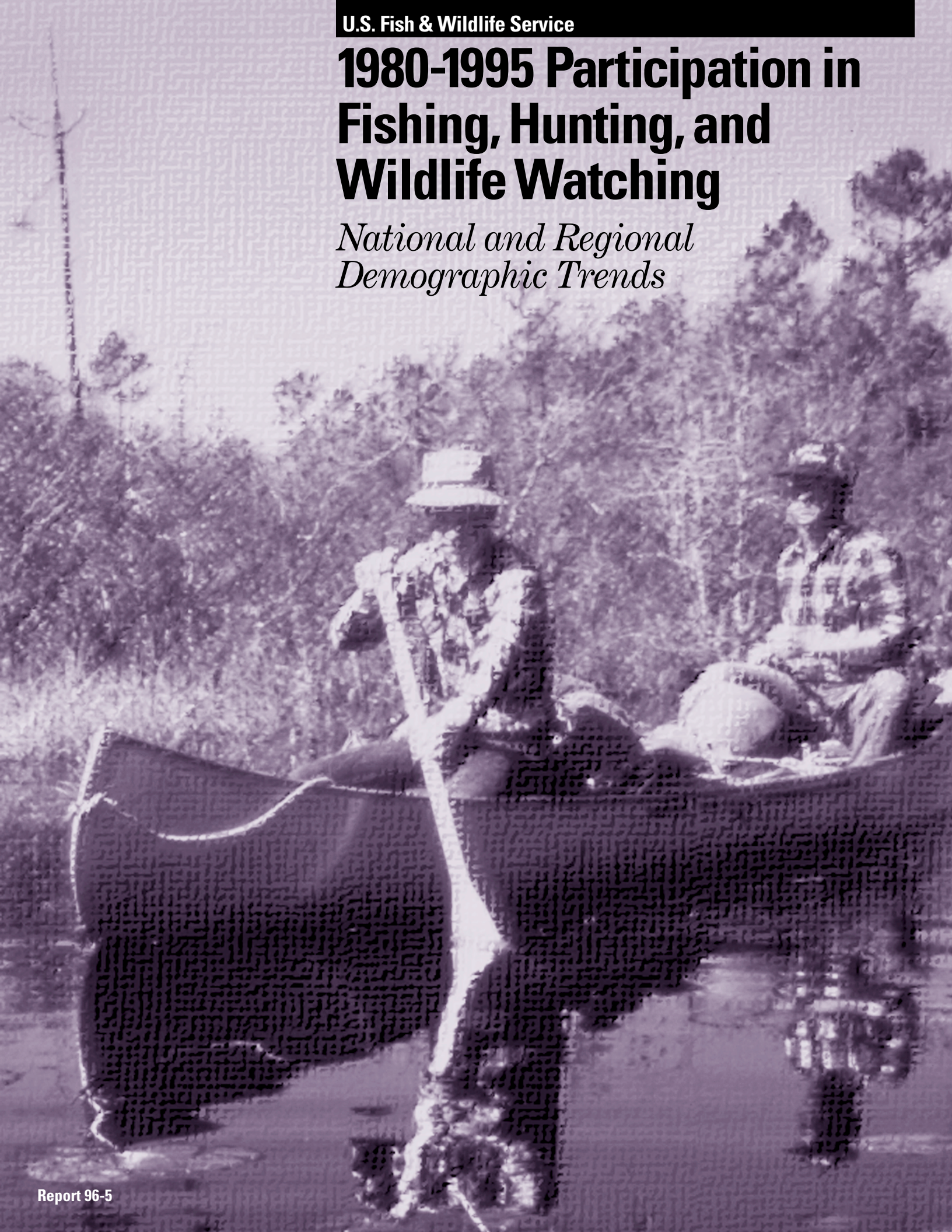
U.S. Fish & Wildlife Service

1980-1995 Participation in Fishing, Hunting, and Wildlife Watching

National and Regional Demographic Trends



Report 96-5

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September 1999

Richard Aiken
Division of Federal Aid
U.S. Fish and Wildlife Service
Washington, D.C.

Division of Federal Aid
U.S. Fish and Wildlife Service
Washington, D.C. 20240
Director, Jamie Clark
Chief, Division of Federal Aid, Bob Lange
http://www.fws.gov/r9fedaid/

This report is intended to complement the National and State reports from the 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. The conclusions are the author's and do not represent official positions of the U.S. Fish and Wildlife Service.

The author thanks Sylvia Cabrera and Genevieve Pullis for reviewing earlier drafts of this report.

Front Cover — USFWS photo: Steve Masowski

Contents

Introduction

Hunting, fishing, and wildlife watching are enjoyed by millions of Americans every year, and have been the subjects of much discussion and many studies. In general these studies concentrate on one area of the country, one type of activity, and one year or less of activity. Analyzing wildlife-related recreation nationally as well as regionally, covering all types of wildlife-associated recreation, and having a longer time period than a year are undertaken in this research.

The body of this report provides information on Americans' participation in angling, hunting, and wildlife watching for 1980, 1985, 1990, and 1995. Information for 1991 and 1996 is in Appendix II. In addition to quantifying the changes in the number of participants, the participation of demographic groups in hunting, fishing, and wildlife watching will be investigated. Demographic variables hypothesized to be of particular relevance to wildlife-related recreation are gender, urban/rural residency, age, race, and household income. The source of the information is the U.S. Fish and Wildlife Service's series of National Surveys of Fishing, Hunting, and Wildlife-Associated Recreation (FHWAR). See Appendix I for background on the FHWAR Survey.

Two approaches will be used in this report. The trends in participation by region of the country and demographic group will be presented not with actual participation estimates but with *indices of change*. An index of change for a series of numbers sets the first number to 1.00 and presents the following numbers relative to this base number. Proportional changes are thereby easily discerned by scanning the indices of change, simplifying comparisons of change among the wildlife-related recreation activities. Figures 1 and 2 illustrate indices of change.

Figure 1. Population Indices of Change 1980-1995

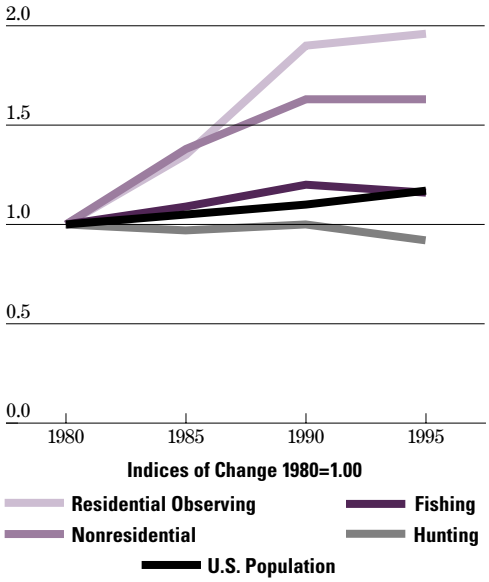
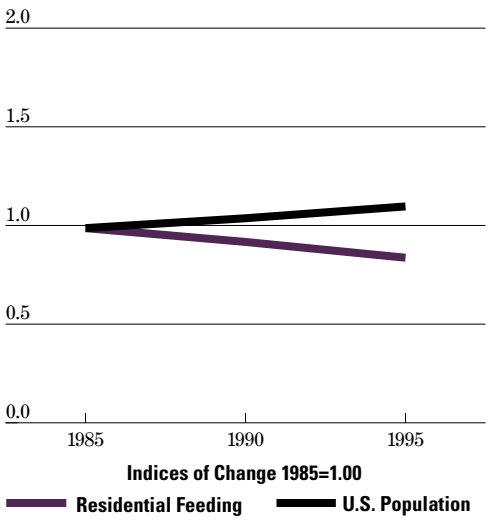


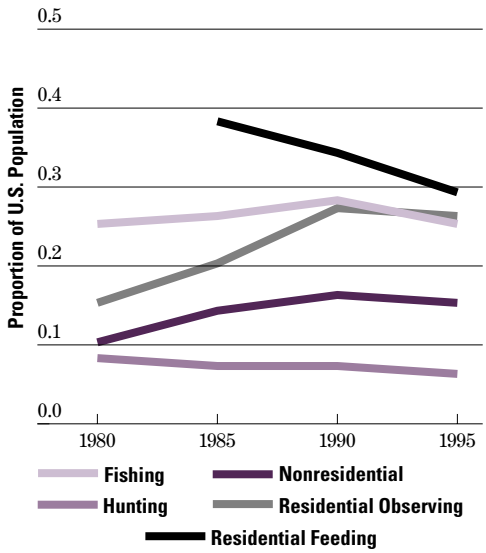
Figure 2. Population Index of Change 1985-1995



The residential feeding index of change could not be included in Figure 1 because residential feeding data do not exist for 1980.

The second approach is the utilization of *participation rates*. Participation rates are the proportion of the total number of people in a given group, e.g., 18-24 year olds, who participate in a given activity, e.g., hunting. A participation rate of .09 for 18-24-year-old hunters means that 9 percent of all 18-24 year olds hunt. The advantage of analyzing participation rates is they hold constant any changes in the base population of a demographic group. A change in the number of hunters, anglers, or wildlife watchers results when there is a change in the level of interest and concomitant recreational activity for a constant number of people, or when there is the same level of interest and concomitant activity for a changing number of people. Examination of participation rates is useful because it holds the number of possible participants constant and presents the change in the level of interest. Figure 3 illustrates participation rates.

Figure 3. Wildlife-Associated Recreation Participation Rates 1980-1995



It is important to note that these Surveys measure the activity of every fifth year only. The intervening years' activity was not surveyed. If the Survey year is unusual for economic or weather or other reasons, these trend data are not accurate indicators of the trend in wildlife-associated recreation.

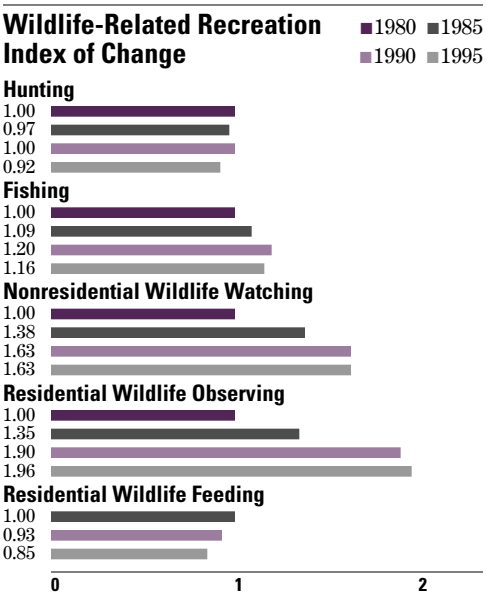
The population studied here is Americans 6 years old and older, unless otherwise noted. Data are collected primarily for Americans 16 years old and older in the FHWAR Survey, but the wildlife-associated recreation activities which 6-15 year-old children choose are also identified. Including data on children 6-15 years old gives insight into the behavior of the people who are being introduced to wildlife-associated recreation.

Highlights

National

Between 1980 and 1995 the number of Americans who hunted and/or fished in the U.S. increased 12 percent, with the number of anglers increasing 16 percent and the number of hunters decreasing 8 percent. Fishing has increased at nearly the same rate as overall population growth (17 percent). Hunting's 8 percent decline occurred the first half of the 1990's after a constant level of hunting participation throughout the 1980's.

Wildlife watching (feeding, observing, or photographing wildlife) while on trips at least one mile from home increased 63 percent in the same time period. The feeding of wildlife around the home, the single largest wildlife-watching activity when measured by the number of participants, declined 15 percent from 1985 to 1995 (comparable data are not available for 1980). The number of residential wildlife observers has nearly doubled from 1980 to 1995.



Regional

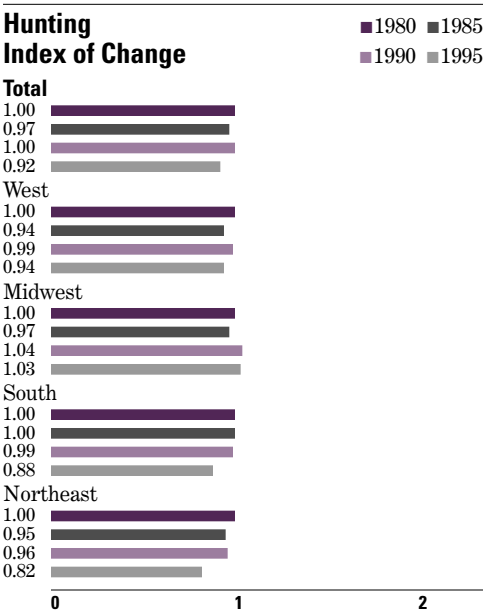
From 1980 to 1995 the Midwest (the East North Central states — Wisconsin, Indiana, Illinois, Michigan, and Ohio — and the West North Central states — Kansas, Iowa, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota) experienced a 3 percent increase in the number of residents who hunted. See Figure 4 for a map showing the regional layout. The Northeast (the New England states — Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont — and the Middle Atlantic states — New Jersey, New York, and Pennsylvania) had the largest percentage decline, 18 percent from 1980 to 1995.

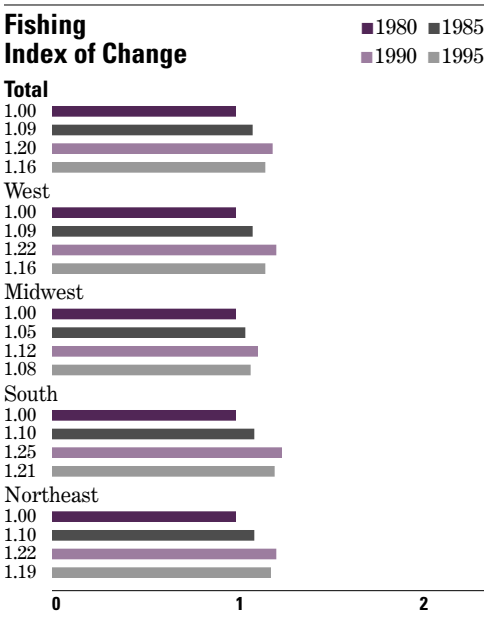
The number of residents of the South (the West South Central states — Texas, Oklahoma, Arkansas and Louisiana, the East South Central states — Alabama, Mississippi, Tennessee, and Kentucky, and the South Atlantic states — Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia) provided the biggest increase in fishing in the United States, 21 percent. No region of the country had a decline in the number of resident anglers.

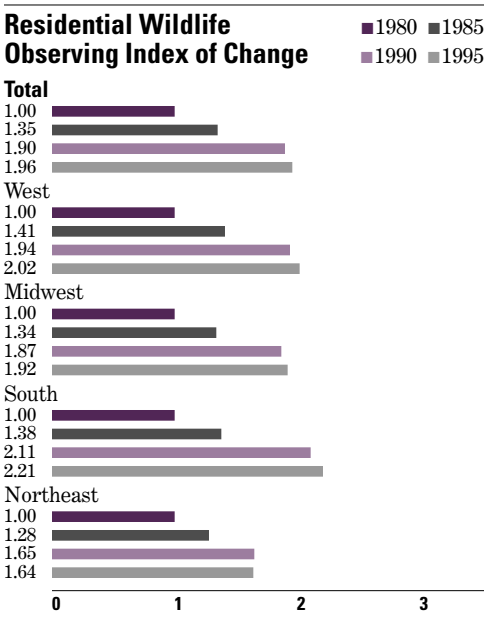
The South had the biggest increase in the number of residents who went on trips for the primary purpose of feeding, photographing, or observing wildlife, 81 percent. As with fishing, no region of the country had a decline in the number of nonresidential wildlife-watching participants.

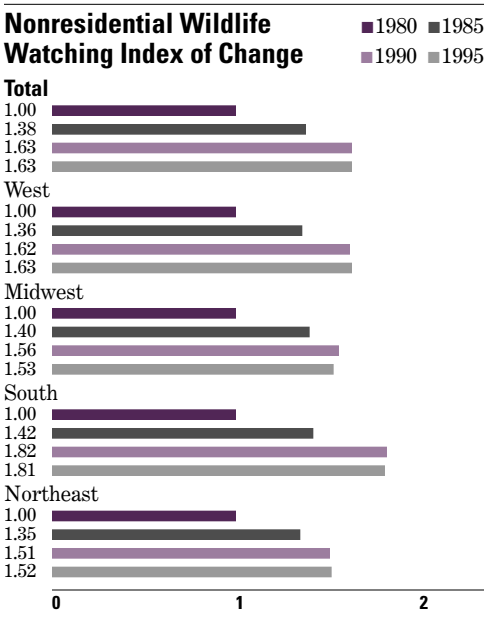
All regions saw increases in the number of people who closely observed or tried to identify wildlife around their home. The South had the largest increase, with a 121 percent increase in the number of participants from 1980 to 1995. The Northeast had the smallest increase, 64 percent.

Although all regions had declines in the number of persons feeding wildlife around their homes, the South had the smallest decrease, with a 10 percent drop from 1985 to 1995. The Northeast Region had the largest decrease in the percentage of residents feeding wildlife around their homes, with a 25 percent drop.




Fishing
Index of Change
1980 1985
1990 1995
Total
1.00
1.09
1.20
1.16
West
1.00
1.09
1.22
1.16
Midwest
1.00
1.05
1.12
1.08
South
1.00
1.10
1.25
1.21
Northeast
1.00
1.10
1.22
1.19
0
1
2


Residential Wildlife
Observing Index of Change
1980 1985
1990 1995
Total
1.00
1.35
1.90
1.96
West
1.00
1.41
1.94
2.02
Midwest
1.00
1.34
1.87
1.92
South
1.00
1.38
2.11
2.21
Northeast
1.00
1.28
1.65
1.64
0
1
2
3


Nonresidential Wildlife
Watching Index of Change
1980 1985
1990 1995
Total
1.00
1.38
1.63
1.63
West
1.00
1.36
1.62
1.63
Midwest
1.00
1.40
1.56
1.53
South
1.00
1.42
1.82
1.81
Northeast
1.00
1.35
1.51
1.52
0
1
2

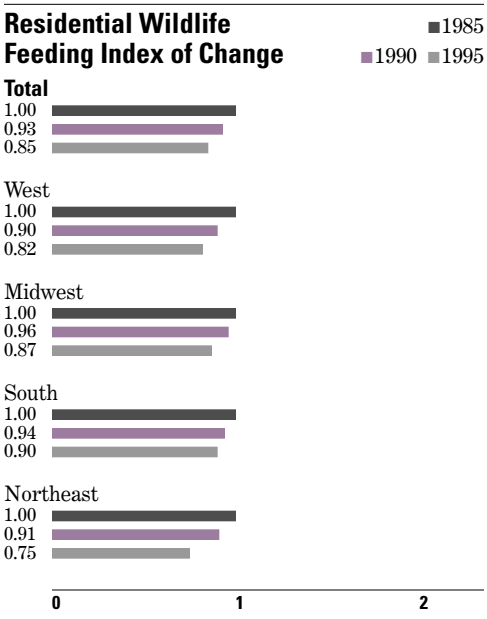
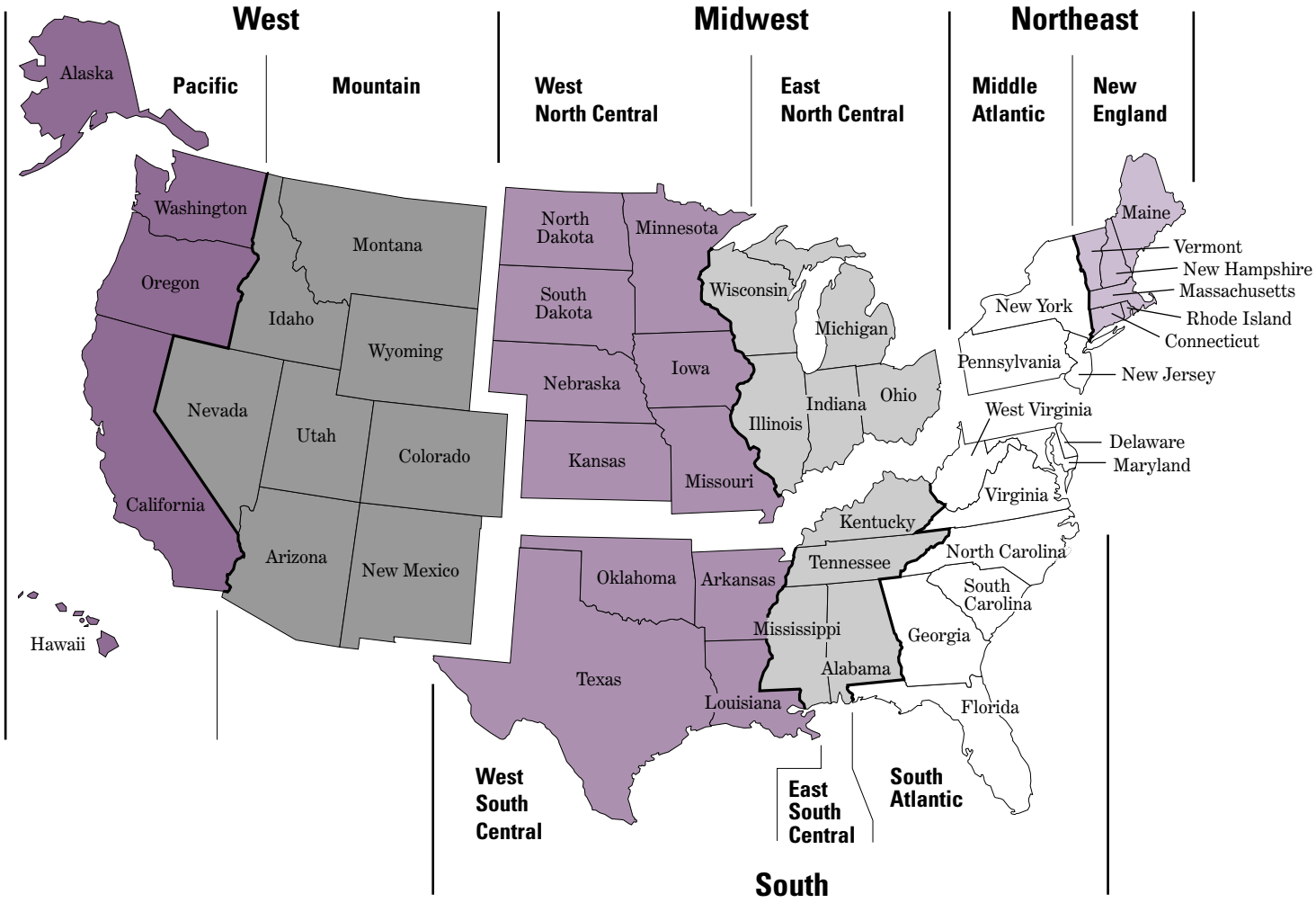

Residential Wildlife
Feeding Index of Change
1985
1990 1995
Total
1.00
0.93
0.85
West
1.00
0.90
0.82
Midwest
1.00
0.96
0.87
South
1.00
0.94
0.90
Northeast
1.00
0.91
0.75
0
1
2

Figure 4. Map of U.S. Showing Bureau of Census Regions



Hunting Indices of Change

The number of Americans who hunted was stable from 1980 to 1990 and fell 8 percent from 1990 to 1995.[1] From 1980 to 1995, the Midwest had a slight increase, hunting by residents of the West decreased 6 percent, the South had a decrease of 12 percent, and the Northeast saw the largest decrease of 18 percent.

The number of males hunting has declined 9 percent from 1980 to 1995, while females have increased their hunting numbers. The Midwest Region males have maintained their hunting numbers and the number of females hunting has increased 55 percent. All other regions have seen decreases in the number of males and females who hunt.

The urban and rural populations[2] have maintained similar patterns of hunting participation, with stable numbers of hunters from both backgrounds from 1980 to 1990 and drop-offs from 1990 to 1995. The number of urbanites who hunted in 1995 was 90 percent of what it was in 1980, while the number of ruralites who hunted in 1995 was 94 percent of 1980's number. The only region that saw an increase in the number of hunters according to their urban/rural designation was the Midwest's rural population. All other regions' rural/urban areas saw decreases in the number of hunters.

The age groups that increased their numbers of hunters were the 35-54 year olds and the 65 year olds and older. All other age groups decreased their contributions to the total number of hunters, with the number of 6-11 year olds and 18-24 year olds dropping approximately 30 percent.

The number of whites who hunted was stable from 1980 to 1990, then dropped 9 percent from 1990 to 1995. The Midwest saw a slight increase and the other regions experienced decreases of 10 percent to 19 percent in white participation. The number of blacks who hunted dropped steadily from 1980 to 1995. Other races' participants more than doubled in number, with all regions experiencing increases of 82 percent to more than triple the number of hunters in 1980. It should be kept in mind that these dramatic percentage increases are due to small additions to a relatively small number of participants in 1980.

The number of hunters from households below the median national income decreased 16 percent from 1980 to 1995. This pattern was followed in the West, South, and Northeast, with the Midwest maintaining the same number of hunters with below median household income throughout the time period. The number of hunters from households above the median national income decreased 3 percent. The West and the Midwest had slight increases in the number of hunters with above median household income, while the Northeast had a 16 percent decrease.

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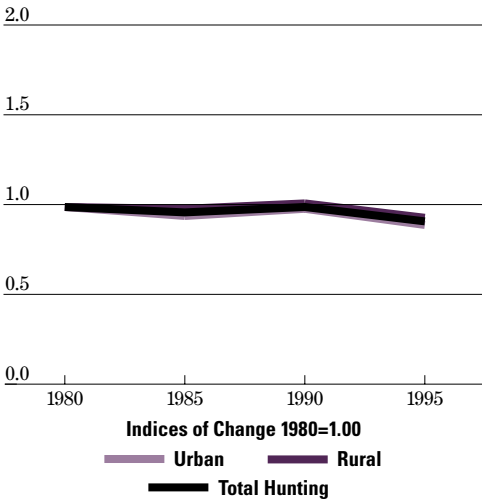
[1]The 1990-1995 hunting trend presented here does not match the 1991-1996 trend presented in Appendix II. The 1991-1996 trend for hunting was a one percent drop in the number of hunters (this drop is not statistically significant at the 95 percent confidence level). The likely reasons for the difference in trend estimates are (1) 6-15 year olds are included in the 1990-1995 analysis and (2) 1990-1995 and 1991-1996 are different years with different state hunting regulations, weather conditions, economic contexts, etc. These reasons also apply to the difference in trend estimates for nonresidential wildlife watching and residential observing found in Appendix II and the body of this report.

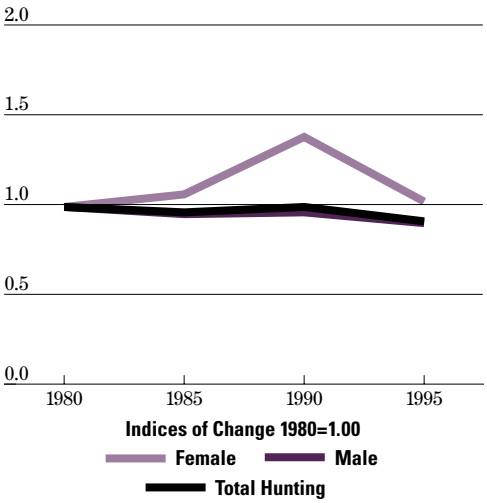
[2]Respondents to the FHWAR survey were designated by the Bureau of the Census as living in urban, rural/farm, or rural/nonfarm areas. For the purpose of this report rural/farm and rural/nonfarm respondents were combined into a "rural" group.

Hunting Indices of Change

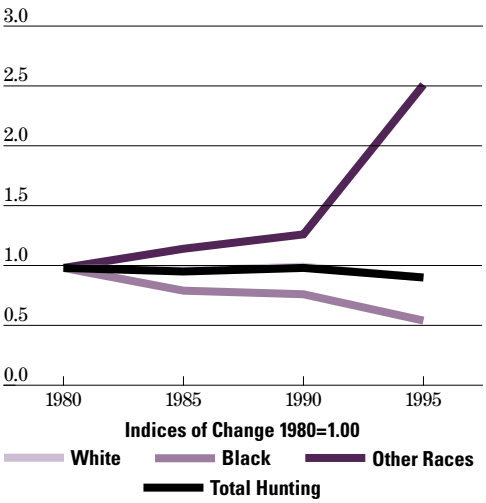
Urban/Rural



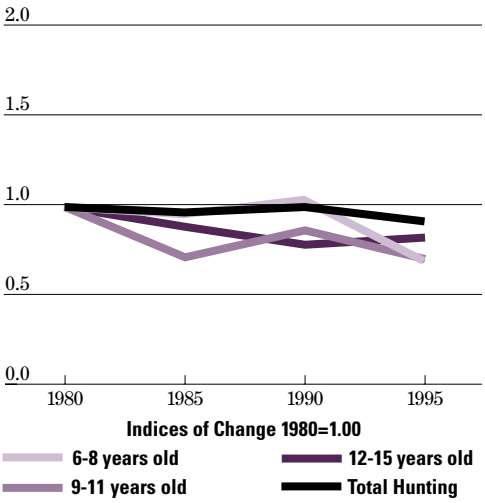
Male/Female



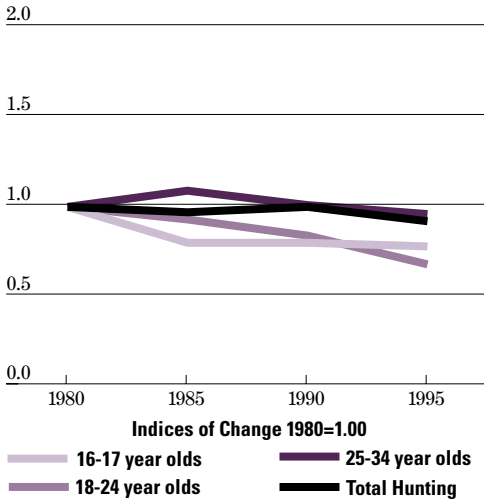
Race



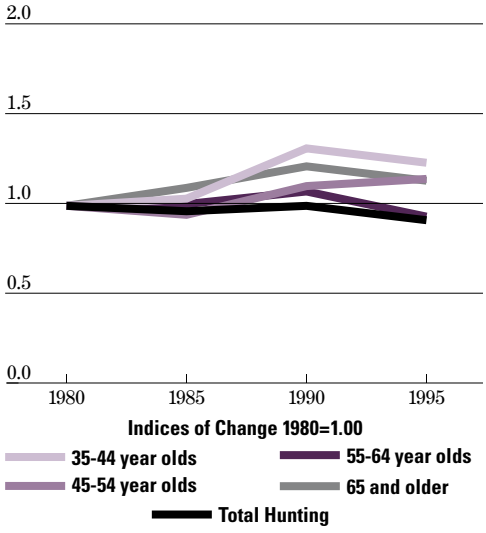
6-15 Year Olds



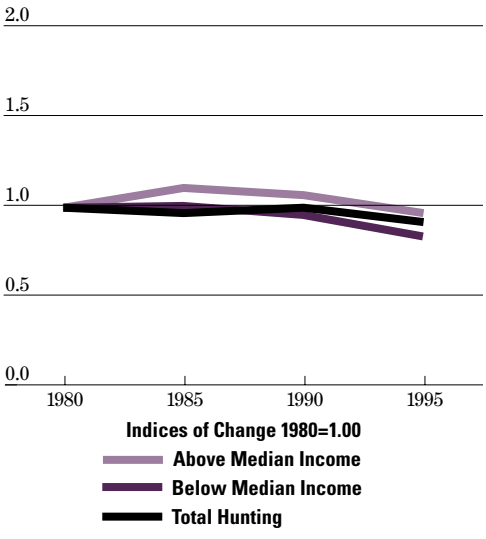
16-34 Year Olds



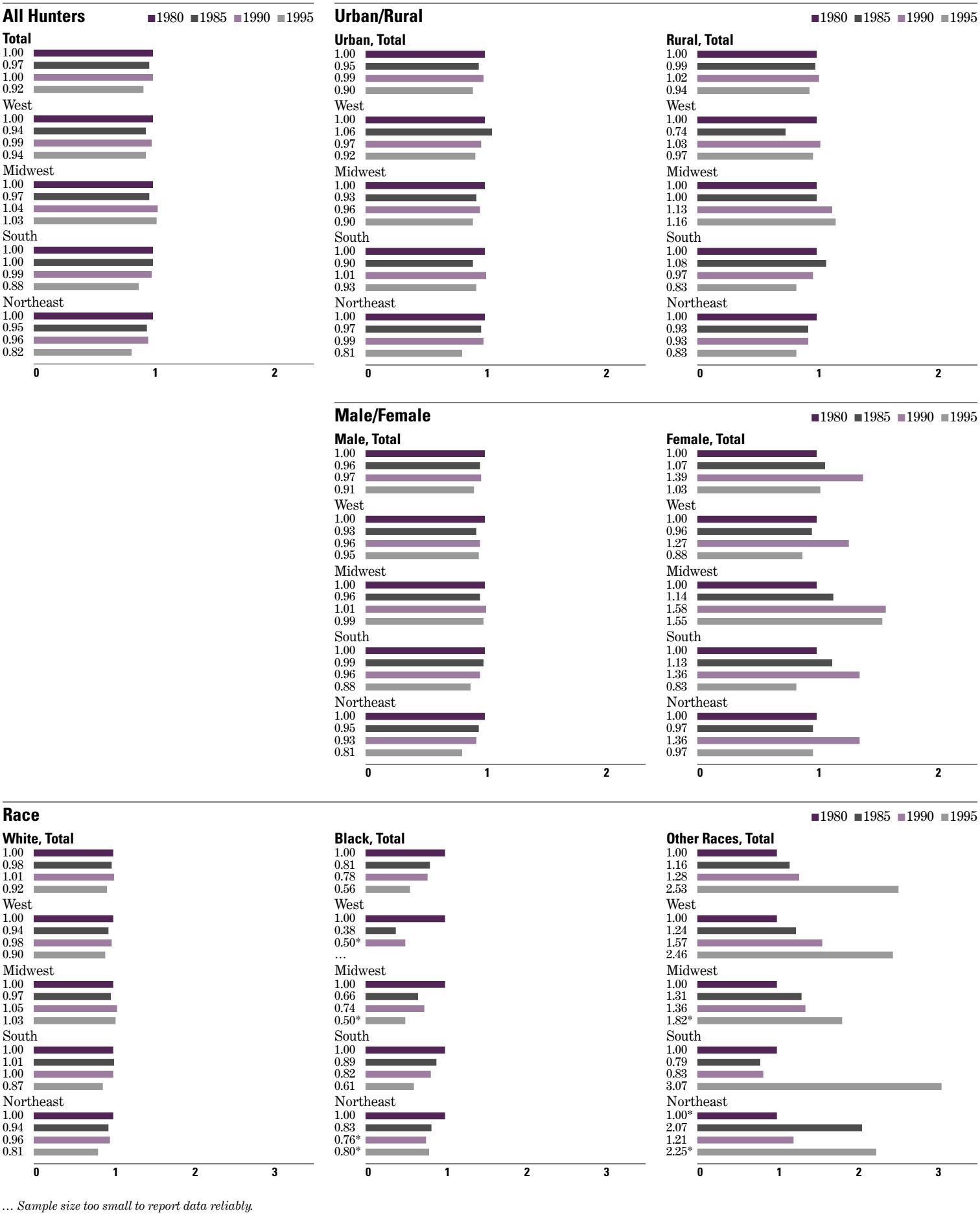
35 Year Olds and Older



Median Income



Hunting Indices of Change, by Region

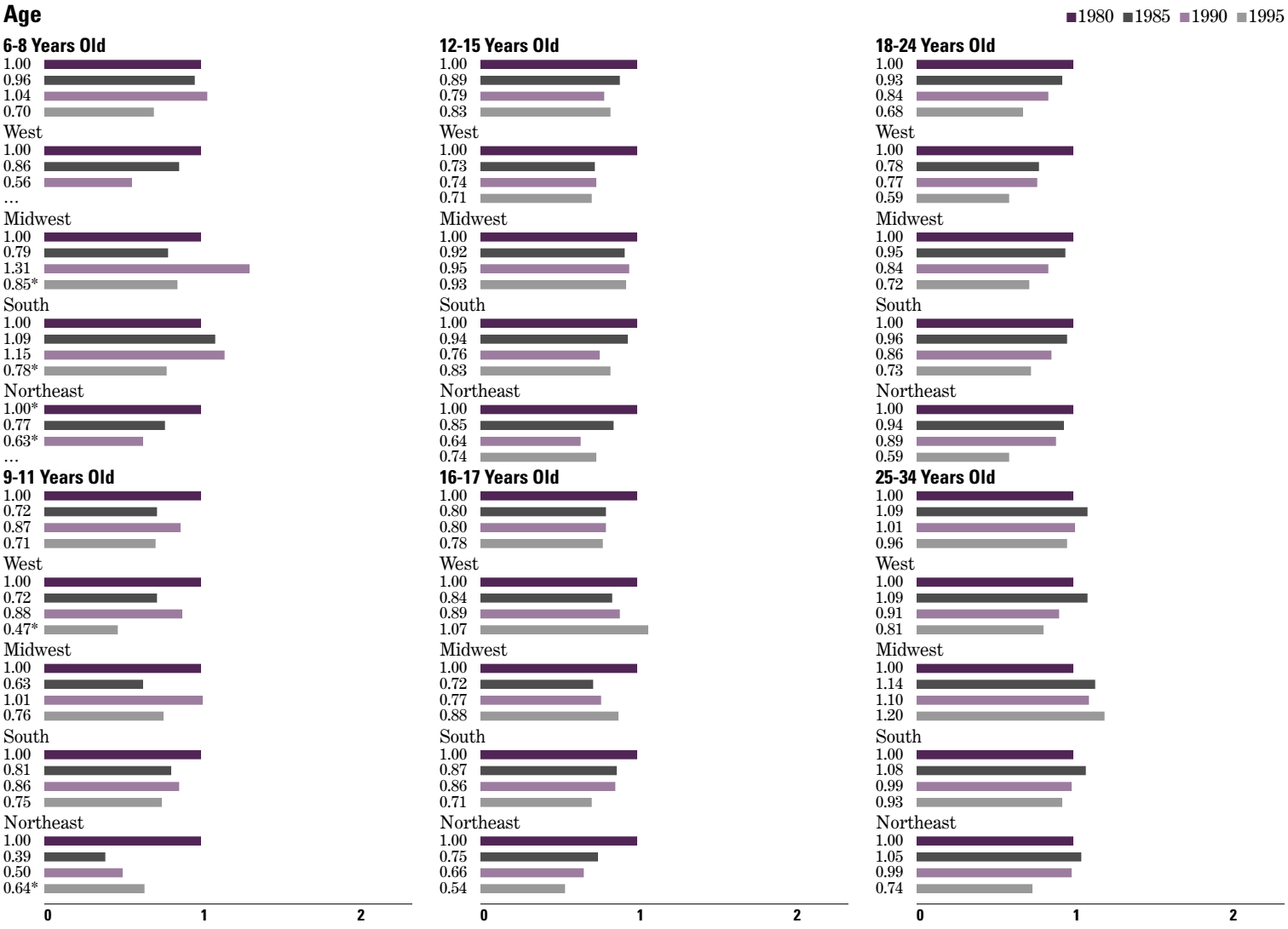


… Sample size too small to report data reliably.

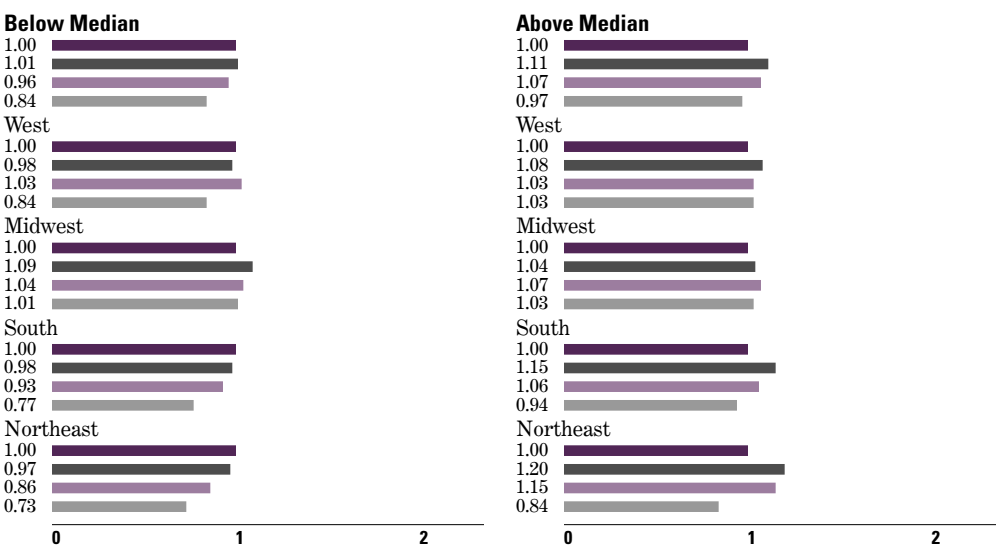
**Based on a sample size between 10 and 30.*

Hunting Indices of Change, by Region (continued)

Age



Median Income

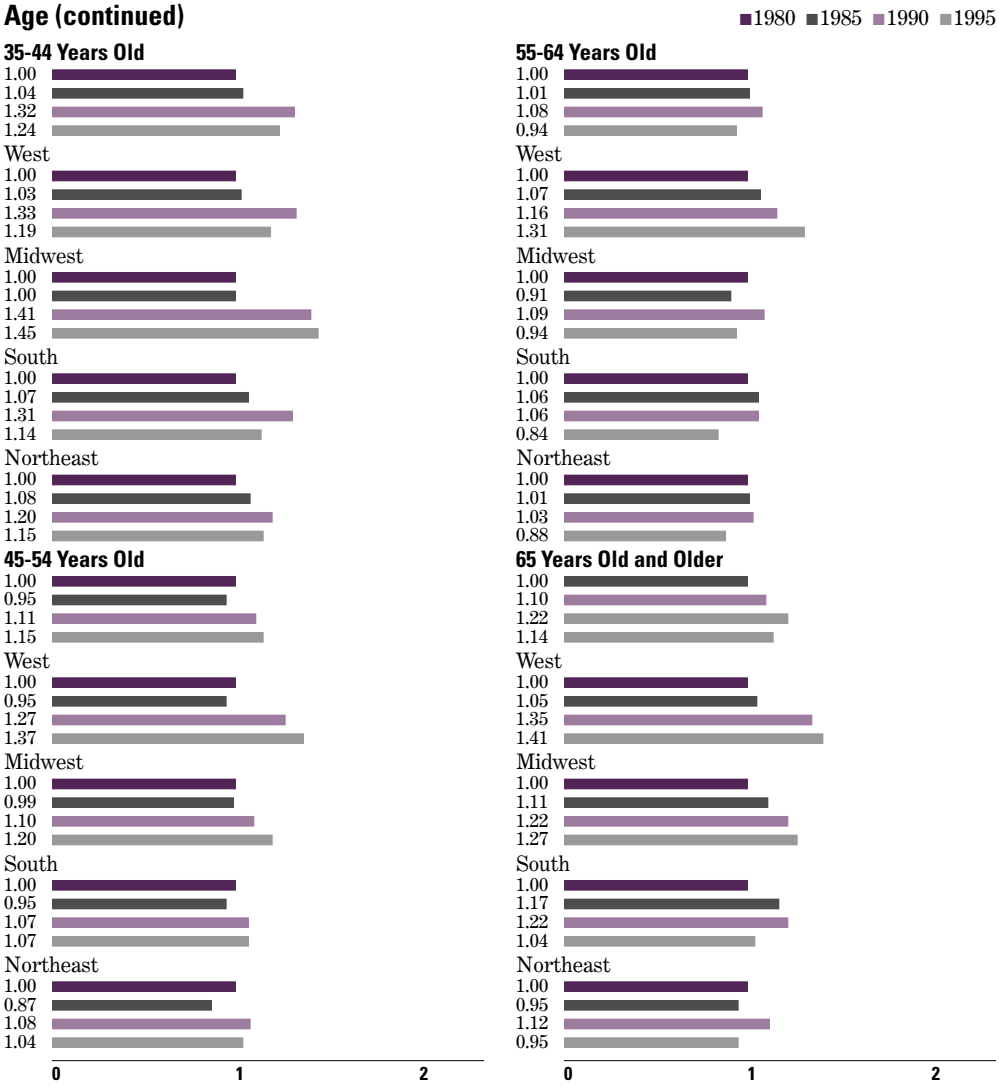


… Sample size too small to report data reliably.

**Based on a sample size between 10 and 30.*

Hunting Indices of Change, by Region (continued)

Age (continued)



Fishing Indices of Change

The number of anglers increased steadily from 1980 to 1990 at approximately 10 percent from 1980 to 1985 and again from 1985 to 1990, then fell back 3 percent from 1990 to 1995. The South had the largest increase over the 1980-1995 time period (21 percent) and the Midwest had the smallest (8 percent).

The number of males fishing has increased 14 percent from 1980 to 1995. The increase in the number of females fishing outstripped the males, with a 19 percent increase. Furthermore, there was a 33 percent uptick in the number of females fishing in 1990 compared to 1980. The region that experienced the biggest increase in the number of females fishing was the Northeast.

The urban and rural populations both sustained increases in fishing participation, with urban areas contributing 18 percent more anglers in 1995 compared to 1980 and rural areas contributing 13 percent more anglers. All regions had increases in the number of both urban and rural anglers, the South's 30 percent increase in the number of anglers from urban areas being the biggest increase.

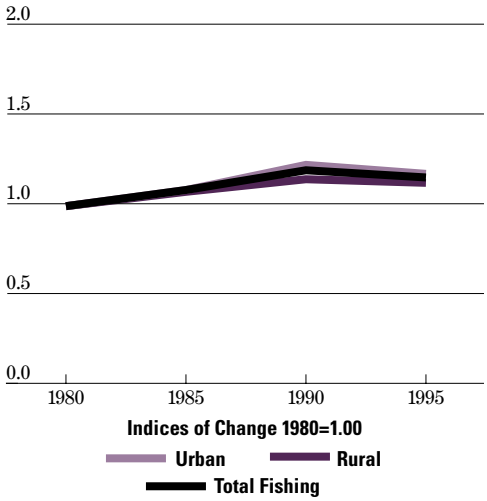
The 16-17 year old, 18-24 year old, and 55-64 year old age groups were the only groups that had decreases in the number of anglers. All other age groups underwent increases in fishing participation, 35-44 year olds in particular with a 60 percent increase.

At the national level the number of whites and blacks who fished increased from 1980 to 1990, then dropped from 1990 to 1995, whereas people of other races have increased their participation throughout the study time period. These observations do not hold for each of the regions, e.g., from 1985 to 1990 anglers of other races decreased in number in the Northeast and blacks in the Northeast increased their fishing participation from 1985 to 1995.

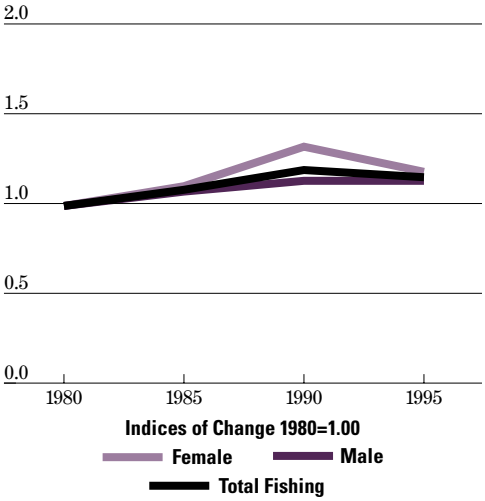
The number of anglers from households below the median national income increased 14 percent from 1980 to 1990 and then fell 4 percent from 1990 to 1995. The number of anglers from households above median income increased 31 percent from 1980 to 1990 then fell 8 percent from 1990 to 1995. Even with a drop of 8 percent from 1990 to 1995, anglers in the Northeast with above median income had the highest percentage increase of any region's income group, 35 percent, from 1980 to 1995.

Fishing Indices of Change

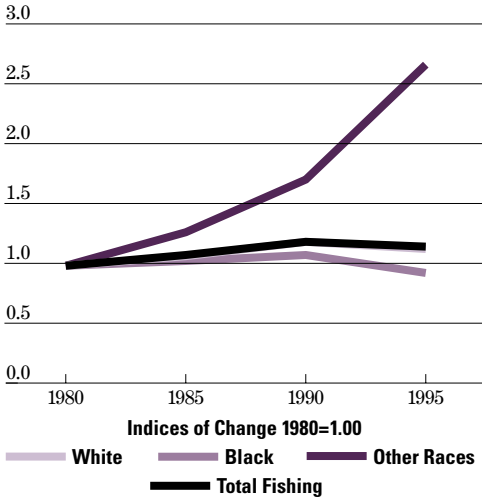
Urban/Rural



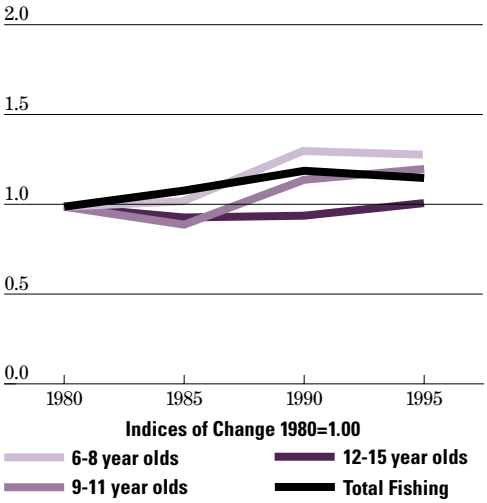
Male/Female



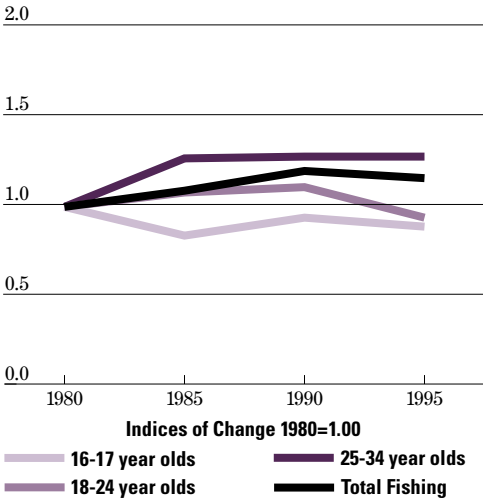
Race



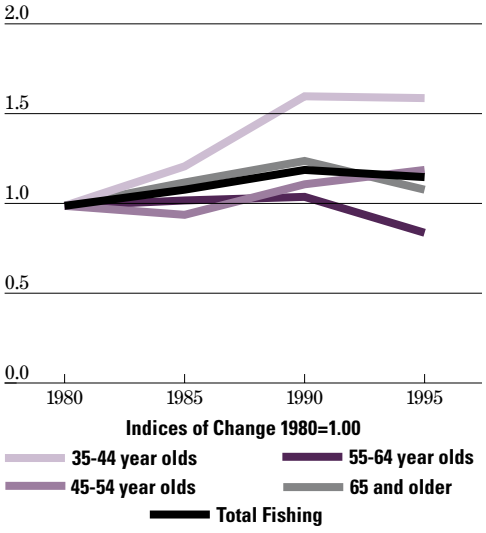
6-15 Year Olds



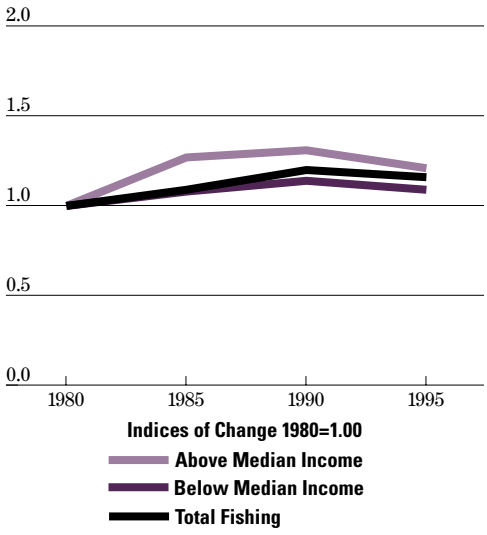
16-34 Year Olds



35 Year Olds and Older

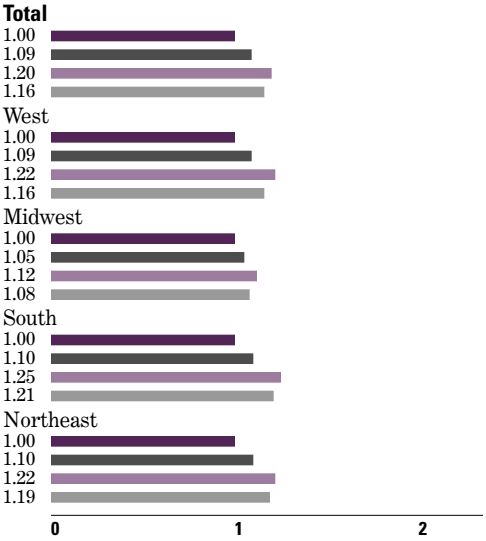


Median Income

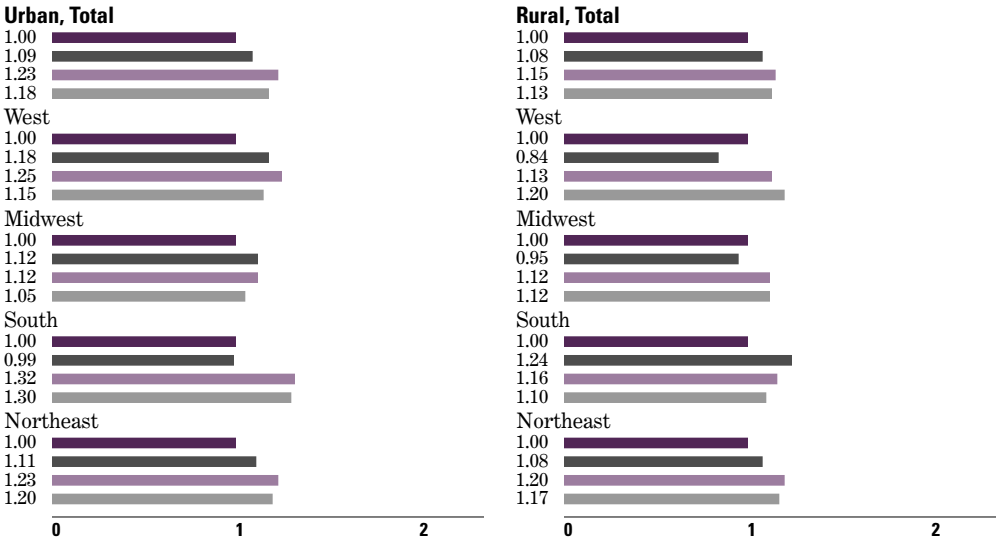


Fishing Indices of Change, by Region

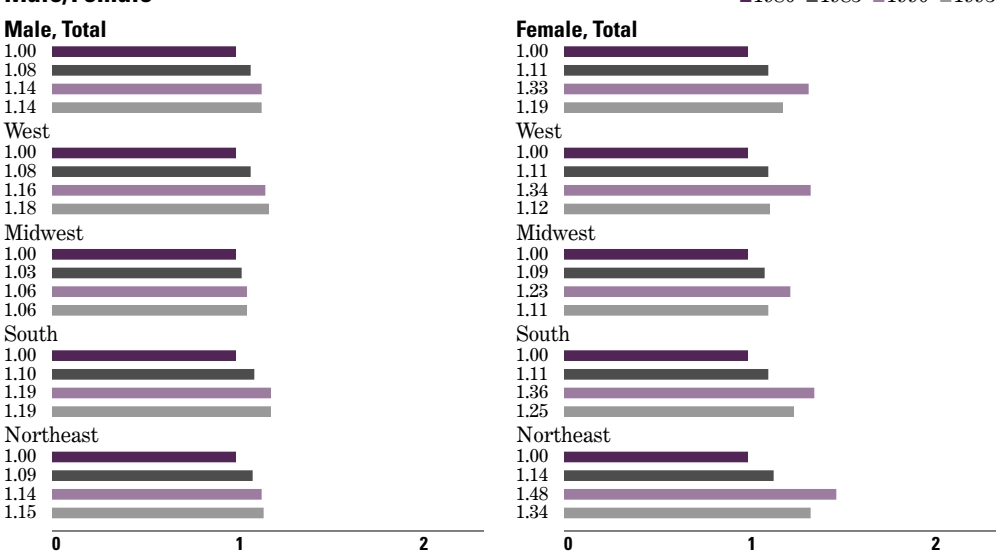
All Anglers



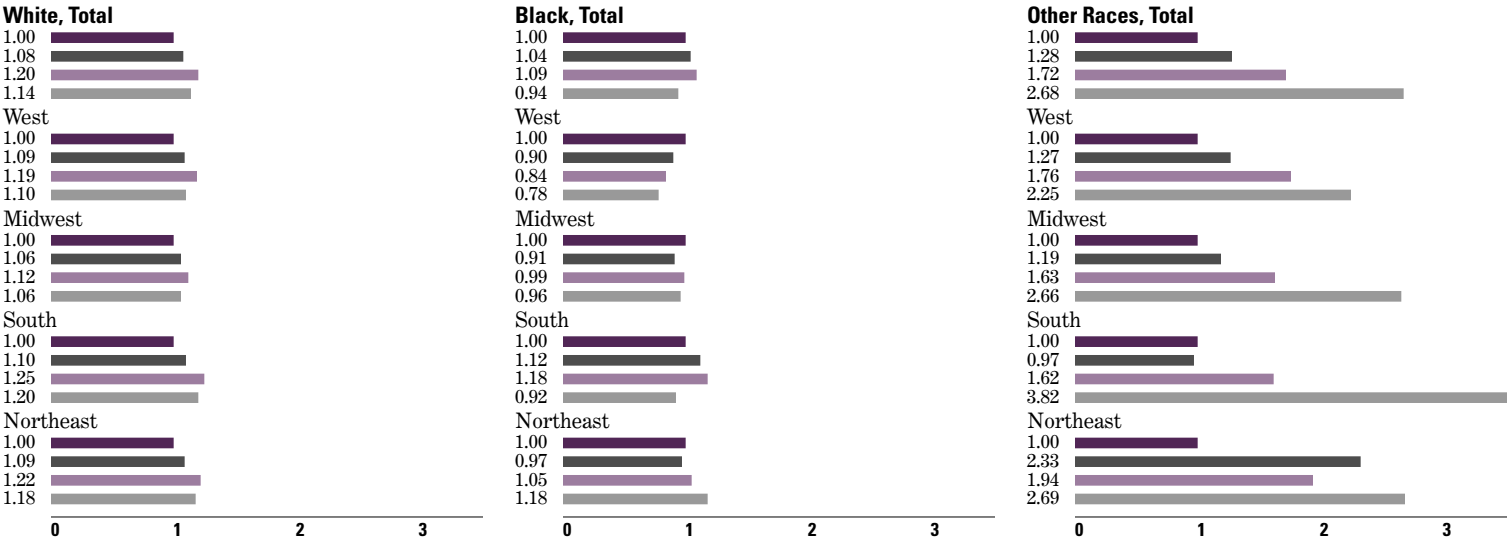
Urban/Rural



Male/Female

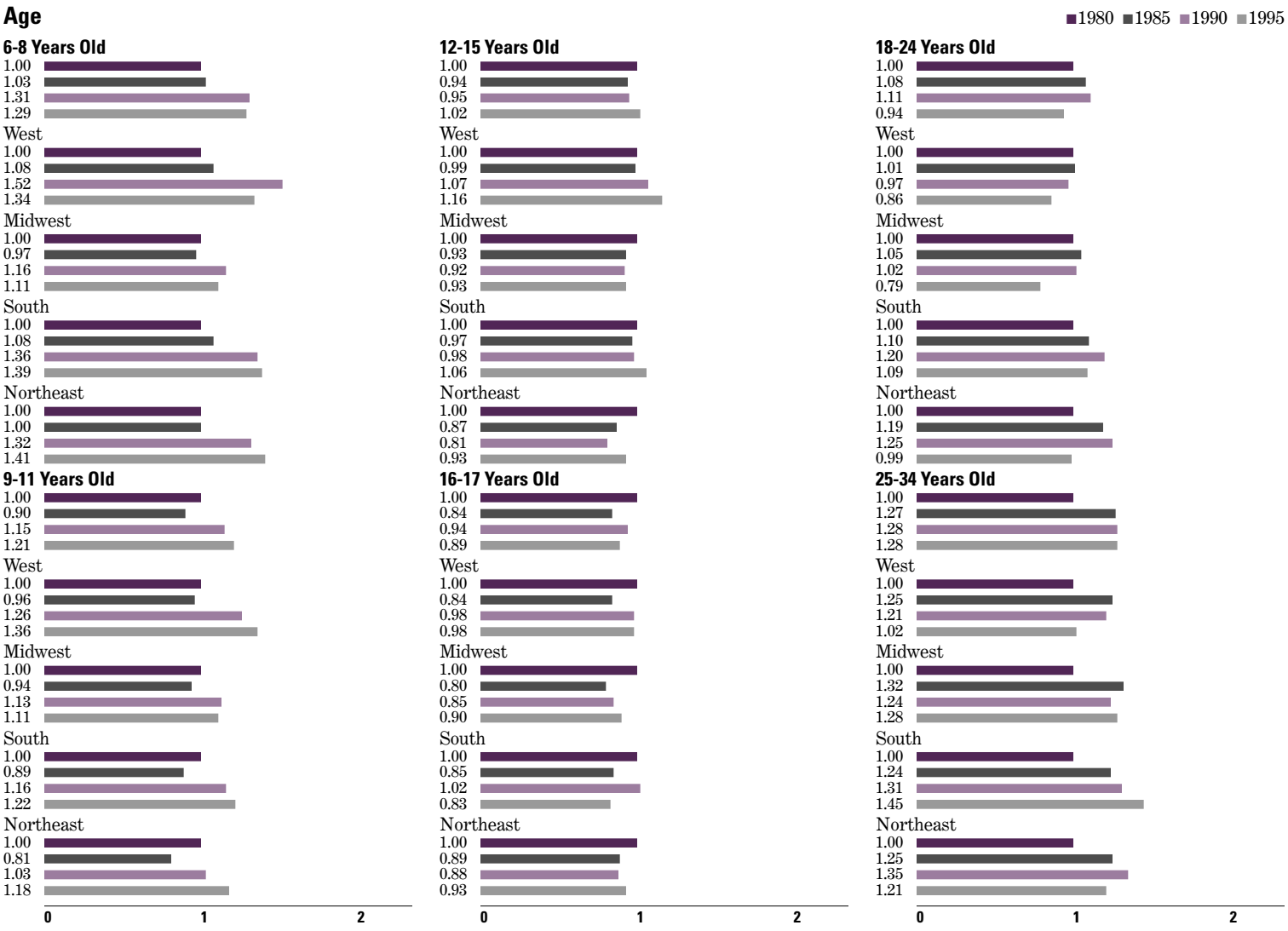


Race

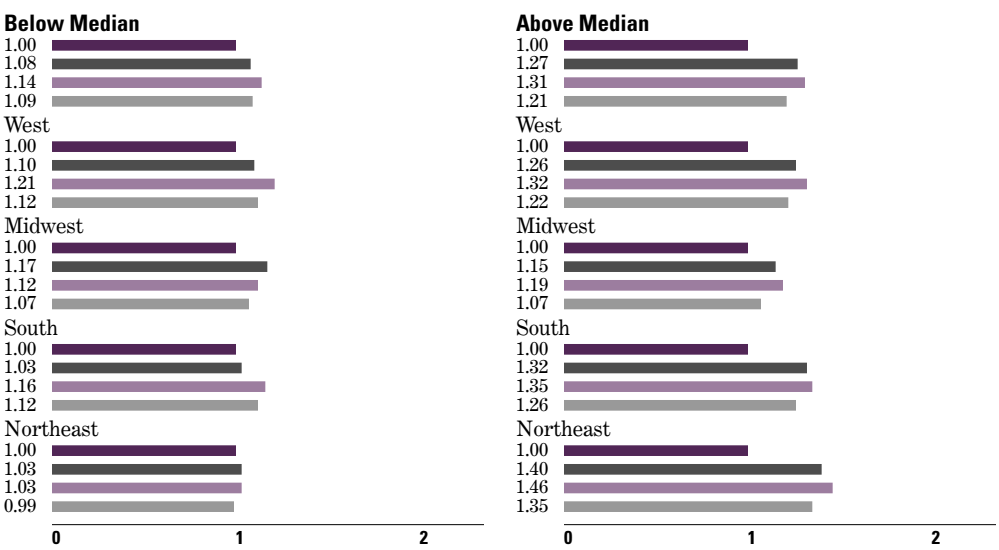


Fishing Indices of Change, by Region (continued)

Age

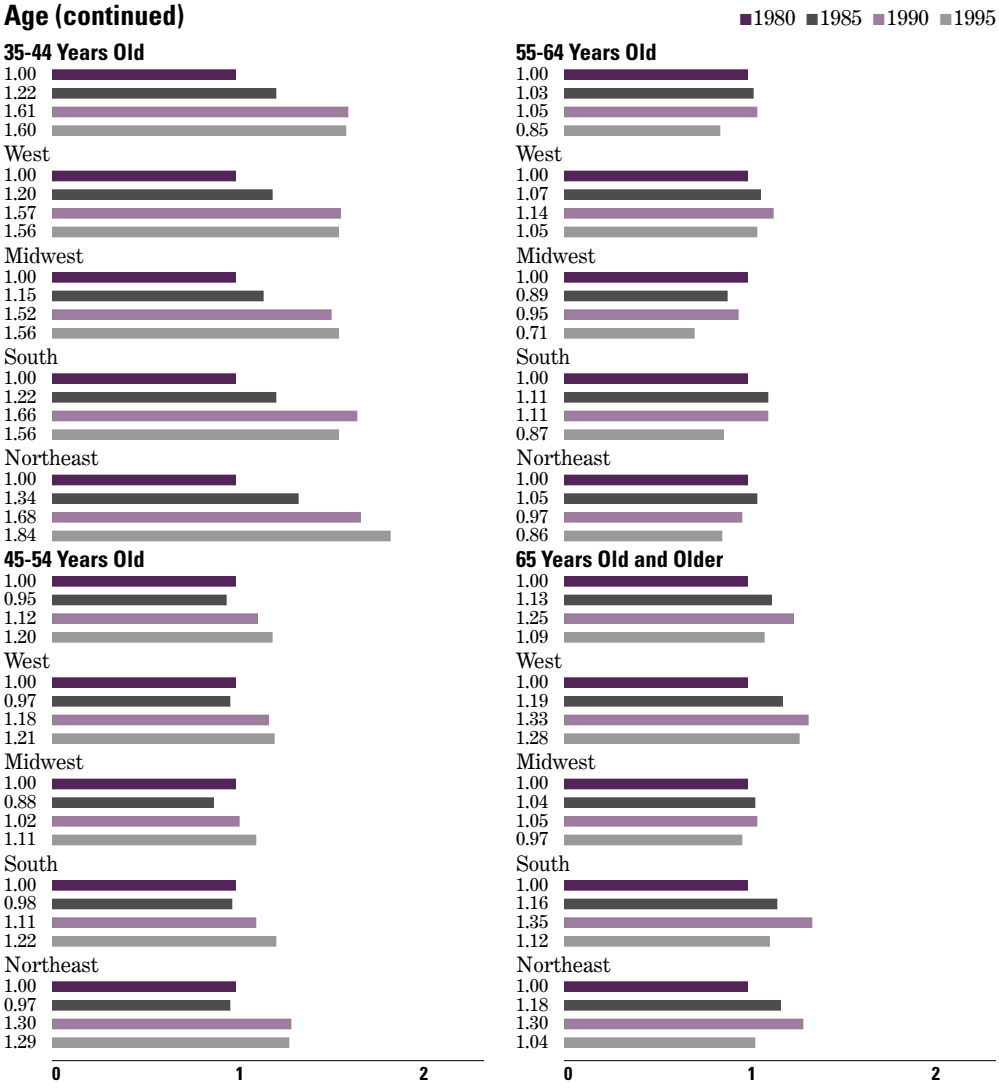


Median Income



Fishing Indices of Change, by Region (continued)

Age (continued)



Nonresidential Wildlife Watching Indices of Change

The number of recreationists who took trips a mile or more from home to observe, photograph, or feed wildlife increased 63 percent from 1980 to 1990 then leveled off from 1990 to 1995. Each region had at least a 52 percent increase in the number of nonresidential wildlife-watching participants over the 1980-1995 time period, with the South having the largest increase (81 percent).

The number of females participating increased 66 percent from 1980 to 1995. The increase in the number of males participating was slightly less, a 60 percent increase. The South had the biggest percentage increase in participants for both sexes, each with 81 percent.

The urban and rural populations had similar increases in participation from 1980 to 1995, with 65 percent more rural area residents participating and 62 percent more urban area residents. All regions had increases in the number of both urban and rural nonresidential wildlife watchers, the South's 85 percent increase in the number of participants from urban areas being the biggest.

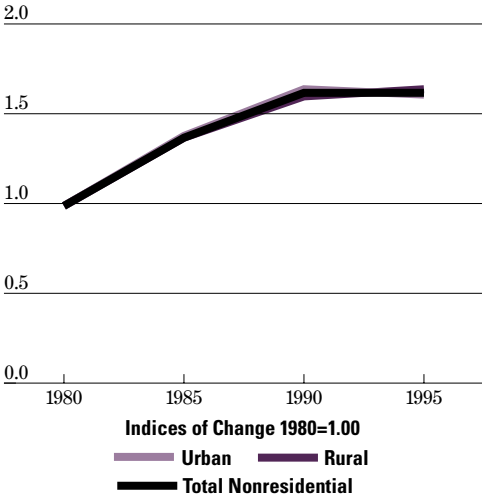
The 18-24 year olds was the only age group that had a decrease in the number of participants. All other age groups increased their nonresidential wildlife watching, with 35-44 year olds, 45-54 year olds, and 65 year olds and older increasing 158 percent or more from 1980 to 1995.

People of races other than white or black have more than tripled their number of nonresidential wildlife watchers from 1980 to 1995. Whites increased their participation from 1980 to 1990 then stabilized from 1990 to 1995. Blacks increased their participation from 1980 to 1990 and then declined 25 percent from 1990 to 1995.

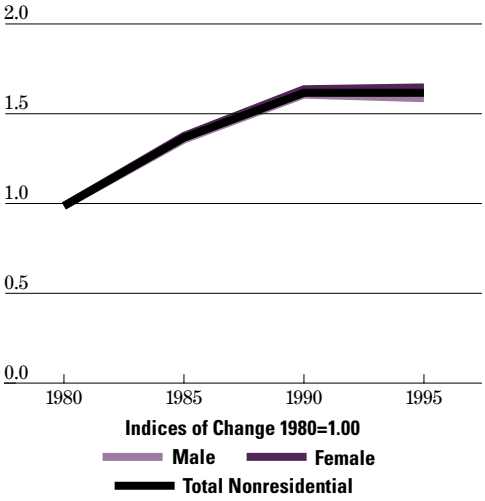
The number of participants from households below median national income increased 53 percent from 1980 to 1990 and then maintained that participation level from 1990 to 1995. The number of participants from households above median income increased 78 percent from 1980 to 1990 and then dropped 3 percent from 1990 to 1995. All regions of the country saw increases in their numbers of nonresidential wildlife watchers by median income, the South's 95 percent increase in the number of participants who had above median income being the biggest.

Nonresidential Wildlife Watching Indices of Change

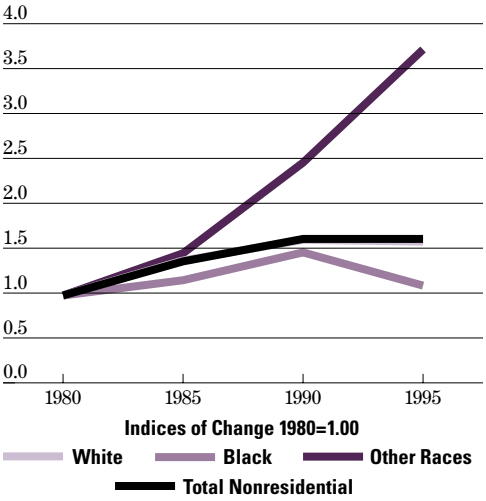
Urban/Rural



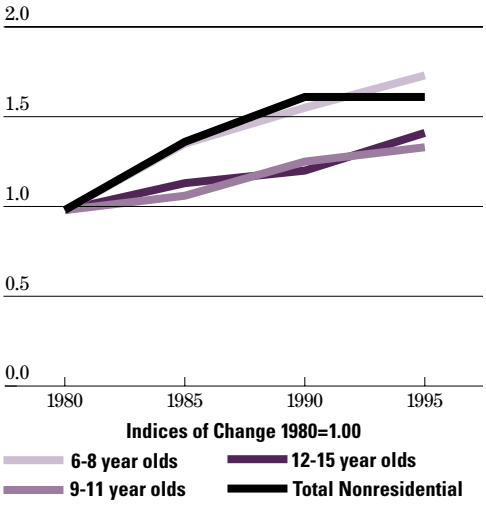
Male/Female



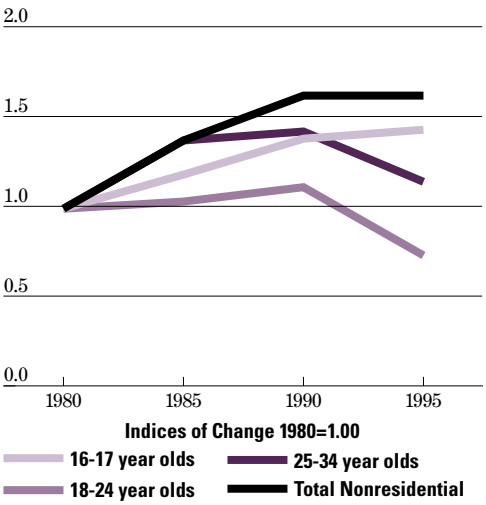
Race



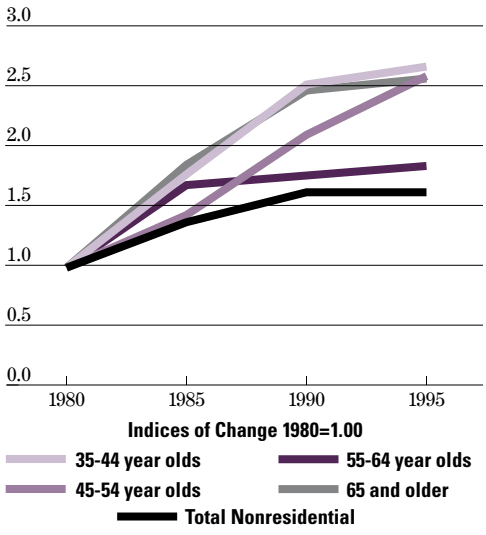
6-15 Year Olds



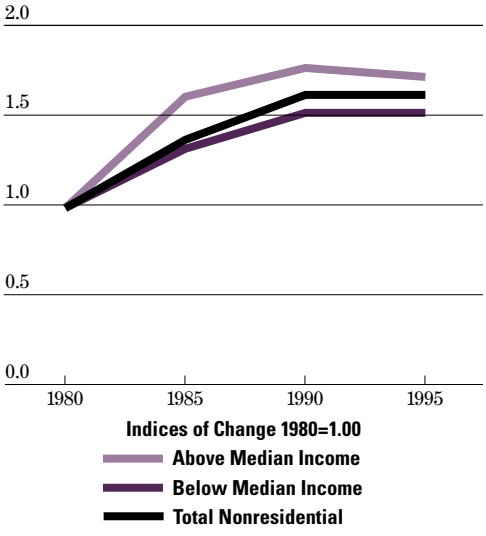
16-34 Year Olds



35 Year Olds and Older

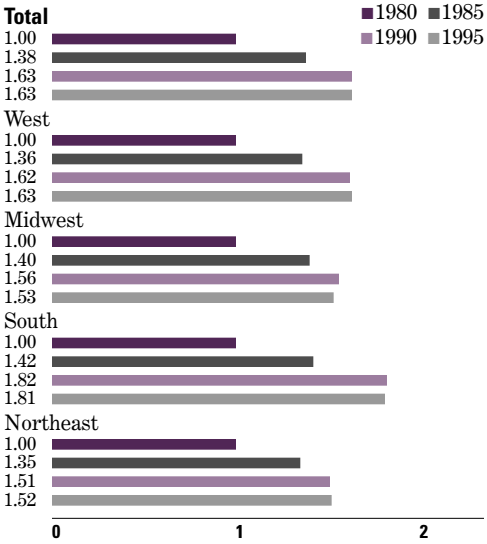


Median Income

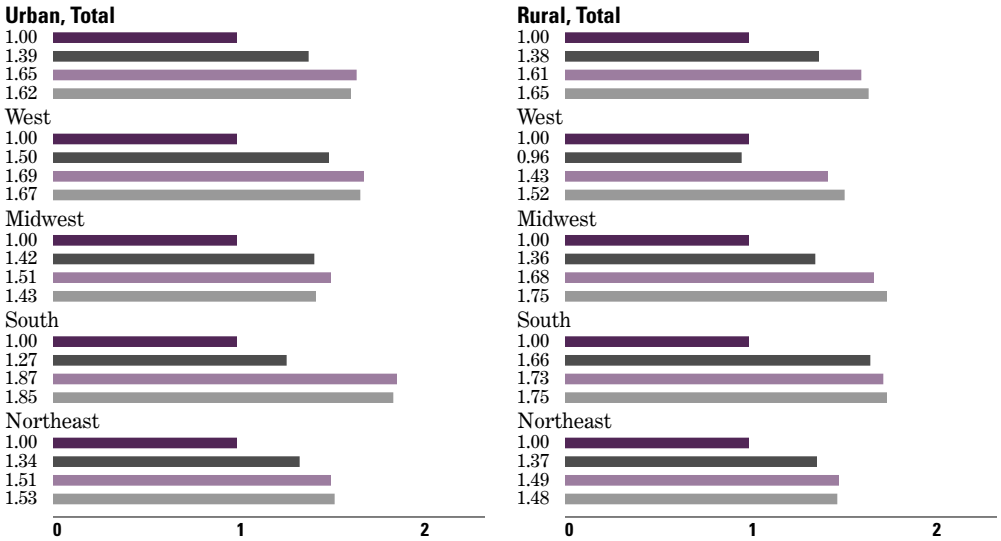


Nonresidential Wildlife Watching Indices of Change, by Region

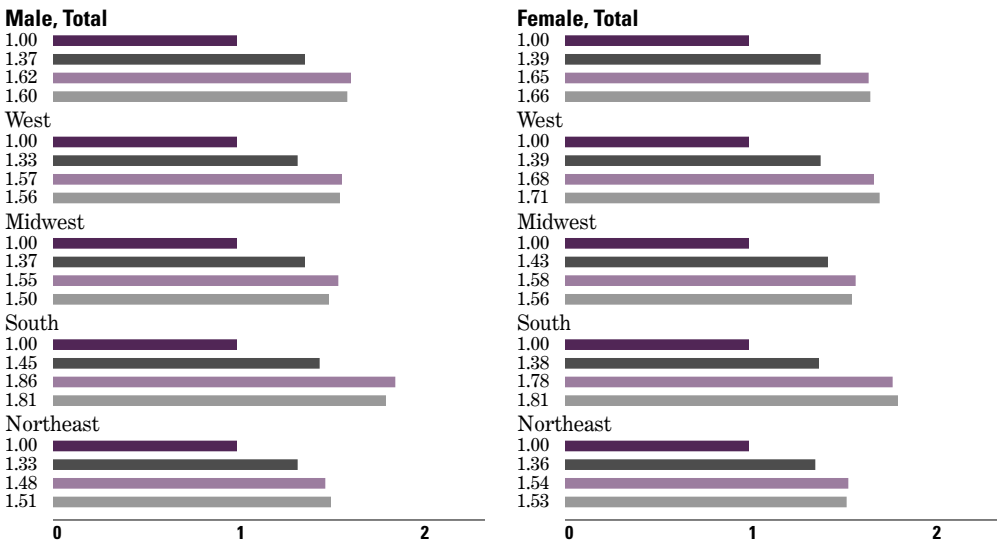
All Nonresidential Wildlife Watchers



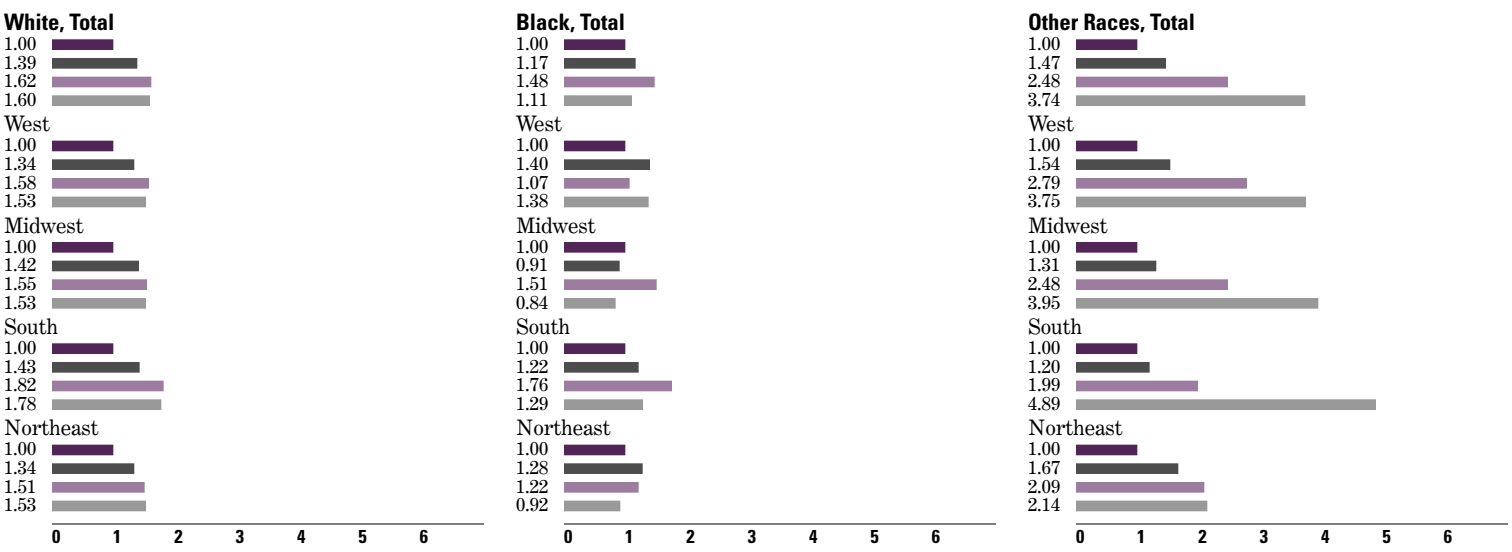
Urban/Rural



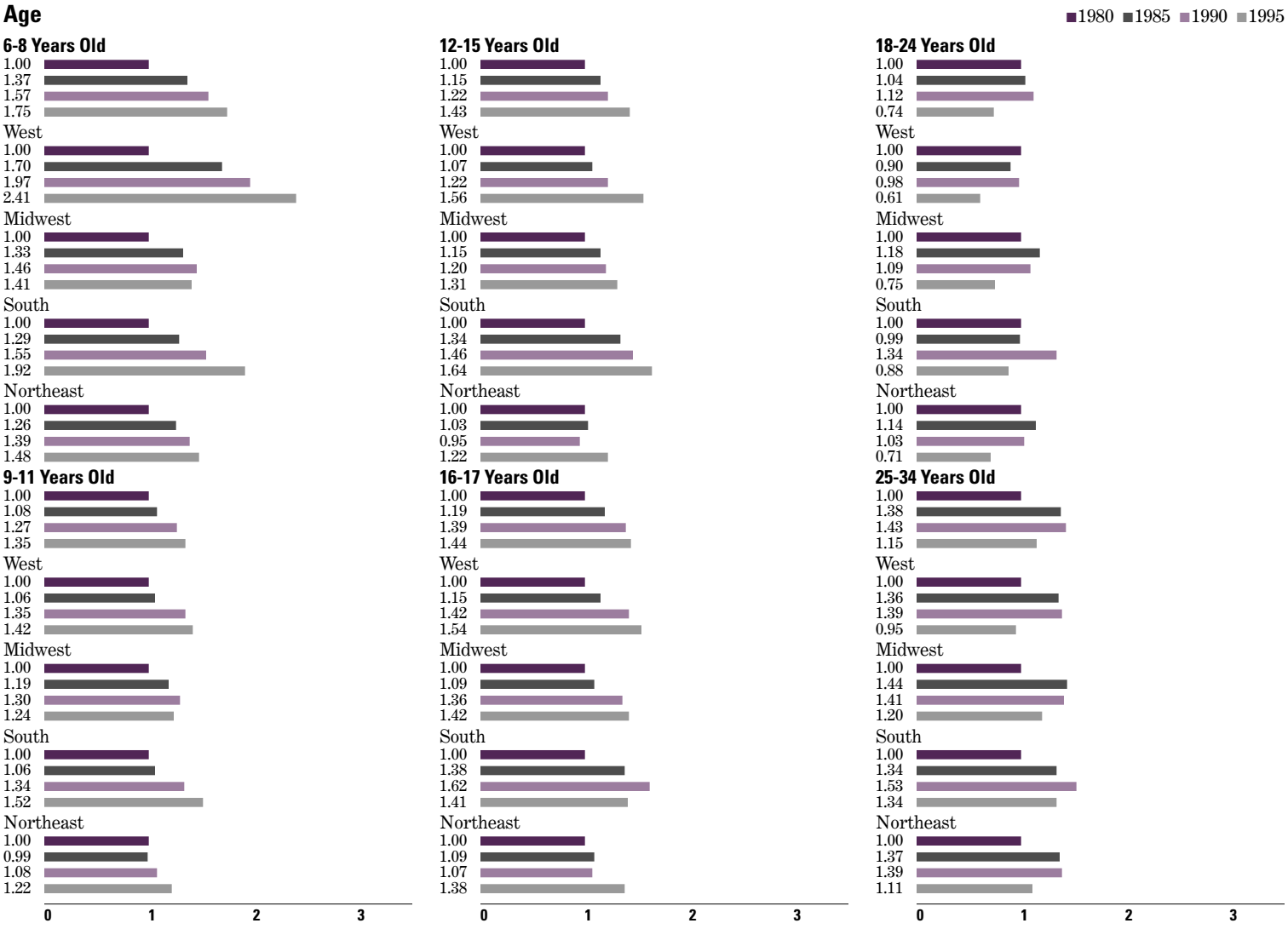
Male/Female



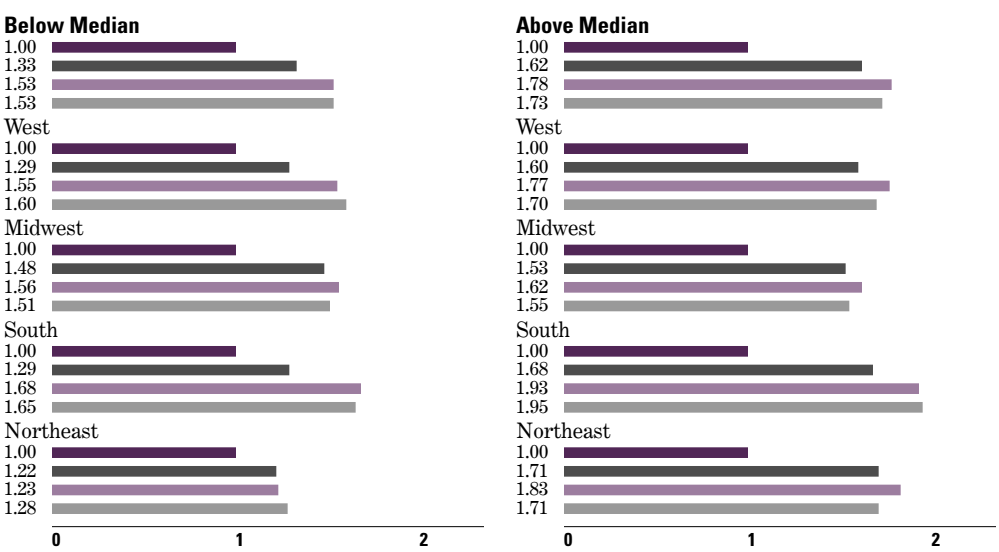
Race



Age

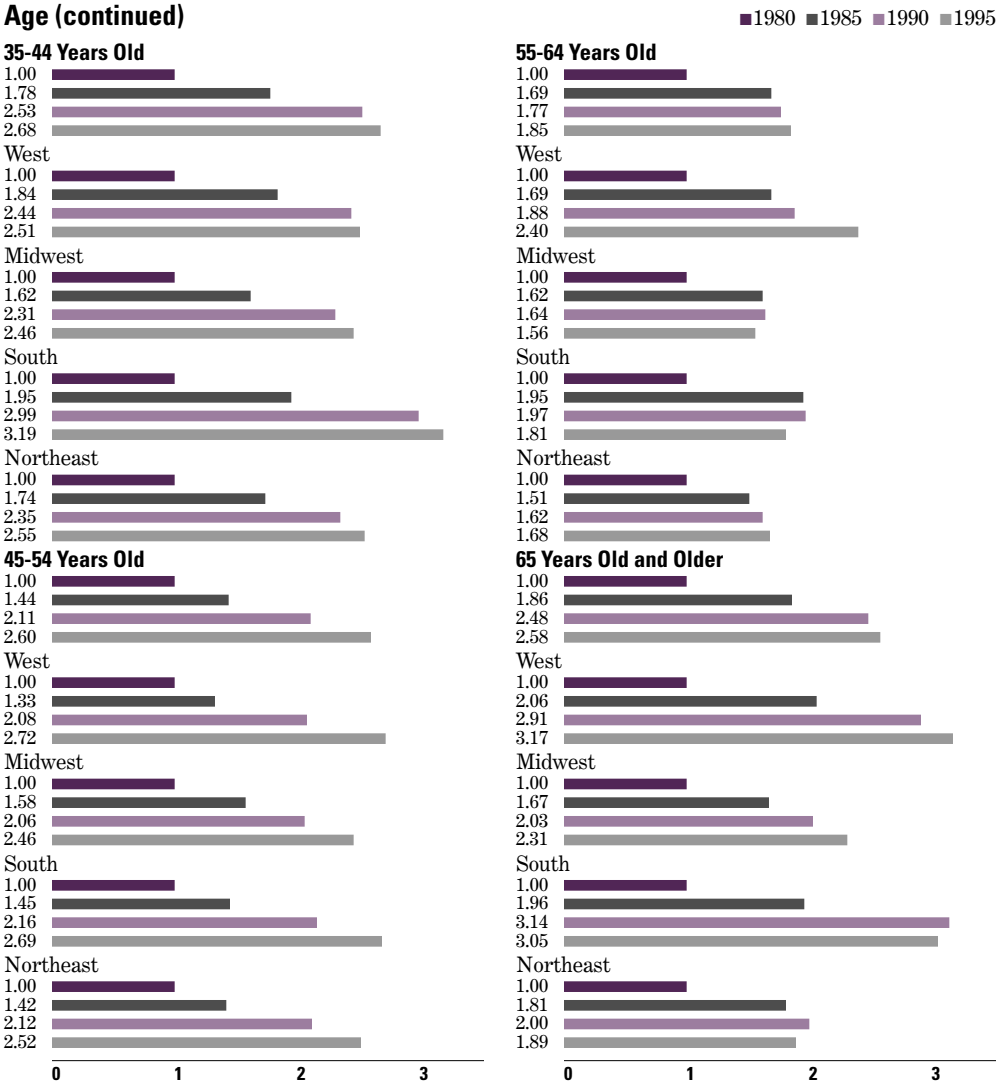


Median Income



Nonresidential Wildlife Watching Indices of Change, by Region (continued)

Age (continued)



Residential Wildlife Observing Indices of Change

The number of recreationists who closely observed or tried to identify wildlife around the home increased 96 percent from 1980 to 1995. Each region of the country had at least a 64 percent increase in the number of residential observers over the 1980-1995 time period, with the South having the largest increase (121 percent).

The percentage increase in the number of female residential wildlife observers was 10 percent higher than the male's, 101 to 91 percent. The South had the biggest increases in the number of both male and female participants, 112 percent and 130 percent, respectively. The Northeast had the smallest percentage increases, 62 percent for the males and 65 percent for the females.

The urban and rural populations had similar increases in the number of people observing wildlife around the home from 1980 to 1995, with 99 percent more rural area residents participating and 94 percent more urban area residents. All regions had increases in the number of both urban and rural participants, the South having the biggest increases in both categories, 123 and 118 percent, respectively.

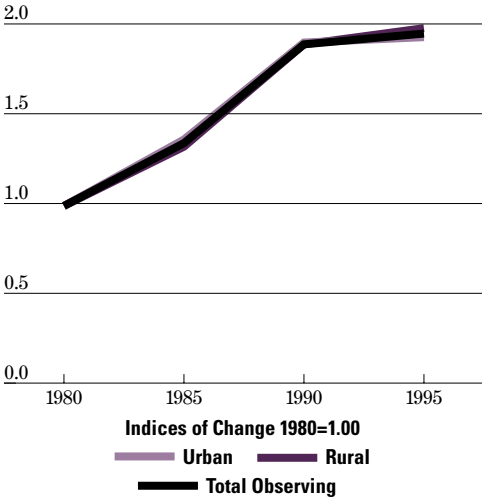
No age group had a statistically significant decrease in the number of residential observers over the survey time period. The 18-24 year old age group increased 33 percent from 1980 to 1990, then dropped to roughly the 1980 level in 1995. The 35-44 age group tripled their number of participants from 1980 to 1995.

People of races other than white or black have more than quintupled their number of residential wildlife observers from 1980 to 1995 (the significance of this finding is ameliorated by the observation that participation of this race group was very limited in 1980, and a small increase of a small number results in a large percentage change). Whites have nearly doubled their participation in wildlife observation and the number of blacks participating has increased by 54 percent.

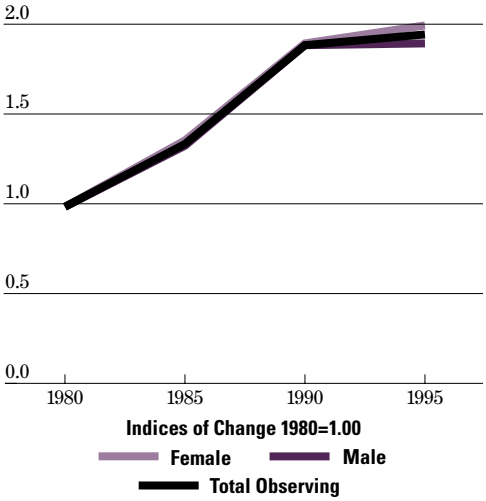
The participation of people both above and below median household income increased a similar percentage. The number of participants from households below median national income increased 93 percent from 1980 to 1995. The number of participants from households above median national income increased 97 percent. Every region of the country had at least a 54 percent increase in the number of people by median income category who closely observed or tried to identify wildlife around their home.

Residential Wildlife Observing Indices of Change

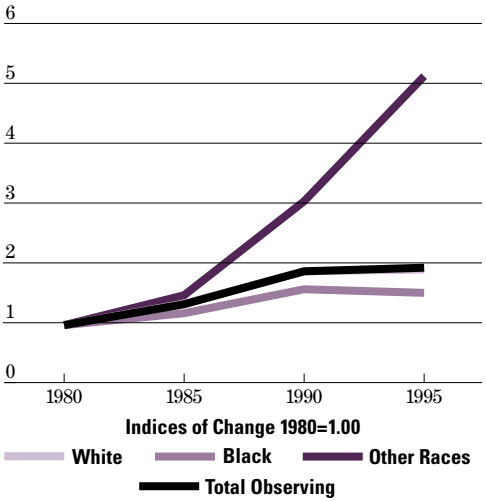
Urban/Rural



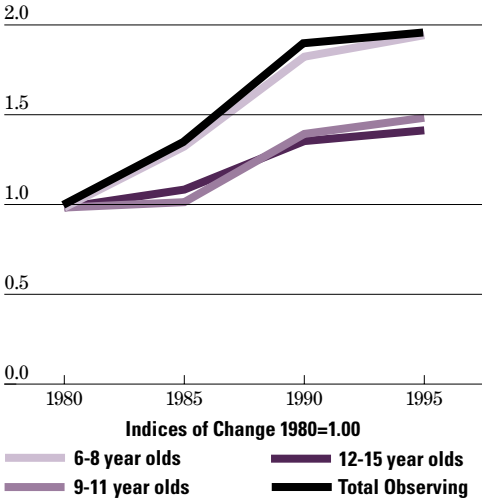
Male/Female



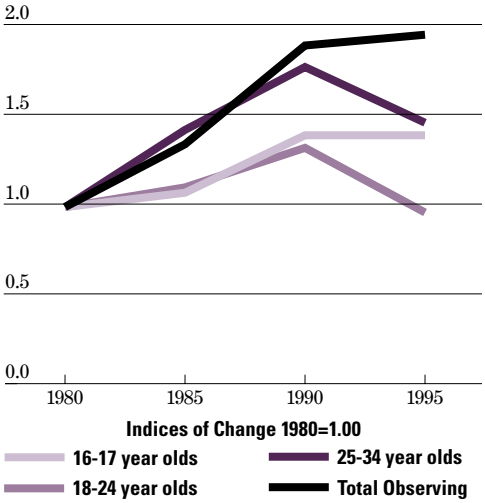
Race



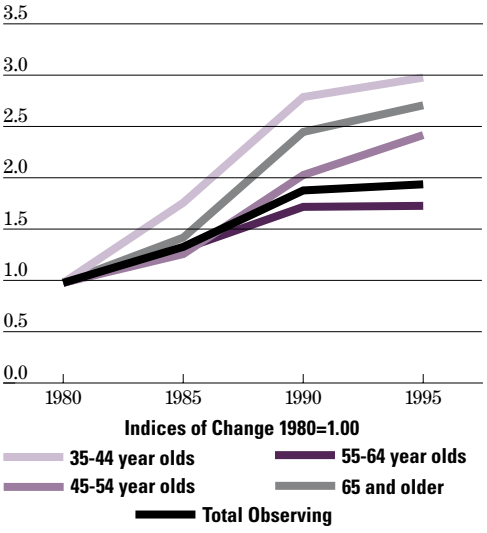
6-15 Year Olds



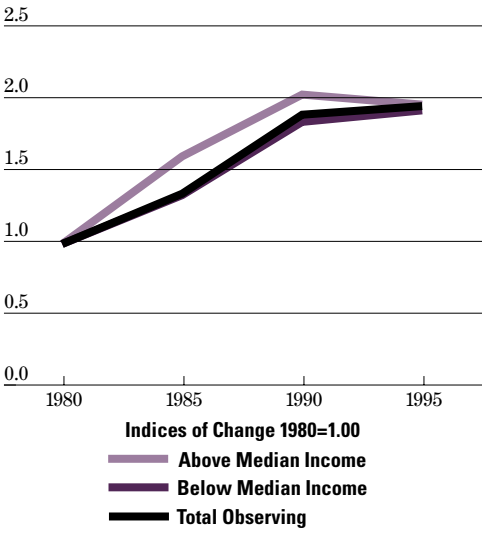
16-34 Year Olds



35 Year Olds and Older

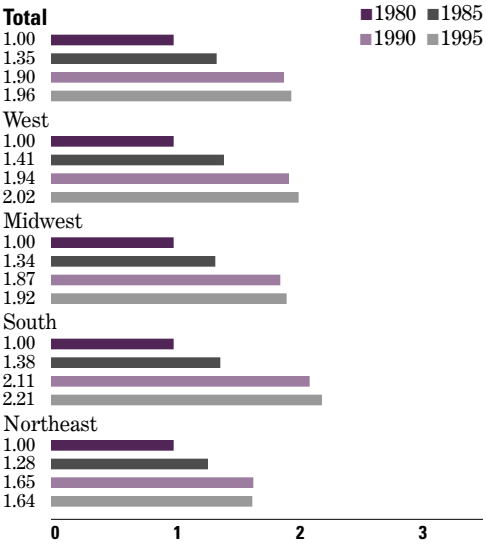


Median Income

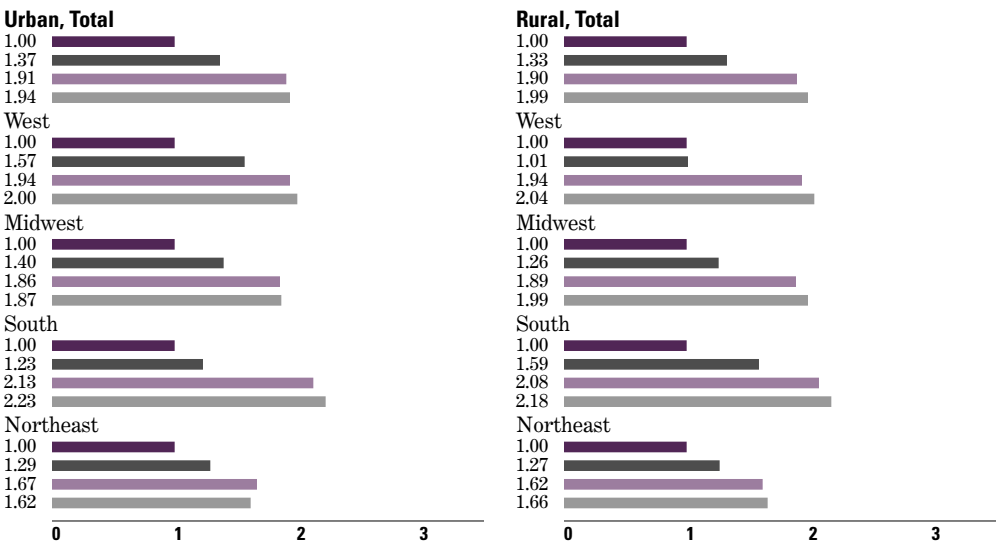


Residential Wildlife Observing Indices of Change, by Region

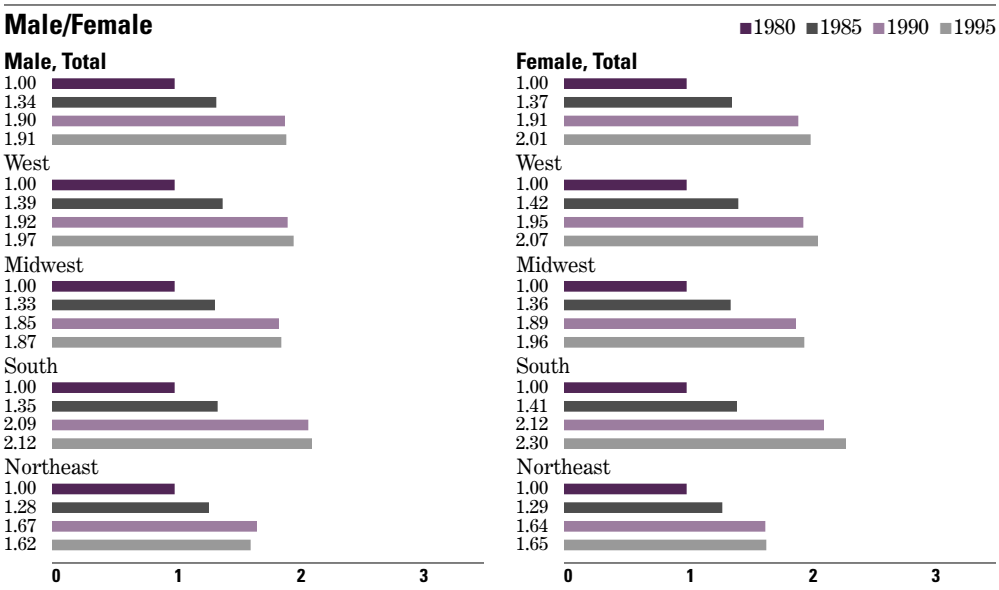
All Residential Wildlife Observers



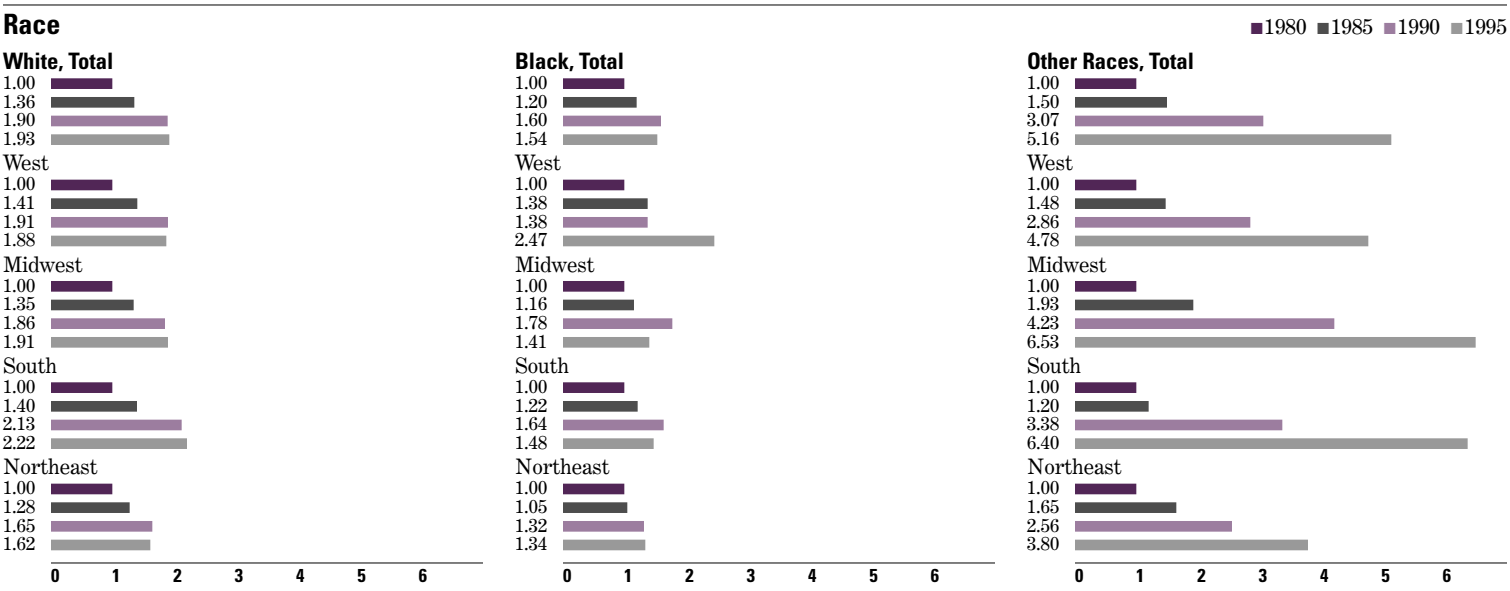
Urban/Rural



Male/Female

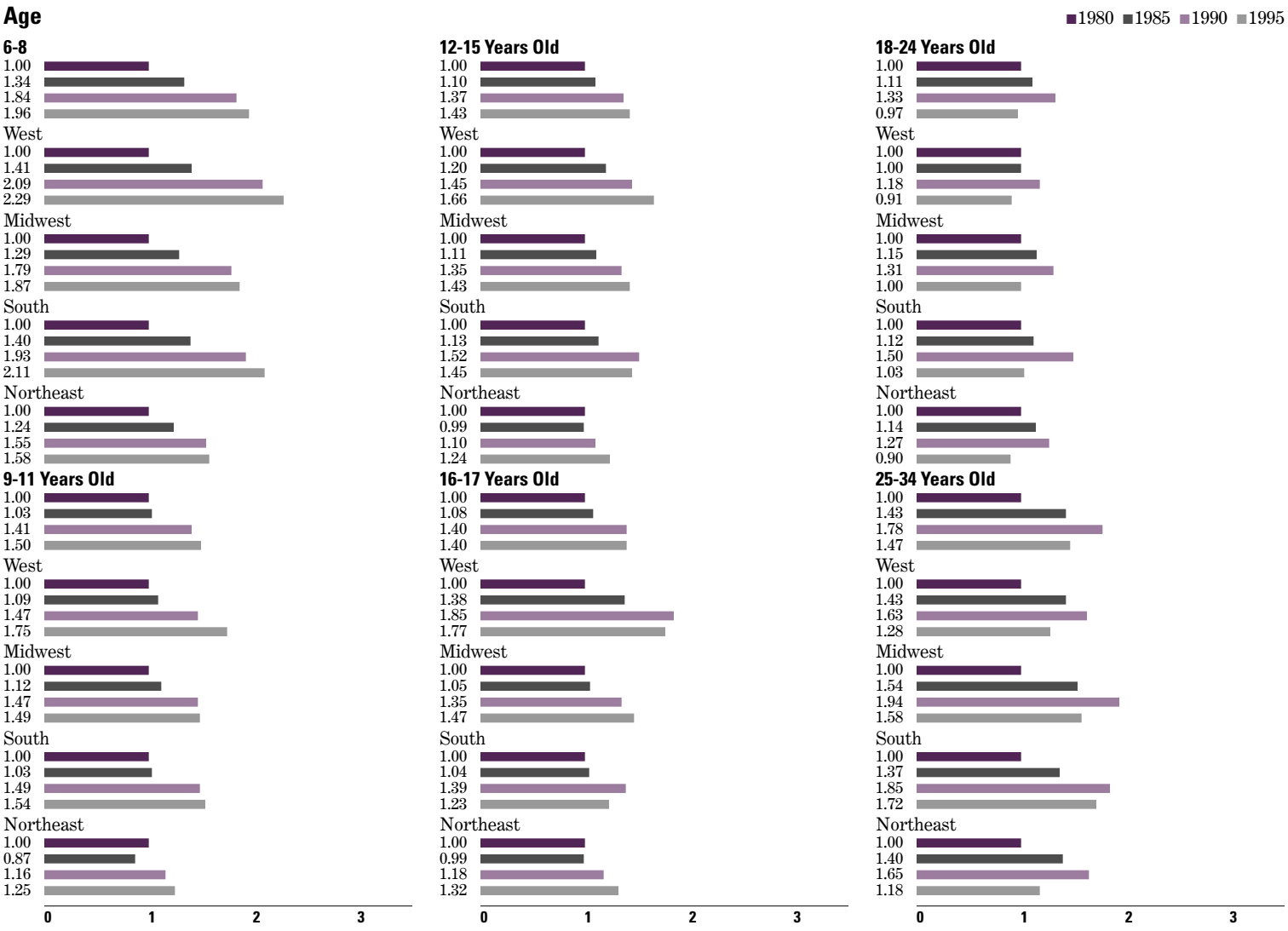


Race

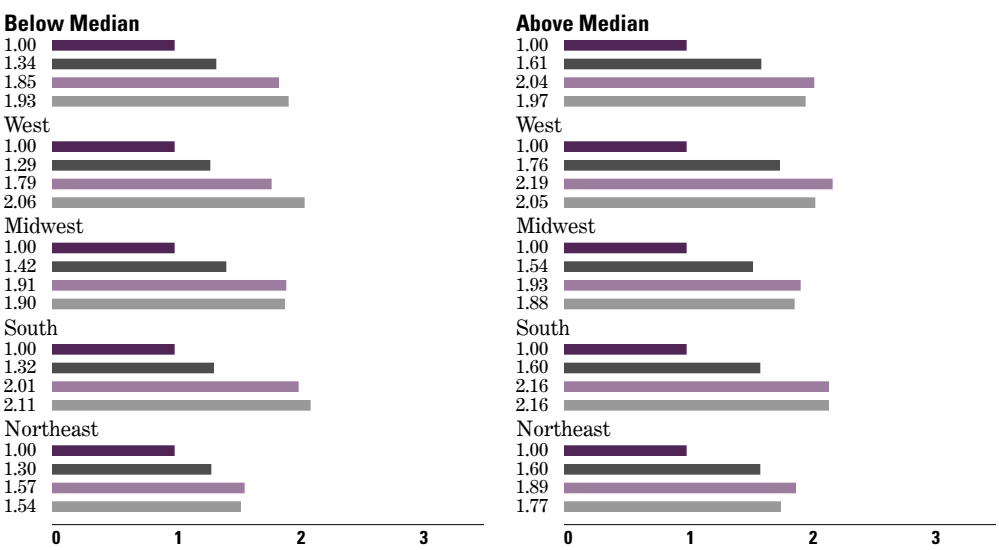


Residential Wildlife Observing Indices of Change, by Region (continued)

Age

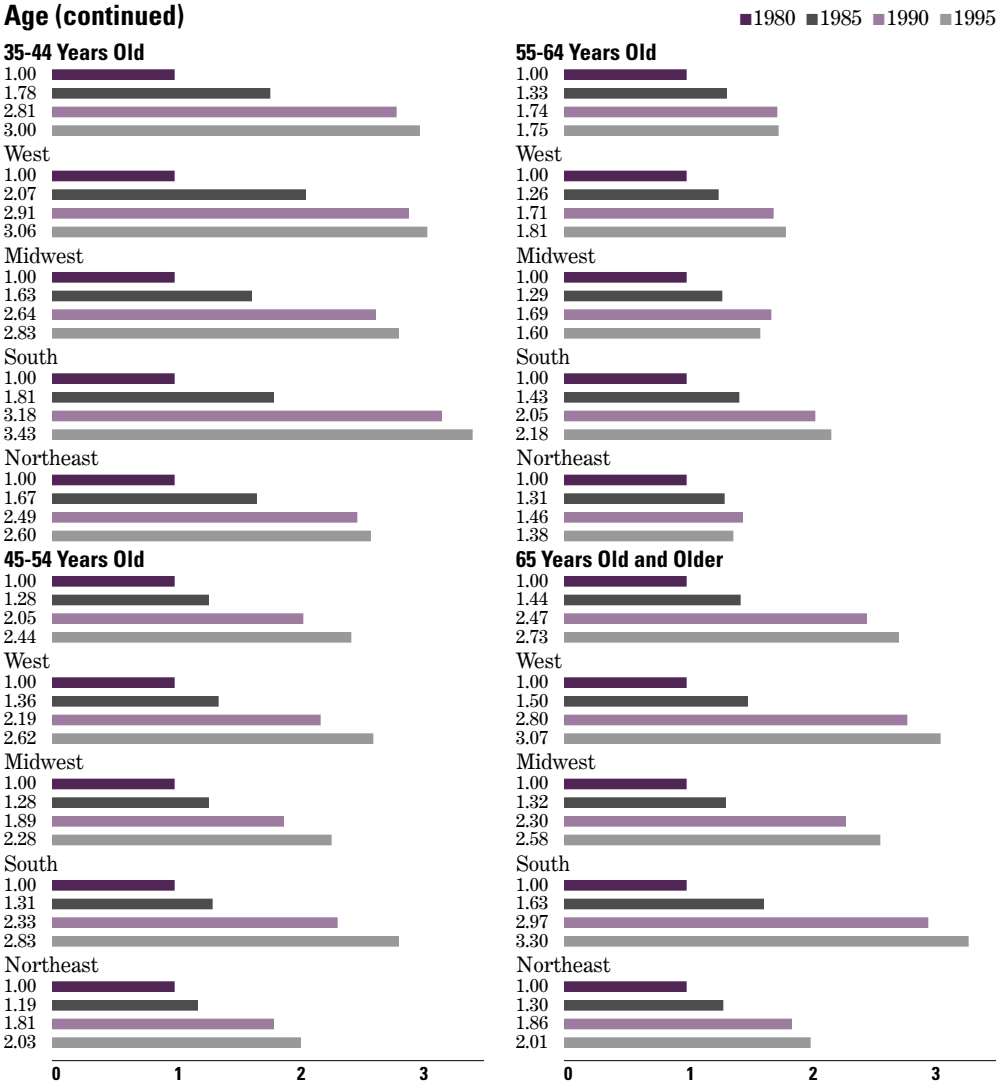


Median Income



Residential Wildlife Observing Indices of Change, by Region (continued)

Age (continued)



Residential Wildlife Feeding Indices of Change

The number of recreationists who fed wildlife around the home decreased 15 percent from 1985 to 1995.[3] The South sustained the smallest decrease, 10 percent, and the Northeast the biggest, 25 percent.

The percentage decrease in the number of female residential wildlife feeders was more than the male's, 17 and 13 percent, respectively. The regional gender group with the smallest drop-off in wildlife feeding was the South's males, a 6 percent decrease, and the regional gender group with the biggest decrease was the Northeast's females, a 26 percent decrease.

The decrease in wildlife feeding was seen in both the urban and rural populations. The number of urbanites participating fell 16 percent from 1985 to 1995 and the number of ruralites fell 13 percent. Regionally, however, the West's rural population increased their feeding 8 percent and the South's urban population and the Midwest's rural population maintained their participation in wildlife feeding at or slightly above the 1985 levels. All other regions' rural and urban populations decreased their participation numbers by 18 to 28 percent.

45-54-year-old wildlife feeders increased in number from 1985 to 1995 by 10 percent, feeders 65 years old and older maintained their same number of participants throughout the survey time period, and 35-44 year olds dropped back to their 1985 level after an increase in 1990. All other age groups lost at least 12 percent of their participants, with the 18-24 year old age group losing more than half their number of participants.

Blacks and whites experienced steady decreases in their number of participants and people of other races experienced steady increases. The number of blacks that fed wildlife fell 34 percent nationally, with a similar drop seen in every region. The number of whites fell 16 percent, with a 26 percent drop in the Northeast and a 9 percent drop in the South.

There was a parallel drop in residential feeding participation in both income categories. The number of wildlife feeders from households below median national income decreased 24 percent from 1985 to 1995 and the number of participants from households above median income decreased 26 percent. Every region of the country saw participation declines by median income group ranging from 15 percent (the West's participants with below median income) to 35 percent (the Northeast's participants with below median income).

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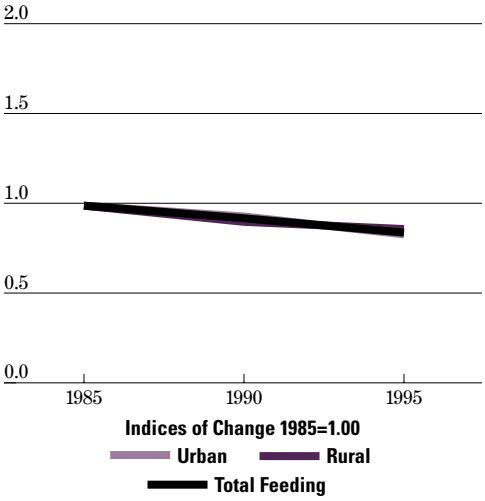
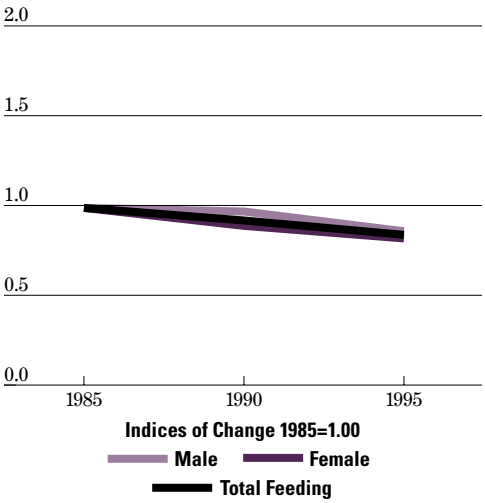
[3]The time period for residential wildlife feeding is 1985 to 1995. The 1980 FHWAR Survey did not ask about wildlife feeding in a comparable way to the 1985, 1990, or 1995 Surveys.

Residential Wildlife Feeding Indices of Change

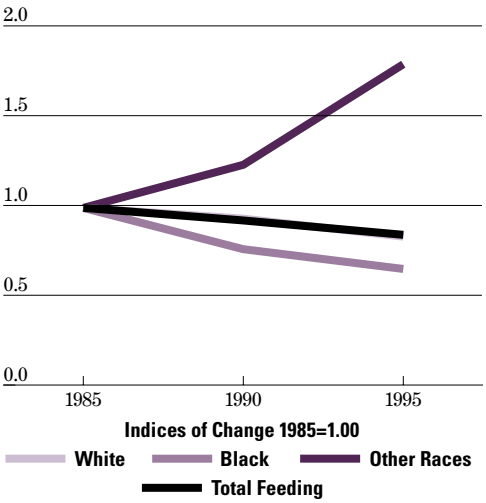
Urban/Rural



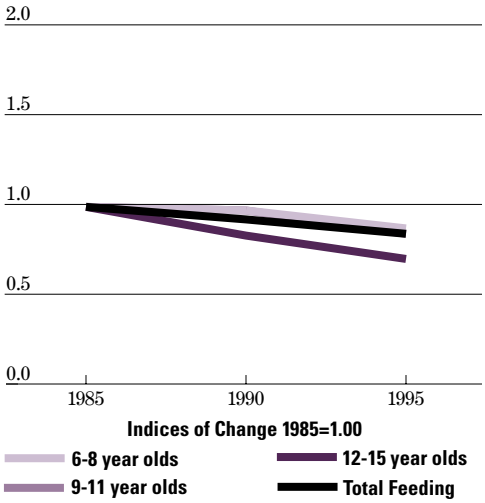
Male/Female



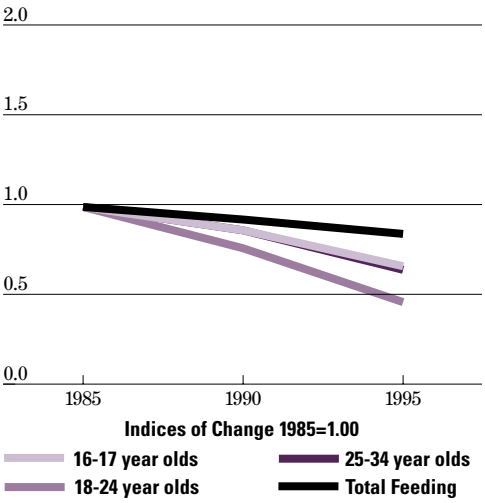
Race



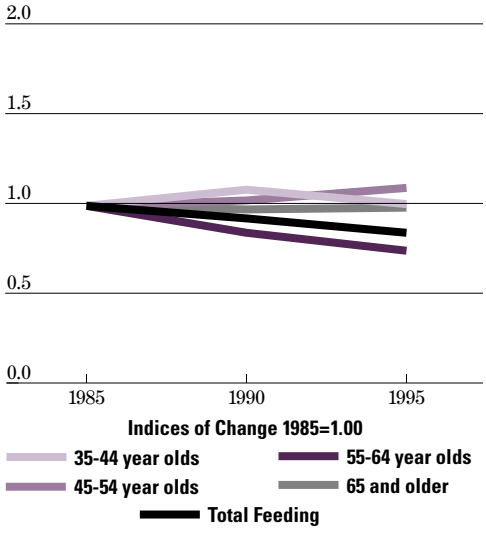
6-15 Year Olds



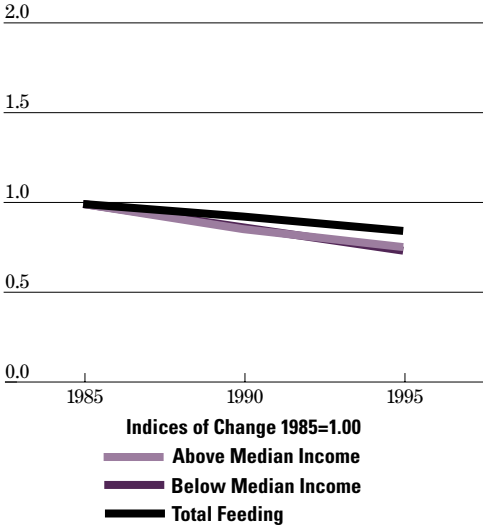
16-34 Year Olds



35 Year Olds and Older



Median Income

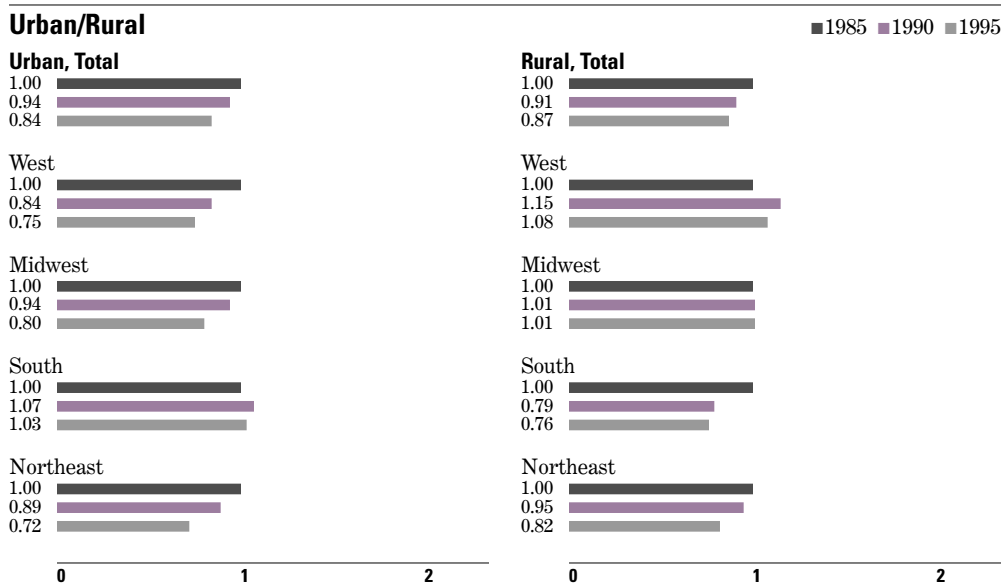


The Total Feeding line is above both the Above Median Income and Below Median Income lines because the participants who would not report their income are included in the Total Feeding index of change estimates.

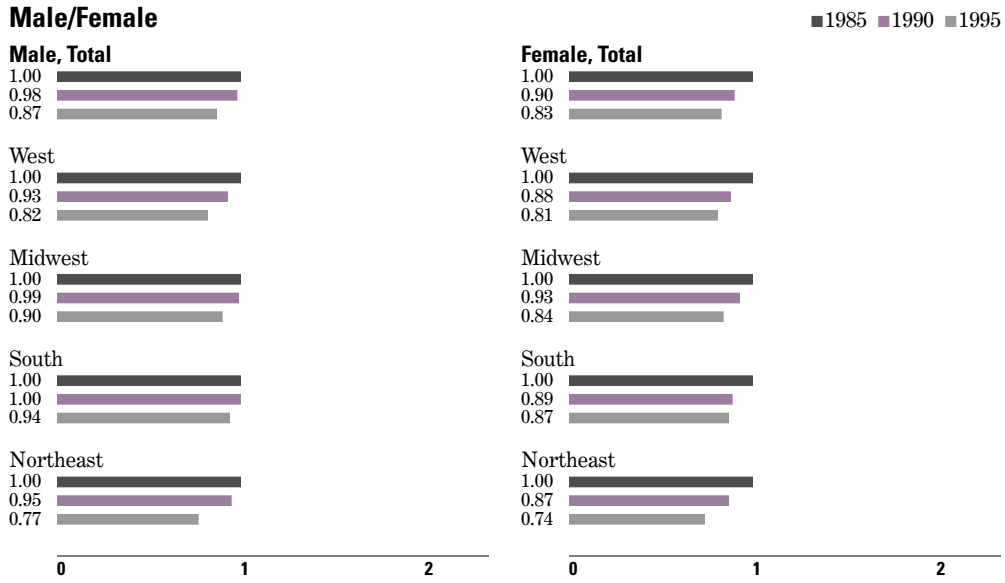
Residential Wildlife Feeding Indices of Change, by Region

All Residential Wildlife Feeders

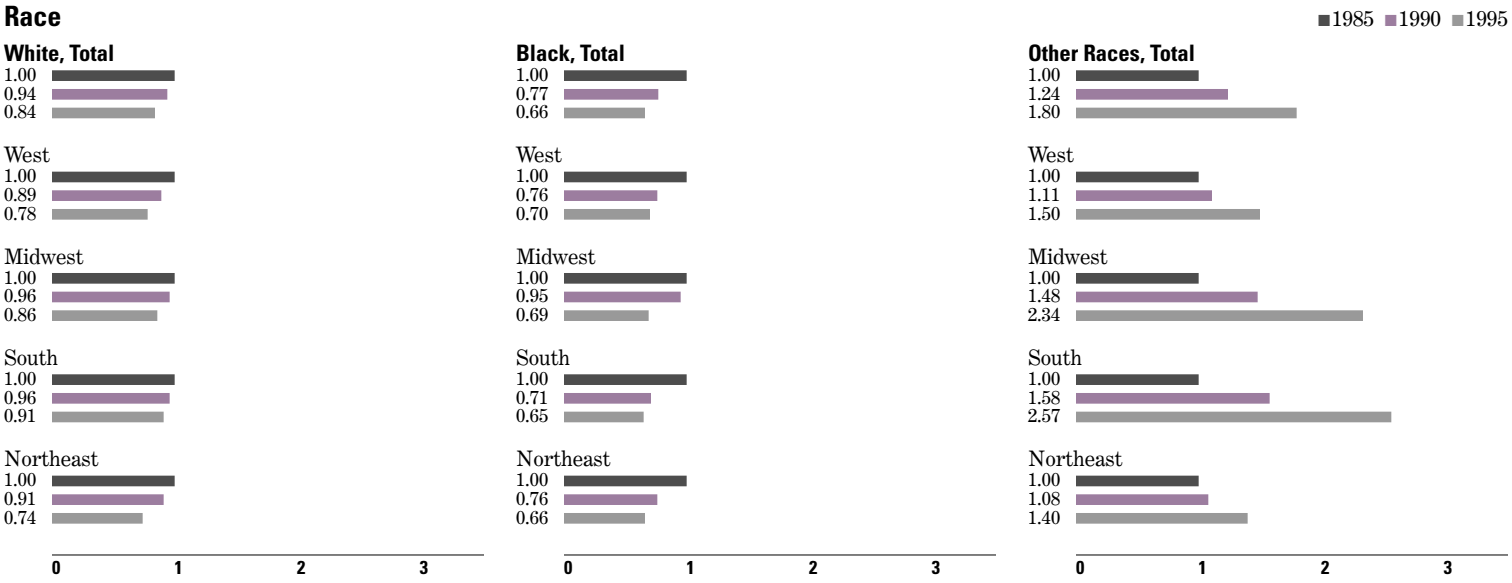
Urban/Rural



Male/Female

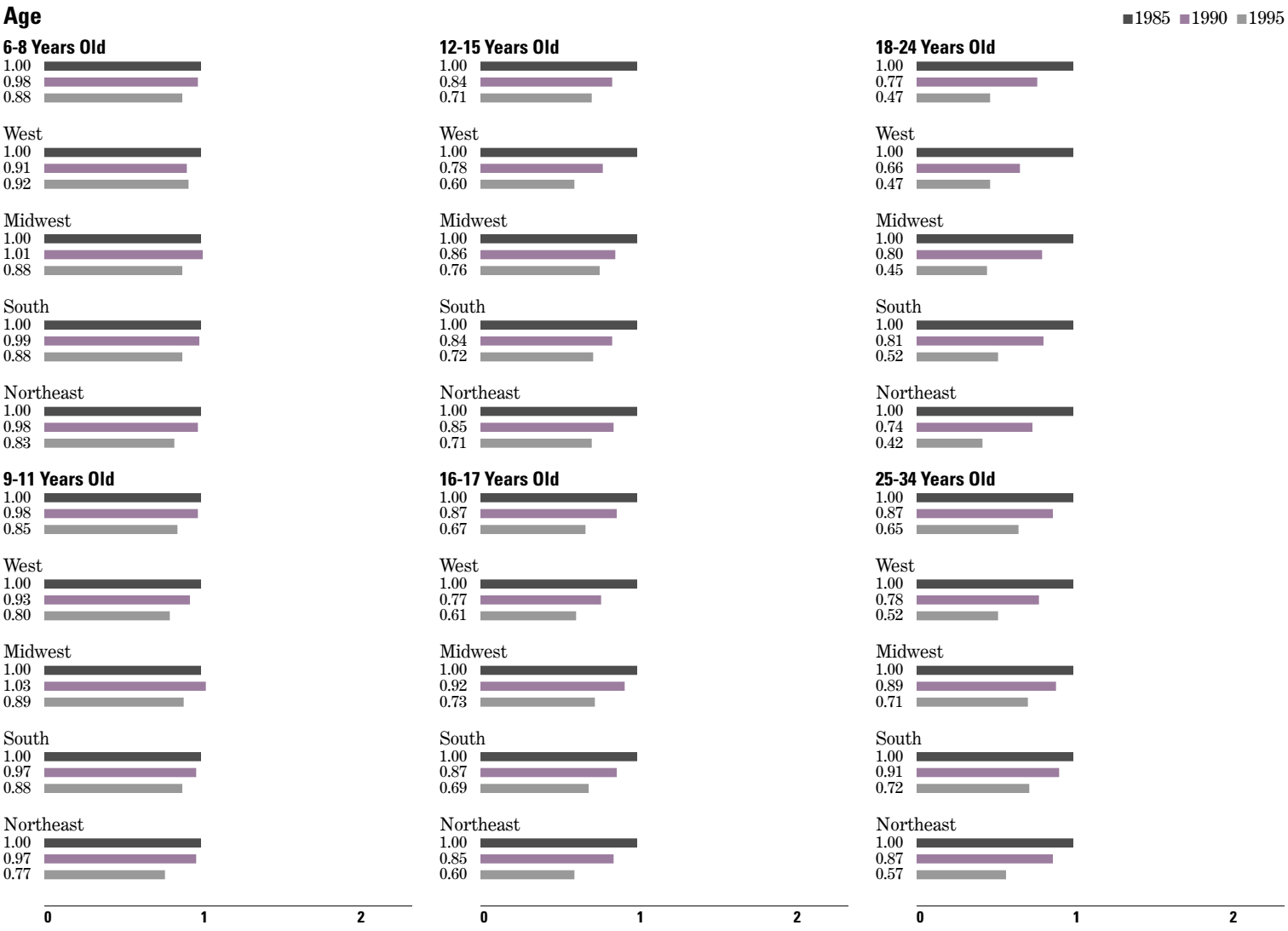


Race

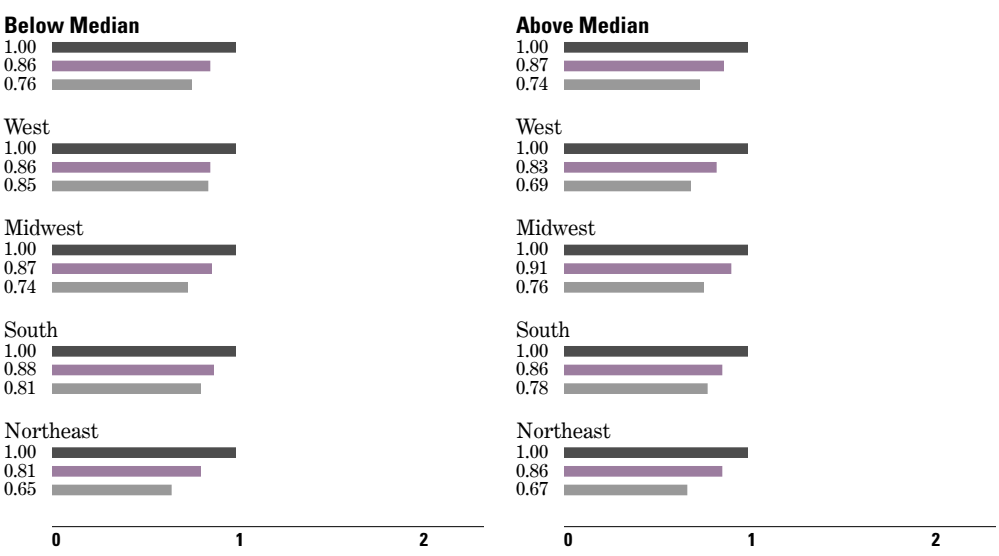


Residential Wildlife Feeding Indices of Change, by Region (continued)

Age

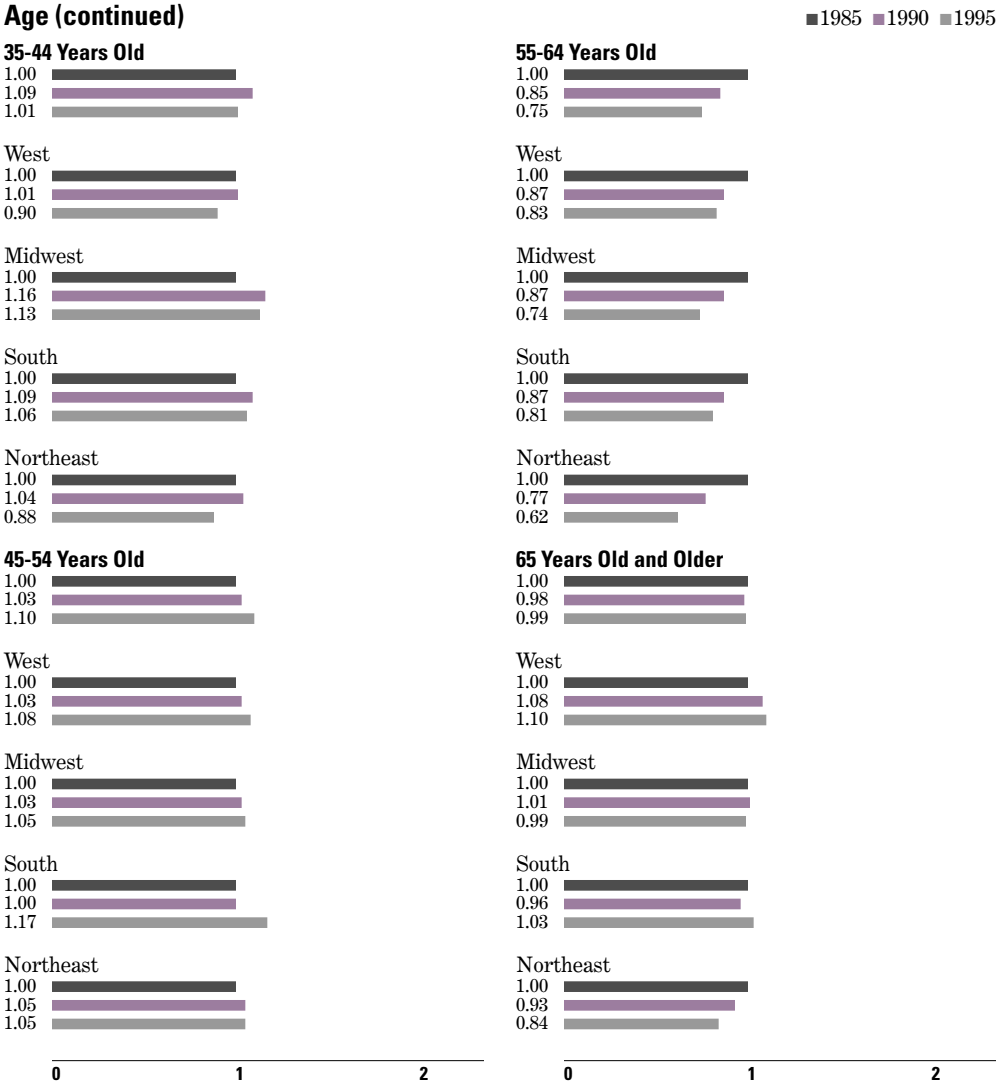


Median Income



Residential Wildlife Feeding Indices of Change, by Region (continued)

Age (continued)



Participation Rates

To better understand the foregoing description of the trends in the numbers of wildlife-related recreationists, selected demographic groups' participation rates are presented for each wildlife-related activity. Participation rates are the proportion of each demographic group that participated in the recreational activity. The effect on the recreational activity of a demographic group over time can then be seen. Each group's rate is compared to the overall population's participation rate to put it into context.

Demographic Influences on Hunting

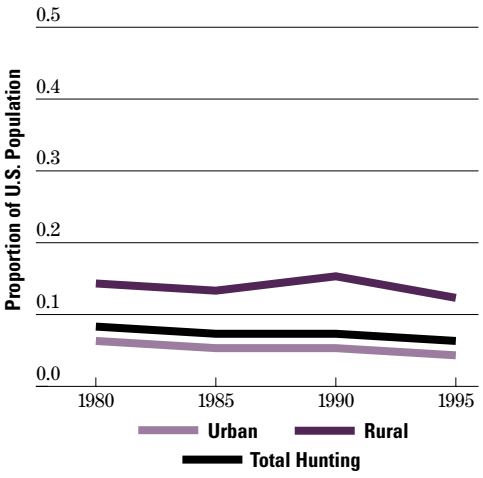
The hunting participation rate of Americans declined from 1980 to 1995: .09 in 1980, .08 in 1985, .08 in 1990, and .07 in 1995. Demographic groups that had participation rates consistently above the national average were males, whites, ruralites, 16-44 year olds, and people with above median income. Groups with a particularly positive effect on hunting participation beginning in 1980 and continuing to 1995 were 12-15 year olds and 45-64 year olds because they participated at rates below or even to the national average in 1980 and hunted at rates even or above, respectively, the national average in 1995. Their overall influence has been to push up the national average participation rate in hunting. However, this influence has been more than offset by the decline in participation rates of other demographic groups.

The groups with participation rates consistently below the national average are females, blacks, other races, urbanites, 6-11 year olds, 65 year olds and older, and people with below median income.

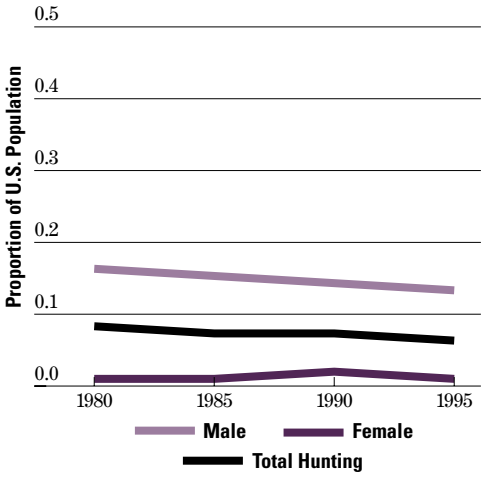
The groups with the largest changes in participation rates from 1980 to 1995 were 55-64 year olds (a .01 increase) and 18-34 year olds (a .04 decrease). It should be noted that even a small change in a participation rate can have a profound effect on the number of participants. For example, the .01 increase in the participation rate of 55-64 year olds translates to an additional 233 thousand hunters, while the .04 decrease in the 18-34 year olds' participation rate means 2.2 million fewer hunters.

Participation Rates in Hunting

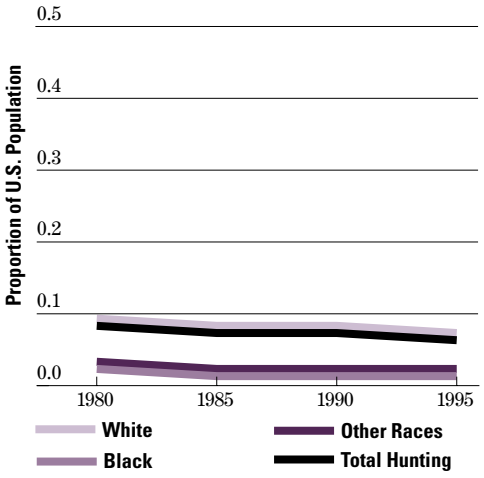
Urban/Rural



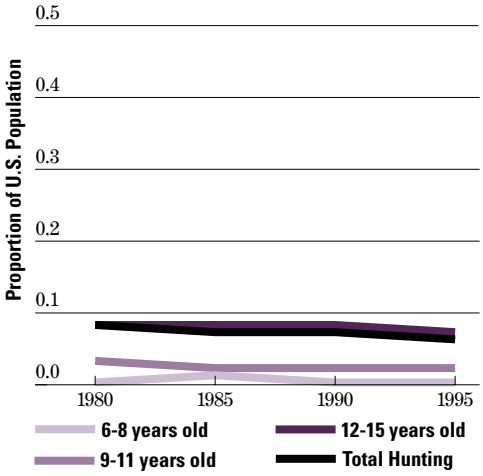
Male/Female



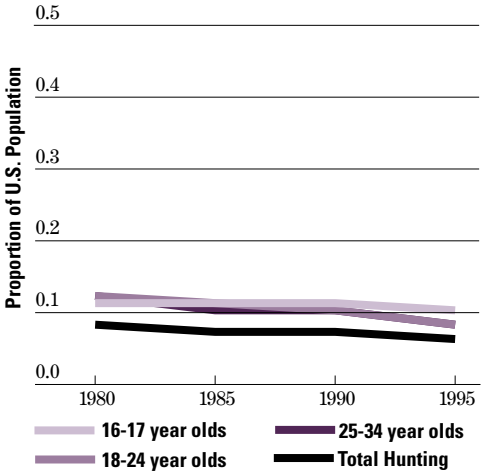
Race



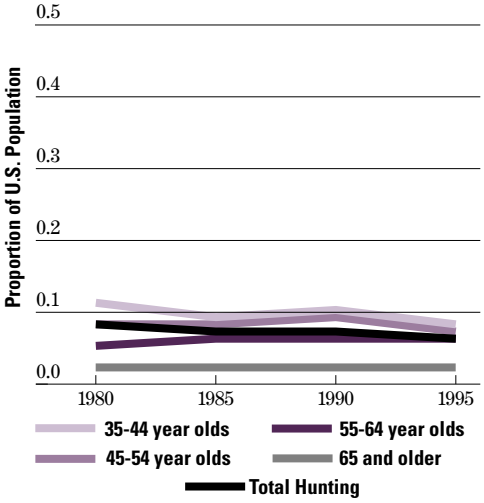
6-15 Year Olds



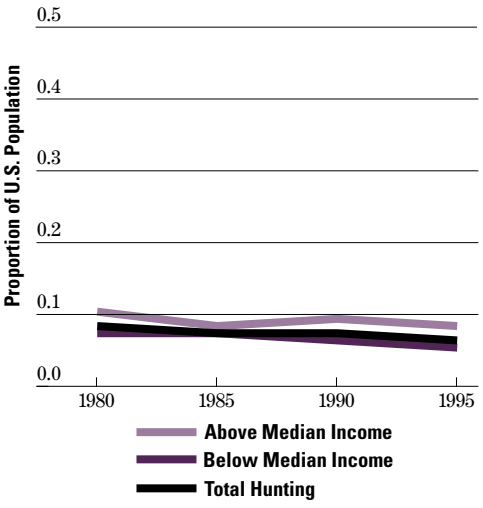
16-34 Year Olds



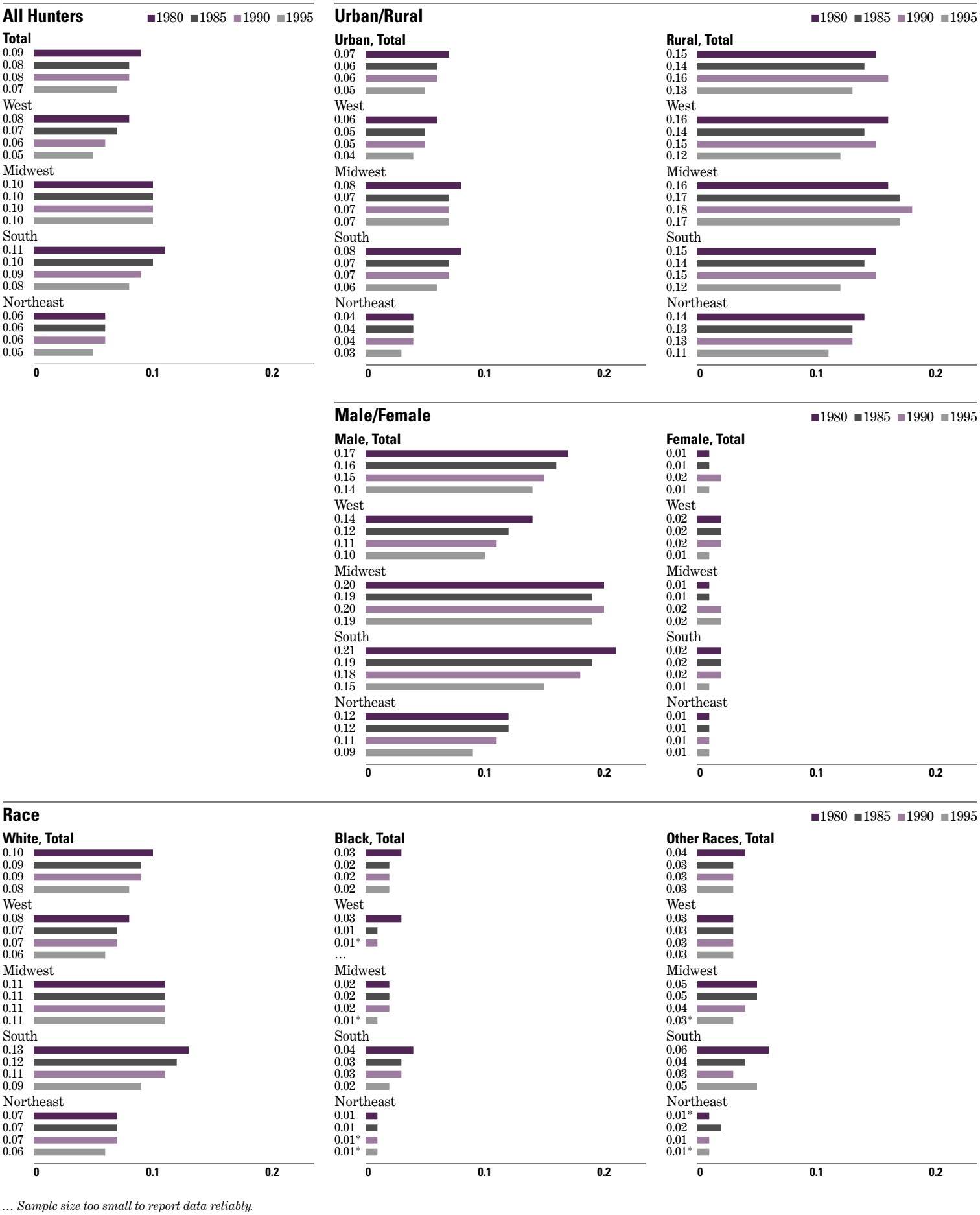
35 Year Olds and Older



Median Income



Participation Rates in Hunting, by Region

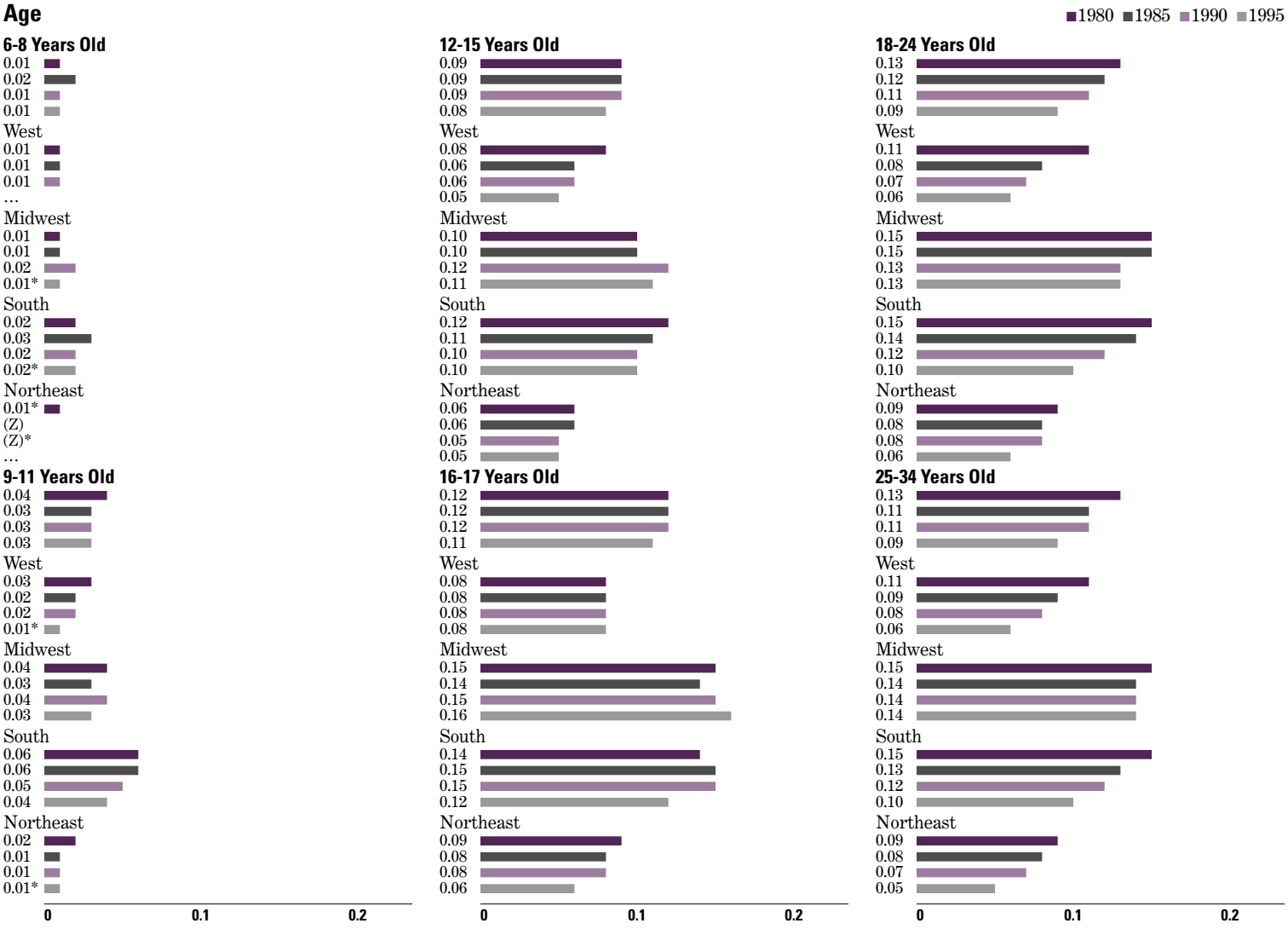


… Sample size too small to report data reliably.

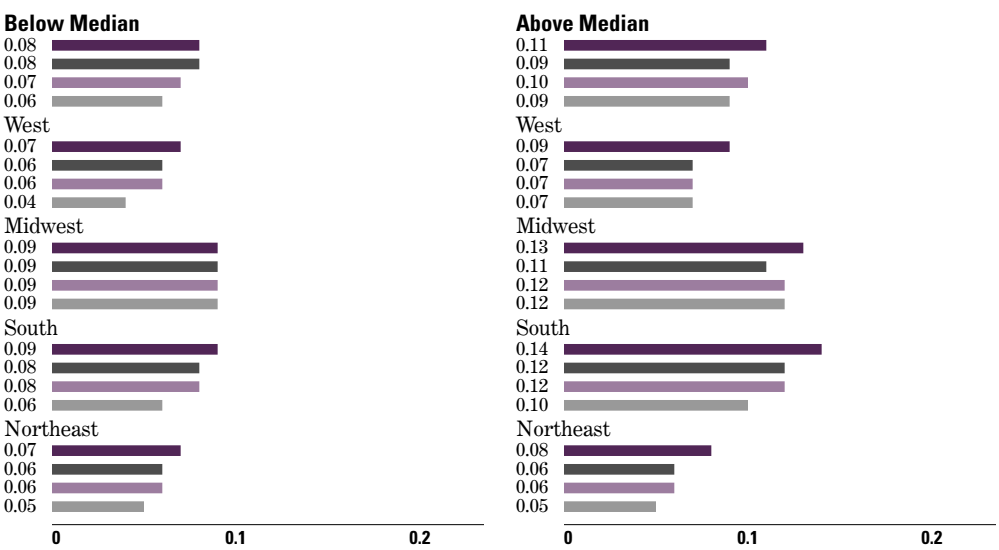
**Based on a sample size between 10 and 30.*

Participation Rates in Hunting, by Region (continued)

Age



Median Income



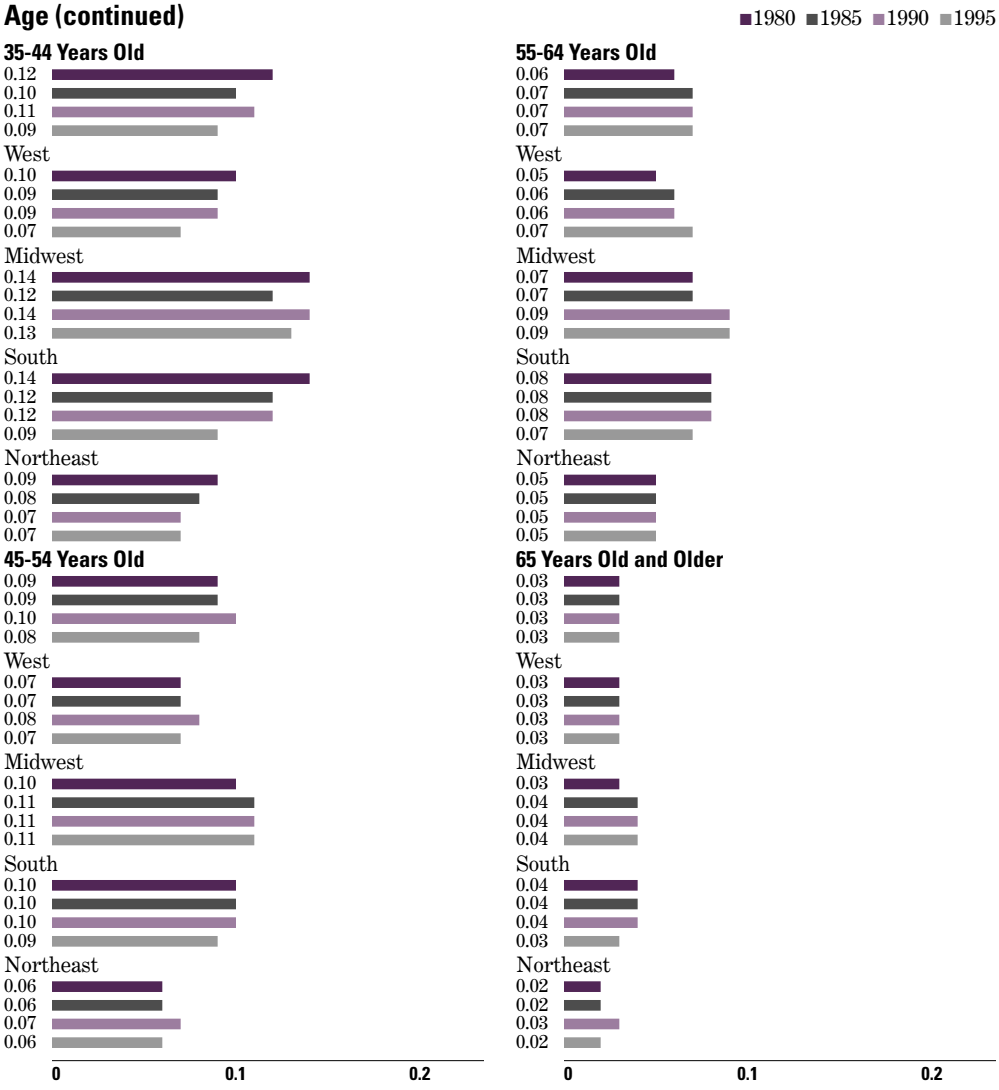
… Sample size too small to report data reliably.

**Based on a sample size between 10 and 30.*

(Z) Less than 0.005.

Participation Rates in Hunting, by Region (continued)

Age (continued)



Demographic Influences on Fishing

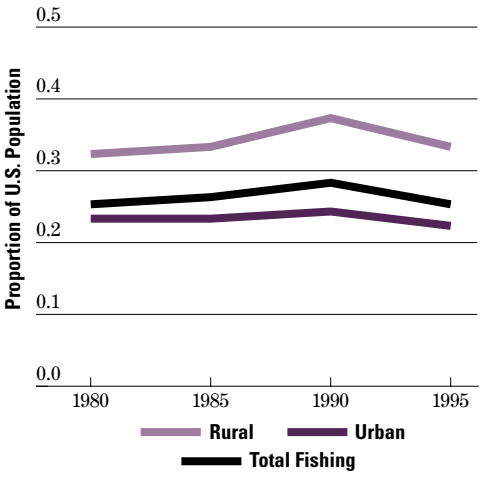
The participation rates in fishing for Americans were .26 in 1980, .27 in 1985, .29 in 1990, and .26 in 1995. Demographic groups that consistently had participation rates above the national average were males, whites, ruralites, 6-17 year olds, 25-44 year olds, and people with higher than median incomes. Demographic groups that consistently had participation rates below the national average were females, blacks, other races, urbanites, people 45 years old and older, and people in the below median income group.

The group that had a participation rate above the national average in 1980 and equal to the national average participation rate in 1995 was 18-24 year olds. For the downturn years from 1990 to 1995, the 18-24 year olds had a participation rate that was above the national rate in 1990 and equal to the national rate in 1995. Other groups that experienced participation rate declines of similar magnitude from 1990 to 1995 were the ruralites, 16-17 year olds, and 35-44 year olds.

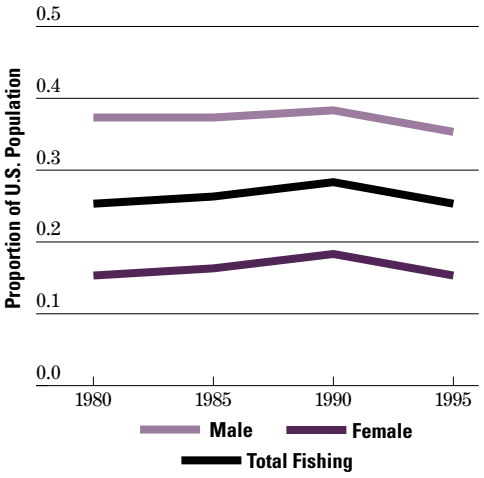
The groups with the biggest changes in participation rates from 1980 to 1995 were 6-11 year olds (.07 increase) and males and people of other races (.02 decrease).

Participation Rates in Fishing

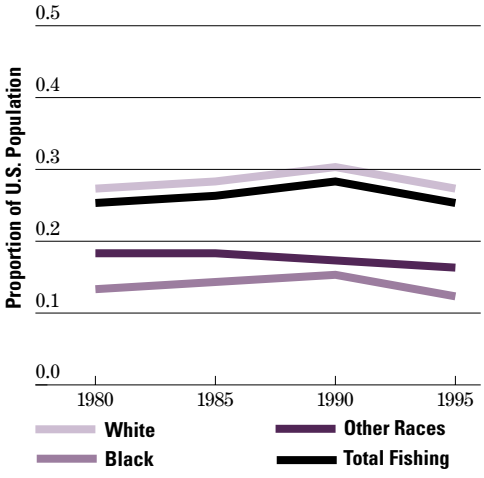
Urban/Rural



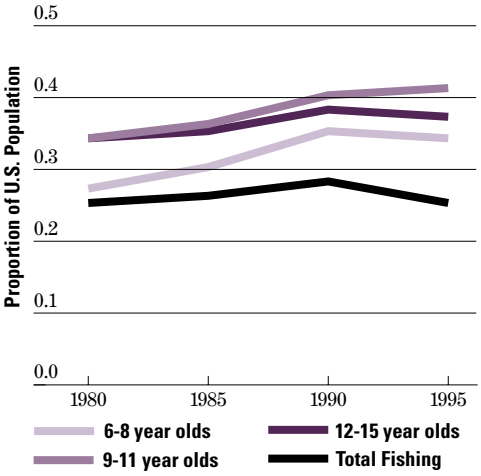
Male/Female



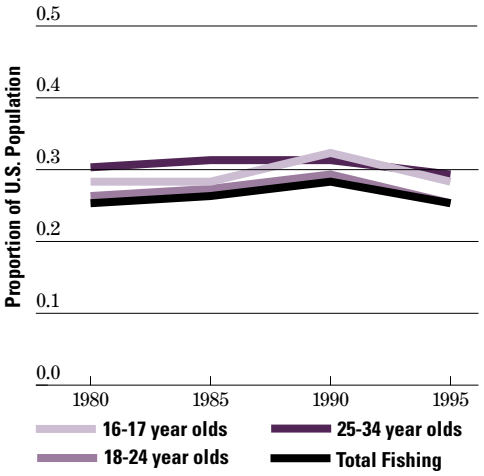
Race



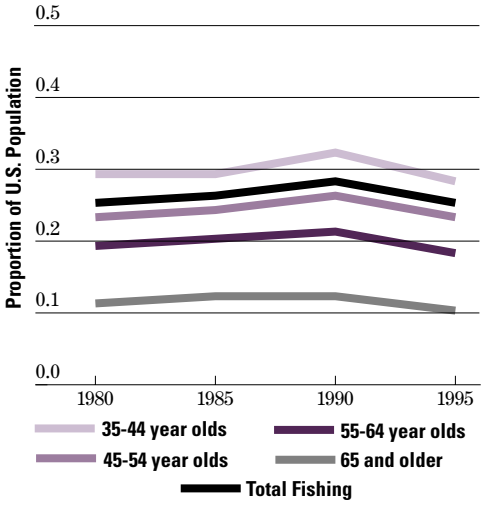
6-15 Year Olds



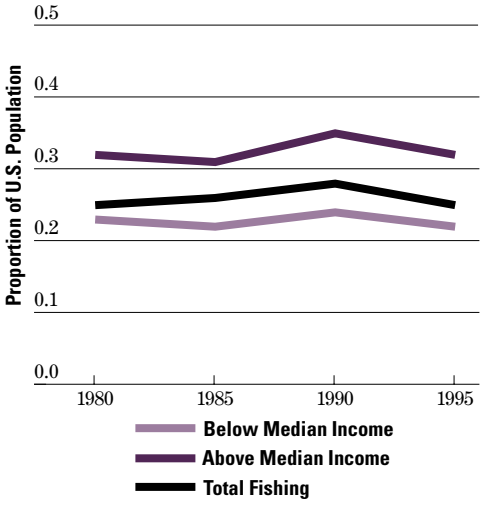
16-34 Year Olds



35 Year Olds and Older

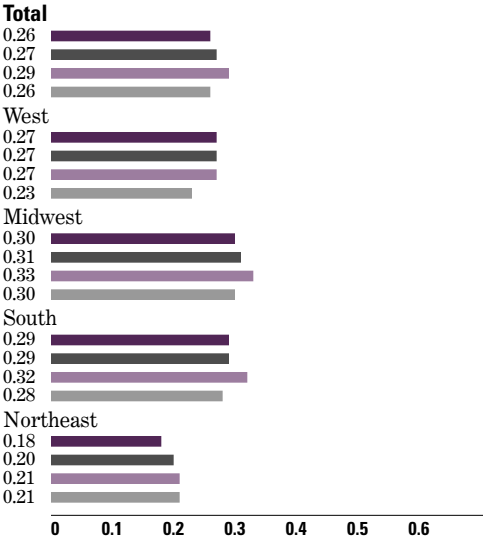


Median Income

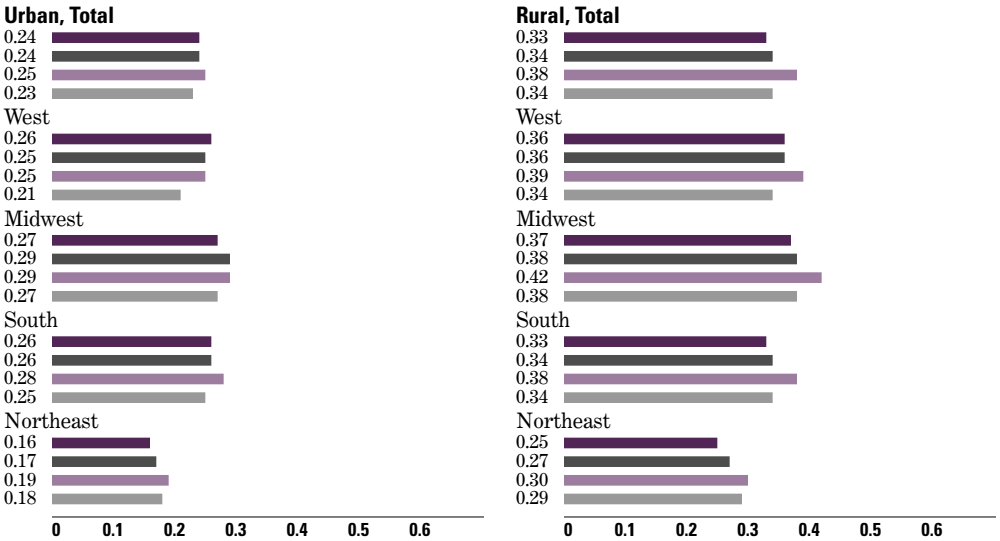


Participation Rates in Fishing, by Region

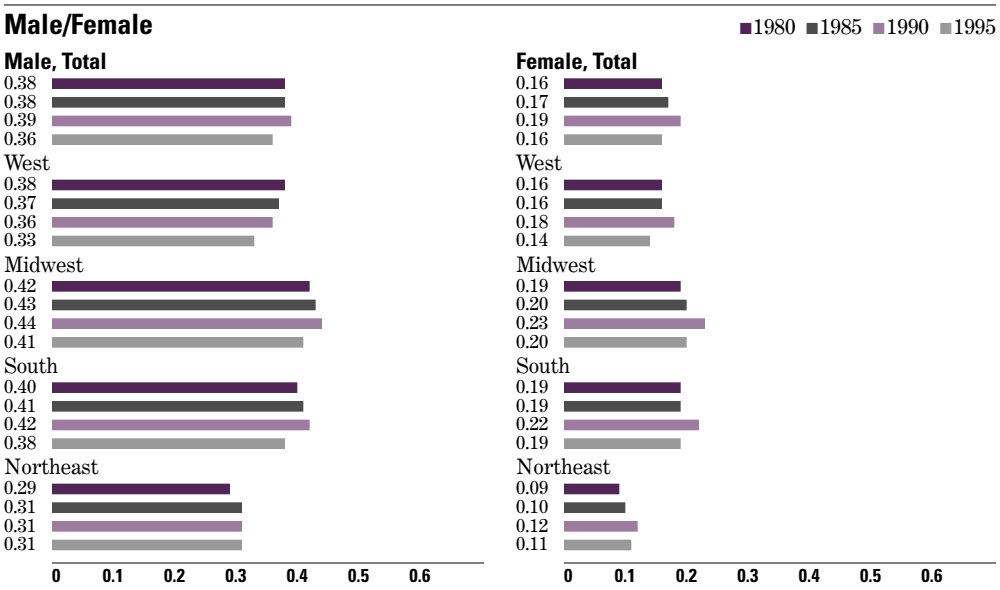
All Anglers



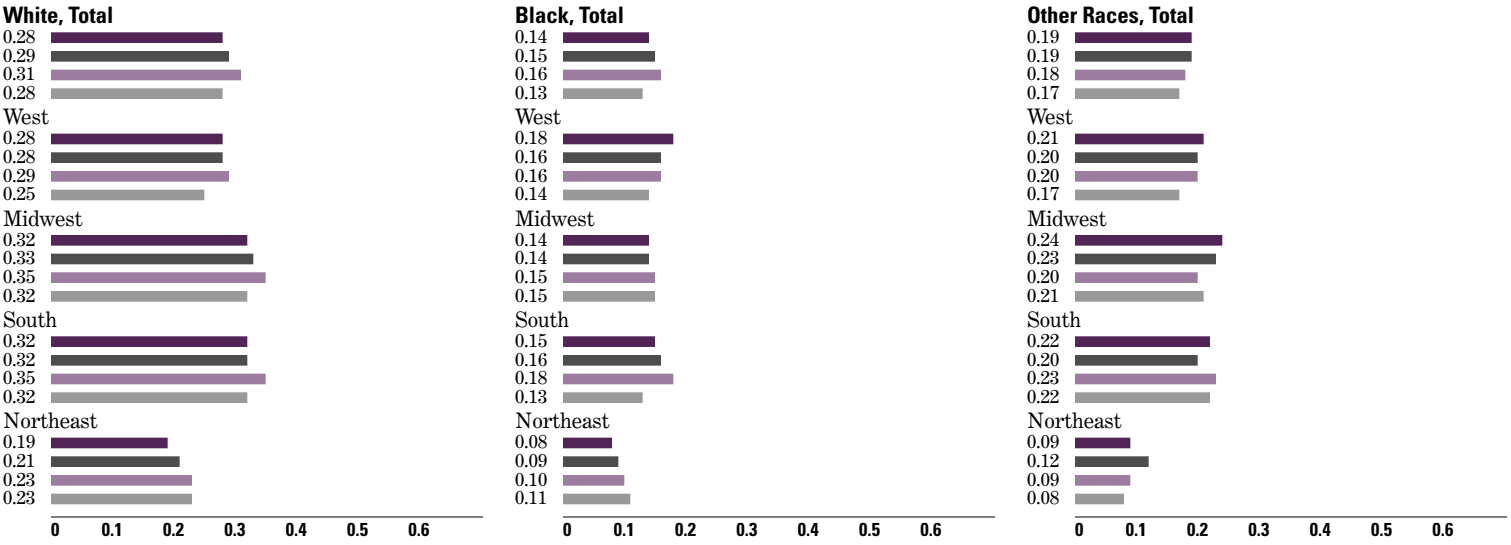
Urban/Rural



Male/Female

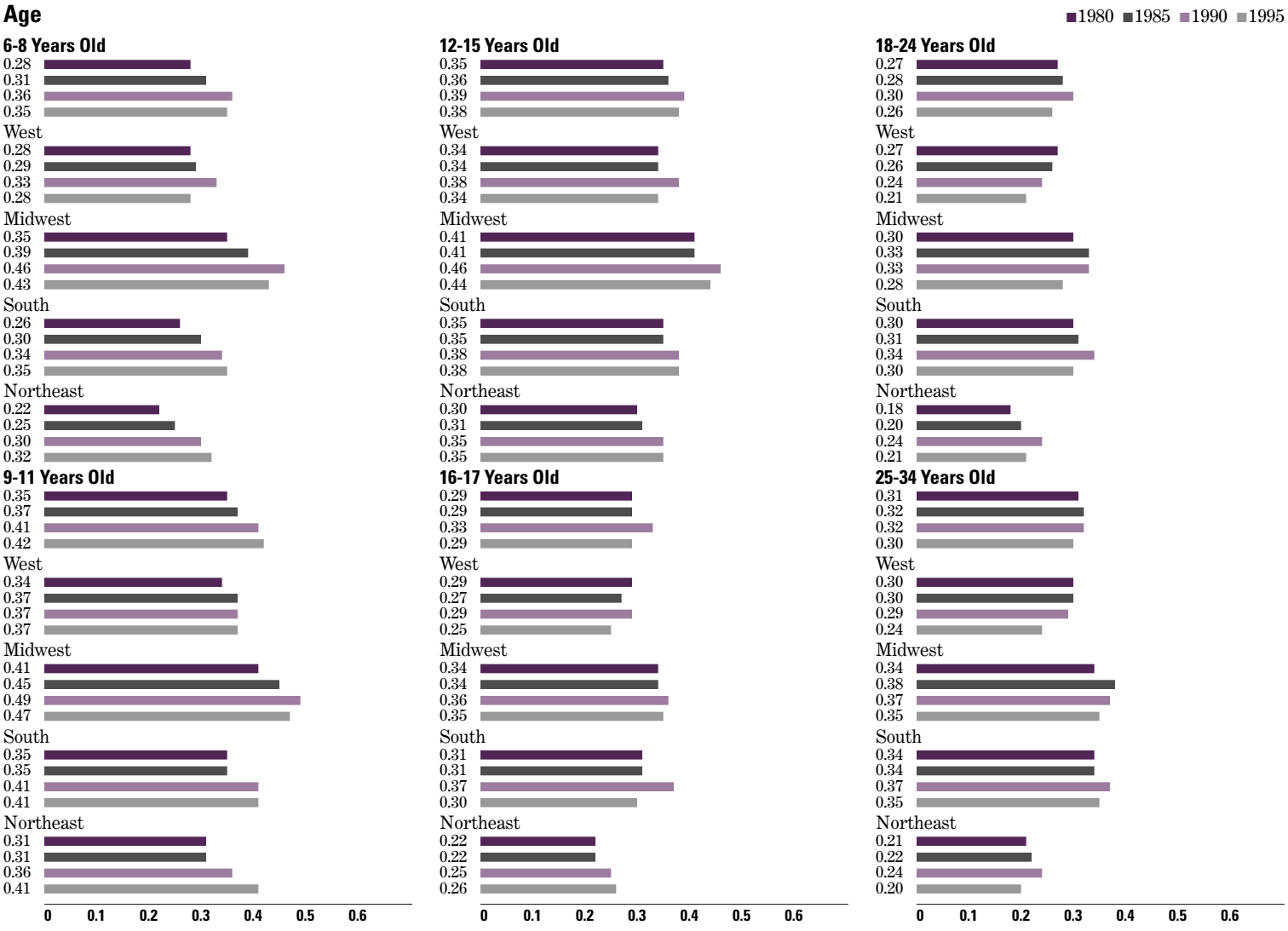


Race

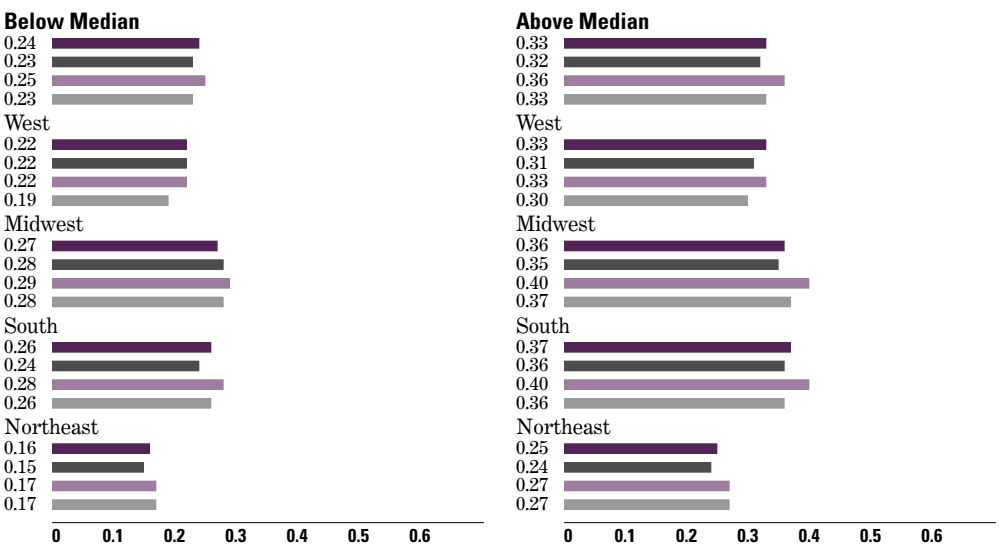


Participation Rates in Fishing, by Region (continued)

Age

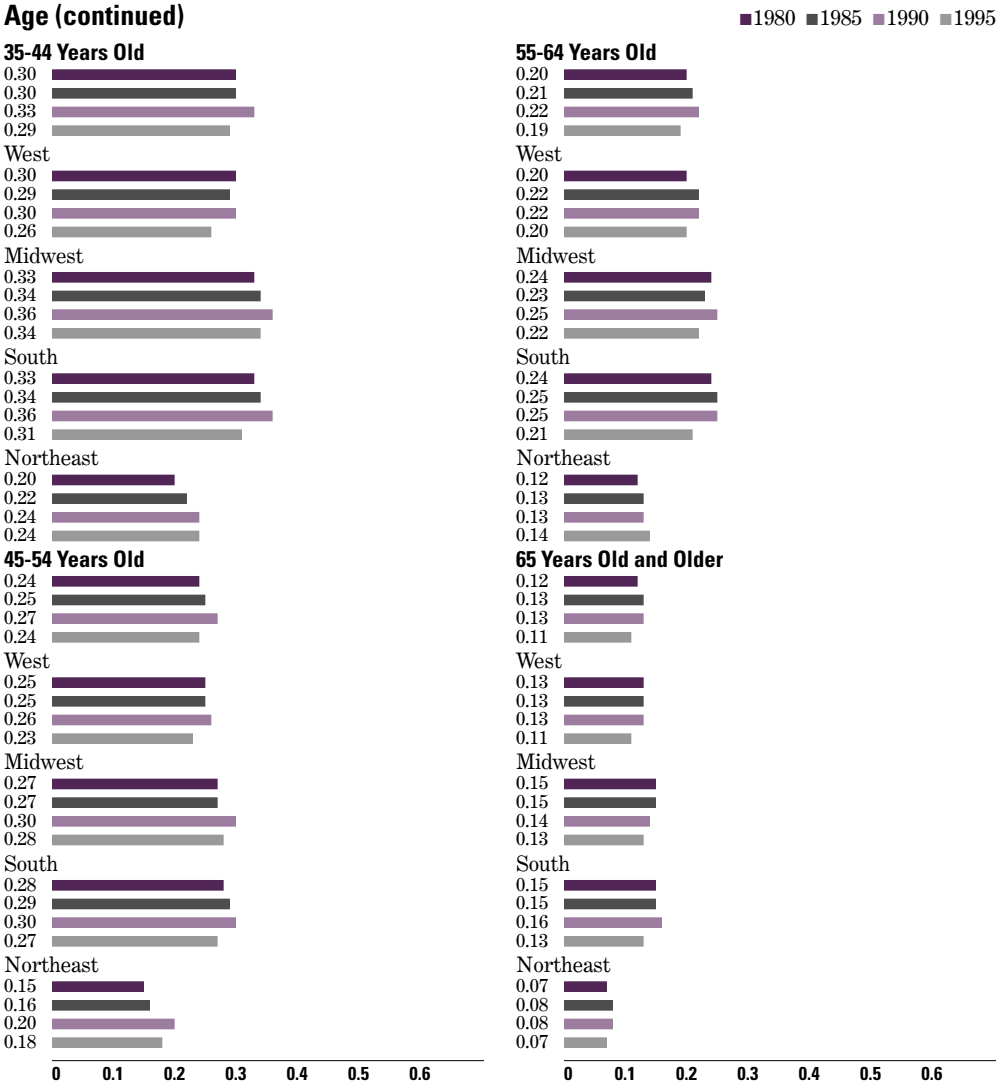


Median Income



Participation Rates in Fishing, by Region (continued)

Age (continued)



Demographic Influences on Nonresidential Wildlife Watching

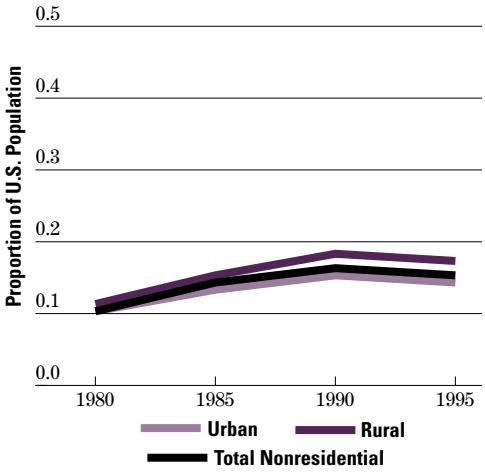
The participation rates in nonresidential wildlife watching ranged from .11 in 1980 to .15 in 1985, .17 in 1990, and .16 in 1995. Groups that had participation rates above the national average were whites, ruralites, 6-15 year olds, 25-44 year olds, and people with above median income.

Groups with participation rates below the national average were females, blacks, other races, 16-17 year olds, 55 year olds and older, and people with below median income. Groups that had participation rates above or equal to the national average in 1980 and participation rates equal to or below, respectively, the national average in 1995 were males, urbanites, and 18-24 year olds. The net effect of these groups was to pull down the overall participation rate. The group with a participation rate below the national average in 1980 and equal to the national average in 1995 was 45-54 year olds. The net effect of this age group on nonresidential wildlife watching was to push the average participation rate up.

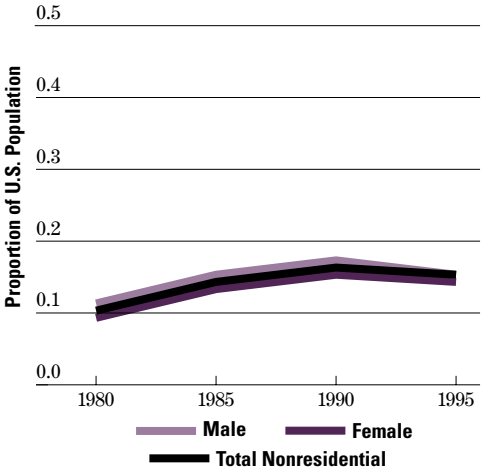
The groups with the biggest changes in participation rates from 1980 to 1995 were 6-8 year olds and 35-54 year olds (.08 increase) and 18-24 year olds (.02 decrease).

Participation Rates in Nonresidential Wildlife Watching

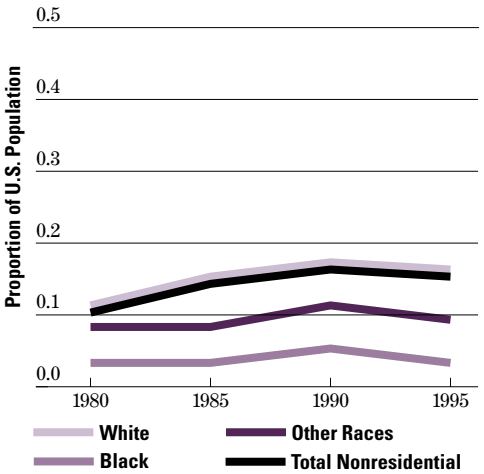
Urban/Rural



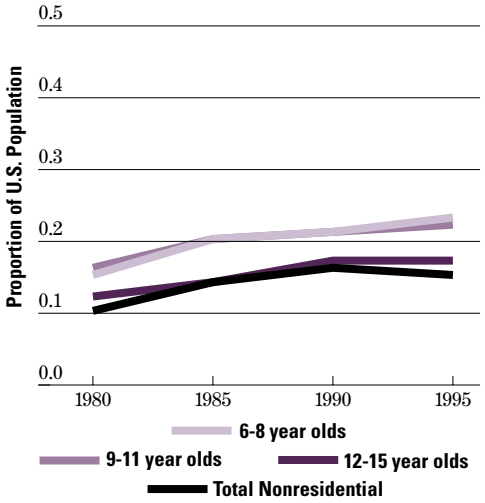
Male/Female



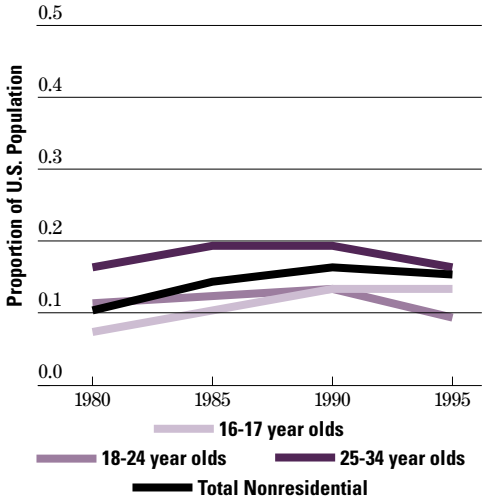
Race



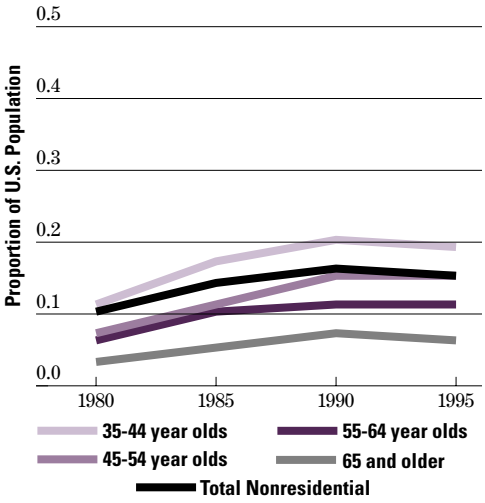
6-15 Year Olds



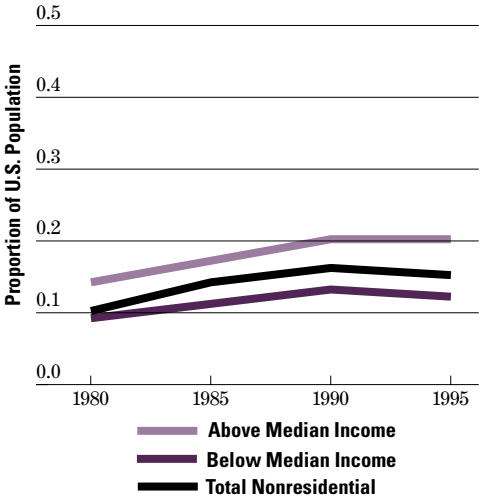
16-34 Year Olds



35 Year Olds and Older

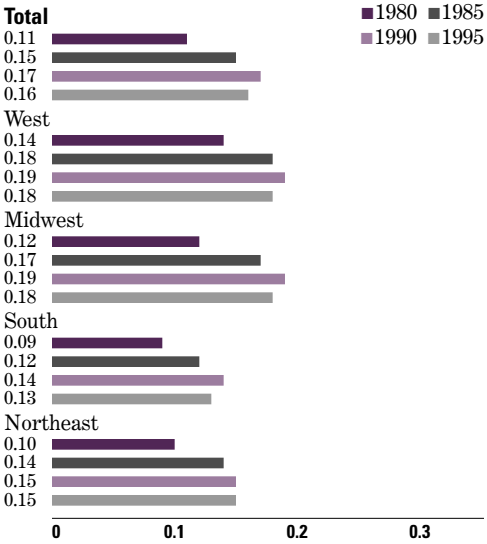


Median Income



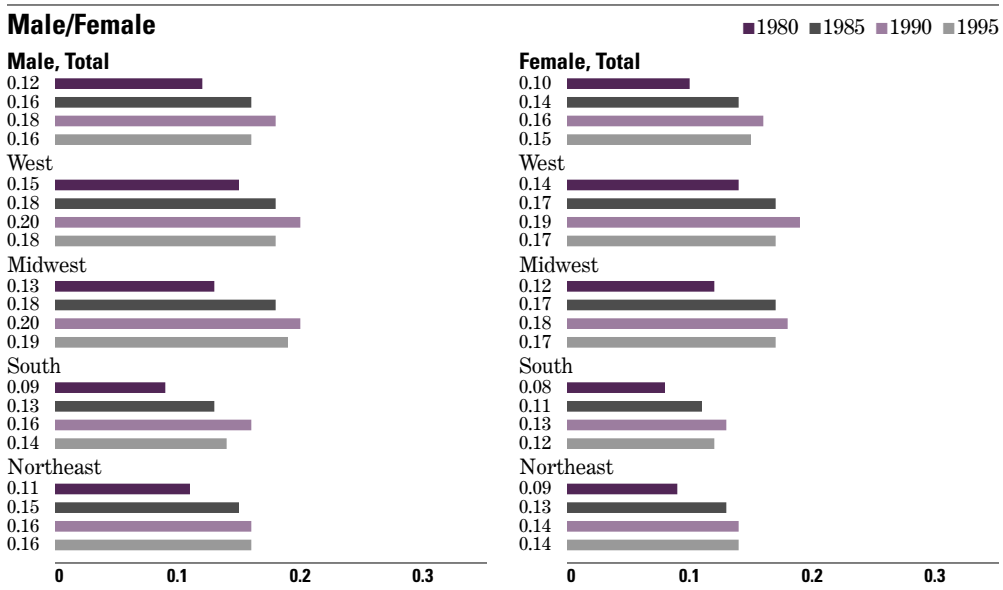
Participation Rates in Nonresidential Wildlife Watching, by Region

All Nonresidential Wildlife Watchers

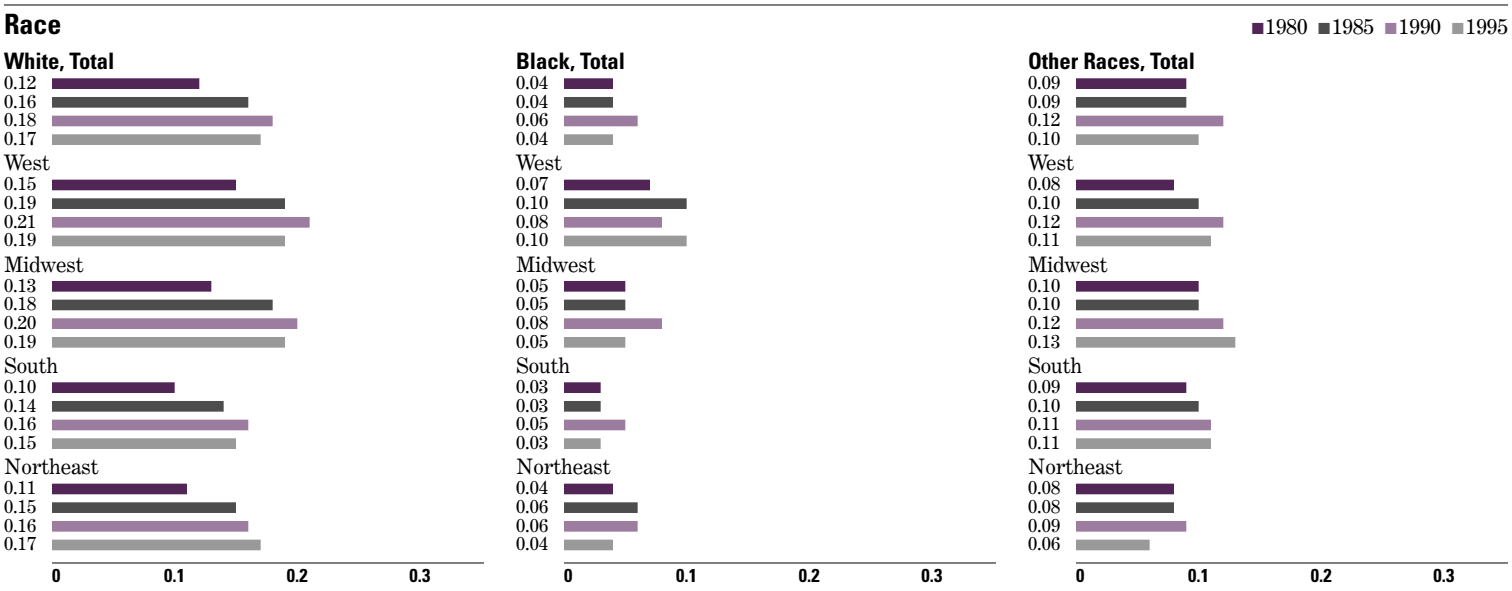


Urban/Rural

Male/Female

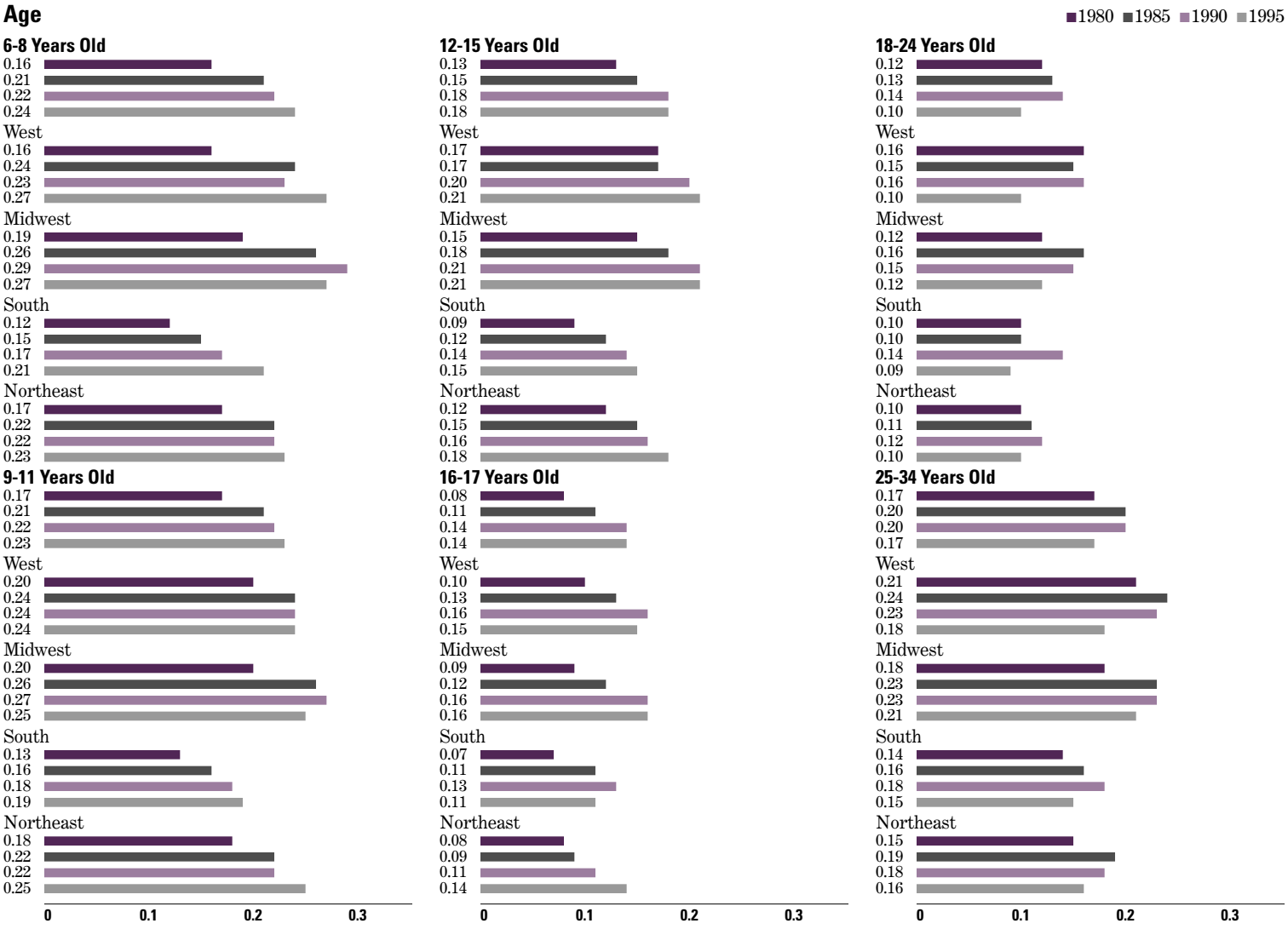


Race

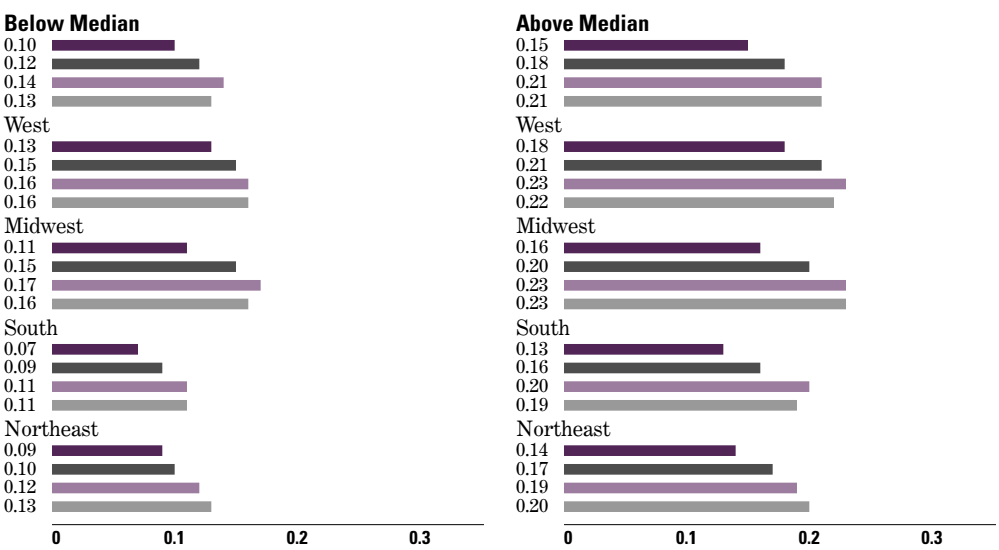


Participation Rates in Nonresidential Wildlife Watching, by Region (continued)

Age

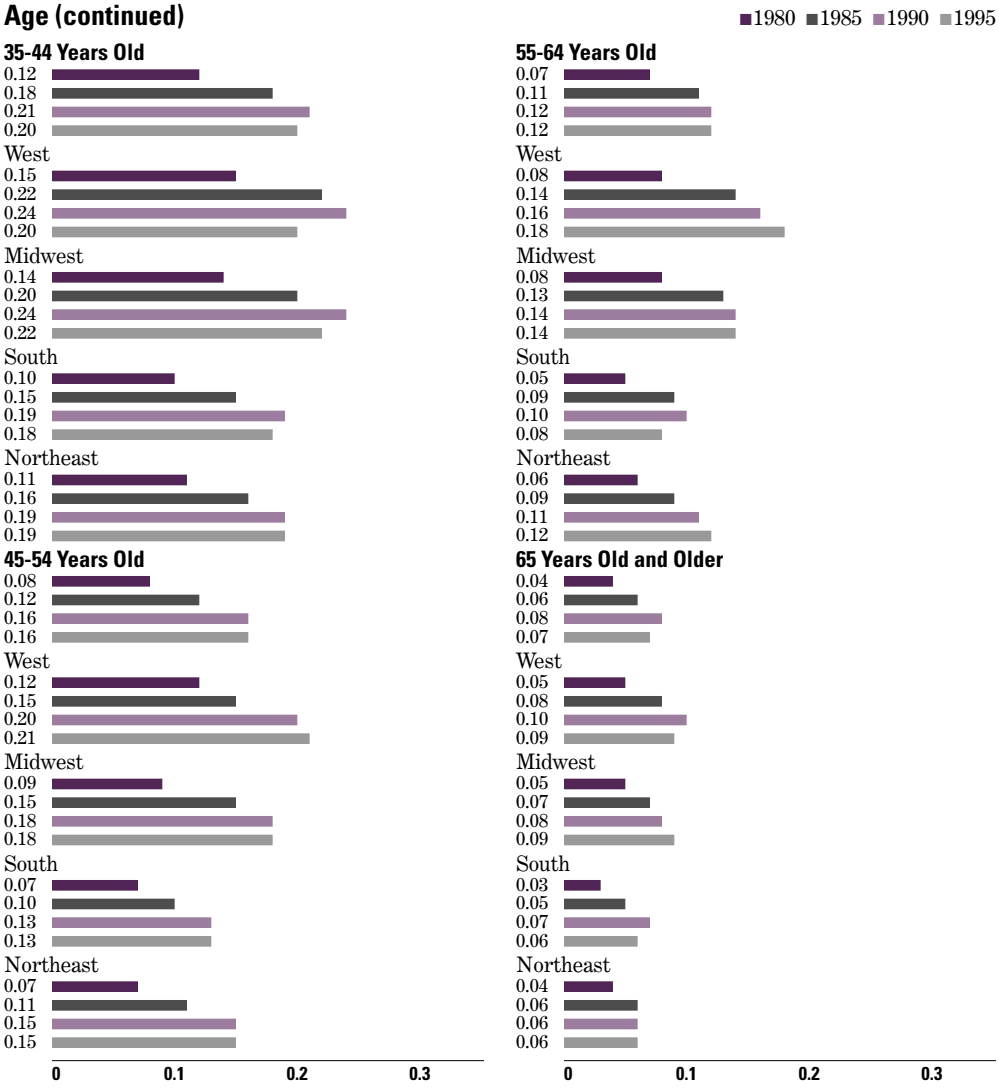


Median Income



Participation Rates in Nonresidential Wildlife Watching, by Region (continued)

Age (continued)



Demographic Influences on Residential Wildlife Observing

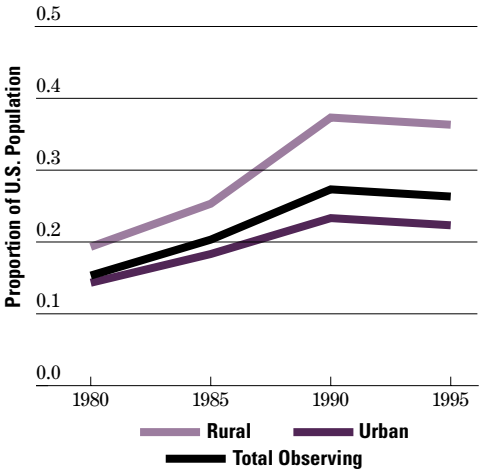
The participation rates in residential observing were .16 in 1980, .21 in 1985, .28 in 1990, and .27 in 1995. Demographic groups that have participation rates consistently above the national average were males, whites, ruralites, 6-11 year olds, 45-64 year olds, and people with incomes above the national median.

Groups that had participation rates consistently below the national average were blacks, other races, urbanites, 16-24 year olds, and people with below median income. Females had the same participation rates in 1980 and 1995 as the national average and were .01 below the national average in 1985 and 1990. 12-15 year olds and 25-34 year olds had increases of at least .06 in their rates, but did not match the increase in the overall participation rate. The groups that had participation rates below or the same as the national average in 1980 and above the national average in 1995 were people 35-44 years old and 65 years old and older. The net effect of these latter two groups was to push the overall average rate up.

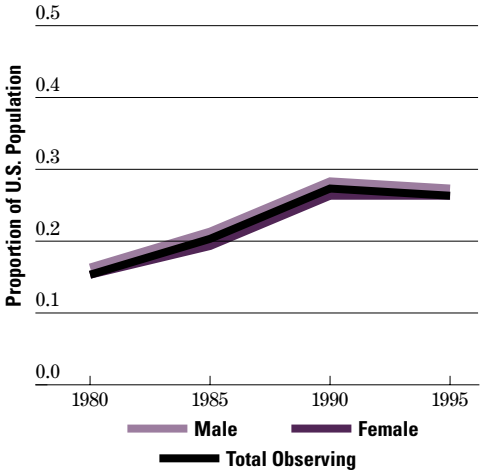
The group with the biggest increase in its participation rate from 1980 to 1995 was ruralites (.17 increase). No group experienced a decrease. The group with the smallest increase was 18-24 year olds (.02 increase).

Participation Rates in Residential Wildlife Observing

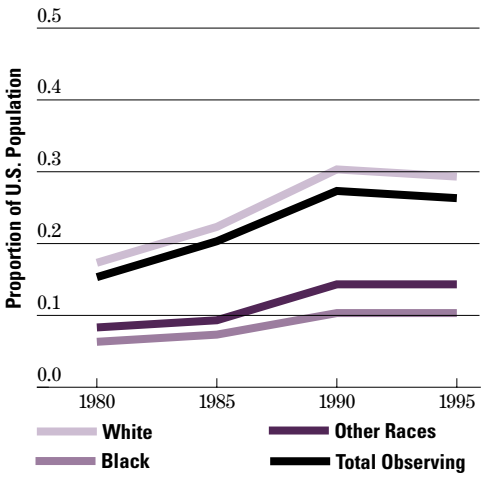
Urban/Rural



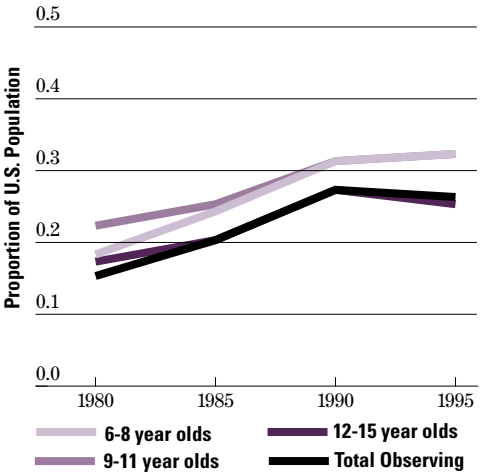
Male/Female



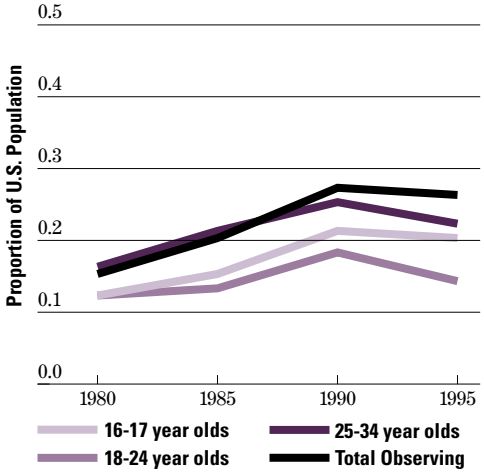
Race



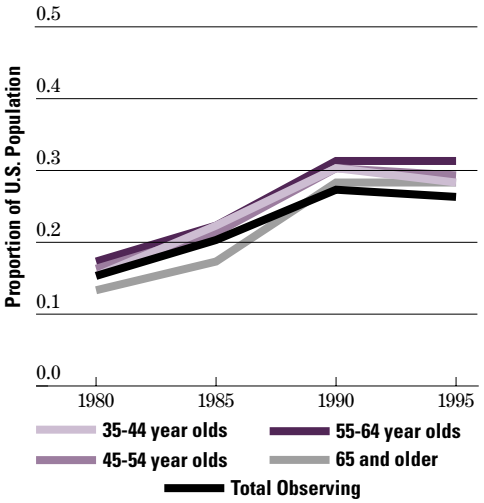
6-15 Year Olds



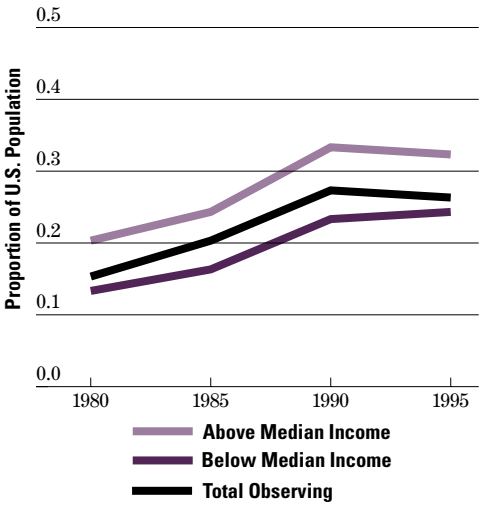
16-34 Year Olds



35 Year Olds and Older

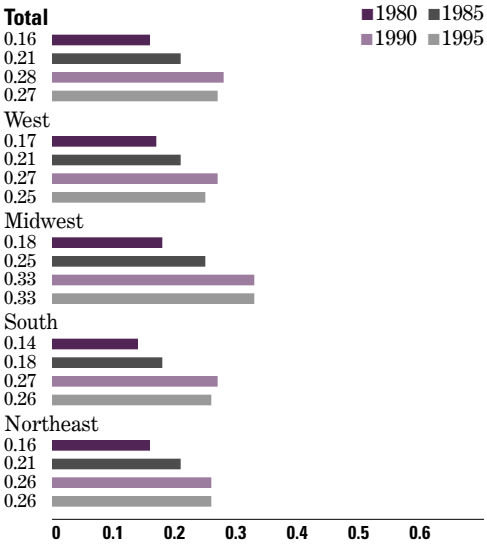


Median Income

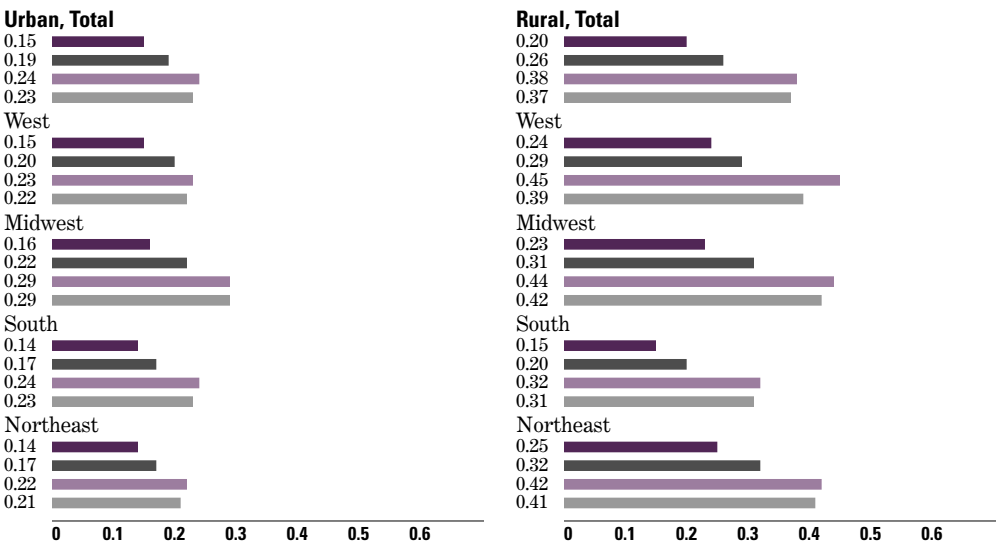


Participation Rates in Residential Wildlife Observing, by Region

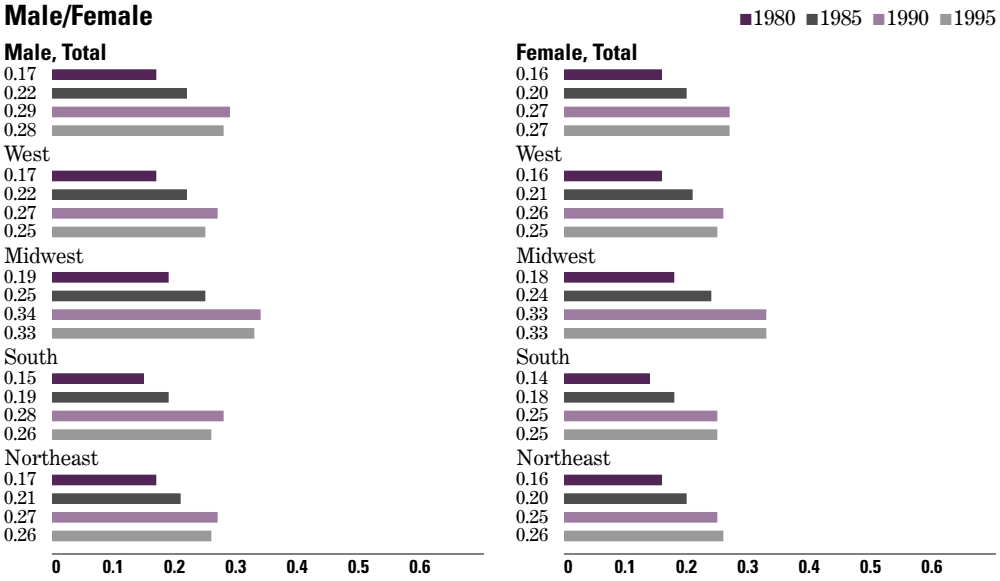
All Residential Observers



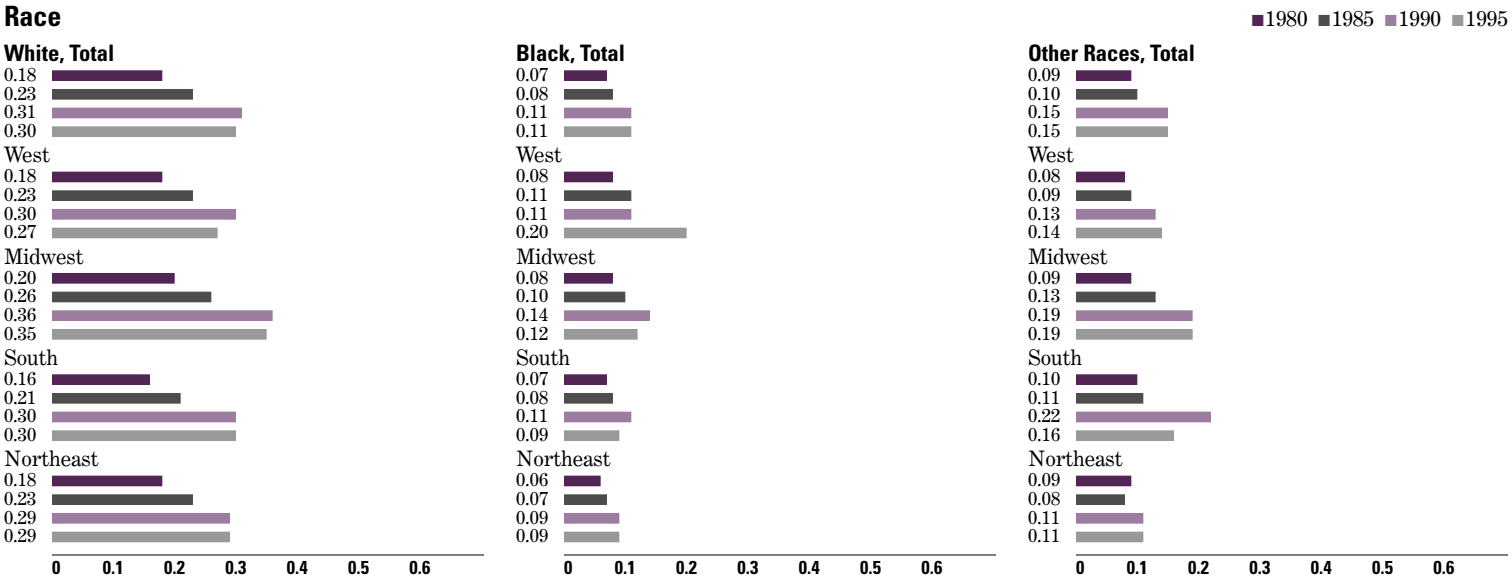
Urban/Rural



Male/Female

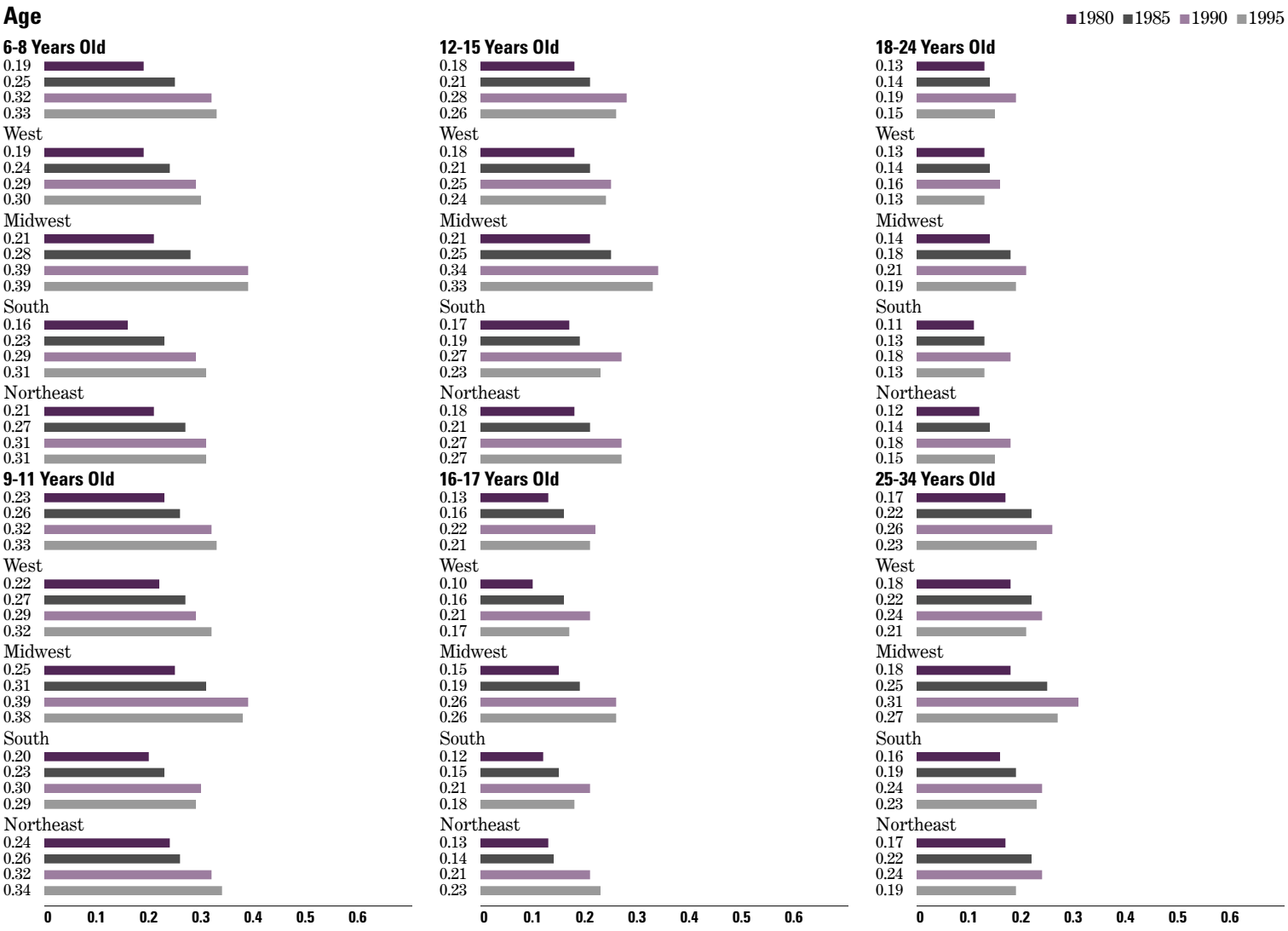


Race

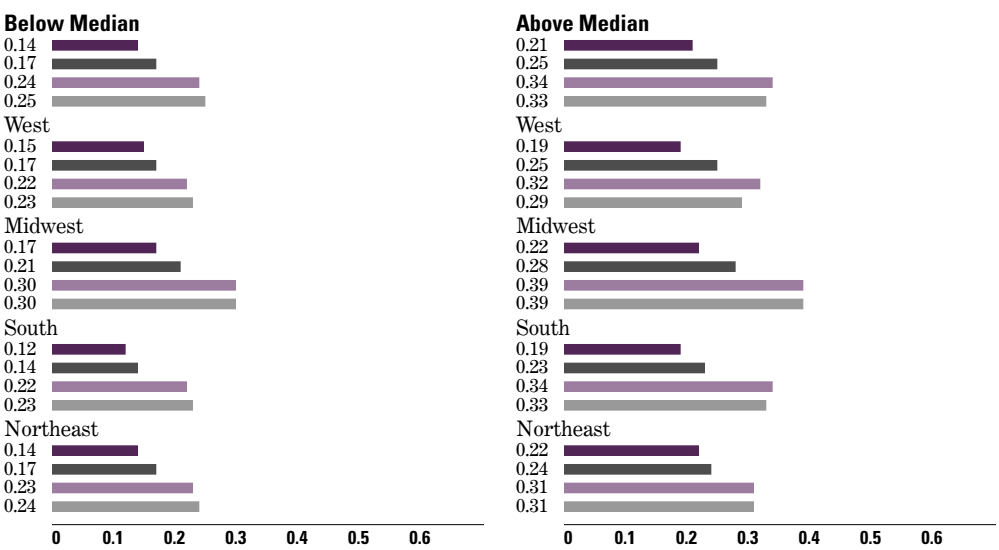


Participation Rates in Residential Wildlife Observing, by Region (continued)

Age

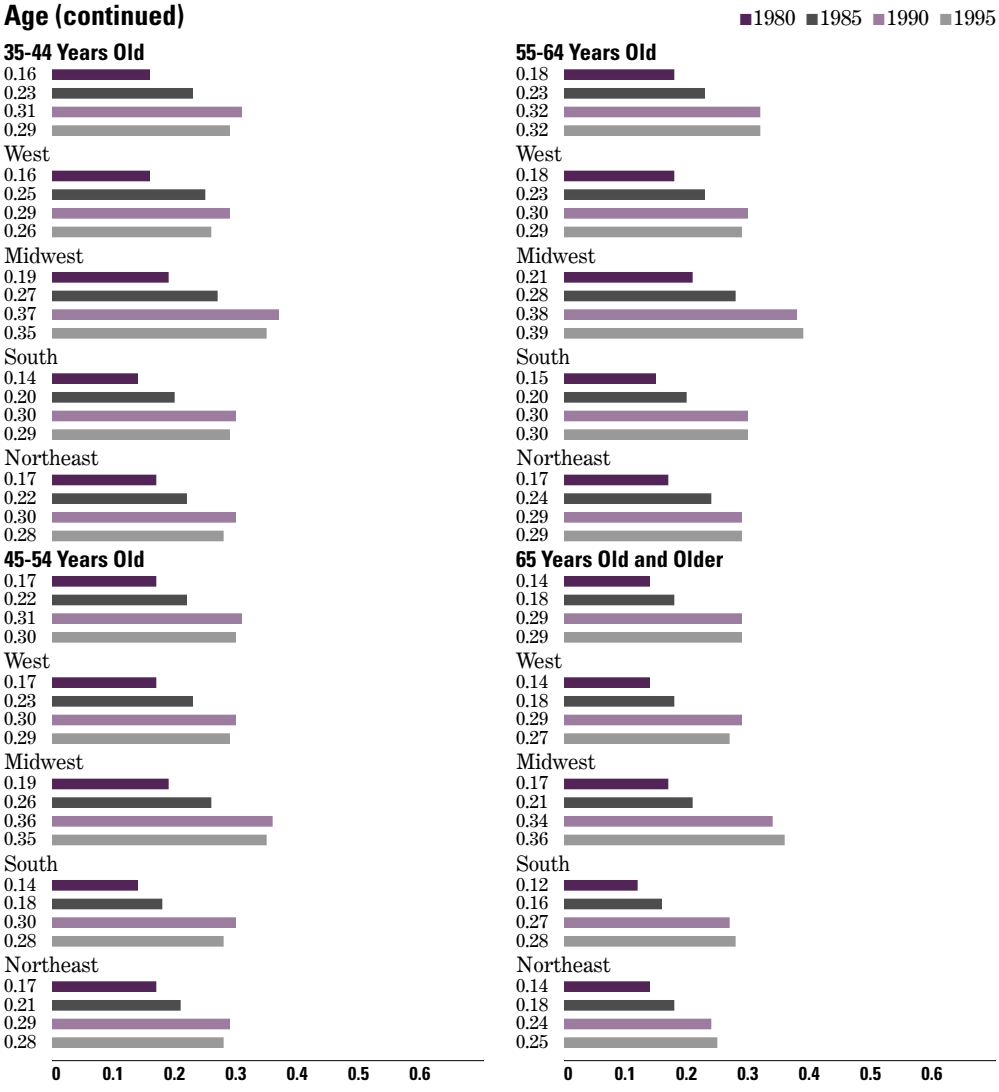


Median Income



Participation Rates in Residential Wildlife Observing, by Region (continued)

Age (continued)



Demographic Influences on Residential Wildlife Feeding

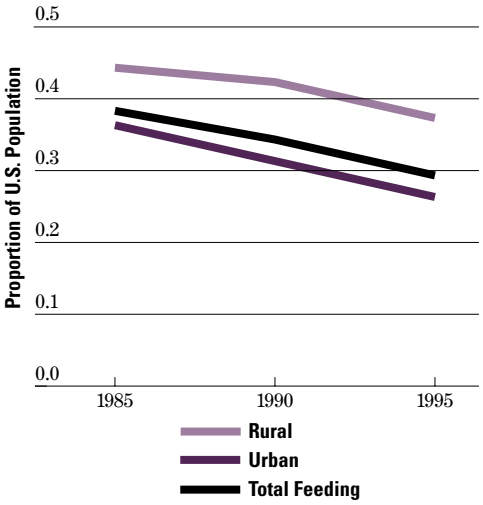
The 1980 screening data did not include a comparable residential feeding section, so the analysis period for this activity is 1985-1995. The overall participation rate dropped .09 from 1985 to 1995: .39 in 1985, .35 in 1990, and .30 in 1995. Females, whites, ruralites, 35 year olds and older, and people with above median income had participation rates consistently above the overall participation rate.

Males, blacks, other races, urbanites, 6-8 year olds, 12-34 year olds, and people with below median income had participation rates consistently below the national average. The 9-11 year olds had a drop in their participation rate from above the national average in 1985 to below it in 1995. The 18-24 year olds' participation rate dropped from .28 to .15, the largest drop of any group.

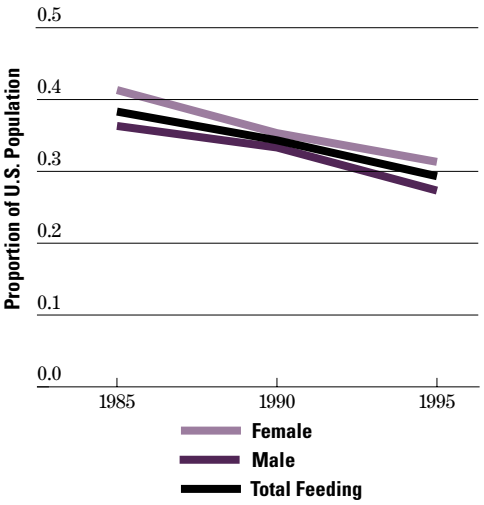
There was no group with an increase in their participation rate. The group with the smallest decrease was people of other races (.04 decrease).

Participation Rates in Residential Wildlife Feeding

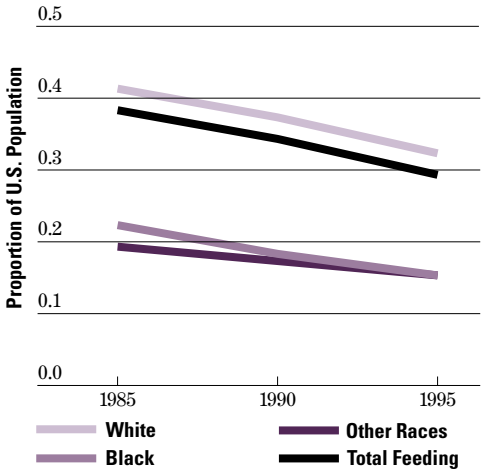
Urban/Rural



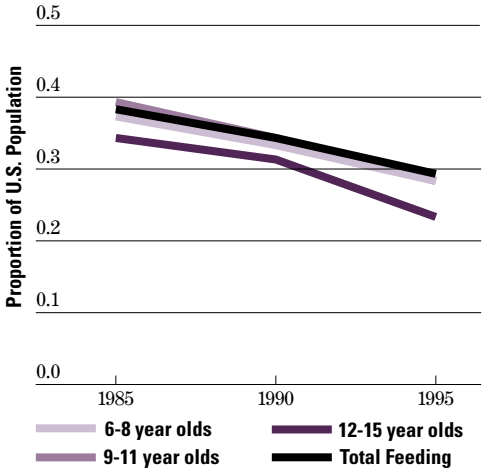
Male/Female



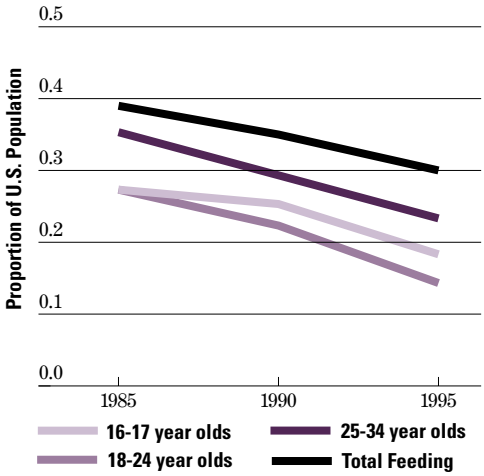
Race



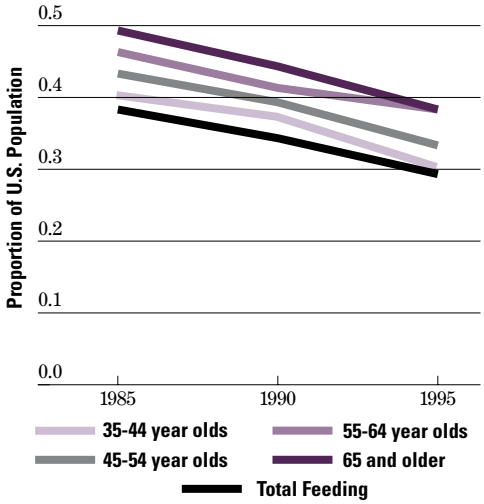
6-15 Year Olds



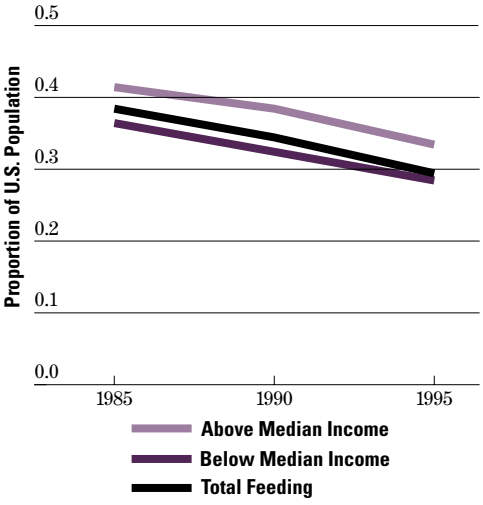
16-34 Year Olds



35 Year Olds and Older

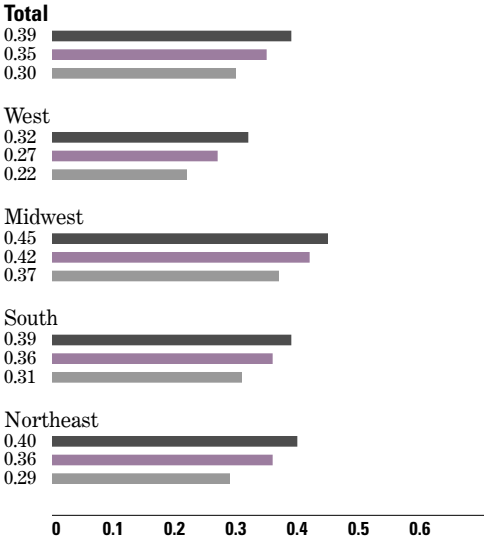


Median Income

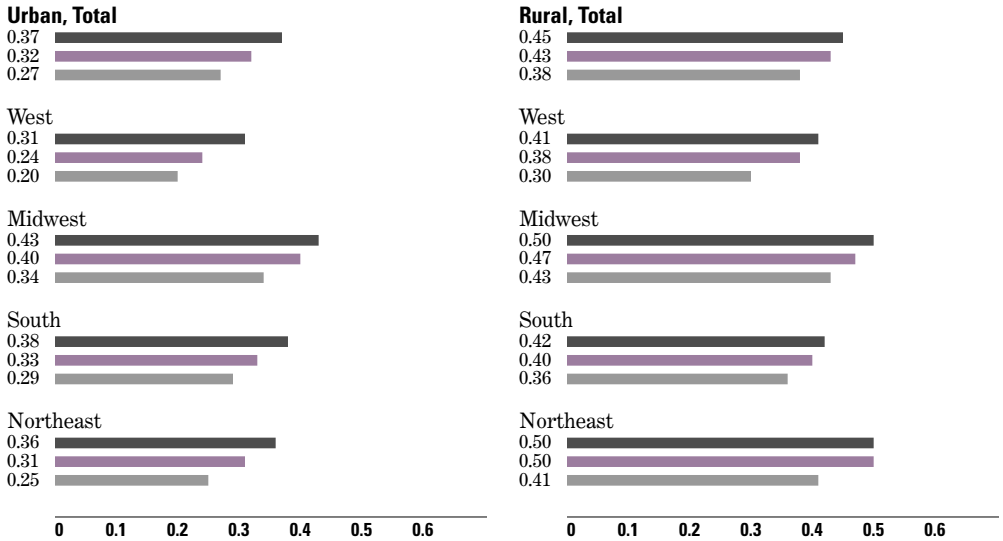


Participation Rates in Residential Wildlife Feeding, by Region

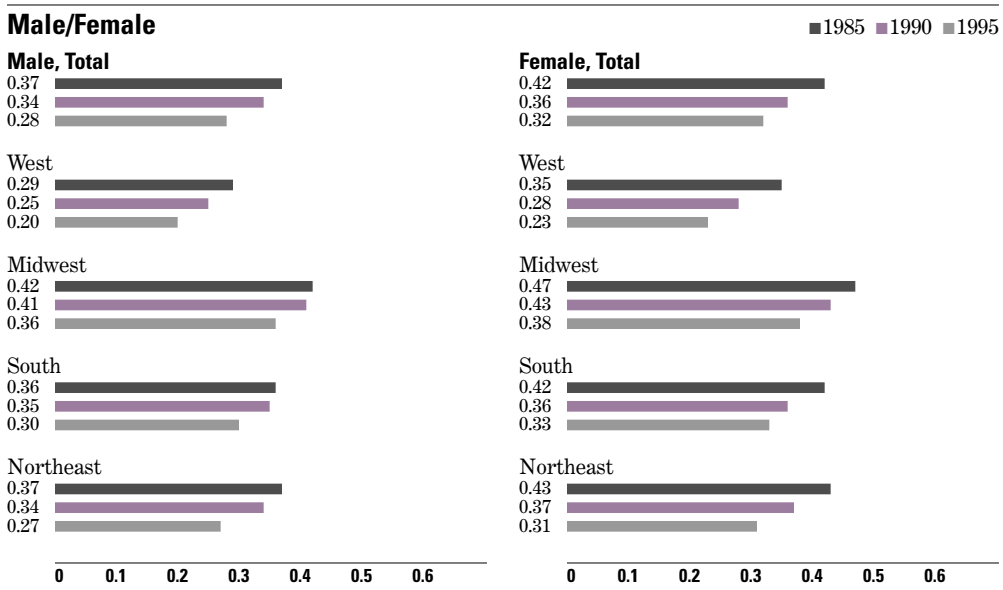
All Residential Feeders



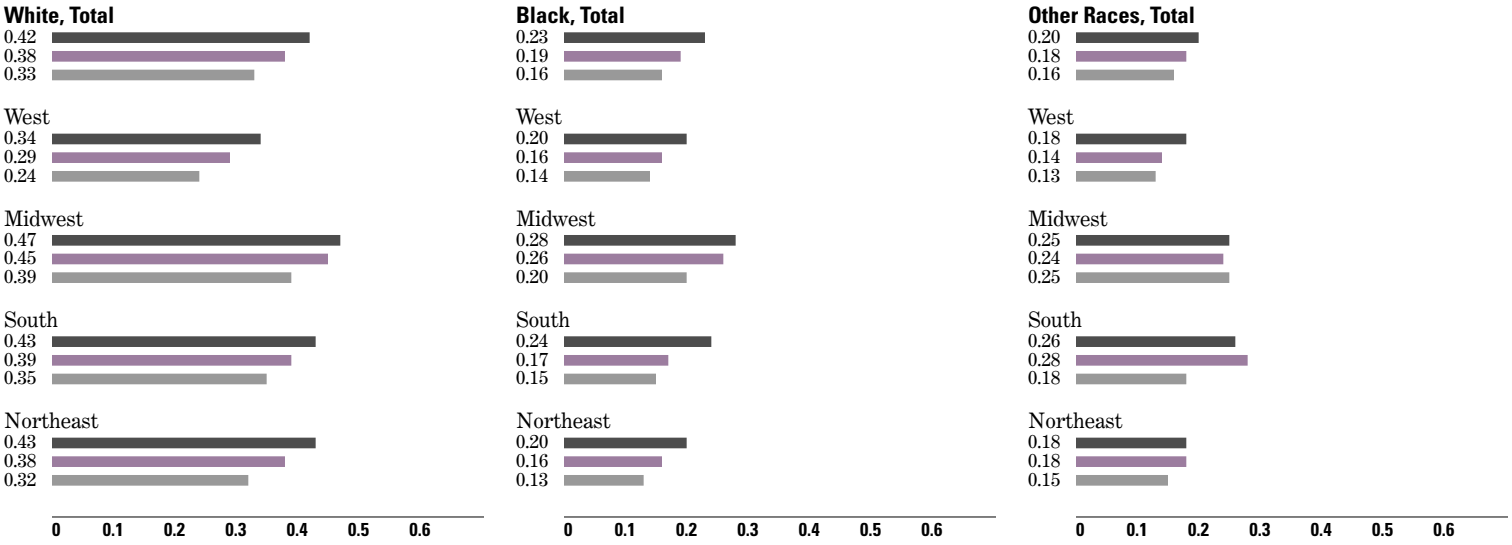
Urban/Rural



Male/Female

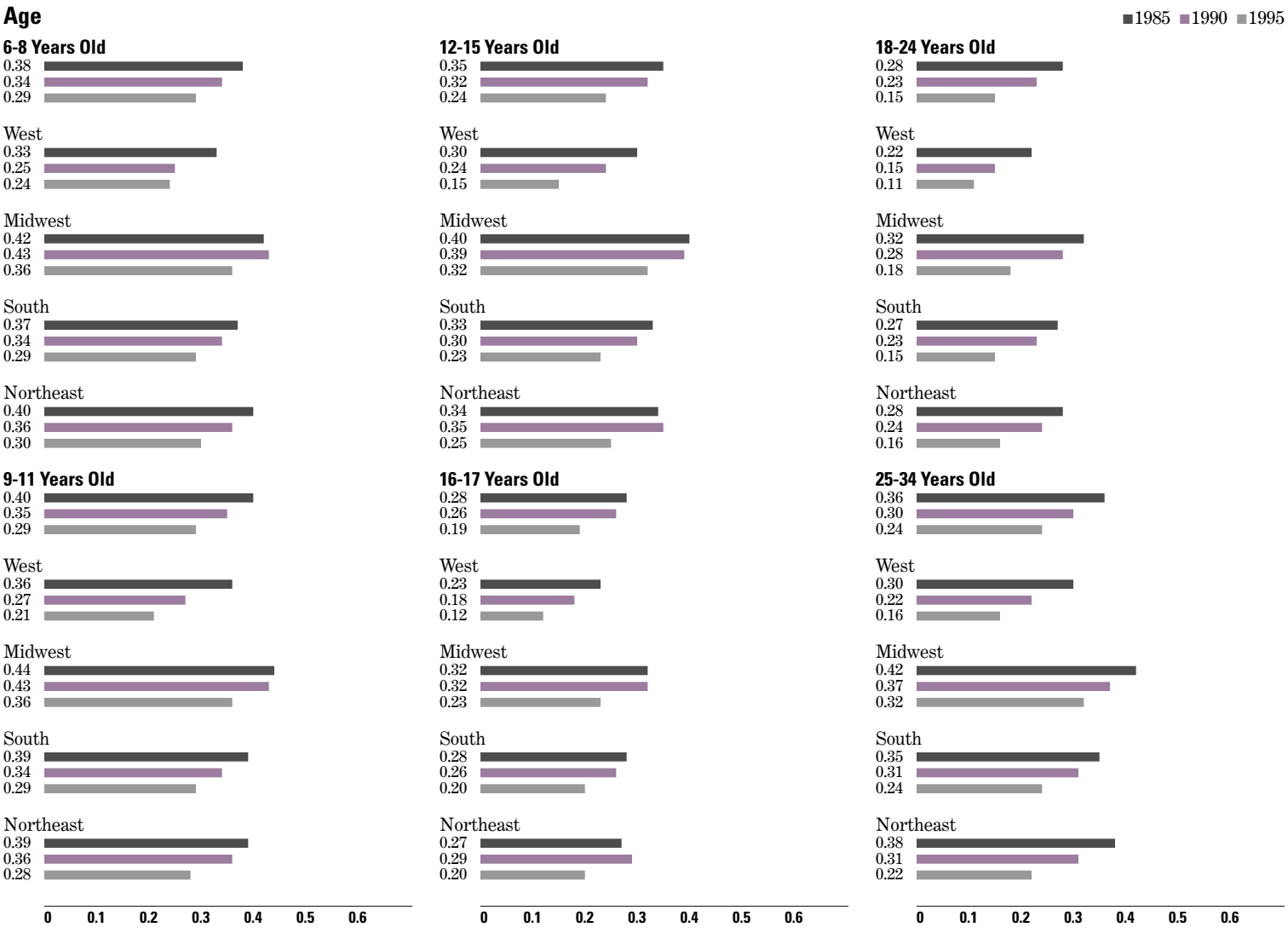


Race

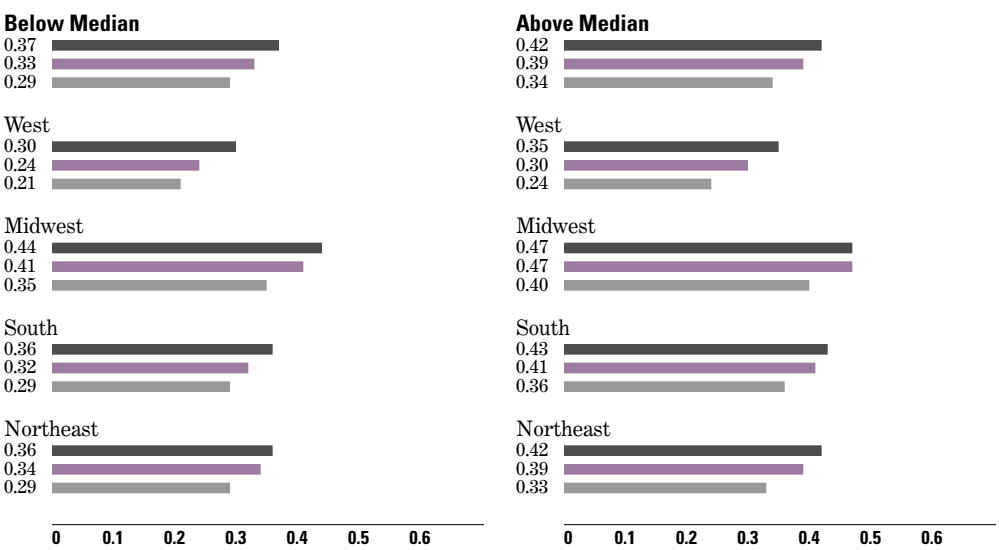


Participation Rates in Residential Wildlife Feeding, by Region (continued)

Age

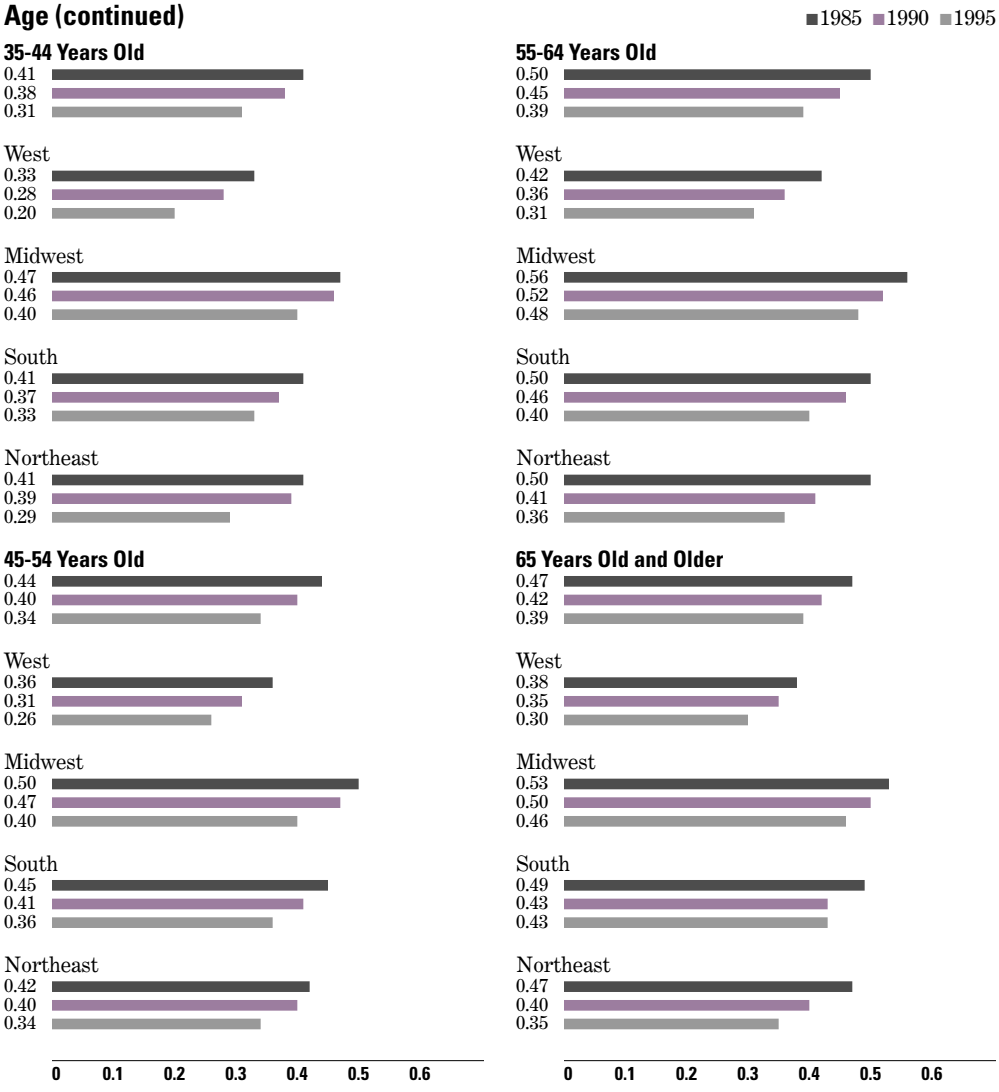


Median Income



Participation Rates in Residential Wildlife Feeding, by Region (continued)

Age (continued)



Summary

Wildlife-associated recreation is important to millions of Americans, with nearly two out of every five people participating in hunting, fishing, and/or wildlife watching in 1996. From 1980 to 1995 the number of Americans who fished and hunted increased 12 percent. The number of anglers increased by 16 percent and the number of hunters declined by 8 percent. Nonresidential wildlife watching increased 63 percent and closely observing or trying to identify wildlife around the home increased 96 percent. Feeding wildlife around the home, the largest single wildlife-related recreation activity when measured by the number of participants, declined 15 percent from 1985 to 1995.

The 1980-1995 trends can be broken up into two phases: the 1980-1990 trend and the 1990-1995 trend. The 1980-1990 trend consisted of participation increases (fishing, nonresidential wildlife watching, and residential observing), stable participation (hunting), and participation decreases (residential feeding). In the 1990-1995 phase there were downturns in the numbers of hunters, anglers, and residential feeders of wildlife and a leveling-off in the growth of nonresidential wildlife watching and residential wildlife observing.

While information on participation by the general population is useful, such information by demographic groups reveals who is participating at recent historic levels and who is not. For example:

■ For hunting, 18-34 year olds and males were two groups that had significant drops in participation levels over the 1980- 1995 study period.

■ Males and 18-24 year olds sustained drops in their participation rates for fishing as well, while the fishing participation of children 6-11 years old increased more than any other demographic group.

■ The pattern was similar for nonresidential wildlife watching, with the participation of males and 18-24 year olds dropping relative to other groups and 6-8 year olds and 35-54 year olds increasing their participation more than any other group.

■ For residential observers of wildlife the rural population and people 65 years old and older increased their participation more than any other demographic group, while the 18-24 year olds had the smallest increase in participation rates of any group.

■ For residential wildlife feeders 18-24 year olds again stood out as the demographic group with the biggest drop in participation rates. Additionally, the participation levels of 25-34 year olds dropped nearly as much.

No single demographic group's activity can fully explain the recent trends in wildlife-related recreation. Every group has an effect on overall participation levels. Analysis of demographic trends gives important insights into the broad spectrum of people who enjoy wildlife-related recreation.

Appendix I

FHWAR Survey Methodology

The National Survey of Fishing and Hunting was first conducted in 1955, gathering demographic, participation, and expenditure data at the national level. A similar survey has been undertaken every fifth year since 1955. The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation began collecting regional and state data in 1980, as well as wildlife-watching data. The trend estimates of this report are based on data from the *screening* phases covering the activity of participants 6 years old and older rather than the *detailed* phases of the 1980, 1985, 1991, and 1996 FHWAR Surveys. Over the analysis period, the FHWAR Survey has undergone a number of changes in order to improve its accuracy and better meet the needs of its users. An understanding of the changes in methodology will help clarify how the trend analysis was done.

Major Characteristics of Surveys: 1980 to 1996

Characteristic	*1980*	*1985*	*1991*	*1996*
Survey design:				
Screening interview mode and population of interest	Telephone/ personal interview, 6 years old and older	Telephone/ personal interview, 6 years old and older	Telephone/ personal interview, 6 years old and older	Telephone/ personal interview, 6 years old and older
Detailed interview mode and population of interest	Personal interview, 16 years old and older	Personal interview, 16 years old and older	Telephone/ personal interview, 16 years old and older.	Telephone/ personal interview, 16 years old and older.
Respondent's recall period				
Screen	One year	One year	One year	16-18 months
Detail	One year	One year	4 months	4-8 months
Sample sizes:[1]				
Screening phase (households)	116,025	102,694	102,804	43,731
Detailed phase (individuals):				
Fishing and hunting	30,291	28,011	23,179	22,578
Wildlife watching[2]	5,997	26,671	22,723	11,759
Response rates:				
Screening phase	95 percent	93 percent	95 percent	71 percent
Detailed phase:				
Fishing and hunting	90 percent	92 percent	95 percent	80 percent
Wildlife watching[2]	95 percent	94 percent	95 percent	82 percent
Level of reporting	State and National	State and National	State and National	State and National
Data collection agent	Bureau of the Census	Bureau of the Census	Bureau of the Census	Bureau of the Census

[1] *Completed interviews.*

[2] *Termed "nonconsumptive" in 1980, 1985, and 1991 Surveys.*

Each National Survey of Fishing, Hunting and Wildlife-Associated Recreation has been conducted in two consecutive phases. First, a screening interview of households is conducted to identify wildlife-related recreation participants 6 years old and older. This screening survey is used to select sportsmen and wildlife-watching participants to be interviewed in the second phase. In the second phase an interview or multiple interviews are conducted to collect detailed information on participation and expenditures for persons 16 years old and older.

Screening interviews were conducted in January and February following the 1980, 1985, and 1990 surveyed year and in April through June following the 1995 surveyed year. A representative sample of the United States population is contacted by telephone or face-to-face. A household representative 18 years old or older is asked to provide estimates of the wildlife-associated recreation activity of all household members 6 years old and older. The demographic characteristics of the household members are obtained in the screening survey. The screening interview information is used to construct a representative sample of wildlife-associated recreation participants for the detailed survey that follows.

The detailed phases of the 1991 and 1996 Surveys asked respondents 16 years old and older to recall their recreation activities and expenditures over a 4-month period (an exception being for respondents who reported participation in the first interview wave in 1996, who were then not given the second interview, but rather were interviewed in the last interview in January 1997 only, making their recall period six to eight months for their second interview). Respondents were interviewed three times in 1991 and two or three times in 1996 to get their entire year's activity. Previous Surveys used a 12-month recall period, i.e., respondents were asked at the end of the survey year to recall their entire year's activity. Research on recall bias[1] found that 12-month recall periods involving detailed information on participation and expenditures resulted in overestimations. As a result of shortening the recall period in 1991 and 1996, the estimates from previous Surveys are not directly comparable with the 1991 and 1996 FHWAR Survey estimates.

The methodology used for the 1991 and 1996 Surveys' screening phases, which collected 1990 and 1995 participation data, respectively, was similar to that used for the 1980 and 1985 Surveys' screening phases, making those data comparable for trend analysis. The screening data provide good measures of the *relative* differences in activity between Survey years.

The total screening sample for each survey consisted of households in the U.S. drawn from expired Current Population Survey samples by the U.S. Bureau of the Census. Information is collected for all persons 6 years old and older in the household and the recall period is 12-16 months.

It should be noted that in the 1991 and 1996 Surveys the screening phases cover a different survey year from the detailed interview phase. The 1980 and 1985 FHWAR screening surveys covered the years 1980 and 1985, while the 1991 and 1996 screening surveys covered the years 1990 and 1995, respectively. The annual recall period used for the 1980 and 1985 Surveys allowed respondents to be screened into the detailed phases of the surveys after the 1980 and 1985 survey years were over, while the 1991 and 1996 trimester interviews required respondents to be screened into the detailed phase during the first part of the year before their survey year activity took place. This meant a person's intentions to participate in recreation were part of the screening process, unlike earlier Surveys when a recitation of the year's participation after the year had ended determined who would be selected for the detailed phase.

Information for each state is available since 1980 only. The 1955-1970 Surveys obtained national-level data only, and the 1975 Survey used a sampling procedure by a private firm that makes comparison of its state-level data with the following Surveys conducted by the U.S. Bureau of the Census unreliable.

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[1] Investigation of Possible Recall/Reference Period Bias in National Surveys of Fishing, Hunting, and Wildlife-Associated Recreation, Westat, Inc. under contract to the U.S. Department of the Interior, 1989.

Appendix II

1991-1996 Tables

The data for the Survey years 1991 and 1996 provide good measures of those years' levels of participation by Americans 16 years old and older. When comparing the 1991-1996 tables with the 1980-1995 tables the age differences of the two data sources should be kept in mind. The tables in this Appendix pertain to Americans 16 years old and older and the tables in the body of this report pertain to Americans 6 years old and older.

Hunting Index of Change

	1991	*1996*
Total	1.00	0.99
West	1.00	1.04
Midwest	1.00	1.03
South	1.00	0.99
Northeast	1.00	0.88

Hunting Index of Change, by Urban/Rural

	1991	*1996*
Urban	1.00	0.97
West	1.00	1.00
Midwest	1.00	0.99
South	1.00	1.01
Northeast	1.00	0.79
Rural	1.00	1.02
West	1.00	1.11
Midwest	1.00	1.07
South	1.00	0.98
Northeast	1.00	0.95

Hunting Index of Change, by Sex

	1991	*1996*
Male	1.00	0.98
West	1.00	1.04
Midwest	1.00	1.00
South	1.00	1.00
Northeast	1.00	0.86
Female	1.00	1.12
West	1.00	1.06
Midwest	1.00	1.42
South	1.00	0.91
Northeast	1.00	1.14

Hunting Index of Change, by Age

	1991	*1996*
16-17	1.00	1.01
West	1.00	1.17
Midwest	1.00	1.11
South	1.00	0.93
Northeast	1.00	0.88
18-24	1.00	0.69
West	1.00	0.61
Midwest	1.00	0.74
South	1.00	0.69
Northeast	1.00	0.67
25-34	1.00	0.71
West	1.00	0.70
Midwest	1.00	0.81
South	1.00	0.70
Northeast	1.00	0.52
35-44	1.00	1.13
West	1.00	1.05
Midwest	1.00	1.14
South	1.00	1.13
Northeast	1.00	1.21
45-54	1.00	1.38
West	1.00	1.63
Midwest	1.00	1.47
South	1.00	1.33
Northeast	1.00	1.09
55-64	1.00	1.26
West	1.00	1.67
Midwest	1.00	1.09
South	1.00	1.36
Northeast	1.00	1.01
65 and Older	1.00	1.16
West	1.00	1.09
Midwest	1.00	1.16
South	1.00	1.31
Northeast	1.00	0.93

Hunting Index of Change, by Race

	1991	*1996*
White	1.00	0.97
West	1.00	1.02
Midwest	1.00	1.01
South	1.00	0.97
Northeast	1.00	0.87
Black	1.00	0.76
West	…	…
Midwest	…	…
South	1.00	0.91
Northeast	…	…
Other Races	1.00	2.26
West	1.00	1.49
Midwest	1.00	1.94
South	…	…
Northeast	1.00	1.93

Hunting Index of Change, by Median Income

	1991	*1996*
Below Median	1.00	0.97
West	1.00	0.93
Midwest	1.00	1.05
South	1.00	1.03
Northeast	1.00	0.71
Above Median	1.00	0.95
West	1.00	1.11
Midwest	1.00	0.99
South	1.00	0.89
Northeast	1.00	0.85

… Sample size too small to report data reliably.

Angling Index of Change

	1991	1996
Total	1.00	0.99
West	1.00	1.05
Midwest	1.00	0.95
South	1.00	1.01
Northeast	1.00	0.95

Angler Index of Change, by Urban/Rural

	1991	1996
Urban	1.00	0.97
West	1.00	1.01
Midwest	1.00	0.89
South	1.00	1.00
Northeast	1.00	0.95
Rural	1.00	1.03
West	1.00	1.15
Midwest	1.00	1.05
South	1.00	1.01
Northeast	1.00	0.95

Angler Index of Change, by Sex

	1991	1996
Male	1.00	1.00
West	1.00	1.05
Midwest	1.00	0.99
South	1.00	1.00
Northeast	1.00	0.96
Female	1.00	0.96
West	1.00	1.04
Midwest	1.00	0.85
South	1.00	1.03
Northeast	1.00	0.92

Angler Index of Change, by Age

	1991	1996
16-17	1.00	0.95
West	1.00	1.40
Midwest	1.00	0.93
South	1.00	0.78
Northeast	1.00	1.06
18-24	1.00	0.72
West	1.00	0.71
Midwest	1.00	0.69
South	1.00	0.79
Northeast	1.00	0.62
25-34	1.00	0.72
West	1.00	0.66
Midwest	1.00	0.78
South	1.00	0.75
Northeast	1.00	0.64
35-44	1.00	1.13
West	1.00	1.24
Midwest	1.00	1.04
South	1.00	1.10
Northeast	1.00	1.22
45-54	1.00	1.43
West	1.00	1.64
Midwest	1.00	1.33
South	1.00	1.48
Northeast	1.00	1.25
55-64	1.00	1.08
West	1.00	1.15
Midwest	1.00	0.98
South	1.00	1.09
Northeast	1.00	1.17
65 and Older	1.00	1.10
West	1.00	1.08
Midwest	1.00	1.04
South	1.00	1.19
Northeast	1.00	0.94

Angler Index of Change, by Race

	1991	1996
White	1.00	0.97
West	1.00	1.01
Midwest	1.00	0.95
South	1.00	0.98
Northeast	1.00	0.94
Black	1.00	1.00
West	1.00	0.95
Midwest	1.00	0.92
South	1.00	0.97
Northeast	1.00	1.34
Other Races	1.00	1.67
West	1.00	1.52
Midwest	1.00	1.26
South	1.00	2.66
Northeast	1.00	0.93

Angling Index of Change, by Median Income

	1991	1996
Below Median	1.00	1.02
West	1.00	1.04
Midwest	1.00	1.00
South	1.00	1.07
Northeast	1.00	0.85
Above Median	1.00	0.92
West	1.00	1.00
Midwest	1.00	0.85
South	1.00	0.91
Northeast	1.00	0.94

Nonresidential Index of Change

	1991	*1996*
Total	1.00	0.79
West	1.00	0.77
Midwest	1.00	0.78
South	1.00	0.85
Northeast	1.00	0.73

Nonresidential Index of Change, by Urban/Rural

	1991	*1996*
Urban	1.00	0.81
West	1.00	0.77
Midwest	1.00	0.79
South	1.00	0.90
Northeast	1.00	0.75
Rural	1.00	0.76
West	1.00	0.78
Midwest	1.00	0.76
South	1.00	0.77
Northeast	1.00	0.70

Nonresidential Index of Change, by Sex

	1991	*1996*
Male	1.00	0.74
West	1.00	0.67
Midwest	1.00	0.75
South	1.00	0.79
Northeast	1.00	0.73
Female	1.00	0.84
West	1.00	0.89
Midwest	1.00	0.81
South	1.00	0.91
Northeast	1.00	0.73

Nonresidential Index of Change, by Age

	1991	*1996*
16-17	1.00	0.68
West	1.00	0.52*
Midwest	1.00	0.64*
South	1.00	0.79
Northeast	1.00	…
18-24	1.00	0.57
West	1.00	0.48
Midwest	1.00	0.64
South	1.00	0.66
Northeast	1.00	0.46*
25-34	1.00	0.60
West	1.00	0.63
Midwest	1.00	0.62
South	1.00	0.65
Northeast	1.00	0.44
35-44	1.00	0.87
West	1.00	0.84
Midwest	1.00	0.85
South	1.00	0.97
Northeast	1.00	0.79
45-54	1.00	1.15
West	1.00	1.41
Midwest	1.00	0.90
South	1.00	1.26
Northeast	1.00	1.11
55-64	1.00	0.86
West	1.00	0.72
Midwest	1.00	0.99
South	1.00	0.79
Northeast	1.00	0.98
65 and Older	1.00	0.83
West	1.00	0.79
Midwest	1.00	0.99
South	1.00	0.73
Northeast	1.00	0.81

Nonresidential Index of Change, by Race

	1991	*1996*
White	1.00	0.78
West	1.00	0.75
Midwest	1.00	0.77
South	1.00	0.84
Northeast	1.00	0.72
Black	1.00	0.68
West	1.00	1.96*
Midwest	1.00	…
South	1.00	0.59
Northeast	1.00	…
Other Races	1.00	1.32
West	1.00	0.94
Midwest	1.00	…
South	1.00	1.68
Northeast	1.00	0.76*

Nonresidential Index of Change, by Median Income

	1991	*1996*
Below Median	1.00	0.83
West	1.00	0.80
Midwest	1.00	0.81
South	1.00	0.85
Northeast	1.00	0.83
Above Median	1.00	0.75
West	1.00	0.78
Midwest	1.00	0.71
South	1.00	0.86
Northeast	1.00	0.63

… Sample size too small to report data reliably.

**Based on a sample size between 10 and 30.*

Residential Observing Index of Change

	1991	*1996*
Total	1.00	0.81
West	1.00	0.90
Midwest	1.00	0.79
South	1.00	0.82
Northeast	1.00	0.73

Residential Observing Index of Change, by Urban/Rural

	1991	*1996*
Urban	1.00	0.80
West	1.00	0.90
Midwest	1.00	0.80
South	1.00	0.82
Northeast	1.00	0.69
Rural	1.00	0.81
West	1.00	0.88
Midwest	1.00	0.76
South	1.00	0.82
Northeast	1.00	0.80

Residential Observing Index of Change, by Sex

	1991	*1996*
Male	1.00	0.75
West	1.00	0.79
Midwest	1.00	0.74
South	1.00	0.77
Northeast	1.00	0.71
Female	1.00	0.86
West	1.00	1.00
Midwest	1.00	0.83
South	1.00	0.87
Northeast	1.00	0.75

Residential Observing Index of Change, by Age

	1991	*1996*
16-17	1.00	0.62
West	1.00	0.44
Midwest	1.00	0.54
South	1.00	0.72
Northeast	1.00	0.76
18-24	1.00	0.42
West	1.00	0.52
Midwest	1.00	0.52
South	1.00	0.35
Northeast	1.00	0.32
25-34	1.00	0.60
West	1.00	0.55
Midwest	1.00	0.67
South	1.00	0.62
Northeast	1.00	0.54
35-44	1.00	0.88
West	1.00	1.10
Midwest	1.00	0.86
South	1.00	0.86
Northeast	1.00	0.75
45-54	1.00	1.06
West	1.00	1.30
Midwest	1.00	0.84
South	1.00	1.21
Northeast	1.00	0.97
55-64	1.00	0.78
West	1.00	0.81
Midwest	1.00	0.78
South	1.00	0.78
Northeast	1.00	0.78
65 and Older	1.00	0.88
West	1.00	1.02
Midwest	1.00	0.88
South	1.00	0.85
Northeast	1.00	0.81

Residential Observing Index of Change, by Race

	1991	*1996*
White	1.00	0.80
West	1.00	0.86
Midwest	1.00	0.78
South	1.00	0.83
Northeast	1.00	0.73
Black	1.00	0.59
West	1.00	2.06
Midwest	1.00	0.58
South	1.00	0.48
Northeast	1.00	0.65
Other Races	1.00	1.45
West	1.00	1.29
Midwest	1.00	2.08
South	1.00	1.85
Northeast	1.00	0.90

Residential Observing Index of Change, by Median Income

	1991	*1996*
Below Median	1.00	0.77
West	1.00	0.95
Midwest	1.00	0.77
South	1.00	0.76
Northeast	1.00	0.64
Above Median	1.00	0.79
West	1.00	0.84
Midwest	1.00	0.73
South	1.00	0.83
Northeast	1.00	0.75

Residential Feeding Index of Change

	1991	1996
Total	1.00	0.83
West	1.00	0.87
Midwest	1.00	0.78
South	1.00	0.87
Northeast	1.00	0.79

Residential Feeding Index of Change, by Urban/Rural

	1991	1996
Urban	1.00	0.82
West	1.00	0.86
Midwest	1.00	0.78
South	1.00	0.86
Northeast	1.00	0.78
Rural	1.00	0.84
West	1.00	0.92
Midwest	1.00	0.78
South	1.00	0.88
Northeast	1.00	0.79

Residential Feeding Index of Change, by Sex

	1991	1996
Male	1.00	0.79
West	1.00	0.78
Midwest	1.00	0.77
South	1.00	0.83
Northeast	1.00	0.76
Female	1.00	0.86
West	1.00	0.97
Midwest	1.00	0.80
South	1.00	0.90
Northeast	1.00	0.81

Residential Feeding Index of Change, by Age

	1991	1996
16-17	1.00	0.57
West	1.00	0.30*
Midwest	1.00	0.56
South	1.00	0.57
Northeast	1.00	0.88
18-24	1.00	0.52
West	1.00	0.67
Midwest	1.00	0.41
South	1.00	0.63
Northeast	1.00	0.35
25-34	1.00	0.64
West	1.00	0.56
Midwest	1.00	0.70
South	1.00	0.70
Northeast	1.00	0.56
35-44	1.00	0.86
West	1.00	0.95
Midwest	1.00	0.79
South	1.00	0.87
Northeast	1.00	0.88
45-54	1.00	1.05
West	1.00	1.12
Midwest	1.00	0.87
South	1.00	1.18
Northeast	1.00	1.07
55-64	1.00	0.80
West	1.00	0.86
Midwest	1.00	0.83
South	1.00	0.79
Northeast	1.00	0.72
65 and Older	1.00	0.93
West	1.00	1.06
Midwest	1.00	0.89
South	1.00	0.93
Northeast	1.00	0.86

Residential Feeding Index of Change, by Race

	1991	1996
White	1.00	0.82
West	1.00	0.82
Midwest	1.00	0.78
South	1.00	0.88
Northeast	1.00	0.79
Black	1.00	0.65
West	1.00	2.50*
Midwest	1.00	0.55
South	1.00	0.54
Northeast	1.00	0.75*
Other Races	1.00	1.34
West	1.00	1.35
Midwest	1.00	1.52
South	1.00	1.64
Northeast	1.00	0.54*

Residential Feeding Index of Change, by Median Income

	1991	1996
Below Median	1.00	0.80
West	1.00	0.93
Midwest	1.00	0.75
South	1.00	0.83
Northeast	1.00	0.69
Above Median	1.00	0.78
West	1.00	0.79
Midwest	1.00	0.71
South	1.00	0.86
Northeast	1.00	0.77

**Based on a sample size between 10 and 30.*

Hunting Participation Rates

	1991	1996
Total	0.07	0.07
West	0.05	0.05
Midwest	0.10	0.10
South	0.08	0.07
Northeast	0.06	0.05

Hunting Participation Rates, by Urban/Rural

	1991	1996
Urban	0.05	0.04
West	0.04	0.04
Midwest	0.07	0.07
South	0.05	0.05
Northeast	0.03	0.03
Rural	0.14	0.13
West	0.14	0.13
Midwest	0.17	0.17
South	0.13	0.12
Northeast	0.13	0.12

Hunting Participation Rates, by Sex

	1991	1996
Male	0.14	0.13
West	0.10	0.09
Midwest	0.19	0.19
South	0.16	0.14
Northeast	0.11	0.09
Female	0.01	0.01
West	0.01	0.01
Midwest	0.01	0.02
South	0.01	0.01
Northeast	0.01	0.01

Hunting Participation Rates, by Age

	1991	1996
16-17	0.10	0.09
West	0.07	0.07
Midwest	0.12	0.13
South	0.13	0.11
Northeast	0.06	0.05
18-24	0.09	0.07
West	0.06	0.04
Midwest	0.12	0.11
South	0.10	0.07
Northeast	0.06	0.05
25-34	0.09	0.08
West	0.06	0.05
Midwest	0.12	0.12
South	0.10	0.08
Northeast	0.07	0.05
35-44	0.09	0.09
West	0.07	0.06
Midwest	0.12	0.12
South	0.09	0.09
Northeast	0.06	0.07
45-54	0.08	0.08
West	0.06	0.07
Midwest	0.10	0.11
South	0.08	0.08
Northeast	0.07	0.06
55-64	0.06	0.06
West	0.04	0.06
Midwest	0.07	0.08
South	0.06	0.07
Northeast	0.04	0.04
65 and Older	0.03	0.03
West	0.03	0.02
Midwest	0.03	0.03
South	0.03	0.03
Northeast	0.02	0.02

Hunting Participation Rates, by Race

	1991	1996
White	0.08	0.08
West	0.06	0.06
Midwest	0.11	0.11
South	0.09	0.08
Northeast	0.06	0.06
Black	0.02	0.02
West	…	…
Midwest	…	…
South	0.02	0.02
Northeast	…	…
Other Races	0.02	0.03
West	0.02	0.02
Midwest	0.04	0.05
South	…	…
Northeast	0.01	0.01

Hunting Participation Rates, by Median Income

	1991	1996
Below Median	0.07	0.06
West	0.05	0.04
Midwest	0.08	0.09
South	0.07	0.07
Northeast	0.06	0.04
Above Median	0.09	0.09
West	0.06	0.07
Midwest	0.12	0.13
South	0.11	0.09
Northeast	0.06	0.06

… Sample size too small to report data reliably.

Angling Participation Rates

	1991	*1996*
Total	0.19	0.17
West	0.17	0.16
Midwest	0.22	0.20
South	0.21	0.19
Northeast	0.14	0.13

Angler Participation Rates, by Urban/Rural

	1991	*1996*
Urban	0.16	0.15
West	0.15	0.14
Midwest	0.19	0.17
South	0.18	0.17
Northeast	0.12	0.11
Rural	0.26	0.24
West	0.26	0.24
Midwest	0.27	0.26
South	0.26	0.25
Northeast	0.21	0.19

Angler Participation Rates, by Sex

	1991	*1996*
Male	0.28	0.27
West	0.25	0.24
Midwest	0.32	0.31
South	0.31	0.29
Northeast	0.22	0.21
Female	0.10	0.09
West	0.08	0.08
Midwest	0.12	0.10
South	0.12	0.11
Northeast	0.06	0.06

Angler Participation Rates, by Age

	1991	*1996*
16-17	0.23	0.20
West	0.17	0.20
Midwest	0.26	0.22
South	0.28	0.21
Northeast	0.15	0.16
18-24	0.20	0.16
West	0.16	0.12
Midwest	0.22	0.19
South	0.23	0.19
Northeast	0.17	0.13
25-34	0.23	0.21
West	0.20	0.17
Midwest	0.27	0.26
South	0.26	0.22
Northeast	0.17	0.14
35-44	0.22	0.22
West	0.19	0.19
Midwest	0.26	0.23
South	0.24	0.24
Northeast	0.19	0.20
45-54	0.18	0.20
West	0.16	0.19
Midwest	0.21	0.22
South	0.21	0.22
Northeast	0.13	0.13
55-64	0.16	0.15
West	0.17	0.16
Midwest	0.18	0.17
South	0.17	0.16
Northeast	0.08	0.10
65 and Older	0.09	0.09
West	0.10	0.08
Midwest	0.10	0.10
South	0.10	0.11
Northeast	0.05	0.05

Angler Participation Rates, by Race

	1991	*1996*
White	0.20	0.19
West	0.18	0.17
Midwest	0.23	0.21
South	0.23	0.21
Northeast	0.15	0.14
Black	0.10	0.10
West	0.07	0.07
Midwest	0.09	0.09
South	0.12	0.11
Northeast	0.06	0.08
Other Races	0.11	0.11
West	0.10	0.11
Midwest	0.14	0.12
South	0.14	0.16
Northeast	0.06	0.04

Angling Participation Rates, by Median Income

	1991	*1996*
Below Median	0.16	0.16
West	0.14	0.13
Midwest	0.19	0.19
South	0.18	0.19
Northeast	0.11	0.10
Above Median	0.24	0.22
West	0.21	0.20
Midwest	0.27	0.24
South	0.27	0.24
Northeast	0.17	0.18

Nonresidential Participation Rates

	1991	*1996*
Total	0.16	0.12
West	0.18	0.13
Midwest	0.18	0.14
South	0.13	0.10
Northeast	0.15	0.11

Nonresidential Participation Rates, by Urban/Rural

	1991	*1996*
Urban	0.14	0.11
West	0.16	0.12
Midwest	0.16	0.13
South	0.12	0.10
Northeast	0.13	0.10
Rural	0.20	0.14
West	0.29	0.18
Midwest	0.23	0.16
South	0.15	0.11
Northeast	0.23	0.16

Nonresidential Participation Rates, by Sex

	1991	*1996*
Male	0.18	0.12
West	0.20	0.12
Midwest	0.20	0.14
South	0.15	0.11
Northeast	0.16	0.12
Female	0.14	0.11
West	0.17	0.14
Midwest	0.16	0.13
South	0.11	0.09
Northeast	0.14	0.11

Nonresidential Participation Rates, by Age

	1991	*1996*
16-17	0.14	0.09
West	0.19	0.08*
Midwest	0.14	0.08*
South	0.12	0.09
Northeast	0.10	…
18-24	0.14	0.08
West	0.18	0.09
Midwest	0.16	0.12
South	0.11	0.08
Northeast	0.12	0.06*
25-34	0.21	0.13
West	0.24	0.17
Midwest	0.23	0.16
South	0.17	0.11
Northeast	0.21	0.10
35-44	0.20	0.16
West	0.22	0.15
Midwest	0.24	0.18
South	0.17	0.15
Northeast	0.20	0.14
45-54	0.16	0.15
West	0.16	0.18
Midwest	0.20	0.15
South	0.13	0.13
Northeast	0.16	0.15
55-64	0.12	0.11
West	0.17	0.11
Midwest	0.13	0.14
South	0.10	0.07
Northeast	0.12	0.13
65 and Older	0.08	0.06
West	0.09	0.06
Midwest	0.08	0.07
South	0.07	0.05
Northeast	0.08	0.07

Nonresidential Participation Rates, by Race

	1991	*1996*
White	0.18	0.13
West	0.20	0.14
Midwest	0.19	0.15
South	0.15	0.12
Northeast	0.17	0.13
Black	0.04	0.02
West	0.04	0.07*
Midwest	0.07	…
South	0.03	0.02
Northeast	0.03	…
Other Races	0.09	0.07
West	0.12	0.08
Midwest	0.05	…
South	0.10	0.07
Northeast	0.04	0.02*

Nonresidential Participation Rates, by Median Income

	1991	*1996*
Below Median	0.13	0.11
West	0.15	0.11
Midwest	0.16	0.13
South	0.10	0.09
Northeast	0.13	0.11
Above Median	0.21	0.16
West	0.23	0.17
Midwest	0.23	0.17
South	0.18	0.15
Northeast	0.20	0.14

… Sample size too small to report data reliably.

**Based on a sample size between 10 and 30.*

Residential Observing Participation Rates

	1991	*1996*
Total	0.29	0.22
West	0.26	0.21
Midwest	0.34	0.26
South	0.27	0.20
Northeast	0.28	0.20

Residential Observing Participation Rates, by Urban/Rural

	1991	*1996*
Urban	0.25	0.19
West	0.22	0.18
Midwest	0.30	0.24
South	0.25	0.18
Northeast	0.23	0.16
Rural	0.39	0.29
West	0.45	0.33
Midwest	0.44	0.30
South	0.32	0.25
Northeast	0.46	0.35

Residential Observing Participation Rates, by Sex

	1991	*1996*
Male	0.30	0.21
West	0.27	0.19
Midwest	0.35	0.25
South	0.28	0.20
Northeast	0.28	0.20
Female	0.28	0.23
West	0.25	0.23
Midwest	0.33	0.27
South	0.26	0.21
Northeast	0.28	0.21

Residential Observing Participation Rates, by Age

	1991	*1996*
16-17	0.20	0.11
West	0.19	0.07
Midwest	0.24	0.12
South	0.16	0.11
Northeast	0.21	0.15
18-24	0.17	0.08
West	0.16	0.08
Midwest	0.20	0.12
South	0.17	0.06
Northeast	0.17	0.06
25-34	0.29	0.18
West	0.27	0.16
Midwest	0.32	0.23
South	0.26	0.16
Northeast	0.30	0.18
35-44	0.33	0.26
West	0.27	0.25
Midwest	0.41	0.32
South	0.31	0.24
Northeast	0.34	0.23
45-54	0.31	0.26
West	0.26	0.26
Midwest	0.39	0.27
South	0.28	0.26
Northeast	0.30	0.25
55-64	0.33	0.26
West	0.34	0.24
Midwest	0.40	0.34
South	0.32	0.24
Northeast	0.28	0.24
65 and Older	0.29	0.24
West	0.28	0.24
Midwest	0.33	0.27
South	0.29	0.23
Northeast	0.27	0.22

Residential Observing Participation Rates, by Race

	1991	*1996*
White	0.32	0.25
West	0.29	0.24
Midwest	0.36	0.28
South	0.31	0.24
Northeast	0.31	0.23
Black	0.10	0.06
West	0.05	0.10
Midwest	0.14	0.08
South	0.10	0.05
Northeast	0.09	0.06
Other Races	0.12	0.10
West	0.11	0.10
Midwest	0.12	0.16
South	0.16	0.12
Northeast	0.09	0.05

Residential Observing Participation Rates, by Median Income

	1991	*1996*
Below Median	0.26	0.20
West	0.22	0.19
Midwest	0.31	0.24
South	0.25	0.18
Northeast	0.26	0.18
Above Median	0.34	0.28
West	0.30	0.25
Midwest	0.41	0.31
South	0.33	0.27
Northeast	0.33	0.28

Residential Feeding Participation Rates

	1991	1996
Total	0.34	0.27
West	0.28	0.22
Midwest	0.42	0.32
South	0.34	0.27
Northeast	0.34	0.26

Residential Feeding Participation Rates, by Urban/Rural

	1991	1996
Urban	0.30	0.24
West	0.25	0.20
Midwest	0.38	0.30
South	0.31	0.24
Northeast	0.28	0.22
Rural	0.45	0.35
West	0.45	0.34
Midwest	0.50	0.35
South	0.40	0.32
Northeast	0.52	0.40

Residential Feeding Participation Rates, by Sex

	1991	1996
Male	0.34	0.25
West	0.29	0.20
Midwest	0.42	0.31
South	0.34	0.25
Northeast	0.34	0.25
Female	0.34	0.28
West	0.28	0.25
Midwest	0.41	0.32
South	0.34	0.28
Northeast	0.34	0.27

Residential Feeding Participation Rates, by Age

	1991	1996
16-17	0.24	0.13
West	0.23	0.06*
Midwest	0.30	0.15
South	0.22	0.12
Northeast	0.24	0.20
18-24	0.21	0.11
West	0.16	0.11
Midwest	0.25	0.12
South	0.20	0.13
Northeast	0.20	0.08
25-34	0.34	0.23
West	0.27	0.17
Midwest	0.40	0.30
South	0.32	0.22
Northeast	0.35	0.21
35-44	0.40	0.30
West	0.31	0.25
Midwest	0.49	0.34
South	0.38	0.30
Northeast	0.40	0.32
45-54	0.37	0.31
West	0.29	0.26
Midwest	0.47	0.34
South	0.36	0.32
Northeast	0.35	0.32
55-64	0.40	0.32
West	0.36	0.27
Midwest	0.48	0.44
South	0.40	0.30
Northeast	0.35	0.28
65 and Older	0.36	0.31
West	0.32	0.28
Midwest	0.41	0.34
South	0.36	0.31
Northeast	0.33	0.28

Residential Feeding Participation Rates, by Race

	1991	1996
White	0.38	0.30
West	0.31	0.24
Midwest	0.44	0.34
South	0.38	0.31
Northeast	0.36	0.30
Black	0.15	0.09
West	0.07	0.18*
Midwest	0.20	0.11
South	0.15	0.08
Northeast	0.12	0.09*
Other Races	0.17	0.13
West	0.15	0.14
Midwest	0.20	0.20
South	0.25	0.17
Northeast	0.12	0.04*

Residential Feeding Participation Rates, by Median Income

	1991	1996
Below Median	0.32	0.25
West	0.25	0.21
Midwest	0.39	0.30
South	0.31	0.25
Northeast	0.32	0.23
Above Median	0.40	0.32
West	0.33	0.25
Midwest	0.49	0.36
South	0.40	0.33
Northeast	0.39	0.33

**Based on a sample size between 10 and 30.*

U.S. Department of the Interior
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Arlington, Virginia

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