

Rural California and Access to Telephone Service

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Introduction

This paper describes features of the state's rural and non-urbanized areas, particularly as they pertain to access to telephone service. California is widely perceived to be one of the nation's most urban states, having experienced the greatest population increase of any state for the last several decades. Recent Census Bureau data suggest that the rate of population growth has slowed somewhat, but today more than 92.5% of Golden State residents live in urban areas. This heavily urbanized population is concentrated within a relatively small portion of the state's land area, perhaps as little as 10%.

Just 2.8% of the state's occupied housing units lack telephone service, and the percentage is even lower among the elderly. Only 1.4% of those over 75 live in households without a phone.

Missing from this description is the little-known fact that California also has an enormous rural population, 2,188,143 million individuals, spread over more than three-quarters of its land area. The state has a greater number of rural residents than most states widely understood to be "rural," such as Wyoming and Montana. Literally hundreds of rural communities dot the forests, deserts and mountains of our state, but are virtually invisible, especially in contrast to our well-known major cities. *Most California places are rural as is most of its land.*

Equally important are the large numbers of Californians living outside of major urban centers who reside in remote small cities and towns that are too large to be considered strictly rural. These are places with more than the 2,500 population that is the Census Bureau's upper limit on what constitutes "rural." While "urban" by definition, these small communities are characterized by the Census Bureau as exclusively having residents who live "outside of

urbanized areas” in recognition of their distance from large cities and their surrounding suburban fringes and, as well, the fact that they are all small as compared to the size of metropolitan areas. This classification of “non-urbanized” persons makes it possible to develop a more accurate characterization of communities which are of intermediate size, neither strictly rural nor urbanized.

California is therefore properly understood as both urban and rural, mostly urban in terms of population but mostly rural in terms of place. And the state also includes a large number of communities which are non-urbanized, with populations larger than the Census definition of rural but not part of large cities and their suburbs.

In order to properly characterize a rural or non-urbanized population it is helpful to be clear about the meaning of place. Most people define place as a community, which can be specified, for example, by a postal address or the place name of the telephone directory where they are listed. Following the Census Bureau, a rural place is a city or town in which the aggregate population is 2,500 or less, or an outlying area in which the population density is fewer than 1,000 persons per square mile. A farmer or other rural resident living outside of a city or town of any size will invariably be identified with a specific community.

In this paper, both for convenience as well as for purposes of unambiguous enumeration, five-digit U.S. Postal Service zip code areas have been chosen to define community boundaries. Of course, zip code areas have their origin in a definite understanding of place. In rural areas, the size of zip code areas may be quite extensive, encompassing one hundred or more square miles. Almost invariably, a single five-digit zip code is uniquely associated with a specific rural community. Every resident within the specified zip code area, whether living in town or not, receives mail identified with that community’s name. Thus, using zip code definitions, it is possible to capture not only all persons living in a town or city of any size but also every rural resident who lives outside of the town or city boundaries but who self-identifies with that place.

Another advantage of using zip code boundaries to define place is that non-urbanized places can easily be characterized in exactly the same way as rural places. However, this type of community may include rural residents (living outside of town) as well as persons who live in the non-urbanized town itself. In a small number of instances there may be two or more zip

codes associated with a single non-urbanized place.

According to the 1990 Census of Population there were 640 zip code areas in California comprised exclusively of non-urbanized and/or rural residents. Nearly every county, including crowded Los Angeles County, claims at least one such place. The total population of these communities was approximately 3.5 million persons. Thus, in 1990, some 12% of the state's population can be described as living in rural or non-urbanized places. Of that number, about 2.2 million, or roughly three out of five, were rural residents, based on the strict Census criterion.

Rural and non-urbanized California looks very different than does the state as a whole. Thirty-eight of the state's fifty-eight counties reported that at least 25% of their residents, *twice the state average*, lived in either rural or non-urbanized places. Taken as a whole, these counties with high shares of rural and non-urbanized residents reported a rate of population growth between 1989 and 1995 that was *35% higher*, an unemployment rate in 1995 (annual average) that was *54% larger*, and *18% more* persons employed on farms than in manufacturing (231,070 vs. 195,362, on a full-time-equivalent basis) than was the case for the state as a whole.

The biggest share of jobs in these counties are based in local natural resources: agriculture, forestry, fishing and recreation. Interestingly, while manufacturing employment declined in these areas between 1989 and 1995, as it did throughout California during the steep recession of the early 1990's, agricultural employment actually increased. The gain in farm employment was associated with continuing increases in the production of fruit, vegetable and horticultural crops as well as in livestock products, most notably dairy. At peak season, more than 400,000 persons are working on the region's farms. On the other hand, employment in forestry fell sharply during the same period reflecting the 50% fall-off in the amount of timber harvested, as measured in board-feet.

Overall, the annual average rate of unemployment in these thirty-eight counties was 12% in 1995, as compared to 7.8% in the state. The cycle of boom and bust in rural California has a now well-established pattern: after each recession the trough of the unemployment rate is at ever higher levels. Rural and non-urbanized areas of California are slower to recover and are left in worse shape after recessions than the rest of the state.

One of the few areas of improvement in the economy of these rural areas is the growth

associated with increases in the number of retirement and recreation settlements, which, together with the increasing numbers of farm workers and their families, accounts for most of the population gains. While new construction fell in the rural areas, it declined at only half the rate of the state.

Thus, rural and non-urbanized areas of the state are a curious mix: steady growth in farm employment and recreation service jobs, population growth that exceeds the rest of the state, but chronic high levels of unemployment and lower incomes, mostly associated with seasonal agricultural and service sector employment. Even many of the area's manufacturing jobs are also highly seasonal, as in the food processing and lumber industries.

The Makeup of California's Rural and Non-Urbanized Communities

The very great size of the rural and non-urbanized population as well as the extraordinary diversity of its more than six hundred communities presents a challenge to characterize in a succinct fashion without losing the place-specific qualities that make each of these communities unique in its own way. To gain an understanding for these communities we next describe the rural and non-urbanized residents in twelve selected counties. In this way the localized homogeneity of each of these places can be better appreciated.

For the purpose of this study we chose to examine in detail twelve California counties selected from the state's six economic regions: North Coast, South Coast, Central Coast, Desert, San Joaquin Valley, Sacramento Valley (See Appendix I). Two counties were chosen from each of the regions, based on only the criteria that each contains three or more towns whose entire populations live outside of urbanized areas according to the U.S. Census. The counties were chosen this way in order to capture the full variety and diversity of California's rural places. Just like the state as a whole, rural California encompasses wildly different areas, from the country's largest agricultural region to areas where logging and fishing are the main industries. Thus, by choosing counties from each of the different regions we are able to assess both the differences between rural areas and the characteristics that they share.

From the twelve counties we examined in detail, we can begin to paint a picture of rural

California. It is clear that above all else, rural California encompasses a number of distinct socio-economic regions. However, at the same time, certain patterns are repeated over and over again in all of these twelve counties. Although not homogenous as a whole by any measure, California's rural regions do share some degree of similarity using certain social and economic measures. It is these measures that allow us to identify what makes rural California's needs different from those of the rest of the state.

The rural communities we examined present racial and ethnic demographic patterns that differ from California as a whole. In all twelve counties the rural and non-urbanized areas have lower percentages of Blacks and Asians, and over half have many fewer Hispanics as well. In contrast, five of the twelve counties have large proportions of Hispanics in the rural areas, most likely associated with the large amount of hired farm labor in these counties (Fresno, Imperial, Monterey, Santa Barbara and Stanislaus). For three of these counties Hispanics comprise a majority of the rural population (Fresno, Imperial and Monterey). Generally, all twelve counties have higher percentages of American Indians than the state as a whole, which is to be expected as American Indians are still a largely rural population. Thus, we find that overall rural California is less ethnically diverse than the state as a whole. In certain areas such as the North Coast and Sacramento Valley, very few minorities are found at all.

Economically, it appears that rural California is generally lagging behind the state as a whole. We find that in all but three counties situated in the South and Central Coast regions average per capita income of the rural towns is well below that of the state as a whole. In a few counties even the town with the highest per capita income among the rural towns still does not report as much as does the state as a whole. The same is true of poverty rates, where we find that the rural towns in all but the three counties in the South and Central Coast regions have poverty rates which exceed the state average, some to an alarming degree. Clearly there is simply not as much income to be made in these rural areas as in the other regions of the state. The slowness of the economy is also visible in the average median gross rents reported in the rural towns in these counties, which in all but Contra Costa County are well below the state average.

Overall Trends in Telephone Usage

Despite the amount of diversity found among these counties and between the different regions they represent, there exist identifiable trends which are of interest. The most glaring of these is, of course, the high rates of occupied housing units which lack telephones (described herein as “no telephone” rates). In all but one of the counties we looked at the rate of houses in non-urbanized towns without telephones exceeded the state rate, in some cases by more than 300%. Easy explanations for this result are difficult to find, especially considering the small sample size. When looked at by region, the Desert and North Coast regions stand out as having high “no telephone” rates in all four of the counties included in this analysis. Other possible relationships to be investigated further include the connection between income and poverty rates and telephone usage.

Within this sample, such correlations are impossible to make with any certainty, but trends are still noticeable. Certainly, the counties in which the rural towns have the lowest rates of housing units lacking telephones also tend to have lower poverty rates and higher average per capita income than do the towns with higher “no telephone” rates. Examples of this are Contra Costa and Santa Barbara Counties, both of which have average per capita incomes higher than the state average, poverty rates lower than the state average, and “no telephone” rates below or close to the state average. In fact, the rural towns in both counties of the South Coast region, Santa Barbara and San Diego, have high average per capita income, low poverty, and low “no telephone” rates relative to the other regions we looked at.

There is also a tendency which was discovered in some, but not all of the counties, of poverty rate being closely related to “no telephone” rates. In many counties the town with the highest “no telephone” rate also has either the highest poverty rate in the county, or a rate that is still significantly high when compared to the state average. This is the case for more than half of the counties analyzed. In other counties, where this link is not found, the high “no telephone” rate is found in a town with very few people (population less than 1,000), thus increasing the possibility of trends being skewed by a very few outliers. One possible conclusion is simply that there is in fact a likelihood that rural places, already more likely to be poor than urban places,

will also have higher “no telephone” rates. From these cases we can conclude only that the possible link between poverty and “no telephone” rates needs further research.

Another very noticeable trend is the lower “no telephone” rates among the senior age groups. Consistently in all twelve counties with only a single exception, the 15-59 age category has “no telephone” rates significantly higher than those for the senior age groups. Possible explanations for this phenomenon include government subsidies that provide for telephone service to the elderly, and programs such as “Lifeline” that bring lower rates to seniors. Overall, it is clear from the analysis of these twelve counties that rural areas are more vulnerable than the state as a whole when telephone service is concerned. Rural California is poorer and already has less telephone penetration than is normal for the state. Thus, this preliminary study suggests increases in phone rates may make phone service unaffordable to even more rural individuals, further raising the rates of households and individuals lacking telephones.

One indicator of the commercial importance of telephone service is the prevalence of businesses in the Communications and Business Services sectors, the latter being one of the fastest growing parts of the California economy. In all twelve counties, these sectors are significantly under-represented among rural and non-urbanized jobs, typically accounting for one in sixteen jobs. In contrast, for the state as a whole these two sectors are responsible for one in twelve jobs. Thus, these rural areas have about one-third fewer jobs in these sectors. Explanations for this difference are not obvious. Rural communities with very low levels of employment in these sectors most often have much lower educational attainment, it is possible that the absence of requisite skills is a factor accounting for the relative absence of these jobs. Whatever the cause, the weakness of this sector in rural areas is likely to make it particularly vulnerable to changes in rates charged for telephone and related services.

In what follows we present the findings for each of the twelve counties as distinct “case studies.” Summary findings for all 640 rural and non-urbanized communities are developed in the section following the case studies.

North Coast Region

Del Norte County in the North Coast Region has four towns with entirely non-urbanized populations, totaling 23,460 people. Nearly two-thirds of these people live in areas which the Census officially designates as “Rural Farm” or “Rural Non-Farm.” The county’s non-urbanized towns have low percentages of minorities; only American Indians make up a higher percentage of the county’s population than for the state as a whole.

The average per capita income for *Del Norte*’s rural towns is low, only two-thirds that of the state. Even the town of Gasquet, with the highest per capita income among the four towns, has per capita income lower than the state average of \$16,409. Poverty rates are high, ranging from 25.36% in Klamath to 6.06% in Gasquet. The average poverty rate for the four towns is 15.58%, well above the state rate of 12.5%.

Del Norte County finds 8.44% of its rural occupied housing units to be without telephones, a rate more than three times that of the state. The town of Gasquet finds 16.67% of its housing units without phones. The 15-59 age group has more residents without telephones than do the elderly age groups.

The average median rent is only two-thirds that of the state, and even the high median gross rent of \$434 is well below the state average of \$620. This is not surprising in the context of the low incomes for this county.

All but a small number of the rural and non-urbanized residents of *Del Norte County* live in the Crescent City zip code area, which is also the County Seat. An area of remarkable beauty, three state redwood parks and the world-renowned Redwood National Park are adjacent to town. Both the American Automobile Association (AAA) *Tour Book* and the *Mobil Guide* have listings for Crescent City. The city is also the only major center for basic food, clothing and other supplies since the nearest larger city is Eureka, some 83 miles to the south.

Retail trade is the largest single economic sector in Crescent City accounting for one in five jobs and bringing in annual gross revenues of more than \$110 million. Crescent City’s Communications and Business Services sectors are quite small, each employing fewer persons than the Agriculture, Forestry and Fisheries sector. All together both sectors account for about

one in sixteen jobs.

Mendocino County, also in the North Coast Region, has 25 towns with non-urbanized populations, totaling 80,540 people. More than two thirds of these people live in “Rural Farm” and “Rural Non-Farm” areas, with multiple towns being composed entirely of rural dwellers. Like Del Norte County, Mendocino’s non-urbanized towns have low minority populations compared to the state averages with the exception of the American Indian population, which is much higher than average.

Mendocino’s average per capita income is more than three-quarters of the state’s average, although the town of Yorkville has per capita income only half that of the state. The average poverty rate is higher than the state average, with a wide range from 52.06% in Piercy to 0% in Dos Rios.

In Mendocino’s non-urbanized towns, 7.48% of occupied housing units lack telephones, a rate more than two and a half times that of the state. The town of Branscom finds more than a third of its housing units to be without telephones, and nearly half of its residents aged 15 to 59 lack telephones. This age group has significantly higher rates of residents lacking telephones compared to the elderly age groups, and averages 9.4% for the 25 towns.

The average median gross rent for the towns is less than two-thirds that of the state, with a wide range from \$708 to \$0.

Ukiah is the largest city in Mendocino County and its County Seat. It accounts for one-third of all rural employment in the county. While located in a beautiful setting, it is not as important a tourist destination as is the spectacular Mendocino coastal area. Most of Ukiah’s visitors are passing through to other better-known tourist destinations.

Employment in the Communications or Business Services sectors in Ukiah is quite low, less than half of the level of employment in Agriculture, Forestry and Fisheries. Together the two sectors employ only one in sixteen job-holders. Retail Trade in Ukiah is the single most important sector, accounting for one in five jobs, reflecting the fact that the city is the center of shopping for the bulk of the county’s residents. Annual revenues from retail sales are about \$297 million.

Central Coast Region

Contra Costa County in the Central Coast Region has just three non-urbanized towns with a total population of just 6,105. Of these, just 12.4% live in Rural designated areas, although the two smaller towns of Knightsen and Port Costa both have 100% of their residents residing in “Rural Farm” and “Rural Non-Farm” areas. Percentages of minorities are lower than the state for all the non-white groups in these towns.

The average per capita income for Contra Costa’s non-urbanized towns is well above the state average, and even the town of Byron with the lowest per capita income, comes close to the 90% of the state average. Likewise, the poverty rate for these three towns is also much lower than the state average, peaking at only 2.46% in Port Costa.

Contra Costa County’s non-urbanized towns stand out as being the only group that we looked at with 100% telephone usage rate for all occupied housing units and among all age groups.

As is expected, the average rent for these towns is above the state average, ranging from one and a half times the California average to nine-tenths in Port Costa.

The town of Byron accounts for nearly all of the county’s rural and non-urbanized residents and virtually all of its employment. Located in the eastern edge of the county, the only significant natural resource-based employment is agriculture. Like its more developed urbanized neighbors, Byron is becoming a commuter town.

The town’s economy has few manufacturing jobs and both the Communications and Business Service Sectors are quite small, together accounting for fewer than one in ten jobs. Construction is more important than either sector. Retail sales account for about \$12 million in annual revenue and roughly one in seven jobs.

Monterey County, also in the Central Coast Region, appears to be quite different from Contra Costa County. It contains nine non-urbanized towns with a total population of 49,956, nearly half of which resides in Rural places. The towns’ minority populations look similar to the state averages for blacks and American Indians, but they contain fewer Asians and more than

twice as many Hispanics as the state as a whole.

The average per capita income in Monterey's non-urbanized towns is just above two-thirds of the state average, ranging from 128.3% of the California average in Big Sur and less than 50% of it in Soledad. Big Sur and Soledad respectively also have the lowest and highest percentages of Hispanics among these towns. The poverty rate is higher than the state average, averaging nearly 15% for Monterey's non-urbanized towns.

Telephone usage is lower than the state average, with 6.4% of occupied housing units lacking telephones. The range finds Big Sur lacking telephones in nearly 18% of its housing units, while in Aromas only 1.5% of housing units lack phones. The highest rate of residents without telephones is found once again among the non-elderly age groups.

The average median gross rent for these towns is slightly more than three-quarters that of the state median rent of \$620, with a high of \$700 in Aromas and a low of \$342 in Big Sur.

King City is the largest of Monterey County's rural towns. Its main claim to fame is that it is on Highway 101, a major freeway linking southern and northern California. But it is not a tourist destination and few will stop in King City when Carmel and Monterey are a short distance away.

Located near the southern end of the Salinas Valley, King City has a large food processing plant but most jobs are in agriculture. All together farm employment accounts for 35% of all jobs in town, dwarfing every other sector. The Communications and Business Service sectors together provide fewer than one in seventeen jobs. Since it is the largest community in the southern Salinas Valley, it is the center for shopping for residents of a much larger area. Retail sales amount to about \$68 million on an annual basis and account for about one in seven jobs.

South Coast Region

Santa Barbara County in the South Coast Region has six non-urbanized towns totaling 24,760 people. Of these, less than a third live in "Rural Farm" or "Rural Non-Farm" areas. These towns have fewer blacks and Asians than is average for the state, while having slightly

higher percentages of American Indians and Hispanics.

The average per capita income of these towns is just slightly higher than the state average, ranging from nearly twice the state average in New Cuyama to less than half in Guadalupe. The average poverty rate for Santa Barbara's non-urbanized towns is 11.2%, slightly smaller than that for the state as a whole. The range goes from 39.1% in New Cuyama to 0% in Cuyama.

Santa Barbara's non-urbanized towns have telephone usage rates which are similar to that of the state; 3.4% of the occupied housing units are without telephones compared to 2.8% for California. There is a wide range among the towns however, from 20.7% without telephones in Cuyama to 0% in New Cuyama. As is the pattern thus far, the 15-59 age group has more residents without telephones than do the elderly age groups.

The average median gross rent is lower than the state, making up about three-quarters of the state average, with a high of \$743 in Santa Ynez, and a low of \$0 in New Cuyama.

The city of Guadalupe represents one extreme of rural Santa Barbara County. Guadalupe is a farm town and home to thousands of farm workers and their families. Farm jobs account for 35% of all employment and five times as many jobs as in the combined Communications or Business Services sectors which employ just 17 and 135 persons, respectively. Guadalupe is not even mentioned in the *AAA Tour Book* or *Mobile Guide*. Most residents shop in nearby Santa Maria so its retail sector is so small that the Census of Retail Trade is unable to quote a statistically reliable total of annual sales.

Also, in the South Coast Region, *San Diego County* has 19 non-urbanized towns with a population of 77,205. Slightly less than two-thirds of these people live in "Rural" areas. Minority percentages are lower than state average with the exception of American Indians.

Average per capita income for these towns is nearly the same as that for the state, with individual town incomes ranging from 121.9% of the state average in Bonsall to just 50.2% in Jacumba. The average poverty rate for the selected towns is slightly less than that of the state, at 11.1%, with a wide range from 36.8% in Boulevard to 0% in Tecate.

5.4% of occupied housing units in San Diego County's non-urbanized towns lack

telephones, nearly two times the rate for the state. The town of Boulevard finds 26.4% of its housing units without telephones, while several towns have telephones in all houses. The 15-59 age group has lower average telephone penetration than the elderly age groups.

The average median gross rent of San Diego County's non-urbanized towns is three-quarters that of the state. The town of Descanso has the highest rent of \$778, well over that of the state (\$620). The town of Boulevard has the lowest, \$275, less than half that of the state as a whole. Boulevard stands out as having the highest poverty rate, the lowest median gross rent, and the highest percentage of housing units without telephones.

The city of Alpine is representative of San Diego County's rapidly growing rural areas and is ideal for either retirement living or for commuting to the urbanized coast. Located in the mountains east of the city of San Diego, its economic life is dominated by construction jobs, the largest single employment sector. The retail trade sector reports about \$22 million in annual sales and accounts for one in seven jobs. The Communications and Business Services sectors account for about one in ten jobs.

Desert Region

Imperial County is in the Desert Region and has nine non-urbanized towns with a population of 102,857. Less than one-fifth of this population resides in "Rural Farm" or "Rural Non-Farm" places. The non-urbanized towns contain few Blacks, American Indians, or Asians, but are more than two-thirds Hispanic, more than two and a half times the average rate for the state.

Imperial County's non-urbanized towns have quite low per capita incomes. The average for the towns is only 56.1% of the state per capita income, and the town of Imperial, with the highest per capita income, makes only 69.2% of the state per capita income. The average poverty rate for these towns is also alarmingly high, at 23.7%, nearly twice that of the state. The town of Calexico has the highest rate of 31.5%, while the low of 12.3% in Imperial comes extremely close to the state average.

Not surprisingly, there is also a high rate of housing units without telephones: 7.0%, two

and a half times the state rate. In the town of Niland 22.0% of housing units lack telephones, while every housing unit has a phone in the town of Heber. Surprisingly the highest rate of residents without phones is found in the over 75 age group, where 9.89% of residents lack phones.

The average median gross rent for Imperial's non-urbanized towns is only 58.7% that of the state. The highest rent, in El Centro, is still only about two thirds of the state average. The lowest median gross rent, found in Heber, is less than one half that of the state as a whole.

El Centro is the largest city in Imperial County and is also the County Seat. Located near the Mexican border, it is at the cross-roads for Mexicans entering the U.S. from Mexicali and the major east-west freeway connecting San Diego with Arizona. The overwhelming majority of residents are Hispanic and Spanish is the language spoken in most homes. As the major town of the county it is the retail center as well, reporting annual retail sales of about \$364 million. Prior to the removal of restrictions on trade between Mexico and the U.S. under terms of the North American Free Trade Agreement (NAFTA), many Mexicans would travel to the border area to purchase items not available in their own country. But the sharp decline in the value of the peso has undermined this type of trade, adversely impacting retail sales.

Agriculture accounts for one in eight jobs in El Centro, and even more at the peak season for winter vegetable production in January and February. In contrast, just one in sixteen jobs are in the Communications or Business Services sectors.

San Bernardino County is also in the Desert region and has 30 non-urbanized towns with a total population of 156,073. Among this population, 40.9% of people live in Rural places. Minorities make up smaller percentages of this population than the state as a whole, with the exception of American Indians.

The average per capita income for the non-urbanized towns is nearly three-fourths that of the state as a whole. The income range is extremely wide, from the town of Kelso with per capita income more than two and a half times that of the state to the town of Amboy with income only about one-fifth that of the state. The poverty rate is higher than the state, at 15.1%, and ranges from 54.2% in the tiny town of Amboy to 0% in Baker.

The average rate of occupied housing units without telephones is 7.8%, more than two and three-quarters that of the state. The high is a shocking 100% of housing units lacking telephones in Baker, while 100% of housing units have telephones in Forest Fall and Kelso. The 15-59 age group has the highest rate of residents without telephones.

The average median gross rent for San Bernardino's non-urbanized towns is less than two-thirds that of the state. The range extends from \$670 in Lytle Creek to \$0 in Angelus Oaks and Kelso.

Representative of the non-urbanized region of San Bernardino County is Yucca Valley, a high desert retirement community that has experienced rapid population growth in recent years. Located adjacent to the famed Joshua Tree National Monument, it is a tourist destination for "desert rats" during the winter and early spring before the summer's heat sets in.

Employment in Yucca Valley is dominated by construction, which provides one in six jobs. Retail sales are substantial, accounting for about \$214 million per year and one in five jobs. The Communications and Business Services sectors account for one in twelve jobs, the same rate as in the state as a whole.

San Joaquin Valley Region

Fresno County, in the agriculture-rich San Joaquin Valley, has 30 non-urbanized towns with a total population of 181,298. Less than half of this population resides in "Rural Farm" or "Rural Non-Farm" areas, although multiple towns are composed of entirely rural residents. Percentages of Blacks and Asians are below state averages, while American Indians make up a slightly higher percent of the non-urbanized population than the state as a whole. Hispanics make up more than 55% of the non-urbanized population, more than double the average for the state.

The average per capita income is quite low for these towns, only 57.2% that of the state. The highest per capita income is found in Shaver Lake with 113.0% of the state average, and the lowest in Mendota with a mere 32.4% of the state average. The average poverty rate for the non-urbanized towns is a staggering 23.6%, nearly twice the state average. The range extends from

Orange Cove with 43.7% of its residents in poverty, to Kings Canyon National Park, with a 0% poverty rate.

The rate of housing units lacking telephones is 8.6%, more than three times that of the state. The high is 24.5% without telephones in Helm and the low is 0% in Dunlap. Once again, the 15-59 age group has a higher rate of residents without telephones than does any of the elderly age groups.

The average median rent is \$349, slightly more than half the state average of \$620. Even the high of \$504 in Prather, let alone the low of \$0 in Dunlap, fall well below the state average.

Mendota is one of the many rural cities that dot the entire San Joaquin Valley. Located about 33 miles west of the city of Fresno, Mendota is virtually unknown to most Californians. Lacking a resident physician, the nearest hospital is in the city of Fresno. Spanish is the language spoken in three-quarters of the residences of the community. Although the Mendota Wildlife Area is the state's largest, the town is not even mentioned in either the *AAA Tour Book* or *Mobil Guide*.

Agriculture provides 70% of Mendota's employment, and even more at the peak of the late summer harvest season. Retail sales are so small that the Census of Retail Trade is unable to report their value and the sector accounts for just one in fifteen jobs. The Communications sector provides no jobs whatsoever, and the Business Service sector just one job in thirty.

Stanislaus County, also in the San Joaquin Valley region, has ten non-urbanized towns with a population of 116,832. Less than a third of these residents live in areas designated as Rural. Stanislaus County's non-urbanized areas have lower average rates of Blacks and Asians than the state average, slightly higher rates of American Indians, and about equal rates of Hispanics.

The average per capita income is about three-quarters that of the state. The high in Oakdale is only 86.4% that of the state, and the low in Waterford is 52.9% that of the state. The poverty rate of 13.54% is only slightly higher than the state average. The range is relatively narrow, extending from a high of 19.9% poverty in Newman to a low of 7.5%, well below the state average, in Hickman.

The average rate of households without telephones is 4.1%, just one and a half times that of the state. Newman has the most households without telephones, 9.9%, while Hickman has the lowest of 2.1%. The 15-59 age group has the highest rate of residents without telephones.

The average median gross rent is \$387 in Stanislaus' non-urbanized places, about 62% of that of the state. Both the high of \$474 in Oakdale and the low of \$242 in Hickman are well below the state average.

Hughson is typical of the county's rural communities. With more than 6,200 persons living within the zip code area, it is nearly invisible, partly because it is not along the path of the San Joaquin Valley's main highways. Known as a farm town, Hughson is becoming a farm worker dormitory. Neither the *AAA Tour Guide* nor the *Mobil Guide* mention Hughson at all.

One in five of Hughson's jobs are in agriculture, which is the largest economic sector. Retail sales amount to just \$6 million per year and the sector provides only one in seven jobs. Only one in sixteen jobs is in the Communications or Business Services sectors.

Sacramento Valley

Glenn County, in the Sacramento Valley Region, has five non-urbanized towns with a population of 24,876. More than half of these people live in Rural places. Minority percentages are lower than state average for Black, Asian, and Hispanic, with American Indian being slightly higher than average.

The average per capita income is only about two-thirds that of the state, and even the town of Willows with the highest per capita income of the non-urbanized towns, is only about two-thirds of the state average. However, the range is not wide, from Willows at 66.9% of the state average to Butte City with 51.2% of the state average. The poverty rate is high at 17.42%, and ranges from 21.3% in Butte City to 14.6% in Elk Creek, still higher than the state average.

Telephone penetration is not extreme, but still twice as many households are without telephones than in the state as a whole. The town of Butte City lack phones in 12.0% of its households, while Elk Creek lacks phones in only 4.0% of households. The non-elderly age group has much higher rates of residents without phones than the elderly age groups.

Average median gross rent is considerably lower than average in Glenn County's non-urbanized towns, being exactly half that of the state average of \$620. The high is only \$364 in Orland, and the low is \$256 in Butte City.

Willows is the County Seat of Glenn County and is also located along Interstate Highway 5, a major highway for both commercial and vacation travelers. Just south of town is the Sacramento National Wildlife Refuge, one of the largest such sanctuaries in the entire Central Valley. Its location earns the community a detailed listing in both the *AAA Tour Guide* and *Mobil Guide*.

Surrounded by rice fields, Willows' largest employer is agriculture. However, as a county government center, it also has a sizeable retail sector. Annual sales are about \$43 million and the sector accounts for one in six jobs. Just one in sixteen jobs are in the Communications and Business Services sectors.

Modoc County is also in the Sacramento Valley Region, with seven non-urbanized towns and 8,113 non-urbanized people. Of these folks, 60.2% live in Rural areas. There are few minorities; only American Indians make up a larger percentage of these towns' populations than the state as a whole.

Average per capita income is low for these towns, only 69.2% of the state average, and peaking at just 88.0% of the state total in Lake City. The non-urbanized towns' poverty rate is not much higher than the state average, although the range extends from 39.3% in Fort Bidwell to 7.8% in Cedarville.

In 9.7% of housing units there is no telephone, nearly three and a half times the state rate. The high is a frightening 59.0% in Fort Bidwell without telephones, and the low of 6.1% in Adin is still more than twice the state average. As is the trend, the 15-59 age range has the highest percent of residents lacking telephones.

Average median gross rent is quite low at \$298, less than half the state average. The high median gross rent of \$346 in Cedarville is still only about 55% that of the state average.

Alturas is the County Seat and Modoc County's largest community. Located in the remote northeast corner of California, the largest nearby city is Klamath Falls, Oregon, some 98

miles away. This isolation helps to make it a retail center and the sector accounts for one in five jobs. Annual retail sales are about \$33 million. Alturas is also a recreation center, well known to hunting and fishing enthusiasts.

In terms of employment, the largest economic sector is Retail Trade, followed by Agriculture, Forestry and Fishing. The combined Communications and Business Services sectors provide just one in sixteen jobs.

Access to Telephone Service in Rural and Non-Urbanized California

As described earlier, there were 640 zip codes areas in California which reported only rural or non-urbanized residents in 1990. The mean value of the percentage of occupied housing units lacking telephone service in these communities is 9.23%, *more than three times the state average figure of 2.80%*.

The distribution of the number of rural and non-urbanized communities according to the share of occupied housing units lacking telephone service is shown in Figure 1. In 470 of the 640 zip code areas, or nearly three-quarters of the total, the percentage of homes without telephone service exceeded the state average. Alarming, there were 61 communities in which more than 20% of all occupied housing units did not have a phone and another 53 report that between 15% and 20% of homes lack telephone service.

Clearly, the absence of telephone service is a serious problem in rural and non-urbanized California. What is especially of concern is that most of these rural or non-urbanized communities are physically isolated, both from commerce and from important services such as medical care or hospitals. The relative absence of telephone service in so many of the cities and towns of rural California suggests that a significant share of their residents may be at potentially higher risk, both economically and for such basic needs as health care.

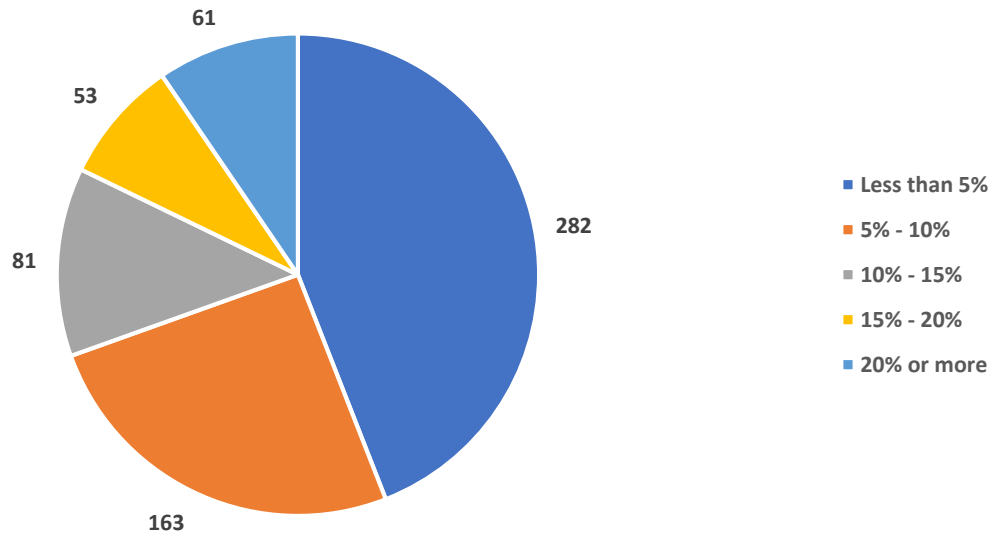
As suggested earlier in this paper, there appears to be some type of relationship between poverty levels in a given community and the absence of telephone service. To further explore this possible link we have analyzed the reported percentage of occupied housing units without telephone service versus the reported percentage of persons living in poverty. A scatter-plot

analysis of this association found a positive correlation coefficient between poverty and “no telephone” rates of 0.33. *This positive correlation is highly suggestive that household income is a predictor of the presence of telephone service.*

The reliability of Census of Population data, on which much of this report is based, is actually quite variable. For enumerations of population, race and ethnicity, the Census of Population seeks to count everyone. But for economic and housing data, only a portion of the full population is sampled. The sampling fraction is normally one in six but is intended to be larger for very small communities. These data are believed to be most statistically certain for large cities, although for certain ethnicities and races is probably less reliable due to undercounts. On the other hand, for very small communities there is less certainty because of the small sample size. A more detailed discussion of the possible influence of sampling uncertainties as it affects the results of this paper is presented in Appendix II.

In conclusion, we find that California’s rural and non-urbanized areas have three times the rate of housing units without telephone service as the state as a whole. The degree of absence of telephone service in a specific community is correlated with the proportion of the population in poverty, which suggests that low household income is a predictor of the likelihood of the absence of a phone in the home. Finally, we conclude that these findings occur across a remarkably wide range of rural communities, and appear to be largely independent of other factors, such as race, ethnicity or patterns of employment.

Figure 1. Number of Rural Communities, by Percent of Occupied Units Without Telephone Service, California, 1990, Total = 640



APPENDIX I

Summary Data for Rural or Non-Urbanized Communities Twelve California Counties, 1990 Census of Population

Twelve California counties were selected for detailed study. Two were selected from each of the state's six economic regions without regard to any other factor. Summary data for each county presented herein include only those communities in which every resident is identified as living in either rural or non-urbanized areas. Data for a specific community refer to a specific five-digit zip code area. All data were obtained from Bureau of the Census, 1990 Census of Population and Housing, Summary Tape File 3B, ZIP Code Areas 7, 8, 9, August 1993, CD90-3B-03.

APPENDIX II

Statistical Uncertainty in Rates of Occupied Housing Units Lacking Telephone Service

The 1990 Census of Population, from which the present data were obtained, attempted a complete enumeration of all persons, but only sampled a portion of households for economic and most information pertaining to housing. The determination of rates of occupied housing units which lack telephone service is among the data items which are determined by sampling. According to the Census Bureau, sampling is intended to be at the rate of 1 in 6 for communities larger than 2,500 persons, and at the rate of 50% for smaller governmental units.

In the present case, we determined the Standard Error (S.E.) for the rate of occupied housing units without telephone service for each of 36 communities utilizing procedures outlined in the data documentation provided by the Census Bureau. The communities were all rural and non-urbanized, five-digit zip code areas, within three California counties: Del Norte, Mendocino and Monterey. The total community populations ranged in size from 194 (Piercy) to 28,263 (Ukiah).

The computation of the S.E. for each community involved a determination of the sample size (per cent of all persons sampled), number of occupied housing units and number of units reporting no telephone service. The computed S.E. values, expressed as a per cent of occupied housing units without phones, ranged from 32.5% (Piercy) to 1.34% (Ukiah). As expected, the largest S.E. corresponded to the smallest community and the smallest S.E. to the largest.

Reported sampling fractions, expressed as a per cent of all persons, ranged from 7.3% (Piercy) to 38.5% (Klamath) and exhibited no systematic variation with community size. That is, the sampling fractions for the large population communities were quantitatively similar to those reported for the smaller communities, typically in the range of 9% to 15%. It appears that the stated Census Bureau objective of obtaining a 50% response rate was not successful for the small communities included in this review.

The following page presents the variation of $(1/S.E.)$ as a function of Population for all 36 of these communities. Note the systematic increase in the value of $(1/S.E.)$ for the communities with more than about 2,500 residents. However, for communities with fewer residents the value of $(1/S.E.)$ exhibits no regular behavior whatsoever. It is likely that the S.E. values are so large in these cases of small community population that approximately equal numbers of communities have S.E. values above and below the expected trend curve. For this reason, we have examined the effect of arbitrarily excluding all communities with fewer than 750 residents to determine the degree of correlation between lack of telephone service with percentage of the population in poverty. The result of this analysis, shown on the second graph, is a correlation coefficient of 0.60, almost twice the value that was found for all communities, irrespective of size.

We conclude that correlation analysis seeking to relate absence of telephone service to percentage of population living in poverty in a specific community is confounded by statistical uncertainty in the variables. More significant is the finding that the degree of statistical uncertainty is greatest for the smallest communities. Therefore, it is not possible to unambiguously establish a strict correlation between poverty status and lack of telephone service for all persons using this data set.

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