Economic Change in Floyd County

By Judith I. Stallmann, Dunia A. Buzzanell, Joseph N. Harper, Dana A. Hiatt, Amy B. Malach, Bridget D. Powell, Jennifer L. Rogers, Adam D. Russ, Paul A. Sadler, O. Franklin Showalter, Kathy R. Shrader, Jennifer A. Siebold, Eric S. Steele, Bradley M. Stutzman, Craig A. Vanderpool, Cheryl C. Weitzel.

Virginia's
Rural Economic Analysis Program

Department of Agricultural and Applied Economics
College of Agriculture and Life Sciences
Virginia Tech

Economic Change in Floyd County

Judith I. Stallmann, Dunia A. Buzzanell, Joseph N. Harper, Dana A. Hiatt, Amy B. Malach, Bridget D. Powell, Jennifer L. Rogers, Adam D. Russ, Paul A. Sadler, O. Franklin Showalter, Kathy R. Shrader, Jennifer A. Siebold, Eric S. Steele, Bradley M. Stutzman, Craig A. Vanderpool, Cheryl C. Weitzel.

Judith Stallmann is an associate professor in the Department of Agricultural Economics at Texas A&M University, and the remaining co-authors are students at Virginia Tech.

This publication was printed on recycled paper.

TABLE of CONTENTS

FOREWORD

This report was prepared in response to a request from Floyd County to the Rural Economic Analysis Program (REAP) in the Department of Agricultural and Applied Economics at Virginia Tech. Floyd County requested assistance in the preparation of a background report on economic trends in Floyd County. Floyd and REAP agreed that the report would be prepared as a class project by undergraduate students in the "Rural and Regional Development Policy" course offered by the Department of Agricultural and Applied Economics. The students who participated in the class project during Spring 1994 are all listed as co-authors along with Judith Stallmann.

The students collected the data and wrote the first draft with supervision of the instructor during the 1993 fall semester. While the report was redrafted and checked for consistency by the instructor, the reader is asked to bear in mind that the report is primarily the work of students.

In two important ways, this report can serve as a model for other people wishing to do an economic study of their locality or community. First, the report shows what types of information are important in an economic study, and what sources of information are available to communities. Second, the study describes several analytical techniques that can be used to gain insight into a community's economy.

EXECUTIVE SUMMARY

A comprehensive analysis of population and economic data and trends in Floyd County from 1960 to 1990 was carried out in Fall 1993. Among the valuable information revealed by the analysis were the following points.

1. **Population** in Floyd County decreased in the 1960s and increased rapidly in the 1970s, mirroring population trends of other rural areas in the United States. Floyd's population increased during the 1980s as well, a difference from other rural areas that was likely due to Floyd's location next to Roanoke and Montgomery County.
2. Trends in numbers of **school-aged children** mirror trends in the general population. Student scores on achievement tests are lower than the state average.
3. The percentage of **retirees** is growing rapidly in Floyd, mostly due to the outmigration of the working-age population.
4. **Labor force** participation rates are lower in Floyd than in the United States and Virginia.
5. **Housing** in Floyd is affordable but of lower quality than that of the state as a whole.
6. **Real per capita income** in Floyd is well below the state and national average.
7. Nearly half of Floyd residents **commute** to work outside the county. The main commuting destination is Montgomery County.
8. Floyd residents are **employed** mainly in manufacturing and services.
9. **Farming** is a more important sector in Floyd than in most Virginia counties.
10. **Construction sector** employment has grown rapidly, mainly due to local factors, rather than national or state trends.
11. **Manufacturing** is the major employer in Floyd. The sector has, however, lost diversity and is now concentrated in textiles and apparel. Due to local factors, county employment in manufacturing has increased even as manufacturing employment nationally has decreased.
12. Employment growth has been slow in the **transportation and public utilities sector.**
13. There has been little employment growth in the **wholesale trade sector**.
14. Employment in **retail trade** has increased.
15. Retail trade subsectors generally are not capturing the **consumer dollars** of Floyd residents. Some of the trends in specific retail subsectors are not readily explainable.
16. Increasing numbers of Floyd's residents are employed by the **government**; many of these government employees work at Virginia Tech in neighboring Montgomery County.
17. **Self-employment** is increasing in the United States, Virginia, and Floyd County, but Floyd showed the most rapid increase over the time studied.

FORCES OF CHANGE OUTSIDE OF FLOYD COUNTY

Changes in the National Economy

Local economies, such as that in Floyd County, generally reflect changes in the national economy. Because local economies are relatively small, and are usually not diversified, they may be severely affected by any single change at the national level. Because of this connection, our study of changes in the Floyd County economy begins with a description of how the U.S. economy has changed.

During the 1980s, the economy of the United States experienced substantial change. Specific major changes included the growth of international finance and trade, decline in manufacturing employment, growth of the service sector, deregulation, and population changes.

International Developments

Changes in the international economy have had far-reaching impacts. Here are a few of the most significant developments, especially for rural areas such as Floyd.

- The world recession of 1980-1982 cut into the demand for food and energy, which were sources of growth for many rural economies in the 1970s.
- High debt levels of many developing countries during the 1980s meant that demand for food and energy was weak.
- The strength of the United States dollar through most of the 1980s made U.S. exports expensive, and export markets in agriculture and manufacturing were lost.
- The strength of the dollar also made imports cheaper, so that many U.S.-made goods could not compete with imports. The apparel industry is one example—especially pertinent to Floyd—of a domestic sector that has experienced foreign competition.
- The productivity of workers in other countries, particularly Southeast Asian countries, has been rising more rapidly than the productivity of workers in the United States. While U.S. workers remain more productive, the gap in productivity has narrowed. Worker productivity is determined by the skills (education and job training) and the technology (machinery, etc.) available to workers. Many countries have nearly as high a percentage of high school graduates as the United States, particularly in rural areas of the United States. In addition, investment in manufacturing technology was low during the 1980s because interest rates were high in the United States.

Decreasing Manufacturing Employment

In the past, rural economies have recruited manufacturing firms with promises of cheap land, labor, and taxes. These inducements are no longer working. Downsizing of manufacturing plants means that land is no longer the major budget item it once was. An example of downsizing is the "mini" steel mills, in which land required in proportion to output has been reduced. Automation in manufacturing means fewer jobs overall. The new jobs created in manufacturing have been highly-skilled ones, requiring some college education. Thus, low-wage (and low-skilled) labor is becoming less of a draw for many firms. In addition, firms are concerned about the services the community provides. Low taxes by themselves are not a sufficient incentive. Firms want services such as education, fire protection, and recreation.

The Growth of the Service Sector

Services are the fastest growing sector of the economy. From 1974 to 1984, six million new jobs—two-thirds of all new jobs—were created in the service sector. The majority of new service jobs have been located in urban areas. In addition, service firms that have located in rural areas have tended to be at the low-wage end of the sector.

Deregulation

Deregulation of transportation and communications, while helping the economy overall, may have disadvantaged rural economies. Some rural areas have lost services, and rural telecommunications may not be upgraded when urban systems are improved.

Population Changes

There are two major changes in the population. First, the fastest-growing age group is senior citizens. This group has different tastes and needs than the rest of the population. Second, the country has experienced a small baby boom that will create new baby and youth markets and increase demands on the educational system. How these factors affect an individual rural county depends upon the economic base of the county and the age characteristics of its population.

This, then, sets the national stage for our analysis of economic change in Floyd County. But Floyd also has been, and will continue to be, influenced by factors and changes closer to home.

Regional Influences on the Floyd Economy

Although Floyd may appear to be a typical rural county, several factors set it apart. Floyd borders both Roanoke and Montgomery Counties. Roanoke County is a metropolitan area, while Montgomery County is home to Virginia Tech, a major university, and is a rapidly growing county.

Floyd's situation as a rural county on the periphery of a metropolitan area and a rapidly growing area presents the county with both opportunities and problems. Floyd will probably experience continued population growth. Whether the population will work in the county or commute to work is open to question. More jobs in the county will increase the tax base. At the same time, job growth might change the natural environment of the county. Both population and job growth might change the "rural character" of the county, which many of its residents prize.

HOW THIS STUDY WAS DONE

In this report we present an analysis of selected topics of significance to Floyd County, based on the many economic changes that have occurred in the United States, Virginia, and Floyd County over the past three decades. In addition to noting specific changes and developments in the selected areas, the report examines possible factors that have influenced these developments. Economic patterns and trends are identified, and Floyd County trends are compared with state and national trends. Areas where the county differs from state and national trends are identified to show weak and strong points of the local economy.

The topics covered in this analysis are as follows:

(1) population and labor force from 1960 to the present;

(2) quality of life indicators;

(3) self-employment and income in the farm, non-farm, and retiree sectors;

(4) an analysis of employment trends by sector in Floyd County using *location quotients* and *shift-share analysis*;

(5) an analysis of retail trade using *pull factors*.[1]

Examining these particular subjects gives insight into economic changes in Floyd County and a better understanding of the current economic conditions of the county. The goal of our analysis is to offer an account of developments that have shaped the county's economy, so that knowledge of those past developments may help Floyd citizens better prepare for the future.

Data Sources

The most comprehensive data source is the *Census of Population and Housing*, which is taken every 10 years by the U.S. Bureau of the Census. While this census *attempts* to count every person, most other data series do not attempt to be as comprehensive. For example, the *Census of Manufacturing*, also by the U.S. Census Bureau, includes only incorporated firms and unincorporated firms with five or more employees. An unincorporated firm with less than five employees is not counted. The economic censuses—agriculture, manufacturing, and retail trade—are taken every five years by the Census Bureau. The census of retail trade is a very recent addition to the economic censuses.

Much of the data published by the federal and state governments are compiled from administrative records, such as social security payments, unemployment claims, and building permits. In addition, census information, administrative records, and limited surveys are combined to update data series.

Some items relevant to a report such as this one are not included in any systematic data series. For example, teachers and professors in public schools and colleges may be included in the service sector or the government sector, or excluded entirely, depending upon the data source. Employment in public education is often an important source of employment in rural counties, but few data are available.

Because of the problems of primary data collection—differing years in which data are collected, incomplete coverage of some surveys, incomplete and inaccurate administrative records, and deliberate attempts by citizens and firms to hide information (such as wage payments in cash)—data from one series may not exactly conform to similar data in another series. For example, employment in manufacturing as reported in the *Census of Population* will not be the same as that reported in the *Census of Manufacturing*. The *Census of Population* reports employment by place of residence while the *Census of Manufacturing* reports employment by place of work. Thus, commuters are counted where they live by the *Census of Population* and where they work by the economic censuses.

Updating of information sources can also affect data. As the economy changes, new types of businesses come into existence. From time to time, new categories have to be added to a data series, old categories dropped, and some categories modified. For example, new categories have been added for business services and manufacturing because many types of services and high-tech firms did not exist 20 years ago. One needs to be aware of any updating that has taken place.

Rules forbidding disclosure of confidential information can cause data problems at the local level. If the number of persons or firms is small enough that it is possible to identify a particular individual or firm, the data cannot be published. Rules of thumb in this regard are fewer than 15 persons or fewer than 5 firms. For example, if there are only 2 firms in a manufacturing sector in the county, exact employment

[1] *These methods are described in the "Analysis Techniques" section of the report.*

and payroll in that sector will not be given. Disclosure rules thus prevent publishing detailed information on manufacturing in Floyd County and the information had to be estimated from less specific data.

Given these limitations of available data, how should economic information be viewed? Such information is better than no information at all. But, while most information is carefully collected and is of high quality, *all data should be considered best estimates*. Changes over time may be more indicative of the state of the local economy than the exact number in any given year. In fact, a single number gives very little information, because it does not tell if this is an increase or a decrease from a previous period.

POPULATION OF FLOYD COUNTY

Floyd County population trends differ from those of the state and nation (Table 1). This difference is not surprising because Floyd is a rural county, while the majority of the population in Virginia and the United States is urban.

Table 1. Population of Floyd County, Virginia, and the United States, 1960-2000.

TOTAL POPULATION TREND						
	Floyd	Percent change	Virginia	Percent change	United States	Percent change
1960	10,462		3,966,949		180,671,000	
1970	9,775	-6.6	4,648,494	17.2	205,052,000	13.5
1980	11,563	18.3	5,346,818	15.0	227,757,000	11.1
1990	12,005	3.8	6,187,358	15.7	248,709,873	9.2
2000[a]	12,600	5.0	7,023,000	13.5	268,266,000	7.9

[a]*Projected.*

Source: United States Bureau of the Census, 1960-1990; *Virginia Statistical Abstract*, 1992-1993.

A common population pattern for rural counties is a slow decline in population after 1920, a more rapid decline in the 1950s and 1960s, and an increase in population during the 1970s when many urban residents migrated to rural areas in search of a better quality of life. Floyd County data show this pattern of population decline in the 1960s and growth in the 1970s. Floyd deviated from the typical rural pattern in the 1980s, however, by growing during that decade when most rural areas again lost population. While Floyd's population growth was not as strong as that of the state or nation, its deviation from the general rural trend suggests a source of strength in the Floyd economy.

Continued strong population growth is projected for Virginia to the year 2000. Floyd's population is projected to grow more rapidly in the 1990s than it did in the 1980s. Population projections are made using the most recent census as a bench mark. Birth, death and migration rates are also taken into account. The larger the area considered, the more accurate the projection is likely to be. Thus, the projec-

tion for the United States is likely to be more accurate than the projection for Floyd County. Unexpected events will throw off population projections for smaller areas. For example, the current projections were made before military cutbacks, which are likely to have large impacts for Virginia, were announced. Floyd's population growth will be affected not only by events in Floyd, but also by state and national events and by events in Montgomery and Roanoke counties, to which Floyd residents commute for work.

Besides knowing trends of the general population, for planning purposes it is often useful to know the trends of particular age groups in the population. Trends in particular age-groups will be affected by general population trends. The following sections discuss trends in the school-age, working-age, and retirement-age populations.

School-age Population

Changes in the school-age population have important implications for Floyd County because public school funding is a major expenditure for county government in Virginia. The school-age population is further subdivided into those under five years of age (the future school generation), 5-14 years of age (primary school), 15-19 years of age (secondary school), and 20-24 years of age (post-secondary school).

The school-age population in Floyd decreased in the 1960s as a result of the decline in the overall county population during that decade (Table 2). This population also decreased statewide and nationally during the 1960s, but the percentage decrease was larger in Floyd. The decline in the growth of the under five age group at the state and national level was due to the end of the baby boom in 1964. Part of the 22-percent decline in this age-group in Floyd may also have been due to this trend, and part may have been due to loss of population.

Table 2. School-age population change in Floyd, Virginia, and the United States, 1960-2000.

Percentage Change in School-Age Population					
		1960-1970	1970-1980	1980-1990	1990-2000[a]
United States	under 5	-15.6	-5.0	1.26	N/A
	5 to 14	14.9	-14.2	0.8	N/A
	15 to 19	44.3	11.1	-16.2	N/A
	20 to 24	51.6	30.1	-10.7	N/A
Virginia	under 5	-14.4	-8.0	22.9	-3.4
	5 to 14	14.9	-12.1	05	14.6
	15 to 19	35.9	14.7	-13.3	11.7
	20 to 24	54.5	20.7	-2.1	-5.9
Floyd County	under 5	-22.3	4.0	-7.7	-1.5
	5 to 14	-13.7	-5.8	-5.7	2.1
	15 to 19	-18.0	14.0	-18.4	-11.1
	20 to 24	-7.3	52.3	-16.4	-4.8

[a] *Projected. N/A = data not available.*

Source: United States Bureau of the Census, 1960-1990; *Virginia Statistical Abstract*, 1992-1993.

The impact of the end of the baby boom can be seen at the state and national levels. Each age group decreased as baby boomers aged and moved through that group. The population of the 5-14 group declined in the 1970s and the 15-24 groups declined in the 1980s. A further impact of the baby boom was the increase in the population under age 5 in the 1980s as the baby boom generation began having families. The very large increase (nearly 23 percent) in this age group in Virginia from 1980-1990 was likely due to high in-migration of young adults during the 1970s and 1980s.

With a higher population growth rate in the 1970s than either the state or nation, it is not surprising that trends in school-age population in Floyd differ from the larger trends. Only the 5-14 age group declined in the 1970s, following the 22 percent decline in the under five age group in the previous decade. This decline continued as that group aged in the 1980s. In addition, the entire school-age population declined in the 1980s, most likely due to slow population growth during that decade compared with the state and nation and to the aging of the county's population (see following section on retirement-age population).

The decline in the school-age population of the county is projected to continue to the year 2000. The one exception is small growth in the age 5-14 group, representing the children of the baby boom generation.

Working-age Population

The working-age population is defined as persons between the ages of 16 and 64. Trends in the working-age population are closely related to general population trends, because the working-age group makes up the majority of the population and because this group makes locational decisions which affect people under age 16. The working-age population also tends to be a major tax base as property owners and as consumers generating sales tax revenues.

Table 3 shows trends in the working-age population for Floyd, Virginia, and the United States. A comparison with Table 1 above shows how working-age population has reflected trends in the general population. Both Floyd's working-age and

Table 3. Percentage change in working-age population, 1960-2000.

Percentage Change in Working-age Population					
		1960-1970	1970-1980	1980-1990	1990-2000[a]
United States	under 16	5.7	-10.6	2.8	N/A
	16 to 64	16.2	18.4	10.3	N/A
	65 over	23.8	27.3	22.2	11.7
Virginia	under 16	6.1	-9.8	5.4	N/A
	16 to 64	14.4	24.3	17.2	N/A
	65 over	26.8	38.0	31.5	17.7
Floyd County	under 16	-15.4	-2.5	-7.3	N/A
	16 to 64	-5.5	24.3	6.2	N/A
	65 over	11.4	34.2	10.5	-8.6

[a] *Projected. N/A = data not available.*

Source: United States Bureau of the Census, 1960-1990; *Virginia Statistical Abstract*, 1992-93 edition.

general population declined in the 1960s as rural people moved to urban areas for jobs. Since that time, both have grown. In the 1970s, when Floyd's population grew faster than the national average, so did its working age population. Slower county population growth, compared with the nation and state in the 1980s, is also reflected in slower growth of the working-age population.

The rapid growth of the working-age population in Virginia is a reflection of the rapid population growth of the state. Much of the state's population growth can be attributed to in-migration of job seekers, causing a faster growth in the working-age population than in the population in general.

Projections for the working-age population were not readily available; the available projection data, in *Virginia Statistical Abstract* for 1992-93, included 15-year olds.

Retirement-age Population

The retirement-age population is defined as all persons 65 years of age and older. This does not correspond exactly to the number of retirees because some people retire before 65 while others choose to continue working well beyond 65.

Nationally, the population 65 and older is growing more rapidly than the rest of the population (Table 4). This is true also for Virginia and Floyd. As a result, the percentage of the total population that is over 65 is increasing (Table 5). Some slow-down in growth of the population 65 and older is anticipated in this decade because of the small numbers of babies born during the Great Depression of the 1930s.

Floyd has had a more rapid increase in the percentage of its population over 65 than the state or nation. Some of the increase is due to the in-migration of retirees, but most of the increase is due to younger people leaving Floyd while older citizens remain.

Table 4. Changes in retirement-age and total population, 1960-2000.

Percentage Change in Retirement Age and Total Population					
		1960-1970	1970-1980	1980-1990	1990-2000[a]
United States	Retired	23.8	27.3	22.2	N/A
	Total	13.5	11.1	9.2	7.9
Virginia	Retired	26.8	38.0	31.5	17.7
	Total	17.2	15.0	15.7	13.5
Floyd County	Retired	11.4	34.2	10.5	14.4
	Total	-6.6	18.3	3.8	5.0

Note: Retirement age = 65 and over.

[a] *Projected. N/A = data not available.*

Source: United States Bureau of the Census, 1960-1990.

Table 5. Population over 65 as a percentage of the total population, 1960-2000.

Year	United States	Virginia	Floyd
1960	9.0	7.3	11.5
1970	9.8	7.9	13.7
1980	11.2	9.5	15.6
1990	12.6	10.7	16.6
2000[a]	13.0	11.1	14.4

[a] *Projected. N/A = data not available.*

Source: United States Bureau of the Census,1960-1990; *Virginia Statistical Abstract*, 1992-93 edition.

QUALITY OF LIFE

Education

Education plays a major role in determining the economic viability of an area's workforce. The ability of a county to attract new citizens and industries depends greatly on the educational opportunities that are available and on the educational level of its workforce. Moreover, the overall quality of life of a community is at least partially based upon the level of education of its citizens.

Education of the Population Age 25 and Over

The percentage of the adult population age 25 and over with a high school diploma in Floyd County has lagged considerably behind both Virginia and the nation, but the county is catching up (Figure 1). In addition, the percentage of the population 25 and over with a college degree in Floyd is much lower than in both Virginia and the United States (Figure 2). The reason for a relatively low college-degree percentage in Floyd is probably because there are limited occupations in Floyd requiring a college degree. Virginia is well above the national average due to the in-migration of many highly educated people to jobs in Northern Virginia.

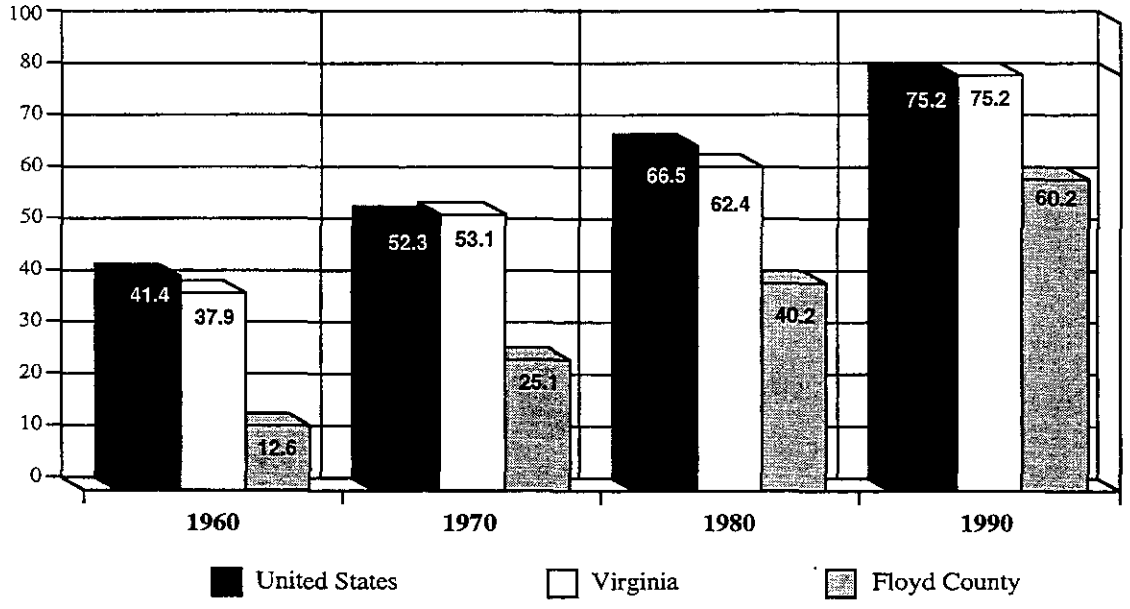


Figure 1. Percentage of population age 25 and over with a high school diploma.

Source: *Census of Population and Housing*, 1960-1990.

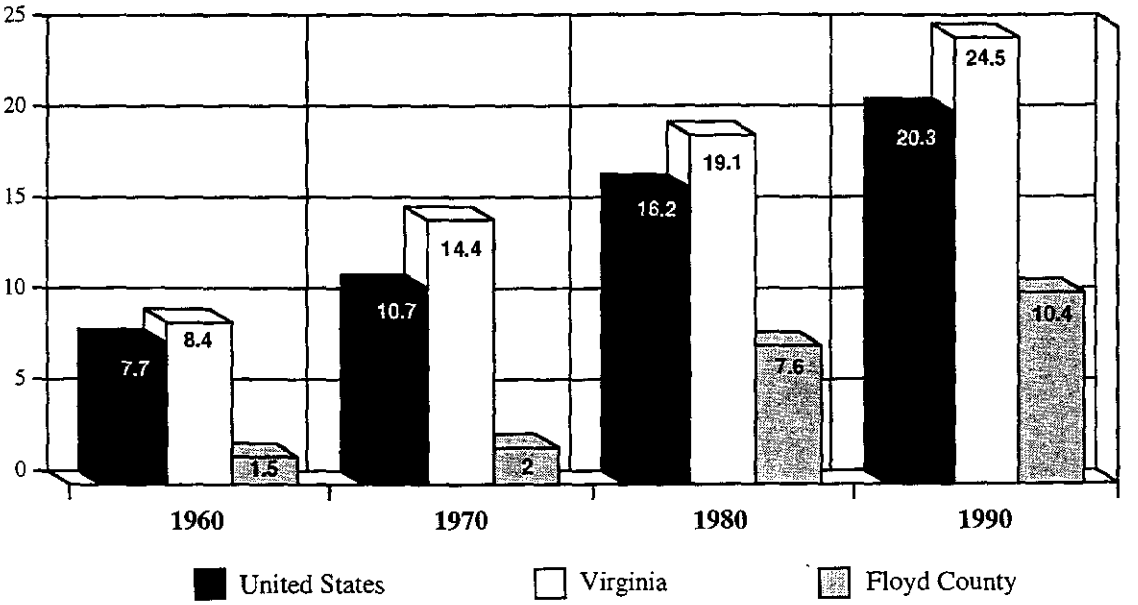


Figure 2. Percentage of population age 25 and over with a college degree.

Source: *Census of Population and Housing*, 1960-1990.

The median (half of the population falls above and below this point) years of educationfor the population age 25 and over has steadily risen since 1960 in Floyd and this, of course, is directly related to the increase in high school diplomas and college degrees in the county (shown in Figures 1 and 2). Still, the median number of years of education in the county is less than 12, meaning less than a high school diploma. Virginia lagged behind the United States in the 1960s and 1970s, but surpassed the nation in the 1980s and 1990s. The median education for the state now exceeds one year of post-secondary education.

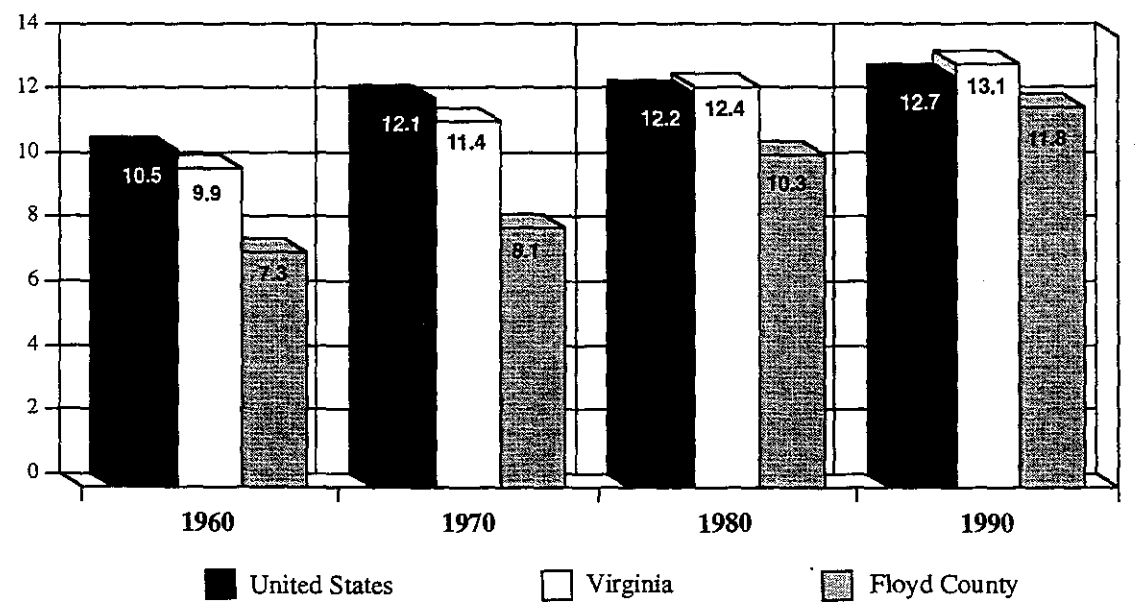


Figure 3. Median years of education for population age 25 and over.

Source: *Census of Population and Housing*, 1960-1990.

School-age Population Attending school

The percentage of the school-age population enrolled in school has increased since the 1960s, particularly in the 14-to-17 year old (high school) group (Table 6). This is most likely because jobs increasingly require a higher level of education. As noted above, the number of students in the county declined from the 1980 to 1990, due to slower population growth and smaller families.

Table 6. Percentage of school-age population enrolled in school.

	Virginia	Floyd County
1960		
5-6	40.5	24.4
7-13	96.3	97.2
14-15	89.8	88.4
16-17	72.8	75.6
18-19	36.2	34.6
1970		
5-6	57.5	34.6
7-13	96.9	97.8
14-15	95.2	97.3
16-17	86.9	85.8
18-19	53.5	53.0
1980		
5-6	63.4	85.3
7-13	99.1	99.0
14-15	97.6	100.0
16-17	89.1	93.1
18-19	52.7	46.0
1990		
5-14	93.0	93.1
15-17	93.0	92.8
18-19	63.6	47.9

Source: *Census of Population and Housing*, 1960-1990.

Dropout rate

The dropout rate can be an indicator of the quality of the future workforce. It has been shown that students who have dropped out of school are more likely to be unemployed than students who have a high school diploma, because dropouts tend to lack skills and knowledge useful for holding a job.

Dropout rates cannot be compared from state to state because each state computes the dropout rate differently. Even within Virginia, the dropout rate calculation has changed. Prior to the 1988-1989 school year, the rate was computed without counting the students who dropped out in elementary school or over the summer. Since then, however, the rate has included those students. This new calculation makes it difficult to compare the dropout rates within the state over time. Still, Floyd County can be compared to the state for any given year.

Since 1961, Floyd's dropout rate consistently has been below that of the state, except for the 1991-1992 school year (Table 7). Note, however, that after the implementation of the new calculating system in 1988-1989, Floyd's dropout rate increased considerably (by 1.5 percentage points) while Virginia's rate increased by only .1 percentage point, suggesting that many Floyd students were dropping out at a young age or over the summer. Floyd's dropout rate declined from the 1960s through the 1980s. From the 1988-1989 school year to the 1991-1992 school year, however, it increased and in the 1991-1992 school year it was above the state average. With only one year of data, it is not clear if this was the beginning of a trend or merely a one-year aberration.

Table 7. Dropout rates for Virginia and Floyd County.

School Year	Virginia	Floyd
	Grades 8-12	
1961-1962	5.5	5.4
1971-1972	4.4	2.7
1981-1982	5.3	2.5
1987-1988	4.7	2.1
	Grades 7-12	
1988-1989	4.8	3.6
1991-1992	3.3	4.9

Sources: *Facing Up*; *Virginia Statistical Abstract*, 1992 (p. 152, Table 5.10).

Student Achievement

In Virginia, students are tested for achievement in the fourth, eighth, and eleventh grades. For this report, eleventh grade achievement results were chosen because eleventh graders are closest to becoming members of the workforce.

New achievement tests were implemented in 1988-1989. Prior to the changing of the tests, Floyd students' average fell well below the state's average (Table 8). Be-

tween the 1980-1981 and 1986-1987 school years, the difference between Floyd's scores and those statewide increased in each test category, except for a slight decrease of one point between the 1986-1987 mathematics scores of the county and state. After the implementation of the new achievement tests, Floyd's achievement scores continued to remain below those of the state. During the period from 1989 to 1992, however, Floyd showed an increase in performance as seen by a reduction in the gap between Floyd's scores and the statewide scores.

Table 8. Eleventh-grade achievement test scores in Virginia and Floyd County.

	Virginia	Floyd	Difference
Old Tests			
1980-1981			
EAS[a]	42	42	0
Reading (SRA)[b]	47	41	6
Language (SRA)	38	25	13
Mathematics (SRA)	50	35	15
1986-1987			
EAS	65	57	8
Reading (SRA)	60	49	11
Language (SRA)	61	45	16
Mathematics (SRA)	67	53	14
New Tests			
1988-1989			
Reading (SRA)	57	52	5
Language (SRA)	61	53	8
Mathematics (SRA)	56	44	12
1991-1992			
Reading (SRA)	58	55	3
Language (SRA)	63	57	6
Mathematics (SRA)	58	48	10

[a]*EAS = Educational Ability Series tests.*

[b]*SRA = Scientific Research Associates tests.*

School Resource Levels

Between 1960 and 1992, both Virginia and Floyd decreased their student/teacher ratio for secondary schools by at least 50 percent (Table 9). During that period, Floyd's student/teacher ratio has consistently been higher than the Virginia average, except for the two most recent school years shown in Table 9.

Table 9. Secondary student/teacher ratios for Virginia and Floyd County.

School Year	Virginia	Floyd
1960-1961	24.8	27.0
1965-1966	21.9	23.4
1970-1971	19.0	21.0
1975-1976	18.5	20.4
1980-1981	14.5	16.3
1985-1986	15.2	15.0
1991-1992	12.3	11.8

Source: Virginia Department of Education.

In annual operating costs per student, Floyd was nearly equal to the state during 1965-1966, then Floyd slowly started to fall behind (Table 10). Floyd's high school student/teacher ratio and its relatively low average operating costs per student could both be a part of the cause of the low scores received on the eleventh-grade achievement tests. The recent improvement in scores could be the result of lower student/teacher ratios.

Table 10. Annual operating costs in dollars per student in Virginia and Floyd County.

School Year	Virginia	Floyd
1960-1961	274	244
1965-1966	392	391
1970-1971	784	599
1975-1976	1354	1074
1980-1981	2124	1749
1985-1986	3429	2785
1991-1992	4995	4362

 Source: Virginia Department of Education.

Crime

In annual crime rate statistics published by the Virginia Department of State Police, the crimes included are murder/nonnegligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny, and motor vehicle theft. Excluded from the calculated rate are the serious crime of arson and more minor crimes, including traffic violations. The crime rate is determined by taking the number of inhabitants and dividing it by 100,000 people. Next, this number is divided into the total number of criminal offenses to give the crime rate per 100,000 persons.

Compared to large cities and the communities that surround them, rural areas generally have low crime rates. Compared to the state as a whole, Floyd has a very low crime rate (Table 11). The crime rate overall decreased in Floyd County and Virginia from 1970 to 1990, but there was a slight increase from 1970 to 1980 for both Virginia and Floyd. The number of other, more minor crimes decreased in Virginia and Floyd from 1980 to 1990.

Table 11. Crime statistics for Virginia and Floyd County.

	Virginia	Floyd
Crime Rate per 100,000 people		
1970	4,514	1,000
1980	4,615	1,209
1990	4,441	683
Total Murder and Manslaughter		
1970	576	0
1980	455	0
1990	545	1
Other Crimes		
1970	N/A	N/A
1980	277,282	133
1990	244,738	80

Source: *Crime in Virginia*, Virginia Department of State Police, various years.

Housing

Housing generally is the single largest expenditure for a family. Housing prices, relative to housing quality, can serve as a magnet, attracting people to one location rather than another.

In 1990, both the median housing value and median family income in Floyd were considerably lower than the state average (Table 12). Housing was more affordable in Floyd as measured by the ratio of housing value to income. At the same time, housing in Floyd was of a lower quality than in the state. Nearly one quarter of housing units in Floyd were over 50 years old, compared with 11 percent statewide. In addition, eight percent of the houses in the county lacked complete plumbing, compared with less than two percent statewide.

Table 12. Housing characteristics for Virginia and Floyd County, 1990.

Characteristics	Virginia	Floyd
Housing less than 10 years old (%)	26.3	21.3
Housing more than 50 years old (%)	11.0	23.9
Housing lacking complete plumbing (%)	1.8	8.4
Median Housing Value	$90,400	$51,800
Median Family Income	$38,213	$27,439
House value/income ratio	2.37	1.89

Source: Census of Population and Housing, 1990.

Income

Income and income distribution are important indicators of the quality of life in an area. In addition, trends in income indicate the economic successes and failures of an area. This section discusses per capita income and income distribution, the latter as measured by the poverty rate.

Real Per Capita Personal Income

Personal income includes wages and salaries, dividends, interest, transfer payments, royalties, net rental income, net income of owners of unincorporated businesses, and other types of benefits such as private pensions. Transfer payments are income received with no services rendered, such as Social Security, foodstamps, unemployment benefits, and other welfare payments. Not included in personal income are payments made by earners to Social Security, government retirement, and other social insurance programs.

Per capita personal income is the average personal income for the population of an area by place of residence. Table 13 shows trends in real per capita personal income from 1970 to 1990. "Real" indicates that the data have been adjusted for the impact of inflation. Looking at the real dollar amounts in Table 13 (values are adjusted to 1982-84 dollars), Floyd's real per capita personal income increased substantially during the 20-year period considered. While the percentage changes

were higher in Floyd than in either the state or the nation, the county continued to lag behind the state and nation in real per capita income.

Table 13. Changes in real per capita personal income.

Year	United States	% Change	Virginia	% Change	Floyd	% Change
1970	10,440		9,647		6,827	
1980	11,154	7	11,926	24	8,752	28
1990	14,309	28	15,078	26	11,188	28

Source: USDA/Bureau of Economic Analysis, CD/ROM.

Virginia's real per capita personal income levels were actually higher than the nation's in 1980 and 1990. This can probably be attributed to the phenomenal economic growth the state experienced in northern and southeastern Virginia during the 1980s. The increases in income in these areas most likely caused the state's average income to increase.

Poverty

Many people associate poverty only with inner cities, but this is far from the truth. Actually, poverty rates are higher in rural areas than in urban areas. The "poverty level" is defined by the Social Security Administration and the United States Department of Agriculture as three times the cost of a basic balanced diet for a given number of family members. Poverty statistics include all people except those who are in mental institutions, college, or the military. Table 14 shows general trends of population below the poverty level for Floyd County, Virginia, and the United States.

Table 14. Population below the poverty level.

	United States	Virginia	Floyd County
Persons Below Poverty Level			
1970	27,05,7482	689,249	1,989
1980	27,39,2580	611,310	1,757
1990	32,68,0072	611,611	1,673
Percentage of Persons Below Poverty Level			
1970	13	12	20
1980	12	12	15
1990	13	10	14

Source: *Census of Population and Housing*, 1970-1990.

The total populations in Floyd, Virginia and the United States all increased from 1970 to 1990. Given the increase in population it would not be unusual if the number of people below the poverty level also increased. The percentages in Table 14 show that Floyd County had a higher percentage of people below the poverty level than the United States and Virginia in 1970, 1980, and 1990.

The higher poverty rate in Floyd is similar to that of other rural areas. While the poverty rate in Floyd remains above that of both the state and nation, the gap has narrowed considerably and the number of people in Floyd below the poverty level has decreased. In fact, the national poverty rate increased from 1980 to 1990 while Floyd's rate continued to fall. The poverty rate for Virginia also fell during this same period, as did the actual number of people below the poverty level.

Table 15 illustrates a further breakdown of poverty statistics, showing the number of families below the poverty level. "Family" is defined as two or more persons living in a household who are related by birth, marriage, or adoption.

Table 15. Families below the poverty level.

	United States	Virginia	Floyd County
Number of Families Below Poverty Level			
1970	5,475,040	144,199	547
1980	5,670,215	128,974	419
1990	6,487,515	126,897	463
Percentage of Families Below Poverty Level			
1970	11	12	21
1980	10	9	13
1990	10	8	13

Source: *Census of Population and Housing*, 1970-1990.

The percentage of children in poverty generally is higher than the percentage of the total population in poverty (see Table 16, and compare to Table 14). One reason for the higher percentage of children in poverty is that families with children tend to be young adults who have not yet reached the peak of their earnings.

From 1970-1990, both Floyd County and Virginia experienced a decreasing trend in the percentage of children below the poverty level. At the national level, however, the percentage of children below the poverty level has steadily increased over the last three decades.

Public assistance programs, including Aid to Families with Dependent Children (AFDC), food stamps, and Medicaid are designed to help families in or near poverty. The increase in participation has likely contributed to the decrease in families in poverty (Table 17). Although the number of families in Floyd who participate in assistance

programs has increased, many families in poverty still do not participate: In 1980, 13 percent of families were below the poverty level and only 6 percent received assistance. Participation in Floyd is similar to that in the state but lower than in the nation.

Table 16. Children below the poverty level.

	United States	Virginia	Floyd County
Number of Children Below Poverty Level			
1970	1,039,0073	282,592	461
1980	1,002,5623	215,930	376
1990	1,116,1836	191,983	359
Percentage of Children Below Poverty Level			
1970	15	18	23
1980	16	15	16
1990	18	13	13

Source: *Census of Population and Housing*, 1970-1990.

Table 17. Families receiving public assistance.

	United States	Virginia	Floyd County
Families Receiving Public Assistance			
1970	2,719,074	34,868	71
1980	4,719,381	95,512	170
1990	5,024,146	90,742	226
Percentage of Families Receiving Public Assistance			
1970	5	3	3
1980	5	3	5
1990	8	6	6

Source: *Census of Population and Housing*, 1970-1990.

EMPLOYMENT

Labor Force

The labor force is defined as persons over the age of sixteen who are working or are actively seeking employment. If the labor force is increasing, or stable with high participation, it can be helpful in attracting new employers. But a lack of available labor force or of a well-trained labor force can discourage new industry and, in turn, add to incentives for people to move away.

For all three jurisdictions we are considering in this report, the labor force grew most rapidly during the 1970s (Table 18). Rapid growth of the labor force at that time can be attributed to two factors: (i) the majority of the baby boom generation entered the workforce, and (ii) women entered the work force in large numbers. All three jurisdictions showed much larger percentage increases in the female than in the male labor force. The increase in the female labor force was larger not only in percentage terms, but also in absolute numbers.

Table 18. Changes in the labor force, 1970-1990.

	1970-80	1980-90
	Percentage change in the total labor force	
United States	29	18
Virginia	34	28
Floyd	41	15
	Percentage change in the male labor force	
United States	19	12
Virginia	22	21
Floyd	29	9
	Percentage change in the female labor force	
United States	46	27
Virginia	47	37
Floyd	66	25

Source: U. S. Bureau of the Census.

Floyd's overall labor force as well as its male and female labor forces grew more rapidly from 1970 to 1980, the period of the rural population turnaround, than either the United States or Virginia. The county's labor force grew more slowly in the 1980s, a period when the county's population growth also slowed.

The labor force participation rate is the percentage of the population over 16 years of age that is part of the labor force. Given the increase of women in the labor force, it is not surprising that the overall labor force participation rate increased from

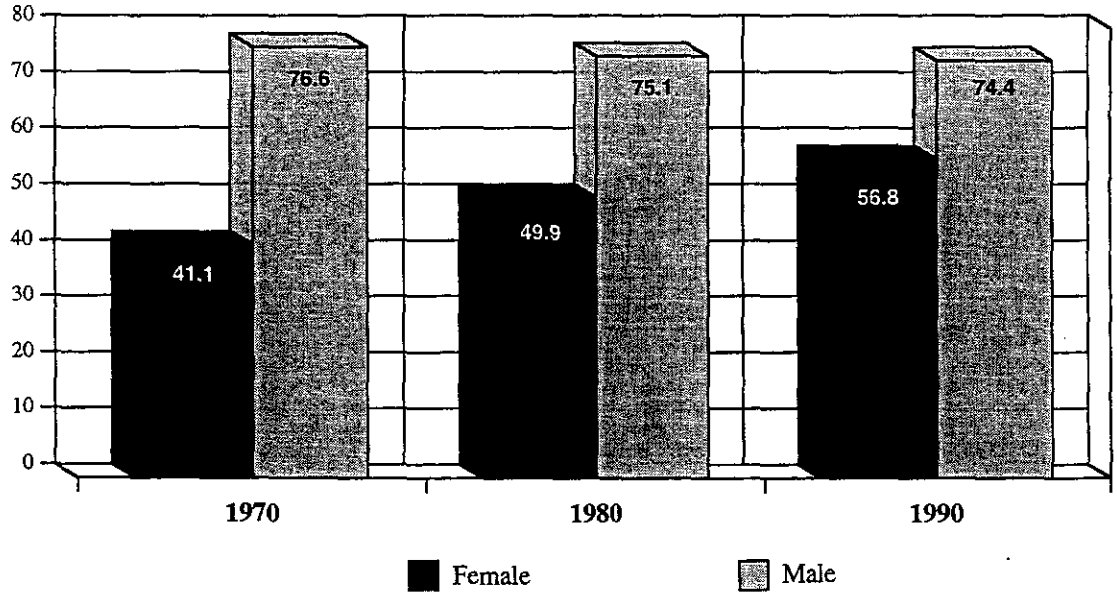
1970 to 1990 in all three jurisdictions (Table 19). Virginia's participation rates have been consistently higher than those of the United States, while Floyd's rates have been lower than both the United States and Virginia.

Table 19. Labor force participation rates (percentages).

	1970	1980	1990
United States	58.2	62.0	65.3
Virginia	60.1	64.1	68.0
Floyd	51.6	57.9	61.6

Source: U.S. Bureau of the Census.

Figures 4-6 show the labor force participation rates for males and females in the United States, Virginia, and Floyd. From 1970 to 1990, male participation rates in the United States and Virginia decreased slightly, with the lowest point in 1980. Floyd did not follow the same trend. The labor force participation rate for males increased steadily from 1970 to 1990 (68.6 percent to 72.4 percent). Typically, rates for males do not fluctuate greatly because of males' already high participation rates. The female labor force participation rate increased rapidly from 1970 to 1990 in the United States, Virginia, and Floyd. The majority of the increase in the labor force and in labor force participation rates was due to increased participation by women.



Figures 4. Male and female labor force participation rates (percentages) in the United States, 1970-1990.

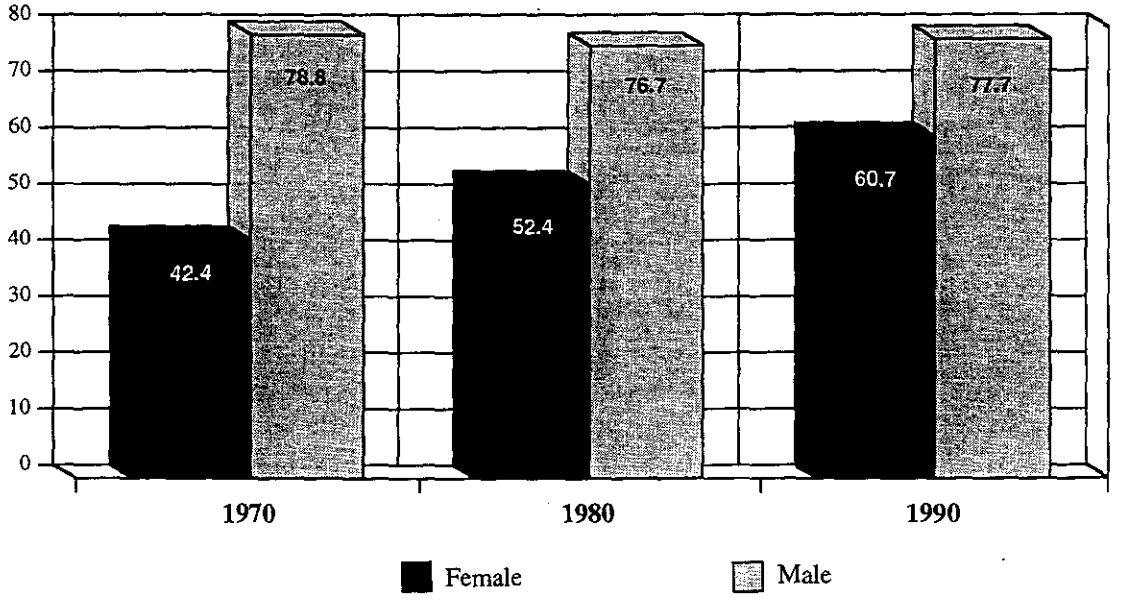


Figure 5. Male and female labor force participation rates (percentages) in Virginia, 1970-1990.

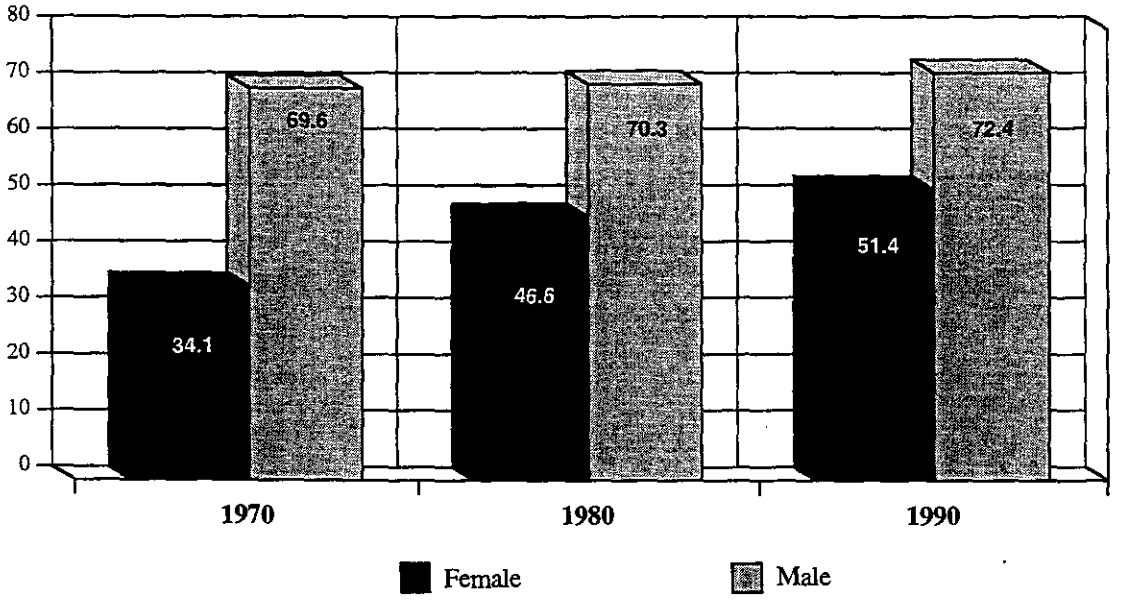


Figure 6. Male and female labor force participation rates (percentages) in Floyd County, 1970-1990.

Employment Trends

With a growing county labor force, increased employment opportunities are needed. These opportunities may be inside or outside of the county, but, if outside, must be within commuting distance. If these opportunities do not exist, unemployment will increase. This section discusses the employment of county residents. A later section will discuss in detail the jobs existing in the county, which *may or may not* be held by county residents.

Following labor force trends, employment increased more rapidly in the 1970s than in the 1980s for all three jurisdictions (Table 20). Not surprisingly, employment of women has increased more rapidly than that of men, both in percentage and absolute terms.

Table 20. Percentage change in employment.

	1970-80	1980-90
Percentage change in total employment		
United States	28	18
Virginia	37	29
Floyd	35	17
Percentage change in male employment		
United States	18	20
Virginia	26	22
Floyd	20	13
Percentage change in female employment		
United States	44	36
Virginia	55	38
Floyd	66	23

Unemployment

The unemployment rate is the percentage of people in the labor force who are both without work and are actively seeking work. For the three years considered from 1970 to 1990, unemployment rates were highest in all three jurisdictions in 1980, a recession year (Figure 7). Virginia has consistently had lower unemployment rates than the United States, while in 1970 and 1990 Floyd had lower unemployment rates than the United States. Unemployment rates in rural areas, however, are known to be difficult to measure and in general tend to be underestimated. Decreasing unemployment in Floyd could be due to actual increased employment opportunities, but it could also be due to migration of the unemployed to other areas in search of jobs.

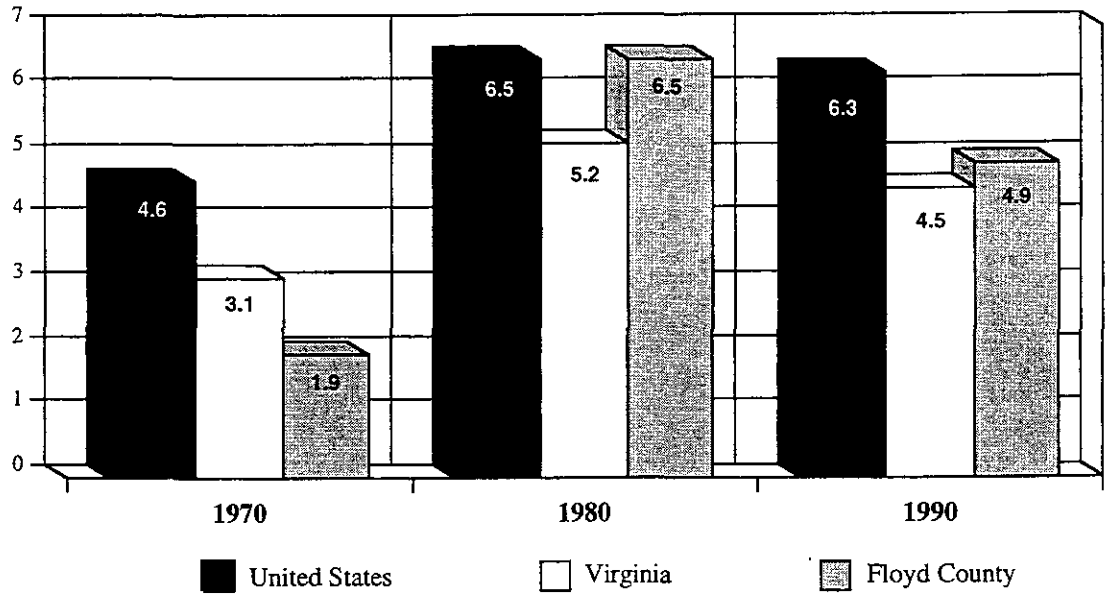


Figure 7. Civilian unemployment rates (percentages).

Commuting

Employment opportunities in Floyd have not kept pace with the increase in the labor force. In both 1970 and 1980, 42 percent of employed residents worked outside the county (*County and City Data Book*, 1972 and 1983). This increased to 46 percent in 1990 (Bureau of Census). For many years, Floyd has been a county of commuters.

An *out-commuter* lives in the county and works outside the county. *In-commuters* work in the county but live outside. Table 21 indicates that Montgomery County is the number-one destination for Floyd out-commuters (617) and also the number one source of in-commuters to Floyd (74). The number-two commuting destination from Floyd, with 522 out-commuters, is the city of Roanoke; however, Patrick County ranks number two for incommuters to Floyd (66). The 199 in-commuters into Floyd do not have a relatively large impact compared to the 1878 out-commuters. Detailed data on in-commuters and out-commuters were available only for the year of 1980; more recent data on commuting are not yet available from the Bureau of Census.

Table 21. Floyd County commuting destinations and origins, 1980.

County	Number of Out-commuters from Floyd	Number of In-commuters to Floyd
Carroll	103	31
Franklin	46	5
Giles	5	0
Henry	20	0
Martinsville	17	0
Montgomery	617	74
Patrick	95	66
Pulaski	24	15
Radford	174	0
Roanoke	522	0
Salem	203	0
Wythe	0	8
Elsewhere	52	0
Total	1878	199

Source: Spar, *Transportation and Communting in Virginia.*

Types of Employment of County Residents

The sectors in which the residents of Floyd are employed give a rough indication of the skills of the labor force. Manufacturing is the largest employer of Floyd residents, followed by the service sector (Table 22). The number employed in services has increased rapidly since 1970, while manufacturing employment peaked in 1980. These changes, along with the growth of retail employment, mirror changes in national employment patterns.

Table 22. Employment of Floyd residents by sector.

	Number Employed		
Industry	**1970**	**1980**	**1990**
Agriculture, Forestry & Fishing	473	502	462
Mining	6	5	24
Construction	364	439	526
Manufacturing	1,631	1,863	1,740
Transportation, Communications & Public Utilities	158	217	332
Wholesale Trade	33	103	122
Retail Trade	321	477	745
Finance, Insurance & Real Estate	39	183	215
Services	364	898	1,181
Public Administration	131	137	104
Total Employed	**3,520**	**4,824**	**5,451**

If one compares the sectors in which residents are employed with the total employment in these sectors in the county, one can see the areas of "surplus" skills in the county. The largest discrepancy is in services (Table 23): 1,181 county residents had jobs in this sector in 1990, but only 182 such jobs were available in the county itself. On the other hand, service employment in the county may be underestimated as many service workers are likely to be self-employed and so may not be counted in the economic census.

Table 23. Employment of Floyd Residents compared with jobs in the county, 1990.

	Employment of Residents	Jobs in County
Agriculture	462	240[a]
Mining	24	0
Construction	526	135
Manufacturing	1,740	723
Transportation and Public Utilities	332	53
Wholesale	122	21
Retail	745	318
Finance, Insurance and Real Estate	215	75
Services	1,181	182
Public Administration	104	N/A[b]
Non-Agricultural Self Employed	N/A	604[c]
Total	**5,451**	**2,351[b]**
Outcommuters	2,536	

N/A = data not available.

[a]*Includes 21 in agricultural services, 179 self-employed in agriculture and 40 unpaid family agricultural workers.*

[b]*Because the source for employment in the county does not include public sector employment, this total underestimates the number of jobs in the county.*

[c]*Includes 479 self-employed and 125 unpaid family workers. We assumed that all self-employed Floyd residents work in Floyd.*

Source: U.S. Bureau of the Census, 1990; *County Business Patterns*, 1990.

The common perception that service employment is low-wage employment is an overgeneralization. The service sector is very diverse and contains a mixture of high-wage jobs (for example, doctors and lawyers) and low-wage jobs (for example, housekeepers). Another frequent misconception is to consider fast-food restaurant jobs as part of the service sector, but they are, instead, part of the retail sector. As Table 24 shows, many Floyd residents are employed in health services, a high-paying service subsector. In fact, a large number of Floyd residents appear to be employed in the higher-paying subsectors of the service sector.

Table 24. Service employment of Floyd residents in 1990.

Services	Number
Business and Repair Service	97
Personal Services	76
Health Services	308
Education Services	452
Other Professional and Related	221
Entertainment and Recreation	27
Total	**1,181**

ANALYSIS TECHNIQUES

Previous sections of this report concentrated on the residents of Floyd County and their employment, in or outside the county. In the following long section, "Analysis of County Economic Sectors," we will concentrate on employment within the county, whether or not the jobs are held by county residents. Before getting to that analysis, it will be useful to explain the analytical techniques. This section describes terms, definitions, and computations so that the reader can better understand how we drew conclusions.

Several tools were used to analyze employment trends in Floyd County. Each is described below. Several sources were used to find pertinent numbers for local, state, and national levels. These sources are listed in the bibliography at the end of this document. More detail on the mathematical formulas is given in the Appendix.

Location Quotients and Export Employment

Location quotients are a quick way for communities to determine which sectors of the local economy are export sectors. An "export sector" is defined as a sector that has an output (in dollars) that exceeds local needs. In other words, location quotients can be used to determine what proportion of a sector's employment is serving non-local markets.

Because output and payroll are not as readily available as employment, employment usually is used to calculate location quotients. Employment above what is needed to produce for local needs is called "export employment." Export employment is important because it brings outside money into the local area, instead of just recirculating money already in the locality. Conversely, "negative export employment" for a sector indicates that employment is being lost because the sector is not meeting local needs.

Location quotients are found by dividing the percentage of total local employment in a sector by the percentage of national employment in the same sector. For ex-

ample, if 10 percent of Floyd's workers worked in construction, but nationwide 8 percent of workers were in that sector, then the location quotient would be 10 divided by 8, or 1.25. Sectors with location quotients from 0.75 to 1.25 are defined as self-sufficient sectors. A location quotient greater than 1.25 indicates that a sector has export activity and is selling to other communities. These sectors are bringing outside money into the community. A sector with a location quotient of less than 0.75 is a net importer; that is, the sector is not meeting local needs, and money is leaving the community to buy items in this sector.

The location quotient is a *net* concept. If a sector is identified as self-sufficient, this *does not* mean that everything made by the local firms is purchased within the community. Rather, it means that, on net, as much income leaves the community to purchase this sector's items from outside as comes into the community from outside buyers.

Location quotients can also be calculated using the percentage of local annual payroll in a sector divided by the percentage of total national payroll contributed by the same sector on the national level; however, this method is not as prevalent because payroll data are less available than employment figures. For Floyd, no payroll data were available for the agricultural services and construction sectors, nor for any subsectors.

When using location quotients, several important assumptions must be acknowledged. Location quotients assume that local demand is the same in all communities. They also assume that the United States is self-sufficient and produces everything that it needs. Another important consideration is that the employment data used to calculate location quotients do not include data on self-employed people or proprietorships that do not have employees earning wages or salaries. This exclusion can make a difference in small communities such as Floyd that have a higher percentage of self-employed people. Despite their limitations, however, location quotients can provide useful information, especially when looking at changes over time.

Shift-share Analysis

Shift-share analysis, like location quotients, is a way of comparing Floyd County's economic condition to that of the nation and other communities. It is a way of measuring the forces that cause the growth or decline of local businesses. Shift-share analysis is a purely mathematical tool that only *describes* a situation; it does not offer a specific explanation of why employment has changed.

Shift-share analysis assigns changes in local employment to three components. The first component is the national growth component, measuring how much of local employment change is due to overall national economic growth. The second component is sector growth, measuring how much of local employment change in a particular sector is due to national growth of that particular sector; this indicates whether the sector is a growing industry on the national level. The last component, called the local competitive share, is a measure of local employment change due to the competitiveness of local firms in their particular sector. All three components add up to the net change in local employment for the time period specified.

For all sectors and subsectors, the national growth component will be positive for the time periods 1970-80 and 1980-90, because the national economy grew during each decade. The national growth component would be negative only if there were a severe recession.

Retail Trade Analysis

Trade Area Capture

Retail trade varies from region to region due to climatic differences and differences in tastes among local communities. For example, Florida probably sells a lot more swim wear than does Alaska. Due to these regional differences, the *trade area capture* is calculated, comparing local consumption patterns to the state's consumption patterns. Trade area capture estimates the number of customers—called consumer equivalents—actually drawn into a community by dividing actual local sales by the state per capita sales, adjusted by relative local income. This estimation assumes that local people will buy goods and services at the same rate as the state average; the only factor causing changes in the pattern of spending is personal income.

This measurement makes a comparison between local and state rather than local and the United States—as is used in location quotients—because local consumption patterns are likely to be more similar to the state than to the nation. In addition, people normally don't cross state borders to go shopping unless they live on or near a border. Also, more detail is available on retail sales by subsector than is available for employment and payroll.

Pull Factors

A *pull factor* is conceptually equivalent to a location quotient: it shows whether a retail subsector is attracting, or pulling in, consumers other than local residents. The pull factor, for a retail subsector, is the consumer equivalents for that subsector divided by the county population. A pull factor greater than 1.25 means that the particular sector is bringing in people from surrounding communities to buy its retail; a pull factor of .75-1.25 means that the community is capturing its local retail sales; and a pull factor of less than .75 means that some spending in the subsector by community residents is going on outside of the community.

Consumer equivalents and pull factors can be used over time to assess growth or decline of a retail subsector. These estimations have limitations, however, because they do not tell us why the growth or decline occurred, or how to change the situation. In order to obtain the why and how, the community must conduct further analysis.

Leakage or Surplus

Leakage or *surplus* is calculated by subtracting a community's potential sales to its residents from its actual sales (potential sales are based on the population and per capita consumption, adjusted for income). Pull factors (described above) can be used to indicate leakage or surplus: A pull factor of less than .75 indicates a sales leakage, while a pull factor over 1.25 indicates a sales surplus. Dollar amounts calculated for leakage or surplus can be useful when considering potential local sales tax revenues.

Trade area capture, pull factors, and leakage were calculated for Floyd County for retail subsectors for the years 1972, 1982, and 1987. These years correspond to the years of the *Census of Retail Trade*.

Agricultural Services Sector

The agricultural services sector, which includes forestry and fishing but not production agriculture, is a relatively minor sector within the United States, Virginia, and Floyd County. As Figure 8 shows, in this sector, real annual wages increased in the United States between 1970 and 1980 then decreased from 1980 to 1990. In Virginia, real wages for the sector increased throughout the entire time period, narrowing the gap between the United States and the state average in 1990. Floyd County data were not available for calculating real wages in 1970 and 1980; however, the average real wage of $12,023 in 1990 was above the Virginia average, and fell a few hundred dollars short of the national average.

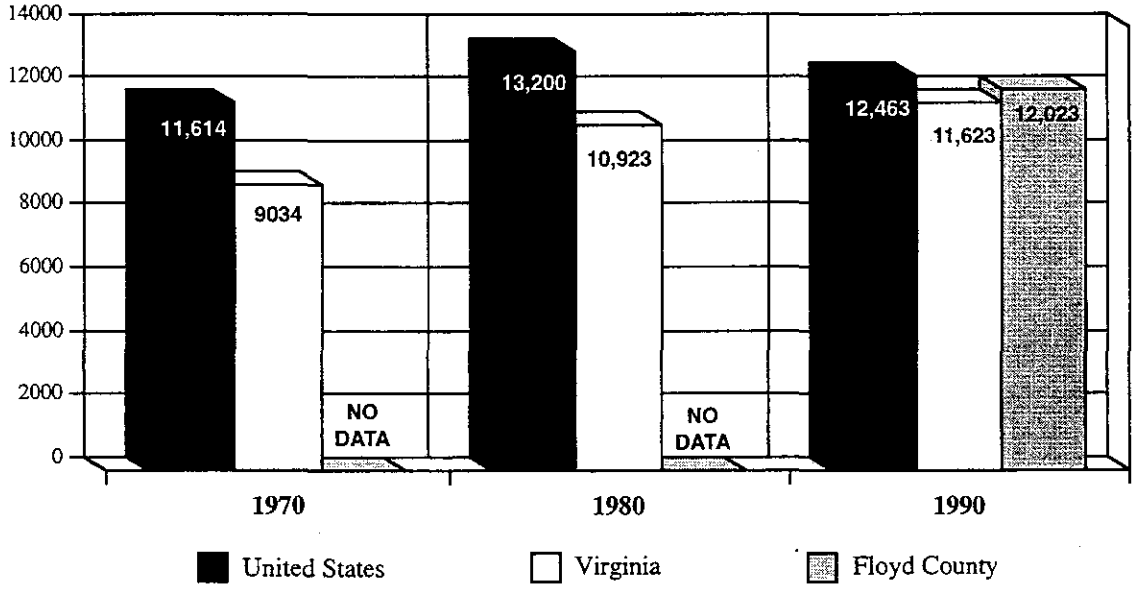


Figure 8. Real wages for the agricultural services sector, 1970-1990.

Tables 25 and 26 show the growth in real total payroll and employment, respectively. Both payroll and employment grew more rapidly from 1970 to 1980 in the United States than in Virginia. The reverse was true from 1980 to 1990. Comparisons using Floyd are difficult because payrolls were not disclosed for 1970 and 1980. The large percentage change in employment growth in Floyd is somewhat deceptive because the employment base in 1970 was very small.

Table 25. Total real payroll for the agricultural services sector.

	United States		Virginia		Floyd	
	Dollars	% Change	Dollars	% Change	Dollars	% Change
1970	2,195,856,000		39,072,000		N/D	
1980	3,825,583,000	74	65,920,000	69	N/D	
1990	6,618,237,000	73	149,354,000	126	252,487	

N/D = Data not disclosed.

Source: *County Business Patterns.*

Table 26. Employment in the agricultural services sector.

	United States		Virginia		Floyd	
	Number	% Change	Number	% Change	Number	% Change
1970	189,062		4,325		5[a]	
1980	289,843	53	6,035	40	8[a]	60
1990	531,010	83	12,850	113	21	162

[a]*Data estimated from the midpoint of firm size.*

Source: *County Business Patterns.*

Location quotients and shift-share analysis, both based on employment, were used to analyze the role of the sector in the Floyd economy. The location quotient dropped from 1970 to 1980 and increased again in 1990 (Table 27). While the size of the location quotient suggests that the county is exporting agricultural services, it may in fact be serving mainly local farms because Floyd has a large number of farms.

Table 27. Location quotients for the agricultural services sector in Floyd County.

	1970	1980	1990
Location Quotients	1.74	1.17	2.39

Table 28 shows the shift-share analysis for 1970 to 1990 in the agricultural services sector. The national growth component of 1.38 shows that jobs were created locally due to overall national economic growth from 1970 to 1980. But this measure decreased to 0.9 from 1980 to 1990. The sector component for 1970 to 1980 was 1.3 and increased to 3.2 for 1980 to 1990, indicating that in both of those periods the agricultural services sector was growing faster than the national economy. The other factor of the shift-share analysis, the local share component, was -2.7 for 1970 to 1980 and 11.84 from 1980 to 1990; these values indicate that Floyd firms changed from being less competitive than other firms in the sector to being more competitive. This improvement could be due to better management, new technology, more productive workers, increased demand for services, or other factors.

Table 28. Shift-share analysis for the agricultural services sector in Floyd County.

	1970-1980	1980-1990
National Component	1.38	0.9
Sector Component	1.3	3.2
Local Component	-2.7	11.8
Total Employment Change	0	15.9

Production Agriculture Sector

Farming has changed dramatically. One change has been the consolidation of many small farms to form larger farms. From 1969 to 1987, the number of farms in the United States decreased about 20 percent (Table 29). In Virginia, the number of farms decreased about 31 percent, and in Floyd, about 35 percent.

Table 29. Number of farms, 1969-87.

	United States	Virginia	Floyd
1969	2,730,250	64,572	1,188
1978	2,478,642	56,869	841
1987	2,176,000	44,799	772

Source: *Census of Agriculture*.

As the number of farms has decreased, so has the total number of acres in farms, although not as rapidly. From 1969 to 1987, total farm acreage in the United States decreased about 6 percent (Table 30). Virginia's total acreage decreased by about 18 percent, and Floyd's by about 12 percent. Although the acres in farms decreased, the average number of acres per farm has increased in the United States, Virginia, and Floyd (Figure 9). The increase in the average acres per farm supports the idea that some smaller farms are being consolidated into larger farms. Farms in Virginia and Floyd are small by national standards.

Table 30. Total acres in farming, 1969-1987.

	United States	Virginia	Floyd
1969	1,063,346,489	10,649,862	135,072
1978	1,029,694,535	9,965,481	132,450
1987	1,003,000,000	8,676,300	118,115

Source: *Census of Agriculture*.

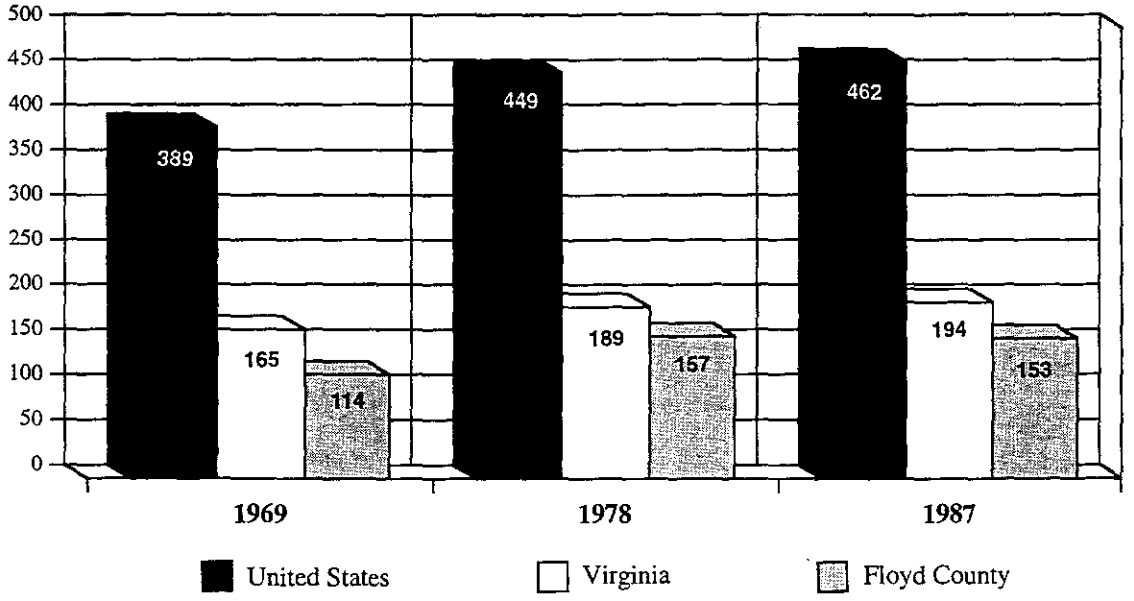


Figure 9. Average number of acres per farm, 1969-1987.

On average, proprietor's real earnings per farm decreased slightly in the United States from 1969 to 1987 (Figure 10), a surprising finding given the increasing number of acres per farm. Real earnings per farm in Virginia showed a similar decline, with Virginia earnings remaining at about 50 percent of United States earnings. In contrast, farm proprietor's real earnings in Floyd tripled over the same time period, even though average acreage per farm was much less than the state and the nation.

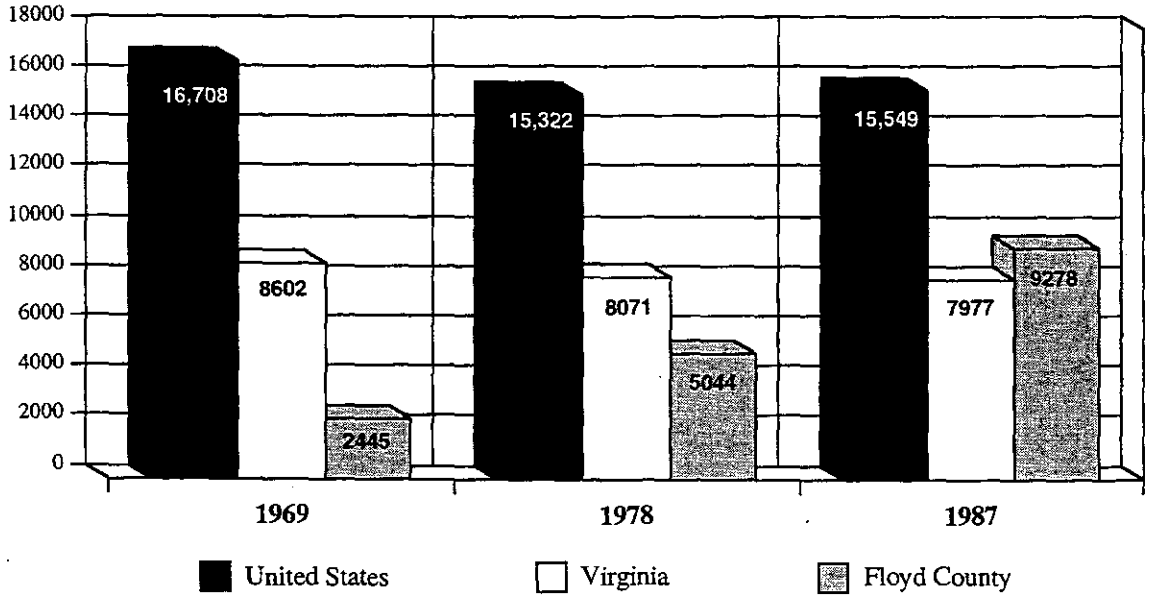


 Figure 10. Farm proprietors' real, annual earnings (average per farm).

As proprietor's earnings per farm in the United States have decreased, the percentage of farmers working off the farm (greater than 100 days annually) has risen steadily (Figure 11). In the United States, the number of farm operators working off-farm increased from 32 percent in 1969 to 43 percent in 1987. The increase was smaller in Virginia, but, nevertheless, by 1987 64 percent of Virginia farm operators were working off-farm. In Floyd, the percentage of operators working off-farm rose from 49 percent in 1969 to 63 percent in 1978, but then decreased to 59 percent in 1987.

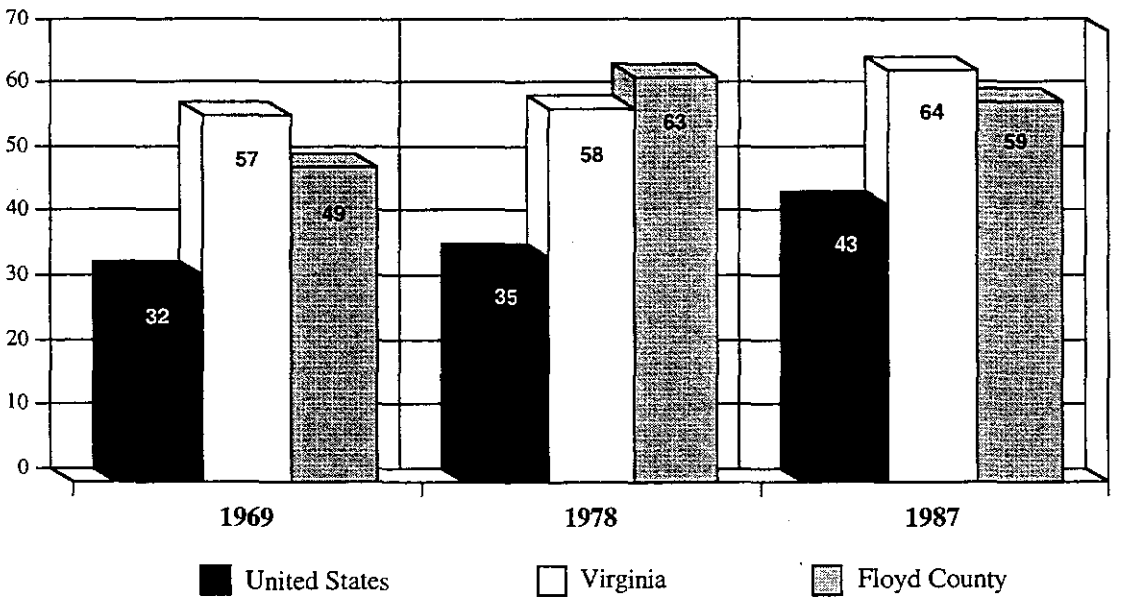


Figure 11. Percentage of farm operators working off-farm, 1969-1987.

The decrease from 1978 to 1987 in the number of Floyd's farm operators working off the farm may have been due to the increase in the real earnings of farm proprietors, so that the demand for off-farm income was not as great. Also, as acreage of farms has increased, farmers have more work to do in order to keep up their farms; therefore, the decrease in the number of farmers seeking off farm employment in Floyd may be due in part to farmers not having the time for a second job. The number of hired workers employed by farm proprietors decreased in the United States from 1969 to 1978 by about five percent (Table 31). Virginia, on the other hand, had an increase of approximately 17 percent and Floyd increased around 134 percent. The increase in numbers may be due to increasing use of part-time and seasonal workers. The census did not report numbers of hired workers in 1987.

Table 31. Number of hired farm workers.

	United States	Virginia	Floyd
1969	5,779,974	108,660	575
1978	5,499,194	127,093	1,347

While the number of hired workers decreased in the United States, their real annual wages increased (Figure 12). In Virginia and Floyd, real annual wages increased while numbers of hired workers increased. Real annual wages of hired farm workers are very low, in part reflecting the large number of part-time workers. Wages do not include benefits given to farm workers, such as housing.

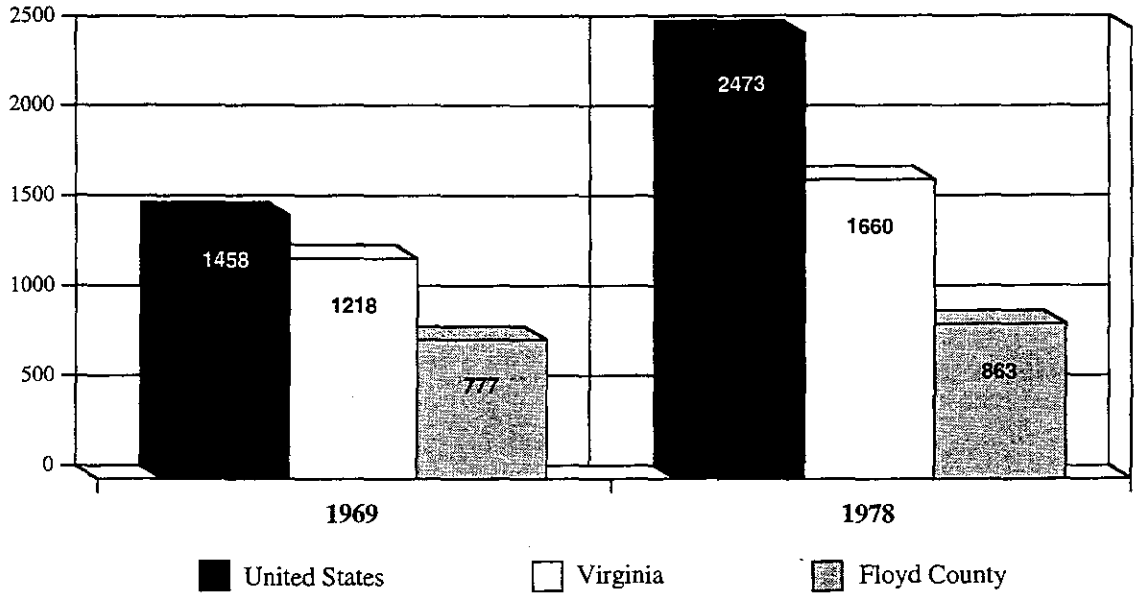


Figure 12. Real wages for hired farm workers, 1969-1978.

Construction Sector

Trends in real wages in the construction sector have differed among the three jurisdictions (Table 32). For the United States, real wages decreased from 1970 to 1990, but real wages in Virginia increased over the same time period. Rapid population growth in Virginia caused higher demand for the construction sector in Virginia than in the United States. By 1990, average real wages in construction were higher in Floyd than in the United States and Virginia, but wages varied greatly over the period.

Table 32. Average annual real wages for the construction sector.

	United States	Virginia	Floyd
1970	20,755	15,456	16,401
1980	20,535	16,221	13,387
1990	19,347	16,539	20,630

Employment within the construction sector in the United States increased by about 64 percent from 1970 to 1990 (Table 33). The sector grew by approximately 100 percent and 300 percent in Virginia and Floyd, respectively. Once again, however, this large percentage growth in Floyd was from a very small base (33 workers in 1970).

Table 33. Employment in the construction sector.

	United States	Virginia	Floyd
1970	3,197,382	88,976	33
1980	4,473,551	118,213	64
1990	5,239,067	178,441	135

The location quotients for Floyd's construction sector indicate that Floyd county was not self-sufficient in construction services in 1970 and 1980 (Table 34). Not until 1990 did Floyd have a location quotient above 1.25. The higher location quotient in that year, however, could have been due to above-average *local* demand, rather than the sector bringing in activity from outside the county. As mentioned, the county experienced rapid employment and real wage growth in the construction sector from 1980 to 1990. The improvement project for Route 8 may have increased construction jobs in Floyd county. If this is the case, Floyd might see a decrease in construction jobs and wages in the future, and perhaps drop back to not being self-sufficient.

Table 34. Location quotients and export employment for Floyd County's construction sector.

	1970	1980	1990
Location Quotients	.68	.95	1.56
Export Employment	-46.86	-5.17	35.90

Because Floyd lacked self-sufficiency in construction in 1970, no workers were working for export (as indicated by the large negative number for "export employment" in Table 34). By 1990, 36 employees of the 135 in the sector were producing for export. Once again, these numbers may overestimate actual export employment if local demand was above average.

In the shift-share analysis for the construction sector (Table 35), the national growth component contributed nine new construction jobs to the county from 1970 to 1980 and 11.8 new jobs from 1980 to 1990. The sector component contributed 4.1 jobs from 1970 to 1980, but dropped to -9.0 from 1980 to 1990, indicating that the national construction sector was growing more slowly than the overall national economy. The competitive share component for 1970 to 1980 was 17.9 jobs, increasing to 49.2 during 1980 to 1990, which means that local construction firms were more competitive than the average firm in the sector. Once again, these trends may reflect only a short-term increase in construction and not have implications for the long run.

Table 35. Shift-share analysis for Floyd County's construction sector.

	1970-80	1980-90
National Component	9.0	11.8
Sector Component	4.1	-9.0
Local Component	17.9	49.2
Total Employment Change	31	52

Mining Sector

This report includes no information on the mining sector as no data were available for Floyd County.

Manufacturing Sector

Floyd County, for the last two decades, has increased employment in the manufacturing sector. From 1970 to 1990, the county increased its employment from 537 to 723, a 35-percent increase (Table 36). This growth was much faster than Virginia's manufacturing-sector growth, which increased 18 percent in the same period. Nationwide, there were 588,166 fewer jobs in the manufacturing sector in 1990 than in 1970, a 3-percent decrease.

Table 36. Manufacturing employment, 1970-1990.

	United States	Virginia	Floyd
1970	19,761,548	363,670	537
1980	21,151,842	417,637	602
1990	19,173,382	429,547	723

In Table 37, the payrolls for the manufacturing sector have been divided by the total number of workers in that sector to give per capita annual wages. Nominal dollars have been converted into 1982-84 real dollars to account for inflation. Floyd County's manufacturing jobs had a real per capita wage increase from $8,850 in 1970 to $11,850 in 1990. In Virginia, real per capita wages rose nearly $3500 in 20 years to reach $19,500 in 1990. From 1970 to 1980 in the United States, however, real per capita wage decreased about $400 while employment in the sector increased. Then, from 1980 to 1990, while employment decreased, real per capita wages rose more than $1000 to reach $21,710. So, while Floyd County showed the greatest surge in real per capita manufacturing wages, 38 percent over the 20-year period, the county's average remained far below that of the state and the nation. At the same time, Floyd has maintained a strong manufacturing sector despite the national decline in manufacturing.

Table 37. Real annual per capita wages in the manufacturing sector.

	United States	Virginia	Floyd
1970	20,860	16,060	8,580
1980	20,470	17,500	9,910
1990	21,710	19,500	11,850

The location quotients for this sector show an upward trend (Table 38). Remember that location quotients show whether a community is exporting, importing, or self-sufficient in a particular sector or sub-sector. In the manufacturing sector, Floyd County, with a location quotient of 1.79, was exporting in 1970 (greater than 1.25 is considered exporting). Floyd County continued to increase exports of this sector to areas outside the community, as one can see from the rise in location quotients from 1.79 to 1.89 to 2.28 for 1970, 1980, and 1990 respectively.

Table 38. Location quotients for Floyd County's manufacturing sector.

	1970	1980	1990
Location Quotients for Employment	1.79	1.89	2.28
Location Quotients for Payroll	1.4	1.5	2.0

Source: *County Business Patterns*, 1970, 1980, and 1990.

The availability of complete payroll data for the manufacturing sector allowed calculation of *payroll location quotients* for that sector. Interpretation of payroll location quotients is the same as for employment location quotients. A comparison of the two provides additional information about a sector.

Although lower, the manufacturing sector payroll location quotients (also in Table 38) have followed the same increasing trend as the employment location quotients. They rose from 1.4 to 1.5 to 2 for 1970, 1980, and 1990 respectively. The lower payroll than employment location quotients may indicate that manufacturing firms in Floyd are using older technology that employs more workers. The lower real wages in Floyd also suggest the use of older technology with less-skilled workers. Alternatively, lower wages could be the result of lower living costs or of lack of other employment opportunities for workers.

Export employment data show the number of employees in a sector or sub-sector (in this case the manufacturing sector) that are producing goods for export outside of the county. The percentage of employees producing goods for export as a percentage of total employees in the sector has increased from 44 percent in 1970 to 47 percent in 1980 and 56 percent in 1990 (Table 39).

Table 39. Export employment in Floyd County's manufacturing sector.

	1970	1980	1990
Export Workers	237	283	405
% of Total Workers	44	47	56
Total Sector Workers	537	602	723

Source: *County Business Patterns*, 1970, 1980, and 1990.

The shift-share analysis for Floyd's manufacturing sector (Table 40) indicates that the overall national economy had a positive effect on manufacturing employment in Floyd from 1970-1980. The national factor was lower from 1980 to 1990 because the national economy grew more slowly in the 1980s than in the 1970s. During these two decades, the national manufacturing sector lost employment, and this is reflected in the negative numbers for the sector component in Table 40. If the national manufacturing sector had been the only factor contributing to Floyd's manufacturing employment, there would have been 363 jobs lost in Floyd from 1970-1990. This was not the case, however; the national economy and Floyd's local economy both contributed to Floyd's manufacturing, with the net result of 186 jobs gained from 1970 to 1990.

Table 40. Shift-share analysis for the manufacturing sector in Floyd County.

	National Component	Sector Component	Local Component	Total Employment Change
1970-80	164.76	-126.98	27.22	65.00
1980-90	150.50	-206.76	177.29	121.00

Source: *County Business Patterns*, 1970, 1980, and 1990.

To summarize the foregoing information on the manufacturing sector in Floyd County, steady employment and wage growth occurred from 1970 to 1990. The growth in this sector in Floyd was in contrast to a decrease in the manufacturing-sector employment nationally. The shift-share analysis shows that local factors contributed to growth in the local manufacturing sector during both decades, especially during the 1980s.

For more specific information concerning manufacturing in Floyd County, the following sections discuss three manufacturing subsectors: textile mill production, apparel and other textiles, and lumber and wood products.

Textile Mill Subsector

The textile mill subsector was first reported in Floyd County in 1990. Textile mill production had a location quotient of 3.0, which meant that it was an exporting subsector. Of the estimated 238 employees in the new subsector, 157 of them were producing goods for non-local markets.

Apparel and Other Textiles Subsector

Employment in the apparel and other textile products subsector declined from 1970 to 1990 in the United States and Virginia. Floyd County employment also declined from 1970-1980, but increased 12.2 percent between 1980 and 1990 (Table 41). Employment was higher in 1990 than in 1970. The firms in this sector in Floyd produce women's and misses' outerwear and women's and misses' blouses and waists.

Table 41. Employment change in the apparel and other textiles subsector.

Percentage Change in Employment[a]		
	1970-1980	1980-1990
Floyd County	-4.55	12.24
Virginia	-4.97	-7.71
United States	-6.59	-20.08

[a]*Based on estimated employment.*
Source: *County Business Patterns*, 1970, 1980, and 1990.

Location quotients for this sector are very high and show an upward trend, indicating increasing export production (Table 42). In addition, export employment indicates that since 1970 at least 95 percent of the employees were producing goods for export (Table 43).

Table 42. Location quotients for the apparel and other textile products subsector in Floyd County.[a]

	1970	1980	1990
Location Quotients	22.15	22.80	29.17

[a]*Based on estimated employment.*
Source: *County Business Patterns*, 1970, 1980, and 1990.

Table 43. Export employment in the apparel and other textile products subsector in Floyd County.[a]

	1970	1980	1990
Export Workers	441	422	478
% of Total Workers	95	96	96
Total Subsector Workers	462	441	495

[a]*Based on estimated employment.*
Source: *County Business Patterns*, 1970, 1980, and 1990.

The shift-share analysis for apparel (Table 44) yields almost the same conclusions as for the overall manufacturing sector. From 1970 to 1980, the national economy's growth contributed positively to the change in jobs in Floyd, but the subsector factor had a negative impact. With only a slight positive impact from the local factor, there was an overall decrease in jobs from 1970 to 1980 in Floyd. From 1980 to 1990, however, there was a turnaround. Even though the national apparel subsector continued a downward trend, and even though the national economy's growth rate was a little slower than the previous decade, an upturn in the local sector resulted in 54 new jobs, a net increase of 33 jobs from 1970 to 1990.

Table 44. Shift-share analysis for the apparel and other textile products subsector in Floyd County.[a]

	National	Sector	Local	Total Employment Change
1970-1980	141.74	-172.19	9.42	-21
1980-1990	109.85	-198.41	142.53	54

[a] *Based on estimated employment.*

Source: *County Business Patterns*, 1970, 1980, and 1990.

Lumber and Wood Products Subsector

The firms in this subsector are sawmills and planing mills. From 1970 to 1990, employment in the lumber and wood products subsector showed no consistent pattern across the three jurisdictions. Employment increased between 1970 and 1980 with the largest percentage increase in Floyd County, 114.7 percent (Table 45). Changes in the 1980s were more complicated, with a slight employment decrease (0.4 percent) in the United States and a slight increase (1.9 percent) in Virginia. Floyd County's data for 1990 were not reported; from this, one gathers that the lumber and wood products subsector no longer existed in Floyd County or at least had been very substantially reduced in size by that year.

Table 45. Percentage changes in employment in the lumber and wood products subsector, 1970-1990[a].

	1970-1980	1980-1990
United States	27.87	-0.35
Virginia	11.11	1.85
Floyd County	114.67	N/A

[a] *Based on estimated employment. N/A = data not available.*

Source: *County Business Patterns*, 1970, 1980, and 1990.

The location quotients for this subsector in Floyd increased from 8.9 in 1970 to 15.08 in 1980 (Table 46). Export employment (Table 47) for this subsector shows that about 67 out of 75 positions in the lumber and wood products subsector were producing goods for sale outside of the community in 1970, and about 150 out of 161 positions were producing for export in 1980. During the 1970s, export employ-

ment increased 83 jobs. As noted above, by 1990 no economic activity was reported for this subsector.

Table 46. Location quotients for the lumber and wood products subsector in Floyd County.

Years	1970	1980	1990
Location Quotients	8.92	15.08	N/A

N/A = data not available.
Source: *County Business Patterns*, 1970, 1980, and 1990.

Table 47. Export employment in the lumber and wood products subsector in Floyd County.

Years	1970	1980	1990
Export Workers	67	150	N/A
% of Total Workers	89	93	N/A
Total Subsector Workers	75	161	N/A

N/A = data not available.
Source: *County Business Patterns*, 1970, 1980, and 1990.

The shift-share analysis from 1970 to 1980 sheds light on the source of job growth in the lumber and wood products subsector (Table 48). Of the 86 jobs created, only a small portion of them were due to the growth in the national economy. The sector was a slow growth sector of the national economy, and the local sector made up the majority of the growth. Shift-share analysis could not be conducted for 1980-1990.

Table 48. Shift-share analysis for the lumber and wood products subsector in Floyd County, 1970-1980.

	National	Sector	Local	Total Employment Change
1970-1980	23.01	-17.73	80.72	86

Source: *County Business Patterns*, 1970 and 1980.

Transportation and Public Utilities Sector

Employment in the transportation and public utilities sector in Floyd is concentrated in the trucking and warehouse subsector. In the United States, employment in the transportation and public utilities sector increased over 20 percent from 1970 to 1980 and again from 1980 to 1990 (Table 49). Virginia's transportation and public utilities employment also increased, but at a faster rate: 31 percent from 1970 to 1980, and 42 percent from 1980 to 1990. The above average growth in Virginia is likely due to rapid population growth (demand for transportation and

public utilities generally accompanies shifts in population). Employment in this sector in Floyd increased 110.53 percent—almost four times the rate of increase in Virginia as a whole—during the 1970s. This was the time period during which the country experienced a large movement of people from urban to rural areas. In the 1980s, a reverse population shift occurred nationwide. Predictably, in the 1980s Floyd employment in the transportation and public utilities decreased by 33.75 percent, again demonstrating how population and the demand for this sector are related.

Table 49. Employment in the transportation and public utilities sector.

	United States		Virginia		Floyd County	
	Number	% change	Number	% change	Number	% change
1970	3,837,876		75,297		38	
1980	4,631,152	20.7	98,611	31.0	80	110.5
1990	5,591,848	20.7	139,671	41.6	53	-33.8

Source: *County Business Patterns*, 1970, 1980 and 1990.

Overall, the payrolls of the transportation and other public utilities sector in the United States, Virginia, and Floyd County increased from 1970 to 1990. But changes in real per capita wages of the transportation and public utilities sector have been uneven from decade to decade (Table 50). From 1970 to 1980 in the United States, real per capita wages increased tremendously, but from 1980 to 1990 wages decreased. In Virginia, real per capita wages steadily increased throughout the last two decades. In Floyd County, from 1970 to 1980 real per capita wages decreased greatly, but from 1980 to 1990 there was a large increase.

Table 50. Percentage change in real per capita wages in the transportation and public utilities sector.

	United States	Virginia	Floyd County
1970-80	10.8	11.6	-30.0
1980-90	-1.0	7.5	65.0

Source: *County Business Patterns*, 1970, 1980, and 1990.

Location quotients for the transportation and public utilities sector in Floyd indicate that the county has never exceeded self-sufficiency (never greater than 1.25), and in 1970 and 1990 the sector was below self-sufficiency (less than 0.75) (Table 51). This may mean Floyd County brought in transportation and other public utility goods and services from outside the county to meet the community's needs. Alternatively, it may mean that the average demand in the county was less than the national average demand. This also means that no jobs in this sector brought income into the community.

Table 51. Location quotients for the transportation and public utilities sector in Floyd County.

	Employment LQ	Payroll LQ
1970	.65	.87
1980	1.15	.86
1990	.57	.70

Source: *County Business Patterns*, 1970, 1980, and 1990.

Table 51 also shows that payroll location quotients in this sector in both 1970 and 1990 were slightly higher than the employment location quotients. This could mean that Floyd County employed better technology in its firms and hired more highly skilled employees than was the case at the national level. On the other hand, in 1980 the payroll location quotient was lower than the employment location quotient, suggesting that the rapid employment growth in the sector may have been based on *older* technology which employed more workers per unit of output.

Because the sector employment is concentrated in trucking and warehousing, a subsector sensitive to economic cycles, the rapid employment changes in this sector are not surprising. The shift-share analysis of the transportation and public utilities sector during the decade from 1970 to 1980 shows a total positive employment change of 42 workers (Table 52). The local factor had the greatest impact on this total with 34 jobs created because of the competitive advantage that Floyd County had in this sector. The national factor also contributed positively with 12 jobs created. The county lost four jobs due to the sector growing more slowly than the overall national economy. Between 1980 and 1990, Floyd experienced a net loss of 27 jobs. The only positive contributor to the sector in this decade was the national factor, which added 20 jobs. The sector factor contributed to a loss of three jobs, while the local factor showed a large disadvantage by contributing a loss of 44 jobs. Given this trend, the future does not look promising for Floyd County in this sector.

Table 52. Shift-share analysis of the transportation and public utilities sector in Floyd County.

	National	Sector	Local	Total Employment Change
1970-1980	12	-4	34	42
1980-1990	20	-3	-44	-27

Source: *County Business Patterns*, 1970, 1980, and 1990.

Wholesale Trade Sector

Wholesale trade is a small sector in the Floyd economy with a total of 21 employees in 1990 (Table 53). Both the United States and Virginia have had substantial employment growth in wholesale trade. The small size of the sector in Floyd may be because of its location near Roanoke and its lack of major highway access.

Table 53. Employment in the wholesale trade sector, 1970-1990.

	United States		Virginia		Floyd County	
	Number	% change	Number	% change	Number	% change
1970	4,035,995		66,982		14[a]	
1980	5,215,320	29	93,999	40	13	-7
1990	6,327,616	21	129,641	38	21	62

[a]*Estimated from the mid-point of firm size.*
Source: *County Business Patterns.*

Average real wages in this sector in both the United States and Virginia have increased since 1970, although they fell slightly in 1980 (Table 54). Wages in Virginia now are similar to the national average. In contrast, wholesale-sector wages in Floyd fell from 1980 to 1990. Payroll data for Floyd were not disclosed for 1970.

Table 54. Average real annual wages in the wholesale trade sector, 1970-1990.

	United States	Virginia	Floyd County
1970	$20,921	$18,747	N/D
1980	$20,754	$18,532	$12,136
1990	$21,897	$21,424	$10,314

N/D = data not disclosed.
Source: *County Business Patterns.*

Location quotients for wholesale trade have changed little since 1970, and remain well below self-sufficiency (Table 55). Because the county is a net importer, its export employment is negative. Payroll location quotients are equal to or only slightly lower than employment location quotients. The similarity of the two types of location quotients suggests that workers' skills and the technology used in the county are similar to that used by wholesale firms outside of the county.

Table 55. Location quotients and export employment for the wholesale trade sector in Floyd County.

	1970	1980	1990
Employment Location Quotient	.23	.17	.20
Payroll Location Quotient	N/A	.17	.16
Export Employment	-47.18	-65.47	-83.52

N/A = No data available.

Source: *County Business Patterns.*

Shift-share analysis of Floyd's wholesale trade sector reveals that from 1970 to 1980 the sector had a increase of 4.30 jobs due to national growth (Table 56). The sector growth component was slightly on the negative side with -.20, which indicates that nationally the wholesale trade sector was not growing as rapidly as the rest of the economy. The local competitive share component of -5.09 indicates that the local wholesale trade sector was less competitive than the national average.

Table 56. Shift-share analysis for the wholesale trade sector in Floyd County.

	National	Sector	Local	Total Employment Change
1970-80	4.30	-.20	-5.09	-1.00
1990-90	3.24	-.47	5.23	8.00

Source: *County Business Patterns.*

From 1980 to 1990, the national component contributed 3.24 jobs to the local sector. The sector component declined by -.47 jobs, indicating that the wholesale trade sector was still a slow-growing sector nationally. The local component, however, added 5.23 jobs, indicating that the local sector became more competitive than the national average. Overall, the wholesale trade sector of Floyd has been a slow-growing sector that nevertheless showed some improvement during the 1980s.

Retail Trade Sector

Retail trade is rapidly growing in the national economy, in Virginia, and in Floyd (Table 57). Although employment in retail trade has increased, real wages in the sector have fallen since the 1970s in all jurisdictions (Table 58). Part of the explanation for the decline in real wages may be the increasing numbers of part-time employees in the sector.

Table 57. Retail trade employment.

	United States		Virginia		Floyd County	
	Number	% change	Number	% change	Number	% change
1970	11,071,289		229,331		154	
1980	15,045,287	36	340,731	49	220	43
1990	19,815,054	32	524,960	54	318	45

Table 58. Real wages in retail trade, 1970-1990.

	United States	Virginia	Floyd County
1970	$11,207	$10,658	$9,573
1980	$9,989	$9,773	$9,069
1990	$9,336	$9,128	$7,396

Source: *County Business Patterns.*

From 1970 to 1990, the retail trade sector of Floyd County has had location quotients that indicate self-sufficiency (between 0.75 and 1.25) (Table 59). Floyd's retail sector as a whole, therefore, is meeting local needs. Because the sector is within the range of self-sufficiency, there is no export employment in the sector.

Table 59. Location quotients and export employment for the retail trade sector in Floyd County.

	1970	1980	1990
Employment Location Quotient	.92	.97	.97
Payroll Location Quotient	1.51	1.52	1.32
Export Employment	-13.81	-6.38	-9.30

Source: *County Business Patterns.*

Payroll location quotients (also in Table 59) are significantly higher than the employment location quotients, suggesting that retail employees in Floyd are more productive than the national average. Look again, however, at average real wages for the retail trade sector for Floyd (Table 58). Floyd's average retail wages are lower than the national average. This discrepancy is apparently due to the fact that retail jobs in Floyd, when compared to other types of local employment, are average-paying, but they are considered low-paying for the United States as a whole.

It is also possible that the major retail subsector in Floyd—automotive dealers and service stations—could be influencing these data. Automotive dealerships generally have fewer employees per dollar sales than do other retail businesses. Employees are also paid on commission. Also, mechanics employed at dealership service centers and service stations are generally paid higher wages than most retail employees. These factors would cause the retail-trade payroll location quotients to be high.

The shift-share analysis shows that during the 1970s, the national growth component contributed 47.25 jobs to the retail trade sector, the sector component, 8.03 jobs, and the local component 10.12 jobs (Table 60). The positive local component indicates that Floyd's retail trade sector was more competitive than the national average. From 1980 to 1990, retail jobs in Floyd County increased by 45 percent (98 jobs). The retail sector of Floyd grew by 54.80 jobs due to growth in the overall national economy. The national retail trade sector continued to grow and contributed 14.95 jobs to Floyd. The local component of retail trade contributed 28.25 jobs, indicating that Floyd's retail trade sector became even more competitive compared to the national average for the sector.

Table 60. Shift-share analysis for retail trade.

	National	Sector	Local	Total Employment Change
1970-80	47.25	8.03	10.72	66
1980-90	54.80	14.95	28.25	98

Source: *County Business Patterns*.

Retail Sales Analysis

The following sections are analyses of retail sales for the retail subsectors in Floyd, comparing the local subsectors to those in the United States and Virginia. Data were analyzed for the years 1972, 1982, and 1987, corresponding to the years in which the *Census of Retail Trade* was taken.

Retail sales were used in this report because detail is available by subsectors, whereas payroll data are not available at the subsector level. The data were analyzed using pull factors and trade area capture (described in the "Analysis Techniques" section above). In addition, the retail trade analysis techniques compare local sales to state sales because retail sales are likely to vary dramatically across states.

The retail sales data presented in this section are for establishments with a payroll, that is, establishments with paid employees. Not included are so-called "mom and pop" operations, that is, family-owned and -run businesses without a formal

payroll. The definition of "establishments" in this section is "a single physical location at which business is conducted." The term is not necessarily synonymous with a company or enterprise, which may consist of one establishment or more.

Retail trade includes establishments engaged in selling merchandise for personal or household consumption and in rendering services incidental to the sale of the goods. Sales include merchandise sold for cash or credit at retail and wholesale by establishments *primarily* engaged in retail trade. This includes the following: amounts received from customers for layaway purchases; receipts from rental or leasing of vehicles, equipment, instruments, tools, etc.; receipts for delivery, installation, maintenance, repair, alteration, storage, and other services; and gasoline, liquor, tobacco, and other excise taxes that are paid by the manufacturer or wholesaler and passed on to the retailer. Sales in this section do not include retail sales made by businesses whose *primary* activity is other than retail trade.

All sales figures were deflated to the base of 1982-84 dollars, so the effects of inflation have been taken out of the numbers in order to allow a meaningful comparison. These data cover one 10-year period—1972-1982—and then one 5-year period—1982-1987. It is hard to compare these periods, because they are unequal. In some subsectors establishments did not exist or were not reported because of disclosure rules; "N/A" will indicate the lack of data in these cases.

In this section, we will also be referring to per capita income to help explain some of the trends. In 1982-84 dollars, per capita income in the United States increased from $10,854 in 1972 to $13,630 in 1987. In Virginia, the same trend was seen, with a per capita income increase from $10,540 in 1972 to $14,512 in 1987. In Floyd, however, per capita income decreased from $6,596 in 1972 to $6,544 in 1982, then increased to $10,913 in 1987 (Table 61). (Note: Table 13 above shows real per capital income in all three jurisdictions for 1970, 1980, and 1990.)

Table 61. Real per capita income.

	United States	Virginia	Floyd County
1972	10,854	10,540	6,596
1982	11,898	12,052	6,544
1987	13,630	14,512	10,913

Building Materials Subsector

The building materials subsector includes retail establishments primarily engaged in selling the following items to the general public: lumber and other building materials; paint, glass, and wallpaper; hardware; nursery stock; lawn and garden supplies; and mobile homes.

From 1972 to 1982, retail sales for building materials decreased in the United States and Virginia (5 percent and 7 percent respectively), while Floyd experienced a *333-percent increase* during this same decade (Table 62). The decrease in Virginia and the United States most likely reflected the recession of 1982. The increase in Floyd's sales of building materials may be attributed to the aforementioned migration from urban to rural communities during the 1970s, which would have increased the demand for housing and building materials. By 1987, the United

General Merchandise Subsector

The general merchandising subsector includes retail stores that sell a number of lines of merchandise, such as dry goods, apparel and accessories, furniture and home furnishings, small wares, hardware, and food. Included in this group are department stores, variety stores, general stores, etc.

As shown in Table 64, from 1972 to 1982 the United States, Virginia, and Floyd all experienced a decrease in the general merchandising sector with Floyd experiencing the greatest decrease. During 1982, the country was experiencing a recession and personal income decreased in Floyd (see Table 61 above), which may have had an effect on demand for various goods. Contrary to the previous decade, during the 1982-1987 period the national, state, and local levels experienced increases in retail sales for general merchandise, with Floyd growing the least. Floyd may have lagged behind national and state levels because of slower population growth, because many rural areas still were experiencing recession in 1987, and because many people may shop in Roanoke.

Table 64. Real retail sales (in $1000s) in general merchandise subsector.

	United States	% change	Virginia	% change	Floyd County	% change
1972	154,710,358		3,606,937		2,976	
1982	128,659,963	-16	3,057,850	-15	924	-68
1987	159,460,628	24	3,790,871	24	977	6

From 1972 to 1982, Floyd increased its ability to draw people in to buy general merchandise products from 568 consumer equivalents to 3,054 (Table 65). After 1982, Floyd lost some of this ability as the number of people decreased to 2,027 consumer equivalents. Pull factors—below .75 for all three years—indicate that people from Floyd were going outside the county to buy general merchandise goods, and this created a leakage of sales.

Table 65. Retail sales analysis of the general merchandise subsector in Floyd County.

	Consumer Equivalents	Pull Factor	Potential Sales (in $1000s)	Leakage (in $1000s)
1972	568	.62	1,993	-749
1982	3,054	.26	3,418	-2,526
1987	2,027	.17	6,516	-5,406

Source: *Census of Retail Trade.*

Food Stores Subsector

The food stores subsector includes retail stores primarily engaged in selling food for home preparation and consumption. Included in this group are grocery stores;

meat and fish markets; fruit and vegetable markets; candy, nut, and confectionery stores; dairy products stores; and retail bakeries.

While retail sales in this subsector increased in the United States and Virginia from 1972 to 1987, sales fell from 1972 to 1982 in Floyd (Table 66). While the entire country was in recession in 1982, food is a necessity and per capita sales do not vary much during business cycles. The decrease in food sales in Floyd County from 1972-1982 may have been due to the decrease in real per capita income seen in Floyd during that same period (Table 61).

Table 66. Real retail sales (in $1000s) in food stores.

	United States	% change	Virginia	% change	Floyd County	% change
1972	230,561,705		5,096,007		6,521	
1982	249,243,260	8	5,942,617	16	6,230	-4
1987	265,710,214	6	7,085,771	19	6,612	6

Source: Census of Retail Trade.

Consumer equivalents for food retailing in Floyd increased from 9,874 in 1972 to 10,596 in 1982, then decreased to 7,340 in 1987 (Table 67). All pull factors were less than 1.25, indicating that Floyd did not have the ability to bring in people from surrounding communities to shop at their grocery stores. In addition, the pull factors decreased over the period, and by 1987 Floyd fell below self-sufficiency. The leakage from Floyd in food retailing increased over the period, meaning the loss in sales was getting larger.

Table 67. Retail sales analysis of the food stores subsector in Floyd County.

	Consumer Equivalents	Pull Factor	Potential Sales (in $1000s)	Leakage (in $1000s)
1972	9,874	.97	2,816	-89
1982	10,596	.91	6,638	-625
1987	7,340	.62	12,170	-4,665

Source: *Census of Retail Trade.*

Automotive Subsector

The automotive dealers group includes retail dealers selling new and used automobiles, boats, recreational vehicles and utility trailers, and motorcycles and mopeds; dealers selling new automobile parts and accessories; and service and gas stations. It includes establishments dealing exclusively in used automobiles, but not establishments dealing exclusively in used parts. Car dealers and gas and service stations are analyzed as separate subsectors.

Automobile Retail

As seen in Table 68 from 1972-1982 the United States, Virginia, and Floyd all experienced decreases in the subsector of automobile retail, with Floyd having the largest percentage decrease of 28 percent. This large decrease may have been due to the recession in the United States in 1982. The national, state, and local levels all showed a high increase in the sale of cars from 1982 to 1987. This boom in sales may be attributed to the increase in per capita income for country, state, and local levels during this time due to the United States coming out of the recession of 1982.

Table 68. Real retail sales (in $1000s) for automobile dealers.

	United States	% change	Virginia	% change	Floyd County	% change
1972	211,700,354		4,985,172		11,959	
1982	196,556,083	-7	4,684,456	-6	8626	-28
1987	293,503,505	49	8,312,668	77	11,083	28

The number of consumer equivalents that Floyd attracted to buy automobiles increased from 1972 to 1982, then decreased in 1987 (Table 69). During this time, Floyd experienced a surplus of $2,245,000 in 1972 and $3,091,000 in 1982. Floyd exhibited high pull factors in car sales during the 1972-82 period, both years having pull factors greater than 1.25. Despite this surplus during the 1970s, Floyd's retail car sector fell in the 1980s. The number of consumers equivalents captured fell by about 8,000, the pull factor fell to a level just above self-sufficiency, and the surplus in 1982 turned into a leakage of $1,689,000 in 1987.

Table 69. Retail sales analysis of the automobile dealers subsector in Floyd County.

	Consumer Equivalents	Pull Factor	Potential Sales (in $1000s)	Leakage (in $1000s)
1972	18,511	1.81	2,754	2,245
1982	18,607	1.59	5,235	3,091
1987	10,492	.88	14,280	-1,689

Source: *Census of Retail Trade*.

Gas and Service Stations

A complete set of data on retail sales was not available for the gas and service stations subsector. Retail sales fell in Floyd in 1982, when per capita income decreased, and rose again in 1987 as per capita income increased (Table 70). Once again, this sector provides services that might be termed necessities, so changes in sales are likely to be small.

Table 70. Real retail sales in gas and service station subsector ($1000s).

	United States	% change	Virginia	% change	Floyd County	% change
1972	N/A		N/A		1,971	
1982	N/A		2,480,892		1,523	-2.27
1987	89,786,479		2,460,986	-0.1	1,573	3.30

N/A = No data available.
Source: *Census of Retail Trade.*

The gas and service station subsector in Floyd has lost consumer equivalents and sales leakage has increased (Table 71). The county is not self-sufficient in this subsector. Part of the leakage may be due to extensive outcommuting, if people tend to buy gas near where they work.

Table 71. Retail sales analysis of the gas and service station subsector in Floyd County.

	Consumer Equivalents	Pull Factor	Potential Sales (in $1000s)	Leakage (in $1000s)
1972	N/A	N/A	N/A	N/A
1982	6,203	.53	2,772	-1,302
1987	5,027	.42	4,230	-2,443

N/A = No data available.
Source: *Census of Retail Trade.*

Apparel and Accessory Stores Subsector

Apparel and accessory stores are retail stores that sell clothing and items to go with clothing. These items include shoes, coats, bathing suits, uniforms, riding apparel, sports apparel, umbrellas, wigs and toupees, etc. Stores that sell miscellaneous items are not included.

Retail apparel sales decreased in the United States in 1982 before increasing in 1987 (Table 72). Both Floyd and Virginia showed strong sales over the period. Increased sales in Floyd in 1982 were probably the result of the large population increase in the 1970s.

Table 72. Real retail sales for the apparel and accessory stores subsector ($1000s).

	United States	% change	Virginia	% change	Floyd County	% change
1972	57,690,744		1,162,205		107	
1982	56,603,402	-2	1,224,581	38	507	371
1987	68,125,681	20	1,626,012	33	625	23

Source: *Census of Retail Trade.*

Floyd showed an increase in capturing consumers from 1972-82, but this decreased from 1982 to 1987 (Table 73). In none of the years examined did Floyd exhibit the ability to bring in consumers from surrounding communities to buy their apparel and accessory goods, or to attract a large amount of business from local residents (all pull factors were well below 1.0). Moreover, Floyd's leakage in this subsector increased from $600,000 to $2,085,000 over the 15-year period 1972-1987.

Table 73. Retail sales analysis of the apparel and accessory stores subsector in Floyd County.

	Consumer Equivalents	Pull Factor	Potential Sales (in $1000s)	Leakage (in $1000s)
1972	715	.07	642	-600
1982	4,189	.36	1,369	-879
1987	3,026	.25	2,795	-2,085

Source: *Census of Retail Trade.*

Furniture and Homefurnishings Subsector

The furniture and homefurnishings subsector includes those establishments that sell glassware, china, stoves, refrigerators, floor and wall coverings, and other appliances, primarily for home use.

Retail sales trends differed for the three jurisdictions from 1972-1987 (Table 74). While the slow growth in Virginia and negative growth in the United States from 1972-1982 might be explained by the recession of 1982, that explanation does not fit the large increase in Floyd. Part of the Floyd increase might be explained by population growth during the 1970s. This explanation is not completely satisfactory because Virginia also experienced rapid growth during this period. In addition, per capita income in Floyd fell from 1972 to 1982 while it rose in Virginia. The 1987 decrease in retail sales in Floyd may be attributed to slower population growth.

Table 74. Real retail sales for the furniture and homefurnishings subsector ($1000s).

	United States	% change	Virginia	% change	Floyd County	% change
1972	51,447,000		1,148,170		1,354	
1982	46,957,688	-9	1,176,388	2	1,997	47
1987	65,829,667	40	1,890,985	61	1,321	-34

Source: *Census of Retail Trade.*

In 1972, Floyd was self-sufficient in retail furniture sales and in 1982 attracted consumers into the county (Table 75). The high pull factor in 1982 could have been the result of higher than average local demand due to population growth. In 1987, however, the pull factor decreased to .46, reflecting a loss of self-sufficiency. In 1982, Floyd captured more than its potential sales, but in 1987 leakage occurred.

Table 75. Retail sales analysis of the furniture and homefurnishings subsector in Floyd County.

	Consumer Equivalents	Pull Factor	Potential Sales (in $1000s)	Leakage (in $1000s)
1972	9,099	.892	634	68
1982	17,147	1.465	1,314	612
1987	5,495	.4617	3,250	-1,749

Source: *Census of Retail Trade.*

Eating and Drinking Subsector

Eating and drinking establishments include those that sell prepared food and drinks to be consumed in restaurants, cafeterias, lunch counters, refreshment stands, bars, etc. From 1972 to 1987, food and drink retail sales increased for the United States, Virginia, and Floyd (Table 76). The increase in Floyd was not a continuous trend: sales dropped dramatically in 1982 and recovered in 1987.

Table 76. Real retail sales for the eating and drinking establishments subsector ($1000).

	United States	% change	Virginia	% change	Floyd County	% change
1972	83,845,878		1,485,112		828	
1982	105,412,236	26	2,187,107	47	580	-30
1987	130,965,226	24	3,141,843	44	855	47

Source: *Census of Retail Trade.*

Consumer equivalents in this subsector decreased from 4,300 in 1972 to 2,139 in 1987 (Table 77), in spite of the population increase in Floyd during this time. Potential sales increased from 1972-1987, but leakage also increased over these years. The decrease in consumer equivalents in retail sales within Floyd may have been caused by a combination of commuting and the proliferation of restaurants in Roanoke and Montgomery County versus only a few restaurants in Floyd.

Table 77. Retail sales analysis for the eating and drinking establishments subsector in Floyd County.

	Consumer Equivalents	Pull Factor	Potential Sales (in $1000s)	Leakage (in $1000s)
1972	4,300	.4215	820	-474
1982	2,680	.2290	2,444	-1,884
1987	2,139	.1798	5,400	-4,4293

Source: *Census of Retail Trade.*

Drug and Proprietary Subsector

Drug stores are those establishments that sell prescription drugs and medicines. They also carry such items as cosmetics, cleaning supplies, and school supplies. Proprietary establishments are stores similar to drug stores, but they do not sell prescription drugs and medicines.

Retail sales for the United States are unavailable for this subsector. An increase in retail sales of these stores was seen from 1982 to 1987 in Virginia (Table 78). Floyd County showed a large increase (124 percent) from 1972 to 1982, but then a decrease of 38 percent from 1982 to 1987. The large increase may have been due to the population increase in Floyd during the 1970s. The large decrease in 1987 is not easily explained.

Table 78. Retail sales for drug and proprietary ($1,000).

	United States	% change	Virginia	% change	Floyd County	% change
1972	N/A		N/A		452	
1982	N/A		907,098		1,015	124
1987	N/A		1,129,076	24	626	-38

N/A = No data available.
Source: *Census of Retail Trade.*

The fall in retail sales in 1987 is reflected in the fall in consumer equivalents in 1987 (Table 79). From 1982 to 1987, Floyd went from self-sufficiency to losing consumers, and leakage increased dramatically. Places such as Rite-Aid and other specialty drug stores carry prescriptions, and Floyd—like most rural areas—only has a small number of such retail stores. Areas close to Floyd, such as Roanoke and Montgomery County, contain large grocery stores and discount stores that often have pharmacies. Many people in Floyd who commute outside the county to work may also do their shopping near their work where they also have easy access to items such as drugs and prescriptions. They can do grocery and pharmacy shopping all in one stop, and they may also get medical care outside the county and fill their prescriptions at the same time.

Table 79. Retail sales analysis for the drug and proprietary establishments subsector in Floyd County.

	Consumer Equivalents	Pull Factor	Potential Sales (in $1000s)	Leakage (in $1000s)
1972	N/A	N/A	N/A	N/A
1982	11,309	.966	1,013	-33.8
1987	4,358	.366	1,940	-1230.0

N/A = No data available.
Source: *Census of Retail Trade.*

Miscellaneous Retail Subsector

Miscellaneous stores include many types of retail establishments too few in numbers to be classified into their own category. The following are some examples of establishments considered miscellaneous: liquor stores, florists, cigar stores, giftshops and stationary stores, and newsstands. This category also includes new types of retail establishments and stores that sell their own line of products.

Though 1982 was marked by a recession, sales of miscellaneous items nevertheless increased over 1972. (Table 80). The increase in sales may have been due to the population increase in Floyd. Floyd's increase from 1982-1987 (42 percent) exceeded that of the United States (15 percent) and of Virginia (27 percent) and may also indicate a high level of entrepreneurship in Floyd, because stores that sell their own products are included in this subsector.

Table 80. Real retail sales for the miscellaneous retail subsector ($1000).

	United States	% change	Virginia	% change	Floyd County	% change
1972	N/A		1,840,717		1,830	
1982	105,914,133		2,330,487	27	1,987	9
1987	122,039,147	15	2,953,010	27	2,819	42

N/A = No data available.

Source: *Census of Retail Trade.*

Floyd's miscellaneous stores increased in consumer equivalents from 1972 to 1982 (Table 81). This shows an increase of the people within Floyd purchasing these goods. In 1987, consumer equivalents decreased to 7,509, a level slightly lower than that of 1972. Pull factors decreased from 1972 to 1987, and this is reflected in the increasing amount of leakage over the period.

Table 81. Retail sales analysis for the miscellaneous retail subsector in Floyd County.

	Consumer Equivalents	Pull Factor	Potential Sales (in $1000s)	Leakage (in $1000s)
1972	7,671	.75	1,017	-252
1982	8,615	.75	2,560	-642
1987	7,509	.63	5,076	-1,873

Source: *Census of Retail Trade.*

Retail Trade Summary

Several points can be made from the analysis of retail trade and its subsectors in Floyd County.

- The county has had growth in many retail subsectors.
- Pull factors indicate a severe loss of potential retail sales. People are not travelingto Floyd in search of products, and many within the community are shopping outside of the county. One possible reason is that people find it more convenient to shop elsewhere, mainly where their jobs are located. (Employment figures show that nearly half the citizens of Floyd work outside the county—in Montgomery County and the city of Roanoke.)
- Leakage of retail sectors continues to hurt the economic base of Floyd County. In addition, retail leakage affects the retail sales tax revenues of the county.
- Some of the changes in retail sales, such as an increase in homefurnishings sales from 1972 to 1982 but a decrease in restaurant sales during the same period, seem contradictory and are not readily explainable.

Finance, Insurance, and Real Estate Sector

Finance, insurance, and real estate has been a rapidly growing sector in all three jurisdictions (Table 82). The size of the sector more than doubled in Floyd from 1970 to 1990. After being nearly stagnant from 1970 to 1980, real wages in this sector in the United States and Virginia increased from 1980 to 1990 (Table 83). Real wages in this sector in Virginia are approaching the national average. Wages in Floyd have increased steadily, nearly doubling from 1970 to 1990, but remain well below the state and national averages.

Table 82. Employment in the finance, insurance, and real estate sector, 1970-1990.

	United States	% change	Virginia	% change	Floyd County	% change
1970	3,656,733		67,246			
1980	5,155,117	41	97,725	45	51	63
1990	6,705,726	30	150,278	54	75[a]	32

[a]*Estimated based on size range, 20-99 employees.*
Source: *County Business Patterns.*

Table 83. Real annual per capita wages in the finance, insurance and real estate sector, 1970-1990.

	United States	Virginia	Floyd County
1970	17,712	15,836	7,658
1980	18,158	15,971	10,284
1990	22,524	21,050	14,282[a]

[a]*Based on estimated data.*
Source: *County Business Patterns.*

Location quotients show that Floyd County has not reached self-sufficiency in the finance, insurance, and real estate sector (Table 84). Payroll location quotients are similar to the employment location quotients, suggesting that the sector in Floyd does not lag behind the national sector in productivity.

Table 84. Location quotients for the finance, insurance, and real estate sector in Floyd County.

	1970	1980	1990
Employment	.63	.73	.67[a]
Payroll	.53	.72	.71[a]

[a]*Based on estimated data.*

The shift-share analysis suggests that most of the local growth in this sector was due to the national economy component (Table 85). Future growth due to local factors is not likely, given the fall in the size of the local component from 8 to 1 by 1990.

Table 85. Shift-share analysis for the finance, insurance, and real estate sector in Floyd County.

	1970-80	1980-90
National Component	11	14
Sector Component	3	3
Local Component	8	1
Total Employment Change	22	18

Service Sector

The service sector includes a wide variety of firms: legal, medical, recreational, automotive repair business, repair, and personnel services. The service sector is the fastest growing sector in the national economy. From 1970 to 1990, the sector grew more rapidly in both Virginia and Floyd than it did in the United States (Table 86). Service sector employment in Floyd, starting from a small base, has more than tripled over this period.

Table 86. Employment in the service sector, 1970-1990.

	United States	% change	Virginia	% change	Floyd County	% change
1970	10,461,468		194,553		51	
1980	17,195,327	64	360,258	85	78	53
1990	28,800,088	67	717,686	99	182	133

While employment has increased rapidly in the service sector, wages have increased slowly (Table 87). Wages in Floyd remain at less than half of the state and national averages. Part-time employment may be part of the cause of low wages in the service sector.

Table 87. Real annual wages in the service sector, 1970-1990.

	United States	% change	Virginia	% change	Floyd County	% change
1970	13,387		11,556		6,469	
1980	13,942	4	13,645	18	6,815	5
1990	15,923	14	16,336	20	7,384	8

Location quotients show that Floyd has not reached self-sufficiency in the service sector (Table 88). With high outcommuting occurring, county residents may be acquiring services where they work. Employment location quotients increased over the period while payroll location quotients fell. This suggests that Floyd may have more low-skill, labor-intensive jobs or more part-time workers in the service sector than the national average.

Table 88. Location quotients for the service sector in Floyd County.

	1970	1980	1990
Employment	.32	.30	.38
Payroll	.30	.25	.29

From 1970 to 1980, growth in service sector employment was completely due to national and sector factors (Table 89). In fact, local factors retarded growth in the sector from 1970 to 1980. By 1990, this had changed and local factors contributed half of the job growth during the 1980s.

Table 89. Shift-share analysis of the service sector in Floyd County.

	1970-80	1980-90
National Component	16	19
Sector Component	17	33
Local Component	-6	51
Total Employment Change	27	103

Government Employment

Government employment includes all federal, state, and local government employees. Government employees can be found in almost all sectors of the economy including public utilities, service, insurance, and education. These employees have not been included in the data reported previously, which covers only private sector employment. Government employment is reported by place of residence, not place of work. Government employment has been a growing sector of the local economy since 1970 (Table 90). Much of this growth is probably due to commuting to Virginia Tech in neighboring Montgomery County.

Table 90. Government employment, 1970-1990.

	United States	Virginia	Floyd County
1970	12,320,637	403,476	602
1980	16,689,801	574,840	714
1990	17,567,100	641,666	811

Source: *County Business Patterns.*

Earnings for government workers are reported by place of work so the employment and earnings data are not comparable across jurisdictions.

Unclassified Establishments Sector

The unclassified establishments sector is composed of firms that cannot be classified into any major sector. There are several reasons why a firm may not be classified:

1) The firm may not have reported sufficient information;

2) The firm may have a wide variety of product/service lines; or

3) The firm may be producing a product or service so unique or novel that no classification for it exists.

If the third reason is the cause of not being classified, this may indicate a very entrepreneurial firm. Keep in mind that, to be included in these data, a firm must be incorporated or have an employee, so that the firm is unlikely to be a single person who only works a few hours a week.

We were able only to estimate Floyd's employment in the unclassified sector for all three years (Table 91). Further analysis of these establishments must be done with caution. For example, the large drop in employment in the United States and Virginia between 1980 and 1990 may not be indicative of any economic trend. In fact, an update of the industrial classification manual in 1987 probably affected the decrease. New sectors and subsectors were added to the classification and many of these firms were probably moved into the new classes.

Table 91. Employment in unclassified establishments, 1970-1990.

	United States	Virginia	Floyd County
1970	435,094	7,723	1[a]
1980	558,592	9,970	10[a]
1990	318,348	6,919	16[a]

[a]*Estimated.*
Source: *County Business Patterns.*

Self-employment (Non-agricultural)

Self-employment is an important category that is often left out of economic discussions. Part-time and full-time self-employment are the two most common businesses in the United States today, accounting for approximately 14 million workers in primary and secondary jobs. Self-employment is a key to our nation's economic growth because it serves as the foundation from which most small businesses are built. The entrepreneurial spirit from these self-employed workers is either directly or indirectly responsible for the creation of a large percentage of new jobs.

From a level in 1960 of 5.3 million non-agricultural self-employed workers, self-employment fell to a low in 1970 of 4.5 million (Table 92). Since then, self-employment has increased rapidly in the United States, Virginia, and Floyd. (The data in Table 92 show only those workers whose primary job is self-employment.)

Table 92. Non-agricultural self-employment, 1970-1990.

	United States	% change	Virginia	% change	Floyd County	% change
1970	4,458,428		82,791		258	
1980	5,393,222	21	106,344	28	303	17
1990	7,004,705	30	158,973	49	489	61

Source: *Census of Population.*

Growth in self-employment can be linked with a number of important factors, including several changes in the nation's economy and society. The following are several factors relating to increased self-employment.

- Improved technology has paved the way for many new ideas to be tried and implemented by innovative thinkers.
- The boom of the service sector encourages self-employment growth by opening up a wider and more varied market.
- The initial investment for many service-oriented opportunities is much less than in something like manufacturing, bringing self-employment initiated businesses

within reach of many.

- Much of the manufacturing sector itself has been opened up with niche markets with specialized demands that can be met by self-employed workers.
- Many large firms have gone to "outsourcing," where certain jobs, such as computer consulting, can be performed by self-employed individuals.
- Since 1973, real wages have been relatively stagnant and people may be looking to augment their incomes with self-employment, an ideal secondary source of income due to its flexibility. At some point the person may switch to self-employment as their primary job.
- There has been an increase in early retirements, and self-employment increases retirees' income as well as preventing boredom.
- Self-employment also helps alleviate the "glass ceiling" effect by offering opportunities for those who feel that they have little chance for advancement.
- Some experts have argued that there has been a change in attitude from the 1970s to today in that more and more people are associating "the good life" with being your own boss rather than working for a large company.
- In a small community such as Floyd, self-employment fits well into the demand of the local economy and it tends to increase the multiplier effect by keeping money circulating in the community.

Often the first employee of a self-employed worker is an unpaid family worker. As self-employment has increased so has the number of unpaid family workers (Table 93).

Table 93. Non-agricultural unpaid family workers, 1970-1990.

	United States	Virginia	Floyd County
1970	296,387	4,360	15
1980	359,719	6,181	13
1990	505,226[a]	9,991[a]	52[a]

[a]*Data do not separate agricultural and non-agricultural unpaid family workers.*
Source: *Census of Population.*

Non-farm proprietor's real average earnings decreased from 1970 to 1990 in the United States and Virginia (Table 94). Earnings of Floyd's proprietors increased 40 percent from 1970 to 1990. Virginia's average earnings have tended to lag national earnings by a few thousand dollars. While increasing rapidly, Floyd's average earnings still lag by over $10,000. Proprietor's earnings are reported by place of work while self-employment is reported by place of residence, but, because the majority of the self-employed tend to work near where they live, the mismatch of employment and earnings is likely to be small.

Table 94. Real annual per capita proprietor's earnings, 1970-1990.

	United States	Virginia	Floyd County
1970	37,824	35,610	14,994
1980	36,037	34,213	13,850
1990	35,526	33,148	21,060

Retirees

As shown earlier in this report (Tables 4 and 5), retirees are an increasing percentage of the population for all jurisdictions. The number and percentage of retirees will increase rapidly from 2010 to 2030 as baby boomers retire. Retirees bring social security payments, private and government pensions, and asset income into an area county.

Real monthly payments to retirees have increased dramatically since 1970 (Table 95). The largest percentage increases were in the 1970s. During the 1970s, Congress raised social security 30 percent more than the cost of living. Such increases are not likely to continue because the social security fund is expected to face problems as the ratio of retirees to workers increases.

Table 95. Real monthly social security payments to retirees.

	United States	Virginia	Floyd County
1970	210	277	232
1980	880	820	710
1990	1,553	1,464	1,288

Social Security payments in Floyd lag those of the rest of Virginia and of the United States. Because payments are partially based on wages, the lower wages in Floyd result in lower payments.

SUMMARY

The economy of Floyd County reflects many of the changes in the national and state economy. For example, in the 1970s, rural areas experienced population growth when urban people left the cities, and Floyd experienced rapid growth in the 1970s as a result. Population movement from urban to rural reversed in the 1980s, and many rural counties lost population. One exception was rural counties adjacent to urban counties. Because Floyd is adjacent to Roanoke County, its population increased in the 1980s. Being close to Montgomery County, which also grew, was beneficial to Floyd.

On the other hand, in some cases Floyd varies from national trends. While manufacturing is a declining sector nationally, Floyd's manufacturing has grown. Despite this history, however, the county's future fortunes are likely to be sensitive to national changes in manufacturing, especially in textiles and apparel, where Floyd's manufacturing activity is concentrated. Of particular concern is that these subsectors are not national growth subsectors.

Floyd is experiencing some growth in retail trade. The county, however, tends to capture only a small portion of the consumer spending of residents as indicated by pull factors of less than .75 and high sales leakages. The retail leakages may be the result of high out-commuting (commuters will shop where it is most convenient). The major commuter destinations are Montgomery County and the city of Roanoke, and these jurisdictions offer more shopping alternatives than does Floyd.

Other sectors that contribute significantly to Floyd's economy are agriculture and self-employment. Floyd also has a high percentage of retirees. The high percentage is due in part to young people leaving the county, but there is also evidence that Floyd is attracting retirees who find its Blue Ridge location attractive.

REFERENCES CITED AND ADDITIONAL READING

Center for Public Service. *Virginia Statistical Abstract*. Charlottesville: University of Virginia, Various years.

Flora, Cornelia B., and James A. Christenson. *Rural Policies for the 1990s*. Boulder, Colorado: Westview Press, 1991.

Hustedde, R., R. Shaffer, and G. Pulver. *Community Economic Analysis: A How To Manual*. Ames, Iowa: North Central Regional Center for Rural Development, 1984.

Office of Research and Statistics, Social Security Administration, U.S. Department of Health and Human Services. *OASDI Social Security Beneficiaries by State and County*. Baltimore, Maryland: OASDI, 1970, 1980 and 1990.

Spar, Michael. *Transportation and Commuting in Virginia*. Charlottesville: University of Virginia, Tayloe Murphy Institute, 1982.

United States Bureau of Census. *1990 Census of Population and Housing, Summary Population and Housing Characteristics*. Washington, D.C.: U.S. Government Printing Office, 1991.

United States Bureau of Census. *Census of Population, General Social and Economic Characteristics*. Washington, D.C.: U.S. Government Printing Office, various years.

United States Bureau of Census. *Census of Retail Trade*. Washington, D.C.: U.S. Government Printing Office, various years.

United States Bureau of Census. *County Business Patterns*. Washington, D.C.: U.S. Government Printing Office, various years.

United States Bureau of Census. *County and City Data Book*. Washington, D.C.: Government Printing Office, 1972, 1978, and 1983.

United States Department of Commerce. Regional Economic Information System on CD/ROM.

United States Department of Commerce/Bureau of Economic Analysis. *Local Area Personal Income*. Washington, D.C.: U. S. Government Printing Office. Various years.

Virginia Department of Education. *Annual Report of the Superintendent of Public Instruction*. Richmond, various Years.

_____. *Facing-Up*. Richmond, various Years.

Virginia Department of State Police. *Crime in Virginia*. Uniform Crime Reporting Section, Richmond, 1970-1990.

APPENDIX

Location Quotient for a Sector or Subsector in the County

$$\text{Location Quotient} = \frac{\left(\frac{\text{County Employment in Sector}}{\text{Total Employment in County}}\right)}{\left(\frac{\text{National Employment in Sector}}{\text{Total Employment in Nation}}\right)}$$

$$\text{Export Employment} = \left(1 - \frac{1}{LQ}\right) * \begin{matrix}\text{Local Employment} \\ \text{in sector}\end{matrix}$$

Shift-share Analysis for a Sector of Subsector in the County

Shift-share analysis basically tries to gauge the influences of other growth rates on local employment, by explaining the employment changes in the local economy as a result of the national growth component, the sector component, and the local component. The formula that follows shows the number of local jobs created as a result of three economic factors:

$$\begin{matrix}\text{Local Employment} \\ \text{Change}\end{matrix} = \begin{matrix}\text{National} \\ \text{Component}\end{matrix} + \begin{matrix}\text{Sector} \\ \text{Conpoment}\end{matrix} + \begin{matrix}\text{Local} \\ \text{Component}\end{matrix}$$

The first step is to calculate the national growth component; this simply measures the change in the local economy due to national growth rates

$$\begin{matrix}\text{National} \\ \text{Compontent}\end{matrix} = \begin{matrix}\text{Local Employment} \\ \text{in time 0 in Sector}\end{matrix} * \begin{matrix}\text{Rate of Change in} \\ \text{Total National Employment} \\ \text{from Time 0 to Time 1}\end{matrix}$$

$$\text{national growth component} = e_{io} \frac{\left[\sum (E_{it} - E_{io})\right]}{\sum E_{io}}$$

Within this equation, E_{it} represents the national employment in the recent time period and E_{io} represents the national employment in the previous time period; and e_{io} will always represent the local employment of the previous time period.

The second step is to compute the sector component. This component determines whether particular sectors of the national economy are growing faster or slower than the national average.

$$\text{Sector Component} = \text{Local Employment in Time 0 in Sector} = \left(\begin{array}{c}\text{Rate of Change in Total National Level from Time 0 to Time 1}\end{array} - \begin{array}{c}\text{Rate of Change in Sector at National Employment from Time 0 to Time 1}\end{array}\right)$$

$$e_{io}\left[\frac{E_{it}-E_{io}}{E_{io}} - \frac{\sum\left(E_{it}-E_{io}\right)}{\sum E_{io}}\right]$$

The numerical symbols represent the same as above.

The third step is to determine whether the local sector is growing more or less than the same sector nationally, as formulated below:

$$\text{Local Component} = \text{Local Employment in Time 0 in Sector} = \left(\begin{array}{c}\text{Rate of Change in Sector at County Level from Time 0 to Time 1}\end{array} - \begin{array}{c}\text{Rate of Change in Sector at National Employment from Time 0 to Time 1}\end{array}\right)$$

$$e_{io}\left[\frac{e_{it}-e_{io}}{e_{io}} - \frac{E_{it}-E_{io}}{E_{io}}\right]$$

The sum of these three steps provides the number of jobs created or lost locally within a particular sector.

Retail Trade Analysis for a Retail Subsector in the County

$$\text{Consumer Equivalents} = \frac{\text{Retail Sales of Subsector (X)}}{\left(\frac{\text{State Sales of Subsector (X)}}{\text{State Population}}\right) * \left(\frac{\text{Floyd per capita Income}}{\text{State per capita Income}}\right)}$$

$$\text{Pull Factor} = \frac{\text{County Employment in Sector}}{\text{Total Employment in County}}$$

$$\text{Potential Sales} = \text{County population} * \text{State per capita Sales} * \left(\frac{\text{County per capita Income}}{\text{State per capita Income}}\right)$$

$$\text{Leakage or surplus} = \text{Actual Sales} - \text{Potential Sales}$$

REAP
DEPARTMENT OF AGRICULTURAL AND APPLIED ECONOMICS
P O BOX 850
BLACKSBURG VA 24063-9985

Virginia Tech
1872
VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY

VIRGINIA STATE UNIVERSITY

1995 Virginia Cooperative Extension Publication 448-218 / REAP R020

Additional copies of this publication may be requested from the Virginia Cooperative Extension distribution center at 112 Landsdowne St., Blacksburg, VA 24060. (703) 231-6192

VT/001/0395/250/953169/448218