend to be greater in jurisdictions with greater numbers of poor, non-white, and elderly residents (ACIR 1988, p. 126). Tax diversification, which allows local jurisdictions to draw on diverse sources of revenue, tends to reduce these inequalities, but is usually more characteristic of municipal organization than other types of local government.

The degree of inequality is frequently dramatized by focusing on the "range" between the most extreme cases, a statistic measured by the difference between the richest and poorest jurisdictions. Indicators based on other measures of dispersion, such as the standard deviation, also should be examined to get a fuller picture. For example, Table 5 shows the per-pupil expenditures of the highest and lowest spending school districts in St. Louis and Allegheny Counties. The range is quite large. The percent of students within a single standard deviation from the mean, however, is over 70 percent in both counties. The shape of the distribution is not primarily bimodal; rather, the majority of students reside in districts that cluster about the mean. The effect of the overall structure of provision is not one that divides suburban populations sharply into rich and poor, even though there may be rich and poor enclaves deserving of critical attention.

Table 5. Measures of dispersion of per-pupil spending by school districts in St. Louis County and Allegheny County outside Pittsburgh, 1985

	St. Louis	Allegheny
Lowest district	$2,544	$2,990
Highest district	7,005	5,881
Range	4,461	2,891
Mean	3,909	4,020
Standard deviation (SD)	746	478
Percent of student population within one SD	79.5	71

Source: ACIR 1988, pp. 101, 103; 1992, pp. 63-63.

A larger, unanswered question concerning service equity is whether differentiated provision, characteristic of suburban areas, is more or less likely than integrated provision, characteristic of large central cities, to result in significant disparities in actual service production and delivery among neighborhoods, in addition to yielding differences in revenues and expenditures. Expenditures are inputs to production; in the final analysis, equity depends on the distribution of service outputs in combination with tax prices. Systematic research is needed to compare the service equity results of differentiated provision among small municipalities with those of integrated provision by central cities or urban counties.

Moreover, local jurisdictions are nested in county, state, and federal jurisdictions, all of which, to some extent, are active redistributors of revenues. For this reason, it is important to consider whether smaller or larger jurisdictions are better recipients of grants-in-aid intended to redress inequities. One of the typical functions of local provision units is to receive and spend grant assistance. It is plausible that better "targeting" of grant assistance to needy communities can be achieved where poor communities are organized as autonomous public jurisdictions able to receive and spend public funds.

Summary and conclusion: Applications to rural America

Distinguishing "provision" and "production" allows for different criteria to be used in deciding upon the appropriate size and structure of organizational arrangements. The basic principle of provision is representativeness—the idea that jurisdictions should match the relevant community of interest as defined both by subjective preferences and objective conditions. Although exact matches are not feasible, it is clear that the fit can be better or worse. Although size of jurisdiction is a relevant consideration, it is the fit that matters, not size *per se*. The choice of size depends on the set of problems or services at issue. Rather than seeking a single, optimal size, the general solution to the provision problem is to make available a variety of potential jurisdictions, many created at local discretion with flexible boundaries, some of which can overlap. This is the basic approach taken by the 50 states, although in various degrees.

The basic principle of production, however, is efficiency. In particular, the optimal size of a production unit depends on its ability to capture economies of scale. The advantages of scale, however, are not unlimited. Bigger is not always better on the production side either. Different services are associated with different lower size thresholds and upper size limits. Rather than seeking a single optimal size, the general solution to the production problem is to allow provision units to make diverse production arrangements that include in-house production, contracting, and cooperation among the menu of possibilities.

Although the effect of size is contingent on other variables, some important empirical generalizations are possible.

- Very small jurisdictions are potentially viable as provision units for many common local services. Inability to produce efficiently does not preclude effective provision.
- The efficiency of direct service production is frequently subject to upper size limits that are well below the size required for a single agency to serve a large central city. This has been well documented in police patrol services and, to a somewhat lesser extent, in public education.
- Indirect service components (support services) frequently benefit from economies of scale that go beyond the scale at which most direct services are best produced. Likewise, some direct services—those that tend to be more capital-intensive—benefit from greater economies of scale than other, more labor-intensive services.

The effect of size depends on function—in terms of provision or production and production of what—in ways that are predictable.

Because the effect of size depends on function, it also depends on the structure of the local public economy. The viability of small jurisdictions as provision units depends on the availability of larger production units, as well as overlying provision units that organize larger communities of interest. The efficiency of relatively small producers of direct services depends on the availability of larger scale producers for selected service components. Small jurisdictions able to perform well in the context of one structure may not perform as well in others.

The structure of local public economies in suburban and rural areas depends in large part on state rules that pertain to the formation and the modification (i.e., annexation, consolidation, separation) of local jurisdictions (Oakerson and Parks 1989). Of particular importance is the "default unit" of local government, that is, the jurisdiction that has primary responsibility for a local community if no other local unit (such as a village or city) is created. In many states, especially in the North East, the default unit is a township; in other states, especially in the South and West, the default unit is a county. Counties tend to be much larger than townships. Also of relevance is the presence or absence of unincorporated territory. Frequently, townships have the status of municipal corporations. Finally, the variety of so-called general purpose and special purpose local governments that can be created at local initiative is a major institutional factor affecting the structure of local public economies.

Given a set of rules that offer various institutional and jurisdictional options, local communities can be trusted to make their own choices, weigh the factors involved, and make their own tradeoffs, as long as state-supplied fiscal rules do not distort the decision-making process and lead local communities to sustain inefficient arrangements. Local communities should face realistic cost calculations in making size-related decisions, but forcing localities to bear all of their costs locally can create or sustain inequities, as discussed above. However, it is the form in which aid is distributed to local jurisdictions, not the amount of aid, that can distort local decisions. Some state grant formulas in effect reward higher local expenditure by sharing the cost of spending increases. Lump-sum grants based on a jurisdictional means-test can avoid this tendency to distort local decisions at the margin by requiring that increases beyond

some base be funded entirely by local dollars (see Parks and Oakerson 1990). State agencies should avoid creating incentives for inefficient behavior that they then seek to regulate.

Rural communities encounter distinctive problems and opportunities in the provision and production of local public services. Low population density decreases demand for some local services as it increases the costs of producing certain services. A relatively low demand for police services may combine with a relatively high per capita cost of producing police patrol; response times are almost certain to be higher in rural areas, although the frequency of calls may be lower. There is no reason to believe that the demand for public education, however, would be any lower in a rural area, and costs of transportation to and from school are almost certain to be higher. In general, rural areas face a somewhat different set of tradeoffs in organizing local services than do urban areas.

On the provision side, low population density may actually lead to distinct communities of interest that are smaller in population size. Relatively small size jurisdictions measured by population may not tend to exhibit homogeneity of preferences if the population is widely scattered across a large area. Even relatively small school districts in rural areas, for example, may not tend to have relatively homogeneous student populations if they are drawn from different communities that are located some miles apart. The result is a larger number of smaller communities of interest to be represented in the provision of services.

On the production side, it is the relatively small size of the local public economy in rural areas, not the small size of jurisdictions, that may limit the ability of rural communities to achieve the most efficient scale of service or service-component production. In metropolitan areas outside central cities, a large number of small jurisdictions function in the context of a large public economy—St. Louis County and Allegheny County outside Pittsburgh each have roughly 1 million residents. The size of the local public economy increases the potential complexity of its service production structure and thus increases the possibilities for locating or creating service producers who can operate at diverse scales. A smaller public economy in a given locality yields less complexity and a diminished ability to operate at diverse scales of production.

In these circumstances, consolidation of jurisdictions offers no solution to the service production problems of many rural areas. The existence of numerous small jurisdictions is not a formidable barrier to the creation and operation of efficient production arrangements, if there is sufficient scale in the local public economy. The consolidation of jurisdictions cannot create population scale—a function of density—where it is absent. Rural communities are more likely to look toward part-time or volunteer labor, or to less specialized modes of production, as ways of achieving economies in the production of services. At the same time that it fails to generate efficiencies, jurisdictional consolidation can, by mixing different communities of interest together, diminish the ability of local communities to act collectively in relation to common problems. Large rural jurisdictions may be less able to sustain the relationships of trust and reciprocity among community members that create valuable social capital, which is often a key factor in the production of services by agencies of education, social assistance, and social control. Absent distorting fiscal rules, local communities are competent to make their own decisions on jurisdictional formation and consolidation, without efforts from state or federal agencies to prod them in one direction or another.

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Large metropolitan areas: Their functions and prospects

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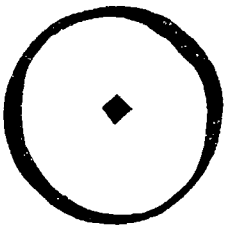

This paper is about the functions of and prospects for large metropolitan areas. The U.S. government designation is Metropolitan Statistical Areas, or MSAs. The approach will be to ask what functions large MSAs share and what are the prospects that those functions will continue to be best served by large MSAs in future years.

An MSA is defined by the federal government to consist of one or more large central cities (at least 50,000 residents) and surrounding counties that are urban in character (most employment is non-agricultural) and are linked by commuting to the central city or cities. The key is that MSAs consist of entire counties. The reason is practical: much information becomes available by county and disaggregation below the county level is expensive. Since many MSA counties contain substantial rural areas, about half the land in MSAs is rural. Likewise, many urban people live outside MSAs, in urban areas that are too small to qualify as MSAs. By coincidence, about 75 percent of the U.S. population resides in MSAs and about 75 percent is urban; but they are not the same people. The smallest MSAs have hardly more than 50,000 residents; and many small MSAs consist of just one county. The Trenton, N.J. MSA, for example, consists precisely of Mercer County.

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The Census defines Primary MSAs, or PMSAs, as I have just stated. It also defines Consolidated MSAs (CMSAs), collections of contiguous, related PMSAs. In 1990, there were 17 CMSAs and 320 PMSAs. The New York CMSA consists of 8 PMSAs and the Chicago CMSA consists of 6 PMSAs. The largest CMSA, New York, contains 18 million residents and contains the second (to Los Angeles) largest PMSA, New York, with 9 million residents. International comparisons of MSAs are approximate. Nearly all governments define a metropolitan concept, but not quite the same way. By any reasonable definition, Tokyo is the world's largest metropolitan area, about 25 million people, 20 percent of the Japanese population. Mexico City is about tied with the New York CMSA for second place, upwards of 15 million people. Many metropolitan areas are in the 8-10 million range: London, Los Angeles, Chicago, Bombay, Calcutta. Dozens are in the 5-8 million range.

Most high income countries are 60-85 percent urban. Middle income countries mostly are 40-60 percent urban. Low income countries are mostly in the 20-40 percent range. Good cocktail party conversation can be made of the fact that two countries that are popularly thought of as agricultural are among the most highly urbanized countries in the world: Israel and New Zealand are 91 and 86 percent urban respectively.

Only two facts distinguish U.S. urbanization from the pattern elsewhere. First, we have the largest percentage of the rural population that is nonfarm of any country. Roughly 6-7 million U.S. residents are farm people, whereas 50 million are rural; thus, some 85 percent of the rural population is nonfarm. No other country is close to that figure. Second, although most MSAs in the world have been suburbanizing during the postwar period, the process has gone much farther in the U.S. Beyond 1-5 miles from the city center, population and employment densities do not vary systematically with distance from U.S. city centers. The result is that U.S. suburbs are extremely low density by comparison with those in any other country. More cocktail party conversation: one MSA, Cheyenne, has a lower MSA population density than the 48 contiguous states as a whole. Why do MSAs exist? That they exist because they perform functions that cannot be performed as well by any other form of spatial organization should be obvious. An acre of prime downtown land in a large MSA might sell for $50 million, whereas an acre of prime agricultural land 50 miles away might sell for $5 thousand, making the downtown land 5,000-10,000 times as valuable as the farmland. There is hardly any comparably dramatic social comparison. The comparison suggests that MSA land is extremely productive. It is patent that people pay that much more for downtown land only if it provides commensurate benefits.

Functions of MSAs

The literature on the functions of MSAs is confused and emotional, but the truth is prosaic.

MSAs provide no technology and no form of social or business organization that is not available elsewhere. The only characteristic that is unique to large MSAs is access to tens of thousands of businesses and households within a few miles.

Why is access so valuable that it may drive up the price of land that provides the best access by a factor of 5,000-10,000? The reason, of course, is that proximate access economizes on transportation and communication costs. Transportation and communication are expensive. People are much more expensive to move than goods. Pound for pound, people demand more space and comfort when they move than do cans of soup, but the important reason that people are so expensive to transport is that they are so valuable. Commodities the same weight as a commuter may be worth $1,000 - $10,000. Taking the latter figure, the annual interest cost of moving the commodities may be $1,000, taking 10 percent as the interest rate. The same calculation for a commuter who makes only $100 per day (only $12.50 per hour) gives an annual interest cost equal to the wage rate, or $25,000. Since the money costs of transporting commuters and goods of similar weight and volume are similar, the important difference is this time cost. If the MSA commuter drives a car 30 miles per hour, the opportunity cost of time spent commuting is nearly $.50 per mile. Adding another $.50 for the interest, depreciation and operating costs of the car gives a total cost per mile of auto commuting of about $1.00. That is vastly greater than the cost of shipping the same weight of materials.

The high cost of transporting people and goods is a necessary but not sufficient condition for MSAs. If all commodities and services could be produced as cheaply on a very small scale as on a large scale, nearly all transportation costs could be avoided by locating very close to each other the consumers and very small businesses among which nearby people and goods had to be moved. But it is uneconomical to produce cars, education or almost anything else in facilities that supply only a few families. Economies of scale require that production be on a large scale if it is to be at low cost. Economies of scope require that a variety of related commodities and/or services be produced in a single facility. It is thus economical to produce commodities and services in large establishments and to locate close to each other the consumers and producers among which transportation and communication are necessary.

The final factor, which finishes the story and permits very high density MSAs, is the technical ability to substitute structures for land where land is expensive. Offices and dwellings permit such substitution most easily. For given costs of land and construction, it is hardly more expensive per square foot of usable space to produce office or residential space in a 100 story building than in a 10 story building. Substitution of structures for land is much more difficult for manufacturing plants and warehouses and somewhat more difficult for retail establishments. An important reason is the high cost of moving commodities among floors. Vertical transportation of people is also expensive and that requires a balancing of costs of horizontal and vertical transportation in choosing office heights.

The above analysis applies to MSAs of all sizes, indeed to the smallest agricultural market town. Small towns exist because of scale and scope economies in processing agricultural products and in providing commodities and services to the townspeople and to the surrounding rural population. Nevertheless, Peoria is differ-

ent from Chicago. The number and variety of commodities and services produced is much greater in large MSAs than in small MSAs or in small towns. Most of the world's large metropolitan areas are on navigable waterways that provide access to the oceans. The exceptions are a few national capitals, such as Delhi, Washington and Brasilia, that are large because they produce government services, but do not produce commodities or services for export. Their locations were chosen for political, not economic, reasons. (A few other large metropolitan areas, such as Seoul, Mexico City and Paris, are not on navigable waterways, but owe their size in good part to the political fact that they are capitals of countries with large and highly centralized national governments.) These days, road and air transportation are at least as important as water and rail transportation. Of course, large MSAs are well served by roads and airports, but that is both cause and effect. Roads and airports are built where large MSAs are, but they also promote MSA growth. Sorting out cause and effect is difficult.

Growth and sizes of large MSAs.

There is enormous stability in the relative sizes of MSAs in given population size ranks within a country, although the MSAs that occupy particular ranks change from time to time. New York has been the country's largest MSA since the first census in 1790. (The Los Angeles PMSA, but not the CMSA, pulled ahead slightly in 1990.) The same MSAs have occupied each of the top 5 size ranks since 1970. Over a longer period, Los Angeles has risen and Baltimore has fallen in rank.

Throughout the post-World War II period, the largest MSAs have grown relatively slowly. Of the 10 largest MSAs in 1970, none was among the 135 fastest growing MSAs from 1970 to 1990; only Washington, D.C. (ranked 7th in 1970) was among the fastest growing 150 MSAs. Of the 10 largest MSAs in 1970, 8 were among the 90 slowest growing MSAs from 1970 to 1990. Of the 10 most rapidly growing MSAs from 1970 to 1990, only one had a 1970 population in excess of 0.5 million. Incredibly, of the 10 most rapidly growing MSAs from 1970 to 1990, 8 are in Florida. The fastest growing MSA during the 20 year period, Naples, FL, grew 7 times as fast as the U.S. population (7.11 percent per year compared with 1.01 percent). (The fact that large MSAs grow more slowly than smaller MSAs does not mean that MSA sizes are converging, anymore than the fact that tall parents tend to have children who are shorter than the parents and short parents tend to have children who are taller than the parents mean that people are converging to a uniform height.) Five MSAs had annual growth rates in excess of 5 percent from 1970 to 1990; such growth rates rival those of the most rapidly growing third world MSAs. (The data in this paragraph are from [6].) What determines and limits the sizes of the largest MSAs? First, the size and geography of the country. Only countries with large populations have large MSAs. No MSA with more than about 8 million population is in a country with fewer than 50 million people. Large MSAs tend to be distant from each other. Bombay and Calcutta are on the opposite coasts of India; and Chicago is almost halfway between New York and Los Angeles. In many countries, the best natural harbor is also the site of the largest metropolitan area: New York, Tokyo, Bombay, Manila, London. (Data from [6].)

Second, and most fundamentally, is the limit to the demands for the commodities and services produced in the MSA. Every MSA "exports" some of the commodities and services it produces to buyers outside the MSA. Virtually all commodities manufactured in an MSA are sold outside the MSA. (Similar comments apply to material inputs purchased from outside the MSA.) But many services are also sold outside the MSA in which they are produced. Patients come from all over the country to the Johns Hopkins hospital and students from all parts of the country come to major universities. Many of the sales on financial exchanges are among buyers and sellers located outside the MSA where the exchange is located. Perhaps a third of services produced are sold outside typical large MSAs.

It is easiest to sell to customers close to the MSA; the MSA can provide its commodities and services to nearby customers at lower transportation and communication costs than can competing MSAs. The greater the exports the farther away must additional customers be sought. The resulting higher prices deter demand, but also more MSAs can compete for customers distant from a given MSA than for customers close to the MSA. Large MSAs tend to export commodities and services that are not produced by smaller MSAs. New York has the highest quality maritime attorneys in the country, and Chicago has the most sophisticated commodities exchanges. Such specialization makes it possible for large MSAs to export to distant places.

The final factor related to MSA exports relates to costs. Land values increase with MSA size. That raises rents, wages and other input prices, making large MSAs expensive places to produce. That is an important and appropriate signal to people and businesses that the MSA is as big as it should be. In recent years, both workers and businesses have discovered that Southern California is a very expensive place to work or locate businesses .

The summary of the above argument is that the crucial limit to the sizes of large MSAs is the limit to the demand for their exports that can be sold at prices that earn the high costs of producing in large MSAs and selling to distant customers.)

The factors that most people think of as limits to the sizes of large MSAs are congestion and pollution. Absent remedial measures, both problems are worse the larger the MSA. But both can be alleviated by expenditures of government and private money. Transportation facilities can be built and improved. Sewage treatment facilities can be built and upgraded, emission standards can be upgraded, etc. In all cases, the extra costs must be paid for and are logically a part of the costs of large MSAs. In the U.S., the federal government intervenes excessively, for example by financing MSA public transit construction with nationally raised taxes. The result is to understate the true costs of large MSAs to people and businesses in the MSA. Such moneys should be raised by MSA governments, with oversight by state governments. Then, the costs of the MSA would be re-

flected in prices that would be charged for commodities and services produced in the MSA. Thus, congestion and pollution can be alleviated by appropriate expenditures, but the need for such expenditures is a cost of large MSAs. It is important that this cost be reflected in prices of commodities and services produced in large MSAs, so that markets get the right signals about the appropriate sizes of MSAs.

The final issue to be discussed in this section is the claim that crime, homelessness, poverty, illegitimacy, racial tensions and other forms of alienation increase with MSA size and provide a limit to the sizes of large MSAs. With poverty, the claim is demonstrably false. The incidence of poverty is lower in MSAs than elsewhere and does not increase with MSA size. There is some evidence that welfare-prone people are attracted to MSAs with unusually generous welfare programs, and that large MSAs have more generous welfare programs than small MSAs. The appropriate measure is welfare payments relative to living costs, and "real" welfare payments hardly rise with MSA size. In any case, such effects are small, and the claims are often a thinly disguised form of racism.

Street crime rates also rise with MSA size, but again the correlation is not strong. One key observation is that large MSAs are more impersonal and consequently less civil than small towns or small MSAs. No one who has lived in both a small town and a large city can doubt this, but it is difficult to imagine that it has an effect that increases with size beyond one or two million people. Such MSAs are already impersonal.

Suburbanization

It has already been observed that U.S. MSAs have suburbanized more than those in other countries. The subject is pursued further in this section. In 1950, about 57 percent of MSA residents lived in central cities and about 70 percent of MSA jobs were located in central cities. In 1960, the percentages were 49 and 63. In 1970, they were 43 and 55. In 1980, they were 40 and 50. I do not have 1990 data, but for Chicago, the 1980 and 1990 population percentages were 42 and 38 . Thus, by 1960, fewer than half of MSA residents lived in central cities, and by 1980, just fewer than half of MSA jobs were located there. Probably, the 1990 figures will be about 37 and 45 percent. We are rapidly approaching the time when no more than a third of MSA residents will live in central cities and when only abotlt 40 percent of MSA jobs will be located there. (Data from [5].)

The extraordinary characteristic of U.S. suburbanization is its consistency during 4 decades. There is no evidence that the process has slowed in recent years. I believe that the basic causes of suburbanization are tolerably well understood. I divide the subject between residences and jobs. (See [5] for detail.)

First, residential suburbanization. As commuting costs fall gradually, workers are able to live farther from downtown jobs. In the suburbs land and therefore housing costs are cheaper. Real monetary costs of commuting have fallen gradually. Cost declined dramatically during the 19th century as bicycles and then horse drawn and electric rail systems were introduced. In the 20th century, the introduction and gradual price reductions of autos, and the paving and general improvement of streets, have resulted in slow but steady reductions in real monetary costs of commuting. I argued above that much of commuting cost is commuters' implicit time cost. Time cost per hour rises with wage rates, but time cost per mile falls as speed increases. The result is that there has probably been rather little change in total MSA commuting costs per vehicle mile during the last couple of decades, say since completion of the interstate highway system. Evidence indicates that commuting distances and speeds have changed little in large MSAs in the last couple of decades.

Second, employment suburbanization. The main cause of manufacturing suburbanization in the 20th century has been the substitution of trucks for trains and ships in moving commodities. Freight movement by trains and ships motivates location, of processing plants near railheads and harbors, which became MSA centers in the 19th century. The use of trucks motivates suburban location because trucks can serve suburban processing plant locations efficiently without using crowded downtown streets. The effect has been dramatic and continues to the present. Manufacturing has mostly left central cities, and has gradually moved to increasingly distant suburbs and beyond.

The growth and suburbanization of services have mostly been events of the last 40 years. Consumer services—retailing, health care, education—have followed residences to suburbs. Business services, previously mostly located downtown, have to some extent followed their manufacturing customers to suburbs, and beyond. In addition, once downtown business service production becomes large, the advantage of additional office-type services locating there becomes small. It becomes advantageous to form suburban clusters of business service producers. Thus, suburban office subcenters have formed mostly in large MSAs.

I have not mentioned the factor most often given by residents for choosing suburban locations: the desire to escape the crime, poor schools, high taxes and racial minorities in central cities. Once again, there is two way interaction. Central city schools are poor quality partly because higher income people have fled to suburbs. There can be no doubt that this "blight flight" has been a factor. However, my estimates [3] are that the social and racial tensions in U.S. central cities have had much more effect on who moves to suburbs than on how many people move there.

Costs of moving people and commodities fall gradually, but costs of processing and transporting information fall much more rapidly. Estimates are that the real cost of doing a given arithmetic operation has fallen at a compound annual rate of 10 –20 percent during the last quarter or third of a century. Experts assure us that no end of this technical revolution is in sight. During the 1970s and 1980s the costs of moving information—anything that can be put on paper—fell dramatically. The cost of data transmission over long distances has fallen because of much better small computers, fax machines, cheaper long distanc telephone service and computers especially designed to network.

Although careful studies have not been carried out, this revolution must have promoted continuing

suburbanization and development of edge cities. It needs to be remembered that there is as yet little evidence of dispersion of service sector employment away from substantial centers, either downtown or in suburbs. That suggests that access—inexpensive face-to-face contacts among people—has been the driving force. My hypothesis is that sub-center development is proceeding much the same way and for much the same reasons, that downtown development proceeded in earlier years. The difference is that cluster development is proceeding faster outside of downtown areas in large MSAs than in small MSAs. Businesses in suburban subcenters appear to interact little with downtown businesses. Naperville, nearly 30 miles west of downtown, is the quintessential edge city in the Chicago MSA. An edge city of 85 thousand residents, having doubled from 1980 to 1990, it is a thriving and independent community.

The reason for this extended discussion of suburbanization is that extreme suburbanization increasingly blurs the distinction between metropolitan and rural. People who work in Naperville or in businesses that sell commodities and/or services in Naperville can easily locate 20-40 miles west of Naperville, placing them well beyond the limits of the Chicago CMSA. As edge cities become larger and more self-contained, such exurban locations will become increasingly attractive. Indeed, in many parts of the country, an exurban location no more than 50 miles from an MSA downtown is also hardly farther than that from one or two downtowns of other MSAs. Would such locations be rural or metropolitan? The name is not crucial, but the effects of such extremely dispersed "metropolitan" spatial patterns of what are now still rural areas, and 20 years ago were distant rural areas, may be very important. For many small towns and rural places that become edge cities or come to have easy access to edge cities, extreme suburbanization will provide jobs and large capital gains on farmland. For others, semi-metropolitanization will bring unwelcome newcomers and changes in life style.

The future of large MSAs

I conclude with speculations about the future of large MSAs. The only safe statement is that the largest 5 or 10 MSAs in 1990 are almost certain to grow at slower rates than the U.S. population in the 1990s. The forecast should be applied to CMSAs. The 5 or 10 largest PMSAs are surrounded by other PMSAs and it would be physically difficult for them to grow much. In 1990, the five largest CMSAs contained 52.9 million people, 21.2 percent of the total U.S. population and 27.5 percent of the MSA population.

I expect the MSA share of total population to increase 1 or 2 percentage points during the 1990s, say from 77 percent in 1990 to 79 percent in 2000. If the overall population grows 1 percent per year from 1990 to 2000, the MSA share grows from 77 to 79 percent, and the top 5 CMSAs grow by half the national rate, 0.5 percent per year, a little arithmetic shows that MSAs other than the top 5 will grow 1.5 percent per year. (In 1990, the smallest CMSA among the top 5 was Philadelphia, with 5.9 million people.)

The above forecast is a conservative extrapolation of trends during the last 20 years. Why might it be wrong?

One common conjecture is that large MSAs are increasingly unpleasant places to live and do business, and that people prefer small MSAs anyway. I do not believe that is a significant argument. For decades, people have told pollsters that they prefer to live and work in small urban areas; 50,000–100,000 people is the most common range. Whatever such polls tell us, they do not forecast behavior. Population and employment have continued to grow throughout the MSA size distribution, and small MSAs have not grown faster than middle size MSAs.

Living and working are not unpleasant in MSAs; they are, to some extent, unpleasant in some central cities. But population has been shrinking slowly in large central cities for several decades, and there is no prospect of a reversal of that trend. Growth has focused in suburbs and nearly two-thirds of the MSA population now lives in suburbs. As I claimed above, many of the large suburban communities now have most of the advantages of central cities: cultural, recreational, etc. Many also are of sizes in which the polls tell us so many people like to live. Many suburban residents think that large suburban communities are also developing some of the disadvantages of central cities: traffic congestion and crime, specifically. However, since land use controls are or can be effective in keeping out low income people and traffic investments can be made, I do not think the danger is great. I do not think that low quality of life will cause people and jobs to flee large MSAs.

Suburbs have grown relative to central cities for a variety of reasons. The result, however, is clear: suburbanites have higher incomes and greater educational attainment than central city residents. Central cities have a greater mixture of racial and ethnic minorities, and an appaling concentration of alienated and poor black residents.

Studies indicate that school performance, illegitimacy and crime all improve if low income minorities are somewhat dispersed instead of living together in low income neighborhoods. Role models appear to be the key causal factor. Large MSAs have larger fractions of their middle and upper middle income populations living in exclusionary suburbs than have small MSAs. The ratio of suburban to central city income increases with MSA size. The result is more segregation of large groups of low income minorities in central cities, and greater alienation, in large than in small MSAs. An important part of the solution of this peculiarl · U.S. central city pioblem is reduced suburban land use controls, but it is not essentially a problem of MSA size.

Why have poor minorities not followed jobs to suburbs? The answers are complex and poorly understood. But one part of the answer that has been studied carefully is land use controls. The poor are effectively zoned out of many suburbs. How many more low income and minority residents would live in suburbs, and how many would perform better there, if land use controls were less of a barrier is impossible to know. However, some simple calculations [1] indicate that central cities would contain more white residents, more residents altogether, and more jobs if low income and minority people were

more evenly spread out among MSA suburbs. The reason is that, to some extent, high income people locate in suburbs to avoid the "blight" that results from the concentration of low income and minority residents in central cities. There would be less concentrated blight to escape from; in addition, there would be no place to escape to.

The conclusion must be that suburbanization of upper income residents and the use of the police power to keep low income people out of suburbs has caused suburbanization to be more extreme than it would otherwise be, and has made both the private and government sectors perform less well than they could in central cities.

More difficult to deal with is the second common conjecture: computerization. What is certain is that compilation, analysis and transmission of data over long distances will become cheap and common in the 1990s . Some people conjecture that the result will be to destroy the rationale for large collections of office-type activity. If information can be transmitted electronically, why locate in an office center where land is 100 or 1,000 times as expensive as it would be at a relatively isolated location?

The issue here is whether computers will destroy the need for face-to-face contact in business communication. Inexpensive long distance electronic communication of information has been available for some years. Diskettes could be flown across the country overnight by several express delivery services 20 years ago, and messages could be faxed almost instantaneously 10 years ago. Video phones have been available for a decade, as have cheap long distance phone rates. Those possibilities seem to have had almost no effect in dispersing business activity beyond MSA boundaries. During the 70s and 80s, suburbanization must have been faster because of these technologies, but it seems to have resulted more from gradually falling costs of moving people and goods than from rapidly falling costs of moving data. What is approaching rapidly is widespread availability of technology that will permit instantaneous interaction by voice, video and printed documents over great distances and at low cost. That will permit a meeting to be held among people separated by long distances and yet able to see and hear each other and to transmit documents to each other quickly and cheaply.

I have argued above that access to large numbers of businesses and households is the essence of large MSAs. If face-to-face meetings became obsolete, beyond a doubt large MSAs would shrink dramatically within a decade or so. I have grave doubts whether it will happen, but I have no crystal ball and I offer the following with an unusual dose of humility.

I do not believe that electronics will make face-to-face meetings obsolete. Anything that can be spoken can be transmitted electronically. The issue is the benefits versus the costs of electronic transmission compared with face-to-face transmission. I have distinguished between unambiguous and ambiguous information. [2] Ambiguous information is just that. It is what is transmitted in early meetings between potential vendors and buyers of a new product. Each side wants to explore the other sides needs, wishes, abilities, reliability, willingness-to-pay, and likely costs of production. It is what is transmitted when opposing attorneys in a case meet to discuss possible settlement out of court. It is what is transmitted when members of a profession meet for lunch. They all know they are competitors, and they all want to get more valuable information than they give about technology, market trends, product innovations, etc. Yet they all know that they must give some information in order to get some. Quintessentially, it is what is transmitted in an academic seminar. The essence of a research seminar is that a group of people with a common vocabulary and body of expertise come together to listen to a colleague discuss a half-baked idea. The result is akin to a controlled free association exchange, which is the essence of the creative process.

My claim is that the exchange of ambiguous information is what face-to-face communication has always been about, and that electronic communication is a poor substitute. In such exchanges it is disadvantageous to write too much down. In addition, each participant wants to iterate in the information exchange. Finally, participants frequently want to "feel each other out" prior to providing information. The exchange proceeds in ways that depend on the information set that participants bring to the meeting and are willing to communicate, and that can be known only approximately prior to the meeting.

Experiments and scientific (mostly by sociologists and management specialists) observations of electronic meetings confirm the above conjectures. Electronic meetings induce people to bring prepared statements and to take positions they find it difficult to move from. Senior people find it difficult to maintain control over junior people who are long-winded or get sidetracked. Generally, senior participants find it difficult to assert their authority and force the meeting to serve their purposes when transmission is electronic. Closely related, supervisory people find it difficult to monitor the productivity of their supervisees when they are not on the same site. If that were not so, the supervisees would be paid piece rates. Finally, work on a common site stimulates employees by creating a competitive atmosphere. This extends to schools and universities. An important advantage of a common site for education is the stimulation, exchanges and competition that students provide for each other.

Academics should consider the possibility of an electronic university. In 10 years it will be technically possible for me to live in Buena Vista, Colorado and to lecture, with voice, visual and written communications, to students who are dispersed around the country, or around the world. Communication can easily be interactive. Indeed, there is no reason not to do my research the same way. It will be possible to bring up on my computer screen any book or article that is in the university library now, or, indeed, any data set that is stored in some central location. I can type my working papers and distribute them to a worldwide audience, and we can hold seminars using the same computer network. My pay check can of course be sent to me or my bank. Does anyone think that electronic universities are the wave of the future? I do not.

Electronic communication certainly has had and will continue to have important effects. It permits increased specialization, downsizing and efficiency among institu-

tions. To take one example, until recently each large bank had its own economics department to do forecasting and market analysis for management but now it is possible to buy higher quality forecasts and analysis than the bank can do for itself. Prominent organizations such as Data Resources Inc. and Wharton Econometric Forecasting Associates provide analysis and forecasts which they transmit instantaneously by electronic means from their offices to any place in the country. That and similar examples are, I believe, at the core of downsizing that is underway throughout the U.S. economy. (The recession is also a cause.) Entire layers of middle level people who formerly compiled, analyzed and transmitted data are being replaced by electronic systems that do the work.

Electronics already has and will continue to facilitate suburbanization. Much information which formerly required proximity can now be transmitted electronically, permittting businesses to be located in more distant suburbs than previously economical, but not a branch office in Buena Vista. (There are exceptions. I recently reserved a rental car from a national organization and the woman on the other end of the telephone line said she was in Fargo, N.D.) Face-to-face meetings have come to be needed less frequently, but they are still required.

My forecast for the next 10 or 20 years is continued rapid suburbanization, coupled with slower growth than of the population as a whole for large MSAs. At some point, but not yet, the Census Bureau will need to ask in what sense edge cities are still parts of large MSAs.

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