

Income Change Due to Migration in California, 1995–2001

Samuel M. Otterstrom, Seth Dixon, and Kerri L. Cosby
Department of Geography, Brigham Young University

Abstract

As the most populous state in the nation, California is not just a major national and international destination for migrants and a key source of migrants who head to other United States regions. It also has a very dynamic level of internal migration. As such, the population of California is very fluid and its people readily relocate themselves and their financial resources as socio-economic situations warrant. Internal Revenue Service county level migration data and U.S. Census data were used to analyze the relationship of migration to income change in California for the years 1995 to 2001. The analysis revealed that during the study period certain parts of the state had much greater relative gains in income due to migration. Most of the central Sierra Nevada counties around Lake Tahoe/Yosemite and a select group of metropolitan counties witnessed solid income growth from migration while the Central Valley, the Imperial Valley, and the Los Angeles area had negative net income changes from migration. Although Los Angeles County is the state's economic lynchpin, the flight of higher-income residents from Los Angeles gave it the distinction of having the greatest monetary loss due to migration of any California county. As migration continues to affect the socioeconomic characteristics of the state's counties, its differential economic impact needs to be better understood.

Introduction

CALIFORNIA IS THE most populous state in the United States, with over 33 million residents in 2000. It is physically and culturally diverse and has a dynamic economy that attracts many newcomers. California's fortunes have been inextricably tied to migration for over 150 years. Between 1985 and 1990 California was the largest recipient source and destination for interstate migrants in the United States. Within the past two decades, California also drew more international migrants than any other state (Muller and Espenshade 1985; Nogle 1997). Kirsch (1993) and Rogers and Raymer (1998) identified California as the population redistribution center of the United States. This immigration and emigration has affected policy

decisions, environmental concerns, housing, transportation, and many other vital socioeconomic issues in the state. Consequently, the movement of people into, out of, and within California has had a major impact on the state's economic structure and landscape.

As large-scale population change continues, it is important to assess how recent migratory patterns have influenced California. Continual improvements in transportation, technology, and communication have allowed people more migration opportunities than ever. Recent studies of migration in the United States have examined how migrants change the spatial distribution of income in various regions (Cromartie and Nord 1997; Nord 1998; Plane 1999). Because so many people are moving in and out of California, overall income and poverty levels within the state can be greatly affected by these migrants. Whether people are moving out of urban cores to the suburbs, from the San Francisco Bay Area to Los Angeles, or from the Sacramento Valley to the foothills of the Sierras, internal migration can also significantly affect local income levels. As the more wealthy and middle classes migrate out of the large cities of the state to distant locales, there could be serious economic repercussions in their former counties of residences. This study explores how migration between 1995 and 2001 changed the economic geography of California. It does this by examining the variations in the spatial distribution and redistribution of income within the state due to both interstate and internal migration.

Background Literature

Although the focus of this paper is how California was affected by migration at the turn of the twenty-first century, some background relative to the part the state has historically played in interstate migration can put our focus on California's recent experiences into proper context. Since the beginning of World War II, interstate migration has been especially important to California's changing population geography. California has both lost and gained population to various U.S. regions (Kirsch 1993). In-migration to California from other states was more noticeable after World War II; post-war and high-tech booms attracted people to the state (Muller and Espenshade 1985; Kirsh 1993). Between 1965 and 1970, California emerged as a center for the redistribution of people across the nation. The number of interstate migrants both entering and leaving the state reached its peak between 1975 and 1980. By 1985, Cali-

ifornia was attracting migrants from other densely populated states and redistributing others to remote, less populated areas, but little growth was noted since there was a rough balance between those entering and leaving the state (Kirsch 1993).

Knowing the size of migration inflow and outflow is important, but it is also critical to understand migrants' individual characteristics, such as income and source location. Frey (1995) emphasized the composition of migrant flow and income movement as they related to California. According to Frey, California's out-migration was composed of two different migration systems in the late 1980s: "first, an immigration-induced flight that [exported] lower income and less-educated Californians, primarily, to the nearby states of Washington, Oregon, Nevada and Arizona. And second, a more conventional migration exchange with the rest of the United States that involves the exchange of better educated, higher income immigrants" (Frey 1995, pp. 354–355). Furthermore, Frey found that between 1985 and 1990 California's population exchanges with these nearby states meant a net loss of some 190,000 people. On the other hand, migration flows from California to other parts of the country, equaled a net gain of 363,000, with many of these migrants having high income, high education, and young families, especially in comparison with the migrants who moved from California to the four nearby states.

The impact of migration on income and poverty levels at the national level has been a recent topic of interest. During the 1990s, nonmetro areas in the United States had higher levels of in-migration than metro areas, and in-migrants tended to have higher incomes (Cromartie and Nord 1997; Fuguitt and Beale 1996; see also Frey *et al* 1996). For example, Nelson (1997) showed that in the Northwest, counties that experienced high growth (usually nonmetro) tended to attract in-migrants with higher incomes (Nelson 1997). Johnson and Beale (1994) also found that nonmetro population growth was likely to occur in counties that were near metropolitan centers (Johnson and Beale 1994).

Nord (1998) in his study of the nation as a whole in the 1990s found that when people move, they usually go to counties with similar levels of income and poverty as the county from which they migrated. Individuals who moved to low-poverty counties tended to come from low-poverty counties, and people from high-poverty

counties tended to move to high-poverty counties. In high-poverty nonmetro counties, the poor tended to move out, but even larger numbers of poor migrated in and the “less” poor tended to migrate out (Nord 1998). In-migrants to high poverty counties had lower income levels than out-migrants and non-migrants (Plane 1999). Thus, both poverty and wealth at the national level and in the West became more spatially concentrated.

During the early 1990s, California experienced higher levels of net population out-migration than ever before in its history. Between 1993 and 1994, out-migrants from California had almost \$10 billion in income, while in-migrants had less than half this amount (\$4.9 billion), resulting in a net loss of more than \$4.9 billion in total income (Plane 1999). A similar redistribution of income has occurred within the state. This study shows which California counties lost income or experienced more growth in poverty during the period of 1995 through 2001 because of migration.

Throughout its history, California has been heavily impacted by large migration flows. Studies of the spatial effects of migration on income and poverty have been conducted for U.S. regions and for the nation as a whole. However, the impact of migration on income and poverty in California at the county level has not been thoroughly studied. In a state where migration has contributed significantly to its economic growth and well-being, it is critical to understand how migration has changed economic levels within individual counties.

Data and Methods

In order to analyze the relationship between migration and income, we used migration data published by the Internal Revenue Service for the years 1995 to 2001 (IRS 2002). The IRS tracks migrant flows at the county level by comparing mailing addresses of current tax returns with the previous year’s tax returns. The data are in two sets of files, one for in-migration and one for out-migration. These data sets provide information on how many individuals (exemptions) and households (tax returns) were moving to and from different states and counties, what counties migrants were coming from, where they were going, and what the aggregate income levels were for in-migrants, out-migrants, and non-migrants in each county. If a county-to-county migration flow for one year had ten or more

households (individual tax returns), then its characteristics were listed in the data. Otherwise, the flow was aggregated with others from similar regions of the county.

To assess the impact migration has had on income in California, we took the basic IRS data and calculated a number of county-specific measures and totals for the period 1995 to 2001. These data figures included impacts of *both* intra-California and interstate migration flows. However, because the data are based on IRS tax returns, the income effects of illegal migrants and U.S. citizens who did not file tax returns could not be measured. For each year, the IRS data have totals of in-migrants, out-migrants, and non-migrants for all individual California counties. From this, total in- and out-migrant income, median in-, out-, and non-migrant median income, net income migration, income effectiveness, and per capita income change due to migration were calculated.

Income effectiveness (E) is a percentage ratio of the net to total amount of aggregate income accruing to in- and out-migrants (Plane 1999; see also Shumway and Otterstrom 2002):

$$E = 100 (Y_N/Y_T)$$

Net income migration (Y_N) is the difference between the aggregate money income of in-migrants (Y_I) and out-migrants (Y_O). Total income migration (Y_T) is the sum of the two factors:

$$Y_N = Y_I - Y_O$$

$$Y_T = Y_I + Y_O$$

Positive income effectiveness (E) and net income migration (Y_N) values both mean that a particular county had a net gain in income from migration. Conversely, negative values of the two measures both mean a net loss. The difference is that net income migration (Y_N) is given in a straight dollar amount, while income effectiveness (E) is a standardized measure that accounts for differences in county population size, so the relative impact of migration on income can be compared among different-sized counties.

We also calculated per capita income changes due to migration (see Plane 1999). The measure not only compares in- and out-migrant incomes as the net income migration and income effectiveness

statistics do, but it also adds in a comparison of the in- and out-migrants with the non-migrants. It therefore has three components, which are added together to get the total per capita income change effect. The first component compares the income of non-migrants with that of the out-migrants. The second compares the income of in-migrants to the non-migrants, and the third compares the income of the in-migrants to the out-migrants. Because the per capita income measure compares migrants' incomes with those of the non-migrants, it is possible for a county to have negative net income migration at the same time that there is positive per capita income change (the converse is also true).

We developed two other measures to highlight the average distance migrants moved in their county-to-county migrations, and to show the geographic spread of the source or destination counties. These are known as the weighted distance of migration (WDM) and the spatial focus. We calculated the WDM by first figuring the distances from the center of each California county to the centers of each of their top ten source (or destination) counties for migrants. Then we weighted the distance values by the number of migrants (IRS exemptions) in each source (or destination) county. The spatial focus was figured by taking the percentage of the migrants who traveled to (or originated in) one of the top ten destination (or origin) counties compared with the total number of out- or in-migrants. These figures were averaged over the six-year period and they included counties outside of California if they were either a top ten source or destination. The WDM and spatial focus measures can therefore show the spatial reach of each county in terms of its largest migration flows, and in so doing it also can help one see the distance of the income flows attached to these migrants.

To better understand the role of relative income levels in migration patterns, we conducted an analysis of poverty categories. Base poverty data for 1995 came from the U.S. Census Bureau. U.S. counties were placed into quintiles based on their poverty rates (Nord 1998). The categories range from very low to very high poverty levels. Counties in the quintile with the least poverty (best off economically) were given a rank of one, those in the second quintile received a rank of two, and so on to the lowest (poorest) quintile, which received a rank of five. In that way, levels of poverty in California counties were figured in relation to the nation as a whole.

To see the relationship between county poverty levels and income migration, we used a weighted rank migration index (WRMI) (Shumway and Otterstrom 2003). This index weights and averages the poverty ranks of the top ten source (or destination) counties for migrants. Most of the time the top ten source or destination counties were all in California, but in some cases, especially with counties such as Los Angeles and San Francisco, counties outside of California were among the top ten. The WRMI can potentially range from one to five; a one indicates that all the top ten source counties were in the wealthiest (or least poor) quintile, while a five indicates that all the top ten source counties for migrants were among the poorest quintile of the country. Most WRMI values fall somewhere in between the extremes of one and five.

We then completed three more steps to help us interpret California's income changes due to migration from 1995 to 2001. First, to avoid anomalies associated with a single year of IRS data, we averaged or totaled each county's income variables from the six individual years. Second, we mapped the income effectiveness, per capita income change, weighted ranked migration index (WRMI), spatial focus, and the weighted distance of migration (WDM) for all of California. Third, in many cases we compared our calculated statistics using metropolitan (metro) and non-metropolitan (nonmetro) groupings (see Figure 1). The resulting data sets and illustrations are used for the upcoming results and discussion.¹

Results and Discussion

We first analyzed how the average per capita median income of in-migrants and out-migrants compared to the income of non-migrants within the state. We included both interstate and intrastate migrants. Table 1 includes these three segments as well as the median income percentages of the migrant populations compared to the non-migrant population. The in-migrant and out-migrant median

¹*Data Limitations:* When studying migration in California using IRS data, there are a few limitations that must be mentioned. One major issue is our inability to assess illegal immigrants' income change and economic impact on the counties of California using the IRS data. The effects of illegal immigration on California are impossible to ignore, yet government data from the IRS does not track undocumented immigrants. Also, the IRS data does not allow pinpointing any county to county flows that were less than ten households in size. Those smaller flows are aggregated. That means that some of the less-populous counties have fewer bilateral county flows identified in the different years.

income values include all in- and out-migrants, whether their origins or destinations were in California or elsewhere. Surprisingly, in all fifty-eight counties, the out-migrant population earned less than the stable non-migrant population. Similarly, in fifty-six of fifty-eight counties, in-migrants had income averages that were lower than the non-migrant population (Calaveras and San Benito counties were the exceptions). This means that on average, in- and out-migrants to and from California counties made less money than the non-migrants in those counties.

In- and out-migrant incomes were generally highest in the larger metropolitan regions, and lowest in the nonmetro counties. San Francisco, San Mateo, Santa Clara, Marin, Contra Costa, and Alameda counties (all in and around the Bay Area) had among the highest out-migrant incomes in all California (see Table 1). On the other hand, the far-flung counties of Imperial, Humboldt, Siskiyou, Tulare, and Butte had the lowest out-migrant incomes. Furthermore, Humboldt, Imperial, Butte, Tulare, Mono, and Fresno counties had the distinction of attracting migrants with the lowest incomes, while the highest-income migrants went to San Benito, San Mateo, Contra Costa, Marin, Placer, and Santa Clara counties (all in northern California).

More telling is the comparison between out-, in-, and non-migrant incomes, where desirable nonmetro and smaller metro areas had the most favorable comparisons. Out-migrants from the populous metropolitan counties of San Francisco, Los Angeles, Santa Clara, San Mateo, and Alameda had the highest average incomes as a percentage of non-migrant median income. All of these counties except San Mateo were among those with the most negative differential with in-migrants' income levels, meaning that out-migrants were much better off than in-migrants. On the other hand, San Benito and Calaveras were the only counties where in-migrant income matched or exceeded non-migrant income (all county out-migrant median incomes were below the non-migrant medians). San Benito and Calaveras as well as the other accessible smaller metro and nonmetro counties of Amador, El Dorado, Placer, Tuolumne, and Nevada counties had the most positive differentials between in-migrant and out-migrant median incomes (see Table 1 and Figure 2). Besides their proximity to the Bay Area and Sacramento, these counties also have natural amenities, which may help explain their

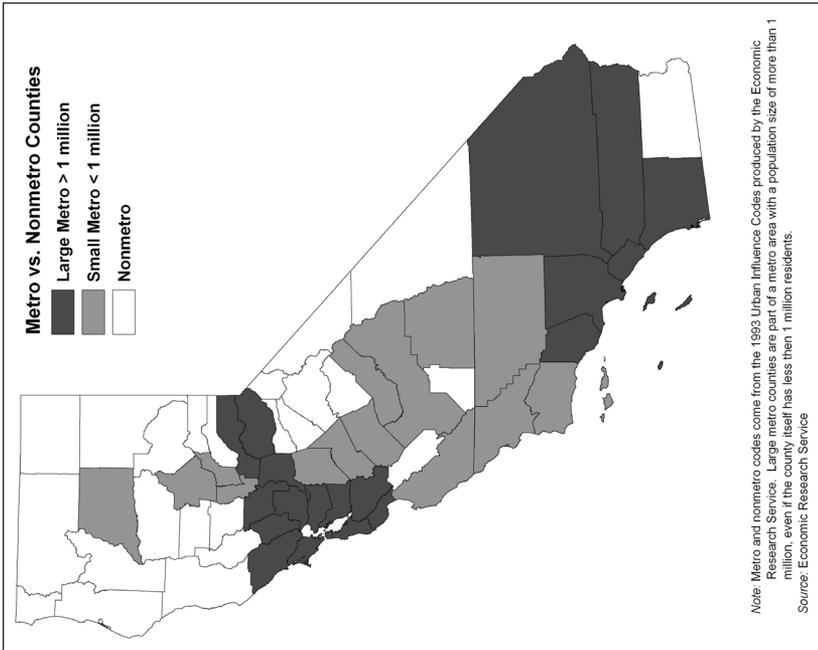


Figure 1.

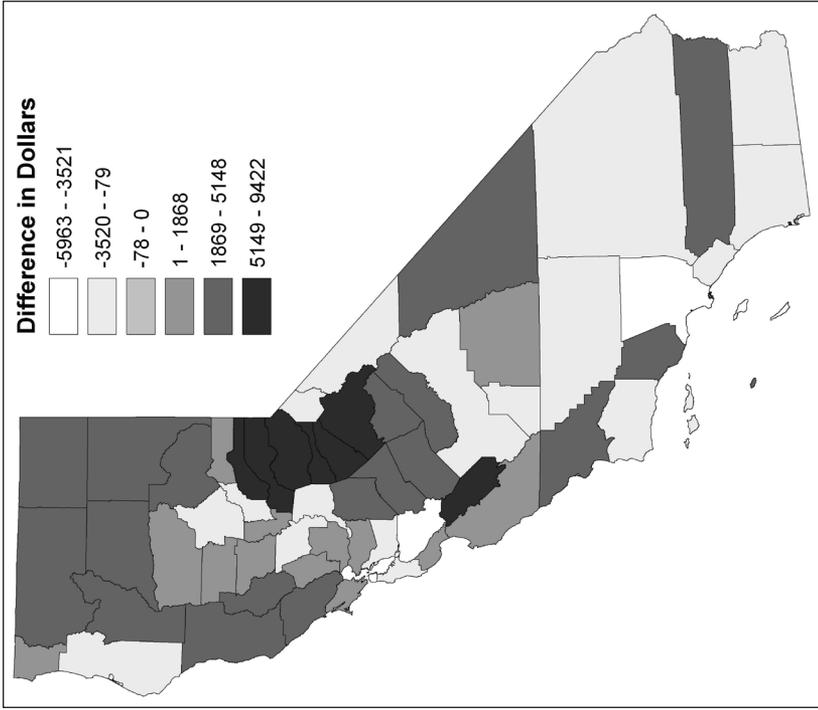


Figure 2.

Table 1: Comparison of Per Capita Median Income Levels of Migrants and Non-migrants for California counties, Averaged for 1995–2001 (in Dollars).

County	Non-migrants	In-migrants	Out-migrants	Diff.	In-migrant (%) of Non-migrant	Out-Migrant (%) of Non-migrant
				Between In- and Out-Income		
Alameda	35,219	27,940	30,236	-2,296	79.33	85.85
Alpine*	25,221	17,268	18,596	-1,328	68.47	73.73
Amador*	29,121	26,926	19,574	7,352	92.46	67.21
Butte	24,511	14,984	15,503	-519	61.13	63.25
Calaveras*	27,734	28,003	19,648	8,355	100.97	70.84
Colusa*	21,569	18,564	16,696	1,868	86.07	77.41
Contra Costa	40,769	32,711	31,371	1,340	80.23	76.95
Del Norte*	24,786	17,593	16,579	1,014	70.98	66.89
El Dorado	34,121	28,070	20,371	7,699	82.27	59.70
Fresno	22,221	16,978	17,102	-124	76.41	76.96
Glenn*	21,954	17,094	16,135	959	77.86	73.49
Humboldt*	23,977	12,921	14,078	-1,157	53.89	58.71
Imperial*	16,750	13,967	14,046	-79	83.39	83.86
Inyo*	26,736	19,765	16,423	3,342	73.93	61.43
Kern	24,634	19,194	19,452	-258	77.92	78.96
Kings*	23,184	17,705	18,760	-1,055	76.37	80.92
Lake*	22,680	21,382	16,893	4,489	94.28	74.48
Lassen*	31,575	24,067	20,050	4,017	76.22	63.50
Los Angeles	26,290	20,002	23,523	-3,521	76.08	89.48
Madera	22,368	19,955	16,826	3,129	89.21	75.22
Marin	41,889	32,571	30,838	1,733	77.76	73.62
Mariposa*	25,286	18,906	16,681	2,225	74.77	65.97
Mendocino*	24,109	18,811	16,554	2,257	78.02	68.66
Merced	22,306	19,606	17,042	2,564	87.90	76.40
Modoc*	22,134	19,522	16,810	2,712	88.20	75.95
Mono*	24,459	16,954	18,058	-1,104	69.32	73.83
Monterey	26,887	22,449	21,542	907	83.49	80.12
Napa	32,359	24,582	23,301	1,281	75.97	72.01
Nevada*	30,435	25,691	20,120	5,571	84.41	66.11
Orange	32,924	26,243	26,604	-361	79.71	80.80
Placer	37,886	31,903	23,528	8,375	84.21	62.10
Plumas*	28,208	23,335	18,187	5,148	82.72	64.48
Riverside	27,578	24,401	20,686	3,715	88.48	75.01
Sacramento	30,774	22,455	24,160	-1,705	72.97	78.51
San Benito*	30,695	33,806	24,384	9,422	110.14	79.44
San Bernardino	28,483	20,479	20,725	-246	71.90	72.76
San Diego	28,470	19,144	20,902	-1,758	67.24	73.42
San Francisco	32,393	27,008	30,908	-3,900	83.38	95.42
San Joaquin	27,776	25,618	20,796	4,822	92.23	74.87
San Luis Obispo	28,499	19,623	17,327	2,296	68.86	60.80
San Mateo	39,923	33,408	34,288	-880	83.68	85.88
Santa Barbara	28,836	18,621	20,251	-1,630	64.58	70.23
Santa Clara	41,652	30,882	36,845	-5,963	74.14	88.46
Santa Cruz	30,196	21,371	21,185	186	70.77	70.16
Shasta	25,381	19,210	16,271	2,939	75.69	64.11
Sierra*	28,789	22,446	22,142	304	77.97	76.91
Siskiyou*	22,349	18,330	14,639	3,691	82.02	65.50

Table 1 *continued*: Comparison of Per Capita Median Income Levels of Migrants and Non-migrants for California counties, Averaged for 1995–2001 (in Dollars).

County	Non-migrants	In-migrants	Out-migrants	Diff.	In-migrant (%) of Non-migrant	Out-Migrant (%) of Non-migrant
				Between In- and Out-Income		
Solano	34,759	26,407	25,355	1,052	75.97	72.95
Sonoma	32,678	24,778	22,262	2,516	75.82	68.12
Stanislaus	26,328	21,715	19,132	2,583	82.48	72.67
Sutter	25,290	19,072	18,293	779	75.41	72.33
Tehama*	22,475	17,563	16,414	1,149	78.14	73.03
Trinity*	23,010	19,226	16,512	2,714	83.55	71.76
Tulare	20,230	16,716	15,288	1,428	82.63	75.57
Tuolumne*	27,006	23,124	17,470	5,654	85.63	64.69
Ventura	32,675	27,239	24,680	2,559	83.36	75.53
Yolo	28,988	17,252	19,546	-2,294	59.51	67.43
Yuba	22,313	17,387	18,708	-1,321	77.92	83.84

* = Nonmetro counties (source: calculated from IRS county to county migration files, 1995–2001 [IRS 2002]).

appeal to people with higher relative incomes (see Shumway and Otterstrom 2001 and Cromartie and Nord 1997).

We examined the in- and out-migrant aggregate incomes for each county by calculating the average net income migration (income being lost or gained due to net migration) for each year. Average net income migration statistics indicate that individual counties had wide-ranging gains and losses in income, but that nonmetro counties often came up the winners. The twenty-four nonmetro counties gained an average of over \$177 million each year (or \$1.06 billion during the six-year period), but together the thirty-four metro counties lost over \$1.1 billion each year due to income migration (Table 2). Overall, California lost some \$5.83 billion due to migration between 1995 and 2001.

Per capita income in nonmetro counties increased over \$969 during the six years due to migration, while per capita income in metro counties increased only \$337 over the same period (see Figure 3). However, within these categories, there were more differences related to geographic locale. The coastal counties of Marin, Monterey, San Luis Obispo, and Santa Barbara, and the Sierra Nevada counties of Alpine, Nevada, Mono, Calaveras, and Placer had the greatest average per capita income gains due to migration. The greatest declines

Table 2. Average Income Effectiveness, In- and Out-migrant Income, Net Income Migration, and Per Capita Income Change Due to Migration for California Counties, 1995–2001.

County	Income Effectiveness (%)	In-Migrant Income (in \$1000)	Out-Migrant Income (in \$1000)	Net Income Migration (in \$1000)	County	Per Capita Income Change Due to Migration (in \$)
Placer	29.40	557,479	289,996	267,482	Marin	701.47
San Benito*	26.71	85,946	51,336	34,610	Alpine*	699.38
Calaveras*	26.15	59,837	34,180	25,657	Nevada*	518.72
Nevada*	25.81	157,531	90,784	66,747	Santa Barbara	468.18
Amador*	24.84	41,312	23,890	17,422	Mono*	453.28
San Luis Obispo	23.72	275,412	166,576	108,836	Calaveras*	449.86
El Dorado	22.20	271,448	171,145	100,303	San Luis Obispo	434.32
Tuolumne*	20.80	58,879	38,461	20,418	Placer	414.16
Riverside	17.81	1,489,148	999,824	489,323	Monterey	404.14
Lake*	16.36	50,857	34,446	16,411	Napa	389.37
Napa	15.96	171,786	122,279	49,508	San Benito*	388.86
Sonoma	15.22	506,271	369,971	136,300	El Dorado	368.52
Shasta	13.46	119,571	87,442	32,129	San Mateo	339.55
Plumas*	12.84	25,316	19,484	5,833	Amador*	337.65
Mendocino*	10.19	60,101	48,523	11,578	Plumas*	284.50
Mariposa*	9.87	18,653	15,239	3,415	Sonoma	282.41
San Joaquin	9.83	413,981	322,068	91,913	Tuolumne*	261.73
Siskiyou*	9.72	32,047	26,258	5,790	Santa Cruz	261.33
Sierra*	9.70	3,448	2,813	635	San Francisco	254.24
Monterey	9.66	417,785	337,864	79,921	Trinity*	223.06
Trinity*	8.60	9,990	8,284	1,706	Siskiyou*	214.63
Butte	8.31	137,219	114,180	23,038	Sierra*	213.09
Santa Barbara	7.67	416,955	350,782	66,173	Lake*	204.32
San Diego	7.64	2,503,704	2,109,995	393,710	Mendocino*	194.60
Marin	7.43	564,836	486,466	78,370	Mariposa*	188.91
Mono*	6.51	17,544	15,343	2,200	San Diego	171.08
Ventura	4.57	794,496	719,226	75,269	Ventura	125.04
Madera	3.72	72,121	66,657	5,464	Inyo*	121.33
Inyo*	3.44	17,692	16,447	1,244	Orange	111.50
Stanislaus	3.37	260,291	230,539	29,752	Riverside	105.96
Contra Costa	3.19	1,482,434	1,384,395	98,039	Shasta	97.01
Tehama*	2.90	30,588	28,589	1,999	Butte	93.57
Alpine*	2.58	2,016	1,647	369	Modoc*	86.52
Santa Cruz	2.26	313,347	306,108	7,238	Humboldt*	81.78
Solano	1.71	412,159	392,186	19,973	Madera	80.65
Yolo	1.46	179,017	168,944	10,073	Lassen*	55.04
Lassen*	0.10	25,594	25,008	585	Glenn*	45.55
Orange	-1.19	2,696,778	2,747,639	-50,861	Del Norte*	24.99
Humboldt*	-1.35	69,650	71,313	-1,663	Fresno	17.55
Merced	-1.35	101,579	100,654	925	Tehama*	13.77
Modoc*	-1.56	6,440	6,666	-226	Colusa*	13.45
Sutter	-2.10	57,163	59,217	-2,054	Tulare	13.18
San Mateo	-2.18	1,470,081	1,586,448	-116,367	Yolo	8.32
Alameda	-2.21	1,954,372	2,047,080	-92,709	Merced	5.73
San Bernardino	-2.57	1,143,559	1,186,967	-43,408	Sutter	-2.37
Sacramento	-2.63	939,972	956,930	-16,958	San Joaquin	-3.34

Table 2 *continued*. Average Income Effectiveness, In- and Out-migrant Income, Net Income Migration, and Per Capita Income Change Due to Migration for California Counties, 1995–2001.

County	Income Effectiveness (%)	In-Migrant Income (in \$1000)	Out-Migrant Income (in \$1000)	Net Income Migration (in \$1000)	County	Per Capita Income Change Due to Migration (in \$)
San Francisco	-2.99	1,672,588	1,801,145	-128,557	Alameda	-3.90
Del Norte*	-3.29	14,871	15,907	-1,036	Imperial*	-5.64
Kings*	-5.41	68,334	76,187	-7,853	Los Angeles	-16.72
Glenn*	-6.75	12,146	13,818	-1,672	Yuba	-22.85
Yuba	-6.90	48,898	55,570	-6,673	Solano	-23.08
Kern	-8.34	289,658	339,482	-49,825	Kings*	-34.12
Fresno	-9.75	272,511	325,760	-53,249	Stanislaus	-41.27
Tulare	-10.58	115,521	142,119	-26,598	Kern	-46.40
Colusa*	-11.22	8,179	10,221	-2,042	Santa Clara	-81.65
Santa Clara	-14.23	2,299,251	3,259,478	-960,227	San Bernardino	-99.77
Imperial*	-18.41	56,086	80,964	-24,879	Contra Costa	-101.55
Los Angeles	-20.06	3,667,382	5,433,204	-1,765,822	Sacramento	-137.75
Metro ^	3.57	28,088,773	29,238,336	-1,149,569		56.20†
Nonmetro ^	7.05	933,057	755,808	177,248		161.65†
All Counties ^	5.01	29,021,830	29,994,144	-972,321		59.715†

* = Nonmetro counties.

^The Metro, Nonmetro, and All Counties lines were averages of all counties in those respective categories.

†Totals normalized by the total number of exemptions for non-migrants in 1998–1999.

(Source: Calculated from IRS county to county migration files, 1995–2001 [IRS 2002.])

in per capita income due to migration were in Sacramento, Contra Costa, San Bernardino, and Santa Clara counties. Other losses occurred in the Central Valley counties and Alameda County in the Bay Area. This emphasizes the greater per capita income benefit that the mountain and coastal counties (both nonmetro and metro) received over the valley and the largest metro counties.

Since per capita income changes from migration consider the differences of income between migrants and non-migrants as well as among the migrants themselves, they can diverge widely from the net income migration statistics. For example, even though Los Angeles County had by far the greatest annual net income loss from migration (\$1.77 billion), it dropped per capita income by only \$16.72 per year. The reason for this small per capita loss was that the large negative average net migration of some 82,927 each year acted to hold per capita incomes up because the out-migrants made less per capita income than the non-migrants. Conversely, Sacramento

had the greatest loss, with over \$137 per capita decline each year from migration, but its net income migration loss was only \$16.96 million each year. Sacramento migrants had a larger relative negative effect on the income of the county as a whole, and its annual positive net migration of some 4,316 people with lower incomes than the non-migrants actually helped pull down per capita incomes.

Income effectiveness figures (the statistic that shows the relative strength of the gain or loss of income due to migration) indicate that nonmetro counties were more positively affected by migration than metro counties: nonmetro counties had an average income effectiveness of 7.05 percent and metro counties had an average of 3.57 percent. When income effectiveness is mapped, the most striking regional pattern in the state was the pocket of high income effectiveness in the central Sierra Nevadas (around the Lake Tahoe/Yosemite area) (Figure 4). Many of the nonmetro counties in northern and eastern California had some of the highest income effectiveness values, further demonstrating the positive impact migration had on nonmetro counties. Spatial patterns of low income effectiveness (places that received the least relative economic benefit from migration) were apparent across the state. In the metropolitan areas, some counties in the Los Angeles and San Francisco regions stand out. Low values were also in the Central and Imperial valleys. These valleys are highly agricultural and have large populations of low-income migrant farm workers. Remote Humboldt, Del Norte, and Modoc counties in the north, with their high reliance on natural resource economies, had lower income effectiveness results as well.

Weighted distance of migration (WDM) and spatial focus statistics help contextualize the income migration analysis (see Table 3 and Figures 5 and 6). For example, San Benito County had the second-highest income effectiveness in the state, after Placer County, as well as high per capita income changes due to migration. The source WDM for San Benito County indicates that the average migrant from one of the top ten origin counties moved only about sixty miles when moving to the county. It follows that San Benito is a nonmetro county within commuting distance of Silicon Valley and the Bay Area. The county's spatial focus statistic also showed that fifty-eight percent of out-migrants went to its top ten migration destinations, while seventy-seven percent of its in-migrants came from the top ten source counties, mostly migrating to and from surrounding counties, such as Santa Clara, Monterey, and Santa Cruz. The rela-

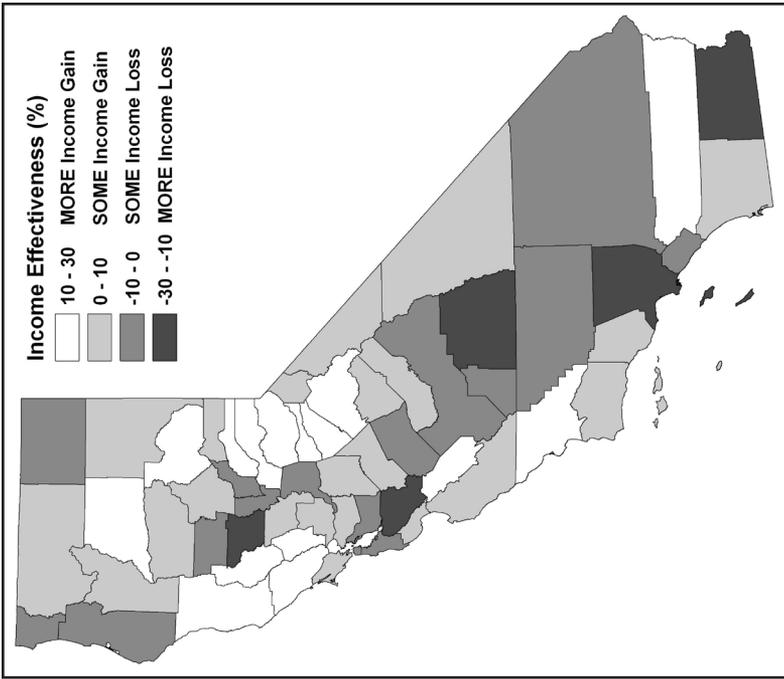


Figure 4.

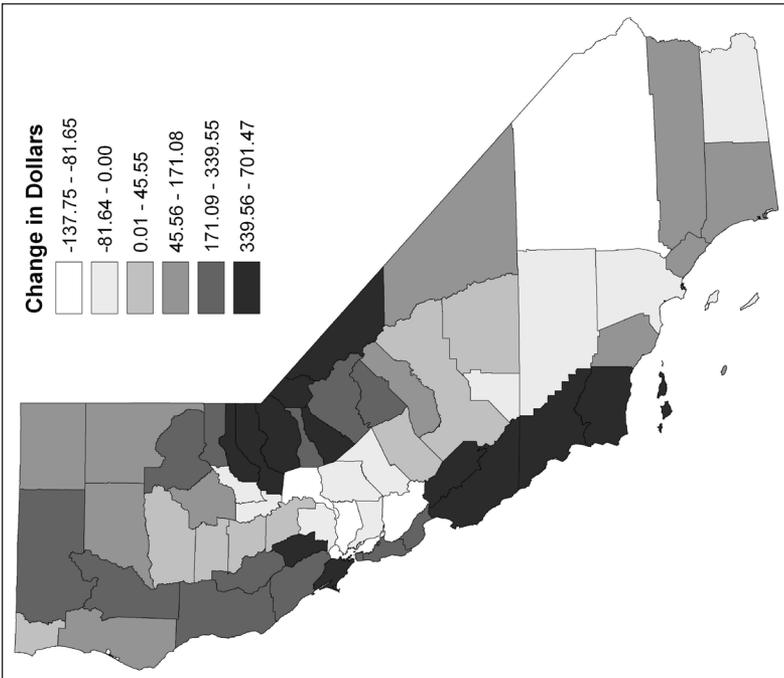


Figure 3.

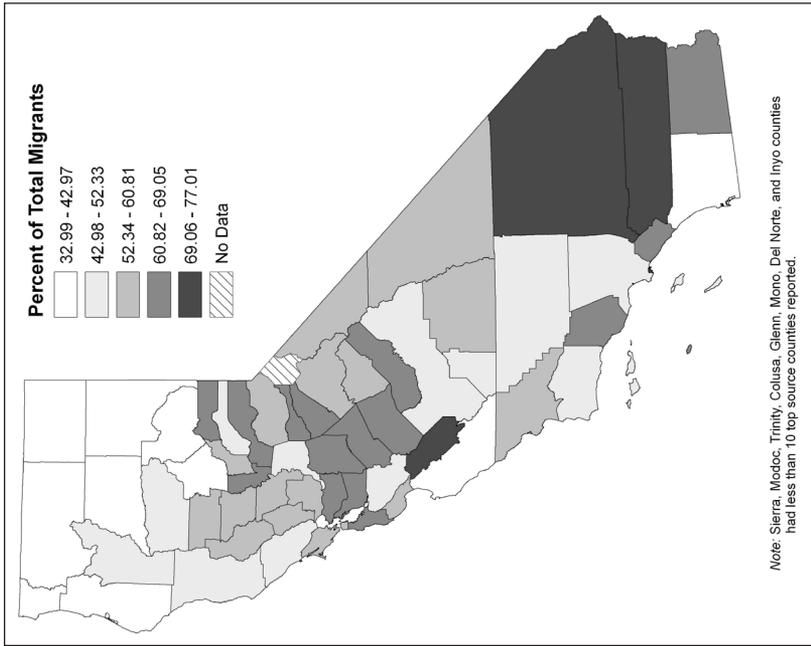


Figure 6.

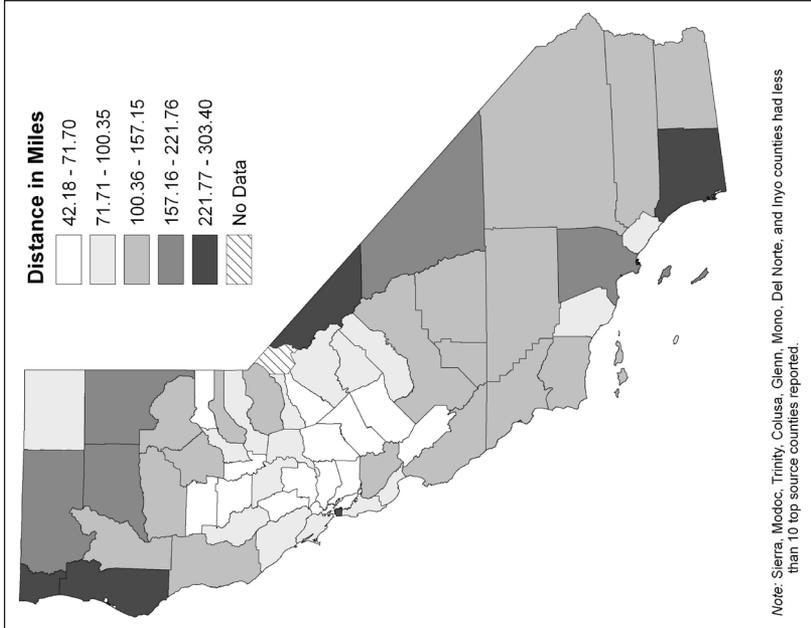


Figure 5.

Table 3. Average Weighted Ranked Migration Index (WRMI), Weighted Distance of Migration (WDM), and Spatial Focus for California Counties, 1995–2001.

County	WRMI Out- migrants	WRMI In- migrants	WDM (miles) Out- migrants	WDM (miles) In- migrants	Focus (%) Out- migrants	Focus (%) In- migrants
Alameda	1.66	1.45	60.51	71.70	59.15	63.47
Alpine*	2.39	No data	15.65	No data	95.67	No data
Amador*	1.78	1.61	54.53	74.96	55.22	61.65
Butte	2.23	2.26	122.73	126.39	36.26	40.18
Calaveras*	2.04	1.91	57.58	65.58	56.71	68.12
Colusa*	3.34	3.18	51.14	57.14	55.74	56.20
Contra Costa	1.41	1.32	71.44	65.85	52.26	65.31
Del Norte*	2.67	2.78	176.07	262.16	39.66	36.69
El Dorado	1.67	1.60	107.04	111.32	51.72	58.49
Fresno	3.21	3.43	117.39	108.04	40.26	48.56
Glenn*	3.32	3.14	56.66	70.23	57.92	58.04
Humboldt*	2.01	2.00	254.16	303.40	28.84	32.99
Imperial*	2.49	2.54	126.41	132.40	70.21	69.05
Inyo*	2.17	2.23	177.34	174.46	44.40	59.28
Kern	2.76	2.82	125.35	109.79	37.97	48.88
Kings*	3.91	3.89	113.38	157.15	44.71	51.60
Lake*	1.68	1.38	93.10	81.57	42.38	59.28
Lassen*	2.29	2.36	140.82	190.25	39.40	41.36
Los Angeles	1.62	1.71	124.99	213.26	56.66	51.17
Madera	4.32	4.02	75.82	84.54	56.96	63.64
Marin	1.35	1.59	72.94	84.87	59.40	60.81
Mariposa*	3.37	3.16	69.56	85.81	50.71	55.80
Mendocino*	2.08	1.76	120.53	135.45	41.22	45.73
Merced	2.86	2.37	78.22	66.49	49.65	64.50
Modoc*	2.66	2.50	99.47	100.35	41.65	40.55
Mono*	1.93	2.20	231.49	299.28	50.46	55.91
Monterey	2.22	2.05	183.85	138.37	30.62	39.73
Napa	1.35	1.23	63.00	62.66	55.80	60.28
Nevada*	1.55	1.34	91.00	125.50	49.49	52.33
Orange	2.36	2.56	111.63	94.49	59.90	65.57
Placer	1.79	1.63	83.52	95.75	57.63	62.67
Plumas*	2.11	1.88	95.52	133.02	46.21	42.97
Riverside	2.12	2.10	107.15	105.78	63.70	75.88
Sacramento	1.70	1.72	91.22	83.23	45.27	48.07
San Benito*	2.22	1.46	71.03	59.88	58.38	77.01
San Bernardino	2.31	2.50	124.64	131.07	63.04	73.64
San Diego	1.93	1.94	266.06	292.69	33.76	35.08
San Francisco	1.29	1.53	134.54	297.75	67.91	55.26
San Joaquin	2.03	1.51	77.45	62.32	52.00	67.61
San Luis Obispo	2.21	2.50	122.11	121.80	45.99	53.91
San Mateo	1.43	1.58	59.67	77.42	65.79	68.90
Santa Barbara	1.85	2.12	131.85	125.10	44.04	46.81
Santa Clara	1.72	1.56	80.37	121.88	48.20	44.86
Santa Cruz	1.59	1.45	87.18	82.13	47.81	57.78
Shasta	2.54	2.35	168.55	178.74	32.49	36.01
Sierra*	2.17	2.28	57.54	42.18	81.22	66.10
Siskiyou*	2.61	2.13	144.05	221.76	40.01	36.55
Solano	1.62	1.40	69.67	57.23	44.76	57.39

Table 3 *continued*. Average Weighted Ranked Migration Index (WRMI), Weighted Distance of Migration (WDM), and Spatial Focus for California Counties, 1995–2001.

County	WRMI Out- migrants	WRMI In- migrants	WDM (miles) Out- migrants	WDM (miles) In- migrants	Focus (%) Out- migrants	Focus (%) In- migrants
Sonoma	1.71	1.47	94.77	94.17	38.35	49.10
Stanislaus	2.82	2.32	69.27	59.81	50.01	64.22
Sutter	3.19	3.27	50.82	52.48	59.42	65.41
Tehama*	2.71	2.57	102.08	106.82	46.11	48.27
Trinity*	2.67	2.74	61.20	129.63	58.50	52.26
Tulare	3.61	3.50	106.32	110.41	47.09	56.52
Tuolumne*	2.33	1.88	89.48	97.17	44.36	55.50
Ventura	2.53	2.61	105.27	81.97	50.20	62.11
Yolo	1.72	1.65	76.31	79.48	55.47	54.98
Yuba	2.64	2.62	77.31	91.10	52.07	53.19

* = Nonmetro counties (source: calculated from IRS county to county migration files, 1995–2001 [IRS 2002]).

tive location of San Benito allows it to have the best of both worlds that many migrants look for: city close, yet country quiet.

The WDM figures highlight counties with more local migration and those where movers traveled longer distances. What was the geographic migration pattern for Los Angeles County's large net migration income loss and low income effectiveness values? The data show that Los Angeles' out-migrants were moving much shorter distances than its in-migrants (125 miles versus 213). This suggests urban spillover from Los Angeles County (see Frey 1995), and in this case, income loss to neighboring counties. In-migrants to San Francisco also traveled quite far in their moves, compared with out-migrants, but both in- and out-migrants of San Diego County traveled long distances in their moves. This is evidence that the attractive reach of these three metropolitan centers extended to not only neighboring counties, but to more distant regions as well. Additionally, the in-migration distances of these counties rivaled those of the more remote northern counties of Humboldt, Del Norte, and Siskiyou. In-migration distances to less-important metro and less-remote nonmetro counties were generally much less than in San Diego, San Francisco, and Los Angeles counties.

Humboldt County had the lowest spatial focus value for the source of in-migrants of about thirty-three percent (one-third of the mov-

ers came from one of the top ten source counties for migrants) (see Figure 6). Other remote northern counties of Shasta, Siskiyou, and Del Norte also had low spatial focus values, as did metro San Diego. This means that these counties were attracting migrants from many counties across the state and other states, and not predominantly from a few counties. San Benito, Riverside, San Bernardino, Imperial, San Mateo, Calaveras, and San Joaquin counties all had spatial focus percentages over sixty-seven, which means that at least two-thirds of the in-migrants to those counties came from their top ten source counties. Therefore, these counties had more focused regional in-migration streams. In summary, on average, out-migrants from California counties moved shorter distances (smaller WDM numbers) but to a greater variety of places (lower spatial focus values) than in-migrants who had larger WDM numbers and higher levels of spatial focus (more concentrated source origins).

We next explored the relationship between income migration and poverty. The poverty type of each county showed similarities with the map of income effectiveness values (see Figures 4 and 7). Very high poverty areas were in the Central Valley counties and in Imperial County. Low poverty counties included the Bay Area and the central Sierra (Lake Tahoe/Yosemite) regions. While the Bay Area and Los Angeles region had many of the lowest income-effectiveness values, the actual counties of San Francisco and Los Angeles had moderate and low poverty values respectively. Orange and Ventura counties had lower poverty rates than Los Angeles County, showing the better economic conditions in the suburbs compared with the core metropolitan area. Additionally, although the Bay Area had negative income effects from migration, its poverty levels were still low.

The weighted rank migration index (WRMI) shows the average poverty level of migrant source and destination counties. After mapping average poverty levels of the top-ten source and destination counties (see Figures 8 and 9), we determined that in general, the counties with lower poverty levels received migrants from low-poverty counties, and the migrants leaving those counties moved to low-poverty counties as well. Most counties with high poverty levels were in the Central Valley (plus Imperial County) and in the southern Sierra Nevada. Some counties with lower levels of poverty in these regions (i.e., Mariposa and Kings counties) still faced the same regional migration patterns despite having better economic conditions than

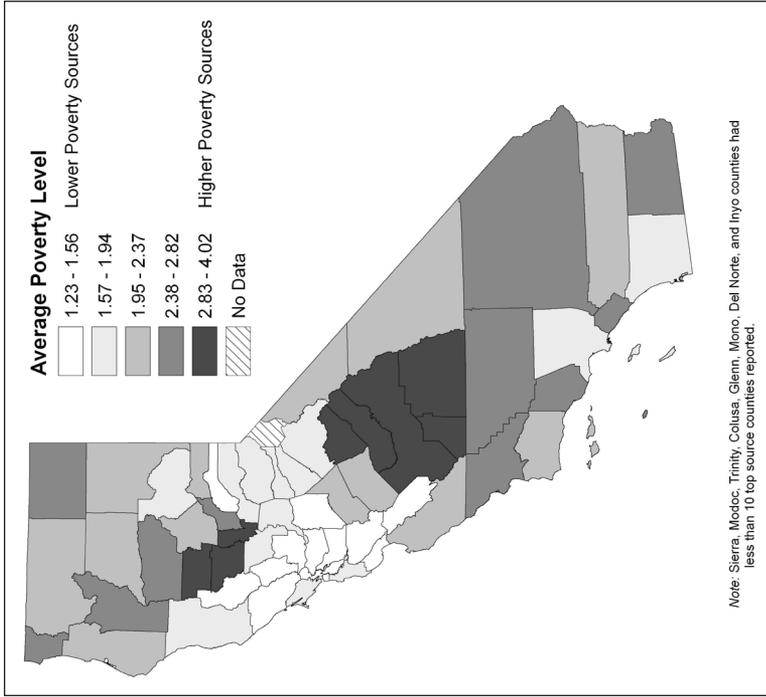


Figure 8.

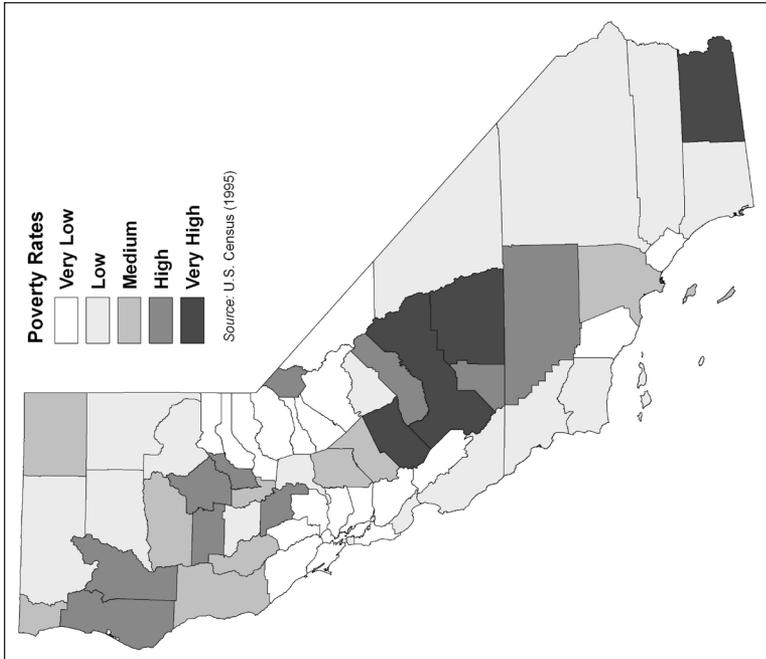


Figure 7.

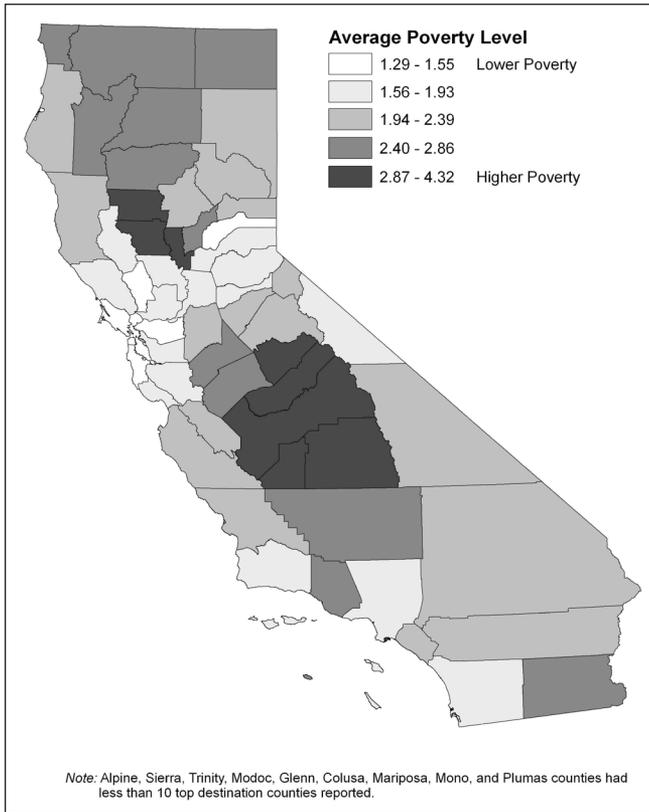


Figure 9.

These results mirror Nord's (1998) findings for migration among counties across the nation from 1985 to 1990. That is, migration tends to reinforce existing patterns of poverty and wealth.

By combining the income and poverty data sets, we calculated the total income migration statistics by poverty type and metro/non-metro status (see Tables 4 and 5). For the metro category it was the "Low" poverty counties and not the "Very Low" poverty counties that garnered income due to migration. All other groups of metro counties lost income due to migration. The "Low" poverty counties included Monterey, Riverside, Sacramento, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Santa Cruz, and Shasta counties, and gained some \$5.93 billion over the six years due to net income migration. Los Angeles County was in the "Medium"

their neighbors. Not surprisingly, the Central Valley had generally low income-effectiveness levels and either losses or small per capita income gains from migration. In contrast, the counties with lower levels of poverty in the San Francisco Bay Area and in the central Sierra Nevada area showed strong migration flows to and from lower poverty counties.

Table 4. Total Aggregate Net Income Migration, and Income of In- and Out-Migrants by Poverty Rate, for Metro California Counties, 1995–2001.

Poverty Rate >>	Very Low	Low	Medium	High	Very High
In-Migrant Aggregate Income (in \$1000)	79,088,338	55,752,239	26,392,899	4,361,472	2,937,663
Out-Migrant Aggregate Income (in \$1000)	81,457,853	49,821,795	36,270,162	4,469,002	3,411,192
Net Income Migration (in \$1000)	-2,369,515	5,930,444	-9,877,263	-107,530	-473,529
Total 2000 Population	10,011,211	9,535,534	10,608,863	1,216,804	1,377,982
N = 34	12	10	4	5	3

(Source: calculated from IRS county to county migration files, 1995–2001 [IRS 2002].)

Table 5. Total Aggregate Net Income Migration, and Income of In- and Out-Migrants by Poverty Rate, for Nonmetro California Counties, 1995–2001.

Poverty Rate >>	Very Low	Low	Medium	High	Very High
In-Migrant Aggregate Income (in \$1000)	2,546,982	764,884	977,141	972,812	336,514
Out-Migrant Aggregate Income (in \$1000)	1,540,844	675,938	804,785	1,027,494	485,785
Net Income Migration (in \$1000)	1,006,138	88,946	172,356	-54,682	-149,271
Total 2000 Population	291,830	152,832	237,569	296,662	142,361
N = 24	7	6	5	5	1

(Source: calculated from IRS county to county migration files, 1995–2001 [IRS 2002].)

poverty group, which greatly affected that category's net income migration loss of nearly \$9.88 billion.

On the other hand, the nonmetro counties fared better with only the five “High” and one “Very High” poverty counties losing income to out-migration. Additionally, the total net income migration of over \$1 billion for “Very Low” poverty nonmetro counties (Amador, Calaveras, Mono, Nevada, San Benito, Sierra, and Tuolumne counties), was the largest (most positive) in comparison with every other nonmetro and all metro county grouping besides the “Low” poverty

category. In sum, the relationship between net income migration and poverty level was apparent but not exact. “Low” poverty metro counties and “Very Low” poverty nonmetro counties gained the most, while the remaining groups of metro counties and two poorest nonmetro groups lost money through migration.

Conclusion

Around the turn of the millennium, California’s income migration patterns varied greatly around the state. From 1995 to 2001 California experienced overall net losses in income due to migration, but this general statistic does not give a complete picture. Los Angeles County lost the largest share of migration-related income, while the rest of the state generally fared better. Nonmetro counties, especially those in high-amenity areas, made significant economic gains, while metro counties, not including Los Angeles, also showed total net income gains. However, a number of other metropolitan counties such as Orange, San Francisco, and Sacramento lost income during the period.

Both income effectiveness measures and poverty analysis using our weighted rank migration index (WRMI) illustrated that California faced the issue of uneven income benefits from migration during our study period. Weighted Distance of Migration (WDM) and spatial focus statistics also helped summarize the geography of the migration flows. Nonmetro and smaller metro counties in accessible, high natural-amenity areas (especially the coast and the central Sierra Nevadas) had higher income-effectiveness levels and greater per capita income gains due to migration than other parts of the state. Many large metropolitan counties, such as Los Angeles, had low income-effectiveness and large net migration income losses, losing residents with higher incomes than the new in-migrants. Areas that were heavily based on agriculture were also negatively affected by income migration, especially in the Central Valley and Imperial County.

Migration also reinforced existing patterns of poverty. Migrants from counties with higher poverty rates were more likely to migrate to other high-poverty counties, while movers from better-off counties often moved to other counties with low poverty rates. The Central Valley showed particularly strong patterns of migration to and from high poverty counties, while counties around the Bay Area generally

migrated to and from low poverty counties. The nonmetro counties with “Very Low” poverty rates and the metro counties with “Low” poverty rates gained the most from income migration, while other poverty classes of both metro and nonmetro counties either had significantly smaller income gains or losses in income.

Although we have moved into the middle of a new decade, the importance of the questions analyzed here has not lessened. Continuing income migration in this decade may further strain some of the largest counties in the state, which are at the same time grappling to accommodate the large number of international migrants, many of whom have lower incomes, who continue to find their home in the state. The state of California has attracted the rich and the poor for over 155 years. As the state’s economic picture continues to shift, so will thousands of its people, taking their talents *and* their money with them. Will they find their new home in the Golden State or somewhere else?

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