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# Distribution of Employment Growth in 10 Georgia Counties: A Case Study

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## **Abstract**

Rapid economic growth in a 10-county rural area in south Georgia during 1976–81 favored employment of whites, men, and immigrants. They earned higher average weekly salaries than blacks, women, and long-term residents. This study of growth in a mixed manufacturing- and agricultural-based economy flows from a research project on the impacts of economic expansion in nonmetro economies with different industrial bases. The Georgia area's job growth was greatest in the trades and services sectors. Few businesses used public sector funds to start or expand their operations. Government employed 25 percent of the area's wage and salary workers.

Keywords: Blacks, immigrants, rural employment growth, rural labor force, women, youth.

## **Acknowledgments**

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Douglas Kleweno and Lawrence S. Williams helped develop sample and survey materials. Shirley Zonner assisted in data preparation. Robert Coltrane and Thomas Carlin supervised the study. Gratitude is extended to the enumerators for their data collection efforts. Joyce Su prepared the variance program used in statistical hypothesis testing. Linda A. Rall typed the report.

## Contents

	Page
<b>Glossary</b> .....	iii
<b>Summary</b> .....	vi
<b>Introduction</b> .....	1
<b>Background</b> .....	1
<b>Study Area</b> .....	3
<b>Survey Design</b> .....	3
<b>Study Area's Economy and People</b> .....	6
Industrial Structure .....	6
Area Residents .....	8
<b>Employment Growth</b> .....	11
Sources of New Jobs .....	11
Numbers and Types of Jobs .....	12
The Influence of Multiestablishment Firms .....	16
<b>Employed Workers</b> .....	17
Long-term Residents and Immigrants .....	18
Blacks and Whites .....	20
Men and Women .....	22
Youth and Older Workers .....	23
Recent Entrants .....	25
<b>Roles of Government in Employment Growth</b> .....	26
Government as an Employer .....	27
Government as a Source of Capital .....	27
Employment Services and Training .....	29
<b>Potential Labor Force</b> .....	31
<b>Conclusions</b> .....	33
<b>References</b> .....	34
<b>Appendix A: Survey Design and Procedures</b> .....	36
<b>Appendix B: Calculation of Variance Statistics</b> .....	39

## Glossary

### Statistical testing and survey design:

#### Significant difference—

A comparison between two variables was statistically significant at the 95-percent confidence level when the observed difference was greater than twice the standard error of the difference. The variables tested were in the form of totals, ratios, percentages, and dollar values.

#### Survey sample design—

**List frame.** The list frame sample was comprised of a list of private sector establishments and government units located in the 10-county area. A subsample of employees was drawn from the surveyed list frame establishments which subsequently became the list frame sample of households.

**Area frame.** The area frame consisted of a two-stage stratified cluster sample, where the first stage involved sampling segments and the second stage involved sampling establishments and households. The area frame provided a sample of establishments and households not identified by the list frame. The area frame and list frame together represented the total population of establishments and households.

**Primary sampling unit.** Primary sampling units (PSU's) are associated with the frame sample. For the list frame, establishments were the PSU's; for the area frame, land segments of varying size were the PSU's. PSU's serve as the base for deriving variances, as opposed to observations, in a complex survey design.

### Employers, private and public sectors, and related terms:

#### Establishments—

An establishment is an economic unit, generally located at a single location, where business is

conducted or where services or industrial operations are performed. A firm may consist of one or more such units.

#### Type of establishment—

**Goods-producing.** Includes establishments in the private sector engaged in construction, mining, and manufacturing activities.

**Services-producing.** Includes establishments in the private sector engaged in wholesale and retail trade; TCPU (transportation, communications, and public utilities); FIRE (finance, insurance, and real estate); and all other services, including hotels, personal, business, amusement, health, legal, education, and social services.

**Government.** Includes civilian Federal, State, county, city, or town governmental units. A unit of government or a nonprofit organization funded primarily by Federal, State, or local government which has sufficient management over its own affairs or taxing authority to distinguish it from the administrative structure of other governmental units. Military units were excluded from the survey.

#### Size of establishment—

**Small.** Those units that employed fewer than 20 paid workers in December 1981.

**Large.** Those units that employed 20 or more paid workers in December 1981.

**No paid employees.** Those establishments totally operated by self-employed owners or partners in December 1981 and referred to as establishments with no paid employees. Some of these establishments had paid employees in 1976.

#### Establishment wage levels—

**Mean-wage establishments.** The average weekly wages paid full-time workers in the mean-wage establishments ranged from



\$202 to \$246 in December 1981. The authors calculated this wage by adding and subtracting 10 percent of the mean weekly wage of \$224 paid by all establishments.

**Low-wage establishments.** The average weekly wage paid full-time workers was less than \$202 in December 1981.

**High-wage establishments.** The average weekly wage paid full-time workers was greater than \$246 in December 1981.

#### **Structure or age of establishment—**

**Multiestablishments.** Private sector establishments with two or more plants, branch offices, or outlets for business. Data presented under multiestablishments represent only information collected from the unit surveyed.

**New establishments.** Establishments which began operation in the 10-county area after 1976.

**Ongoing establishments.** Establishments which began operation in the 10-county area during or before 1976.

#### **Establishment employment change, 1976-81—**

**Growth.** Establishments that increased employment by one or more persons between 1976 and 1981.

**No-growth.** Represents establishments where employment levels either did not change or declined between 1976 and 1981.

#### **Population and employee-related terms:**

##### **Households—**

A group of persons, not necessarily related by blood or marriage, whose usual place of residence is in a house, an apartment, a group of rooms, or a single room occupied as separate living quarters.

**Annual household income.** All income received during the year by household

members except income received from the sale of land, buildings, stock, or other capital assets.

**Household member.** Any person whose usual place of residence is in the housing unit that was surveyed. (A housing unit is a house, an apartment, a group of rooms, or a single room occupied as separate living quarters.)

##### **Adult—**

Any person who was 16 years of age or older in January 1982.

##### **Labor force—**

Includes only the adult population who were employed or unemployed.

**Employed.** Employed persons who were working for wages or salaries or who were self-employed in their own businesses or professions or on their own farms.

**Unemployed.** Unemployed persons who were looking for work or on layoffs waiting to be called back to a job.

**Employment rate.** The proportion of the adult population that was employed.

**Unemployment rate.** The proportion of the labor force that was unemployed.

##### **Residency status—**

**Long-term residents.** Residents who lived in the 10-county area continuously between December 31, 1966, and January 1982.

**Early immigrants.** Residents who moved to the 10-county area between January 1, 1967, and December 31, 1976.

**Recent immigrants.** Residents who moved to the 10-county area between January 1, 1977, and January 1982.

**Return immigrants.** Residents who had moved from the 10-county area, lived outside the area for some time, and then moved back to the area after January 1, 1967.

**New immigrants.** Residents who moved to the study area between January 1, 1967, and January 1982, and who had not previously lived in the area.

#### **Employment status—**

**Full-time.** Wage and salary workers who worked 30 or more hours per week.

**Part-time.** Wage and salary workers who worked less than 30 hours per week.

**Recent entrants to the labor force.** Persons who were not in the labor force in 1976 and who were employed 1 or more weeks in 1981.

**Experienced workers.** Persons who were employed 1 or more weeks in both 1976 and 1981.

**Self-employed.** Persons who worked for profit or fees in their own businesses or professions or on their own farms.

#### **Occupational groups—**

**Executive.** Includes managerial, administrative, engineering, scientific, teaching, and related occupations, including creative artists.

**Technical.** Includes technicians, clerical, sales, service, farming, forestry, fishing, and hunting occupations, and persons living in the area who were in the military.

**Production.** Includes production workers in manufacturing, construction, extractive, transport, and related occupations.

#### **Worker ages—**

**Youth.** Persons 16–24 years of age in January 1982.

**Prime-age workers.** Persons 25–49 years of age in January 1982.

**Older workers.** Persons 50 years of age and older in January 1982.

#### **Link-wage worker—**

Persons who were sampled from the list frame establishments surveyed and who were working for wages and salaries 1 or more weeks in 1981. Establishment data linked to the worker are for the unit in which the worker worked the most days in 1981.

#### **Race—**

Was self-determined by respondents. Whites and blacks were the racial groups of statistical significance in the 10 Georgia counties. Although included in the overall population, such groups as Hispanics, Asians, and American Indians made up less than 0.5 percent of the population, a statistically insignificant proportion.



## Summary

Rapid employment growth during 1976–81, in a 10-county area in south Georgia, favored whites, men, and immigrants because they were more likely to be employed and to receive higher average weekly earnings than blacks, women, and long-term residents. Youth and others with limited work experience found jobs but frequently worked part-time and in low-wage occupations.

This study is the second of three in a series which examines the impacts of rural economic growth. The study identifies sources of jobs, who gets the jobs, and how government contributes to economic growth. The U.S. Department of Agriculture's Economic Research Service selected south Georgia to represent fast-growing nonmetro areas which had a racially mixed population and a mixed manufacturing- and agricultural-based economy.

Nearly 2,000 new establishments began operation and 1,440 existing firms increased their work forces, creating a net increase of 16,000 new jobs. Sixty-five percent of these net new jobs were in new establishments. These enterprises were typically small trade or service businesses. Expanding establishments paid higher average weekly wages and supplied more executive and professional jobs than new establishments.

Government, a high-wage sector, employed 25 percent of all wage and salary workers. As the economy grew in the 1970's, few establishments depended on public sector funding; most businesses relied on retained earnings, stock sales, and commercial loans. Government indirectly assisted economic growth by improving the infrastructure which supported commerce and attracted new employers.

The findings in this study substantially match the results from the first report in the series, which covered nine nonmetro counties in south-central Kentucky. One major difference showed that recent immigrants to Georgia received higher wages than long-term residents. In Kentucky, long-term residents earned the same as recent immigrants. Also, the women's unemployment rate compared with men's was higher in Georgia than in Kentucky. These differences may be traced to stages of economic development, industrial structure, and the business cycle at the time of the survey. The third study will focus on a nonmetro region that straddles the Missouri-Arkansas border.

# Distribution of Employment Growth in 10 Georgia Counties

## A Case Study

**James D. Schaub and  
Victor J. Oliveira\***

### Introduction

New and expanding businesses and an increase in government jobs significantly improved employment in south Georgia during 1976–81. Whites, men, and immigrants got most of the highest paying jobs. Blacks, women, and long-term residents participated less in the economic expansion.

Many social scientists and government officials consider economic development in the form of population and employment growth to be a desirable course for improving the well-being of rural residents (3, 4, 8, 11, 23).<sup>1</sup> After decades of lagging behind metro areas, nonmetro communities in the early 1970's surpassed metro areas in population and employment growth rates (2). Employment in nonmetro America was 30.3 million in 1982 compared with 26 million in 1973. Yet, in 1982, there were also 3.4 million nonmetro persons unemployed and 21 million adults outside the labor force, and the growth advantage nonmetro places had in the 1970's had diminished. National-level nonmetro data show that blacks, youth, and until recently, women have higher than average unemployment rates. Clearly, economic growth of the 1970's did not improve the employment status of all nonmetro residents.

This study's primary goals are to identify the employment contributions associated with different types of establishments; to measure the impacts of

economic growth on population subgroups, including blacks, youth, and women; and to analyze the roles of government in the economic growth process, all within the context of a rural economy which experienced above-average economic growth in the 1970's.

### Background

Rural economic growth is diverse and uneven. Aggregate data reflect the net experience of economically growing communities, economically stable communities, and economically declining communities. Such data cannot answer questions about the distributive impacts of economic changes except in very broad terms. Microeconomic data on distributional effects of economic development are needed to properly formulate and evaluate alternative rural development strategies. Surveys of rural households, private sector establishments, and governmental units are particularly useful because they can help us understand the effects of economic development on the rural population. These data need to relate directly the characteristics of employees to the industries in which they work. The data of this study meet these criteria.

Rural development policy focuses primarily on increasing employment opportunities and generating greater income. The Rural Development Act of 1972 and the Rural Development Policy Act of 1980 contain explicit goals for creating jobs and increasing incomes by providing subsidized capital and training for rural people. The rationale for this approach to rural development has been that economic growth benefits all residents, even low-income workers, new labor force entrants, and other disad-

<sup>1</sup>Italicized numbers in parentheses cite sources in the References section.

\*The authors are economists with the Agriculture and Rural Economics Division (formerly the Economic Development Division, EDD), Economic Research Service, U.S. Department of Agriculture.

vantaged labor force participants, yet there has been very little research undertaken to test this rationale. This study attempts such a test.

An assumption underlying government expenditures for economic development is that private sector funds would not be sufficient to stimulate industrial development. This study will partially assess the role of government as a source of funds for economic growth.

In 1979, the Economic Development Division (EDD) began a series of three studies of how the benefits of economic development are distributed in nonmetro America. The plan's goal was to identify a number of small geographic areas which typified general nonmetro economic conditions. Nonmetro communities are diverse in industrial base (including the relative importance of agriculture), racial/ethnic and other demographic characteristics of the population, and isolation from metropolitan areas. One community cannot represent the total nonmetro United States, but it can typify substantial segments. The relationships generated in each of the EDD studies are expected to hold for other nonmetro communities with similar attributes. EDD analysts designed the studies to examine the distribution of jobs among long-term residents, immigrants, and recent labor force entrants. Each study examined other population groups, depending on the local population composition. The same survey and sampling procedures were used in each study in order to compare findings.

The first study, conducted in 1979 and 1980 in a nine-county area of south-central Kentucky, examined a formerly persistently low-income region of rapid outmigration which recently experienced substantial growth in a variety of manufacturing industries and in mining (9). Long-term residents, women, and youth were of special interest in this study. The other study in the series used a 10-county area straddling the Missouri-Arkansas border to address distributional issues in economies whose growth is based on retirement and recreation income. The data, collected in 1984, especially concentrated on elderly residents.

This study covers a 10-county area of the Southern Coastal Plains of Georgia which experienced high

rates of economic growth in the 1970's. The site differed significantly from the others because unlike the other areas, it contained a substantial black population and continues to be an important commercial agricultural area. These characteristics permit an examination of the distribution of benefits (and losses) from economic development in a racially mixed population in an area with a strong agricultural sector.

The first objective, identifying employment contributions, is very basic because it is important to know the source of jobs. We lack information about the characteristics of establishments creating jobs in rural areas. The importance of establishment age, size, industry, wage levels, and ownership structure in generating employment opportunities has been a matter of speculation and debate (1, 5, 9, 25). Good information on this issue is essential for formulating rural development strategies and allocating financial resources. Individual citizens will also benefit from this information. Entrepreneurs will be able to identify new business opportunities, and job seekers will benefit from knowing which industries are expanding.

The second objective, measuring impacts of economic growth on subgroups, adds to limited information about the way the benefits of economic growth are distributed among rural people. Certain groups historically have been disadvantaged in opportunities and economic outcomes (12, 24, 26). Other groups have faced serious disruptions from changing industrial structures and population movements (6, 17, 20, 22, 24). The effectiveness of rural development programs, purporting to aid the low-income and disadvantaged through general economic growth, has not been well established (3, 4, 8, 11). We have limited knowledge about how blacks, women, youth, and the elderly share in the benefits and losses resulting from growth. Nor do we know the extent to which long-term residents and immigrants compete for jobs.

The third objective, analyzing the roles of government in the economic growth process, is included because government makes an important contribution to rural job creation. Some of government's roles are exclusively the sphere of the public sector (defense) while other public sector functions (educa-

tion, job placement services) overlap or at least supplement functions (loans, health care) performed in the private sector. To formulate effective policies for rural development, government officials need to know which public sector activities bring about economic growth and how these activities affect the distribution of the jobs. Job-training programs and placement services should help disadvantaged and unemployed people get jobs. Many people believe government involvement in capital markets is essential for economic development, but there is little evidence to assess rural employers' dependence on publicly aided capital (9, 16). The Federal, State, and local spending decisions for the broad goals of rural development could be improved with better understanding of which programs have had the greatest impacts.

Before reporting the analytical results of the survey, some background information on the study site, survey procedures, and the study area's economy and population will be presented. The analysis of the results of rural development first considers the sources and distribution of jobs and the contributions of different types of establishments to job growth. Next, the employment outcomes for various population groups are discussed, followed by the activities of government relating to employment and a comparison of the major findings from the Georgia and Kentucky studies.

### Study Area

The study site was the following 10 south Georgia counties: Berrien, Brooks, Colquitt, Cook, Echols, Grady, Lanier, Lowndes, Thomas, and Tift (fig. 1). Valdosta, with a 1980 population of 36,650, was the only city in the study site with a population over 20,000. The nearest metropolitan areas, Albany, Georgia, and Tallahassee, Florida, are about 30 miles away.

To achieve this study's goals, analysts set four criteria for selecting the study site from several possible sites: the area selected must have experienced employment and population growth rates between 1970 and 1977 above the national nonmetro average rate; at least 15 percent of the area's population must have been minorities; the

area's economic base must have included a significant commercial agricultural sector; and the area must have constituted a reasonably self-contained labor market as evidenced by low commuting rates into and out of the area. The first three criteria were straightforward translations of the study's objectives and target populations. The fourth criterion was required as part of the sampling design to insure the feasibility of the linking process between employing establishments and employees and their households. Linking establishment and employee responses was a unique aspect of the three studies. The efficiency of the sample was enhanced because most of the people who worked in the study area also lived there.

The Georgia study site best met all four selection criteria. Employment increased 16.4 percent between 1970 and 1977 compared with 15.2 percent for all nonmetro areas.<sup>2</sup> The study site population grew 10.8 percent during this period compared with 9.3 percent for all nonmetro counties. Blacks constituted 31 percent of the area's 1970 population. The 1978 Census of Agriculture reported 5,368 farms in the 10 counties, and 40 percent of these farms reported annual sales of farm products of \$20,000 or more. Special tabulations of 1970 Census data show in- and out-commuting rates at less than 10 percent. Conversations with employers and local officials suggested that commuting rates were below 10 percent in 1981.

### Survey Design

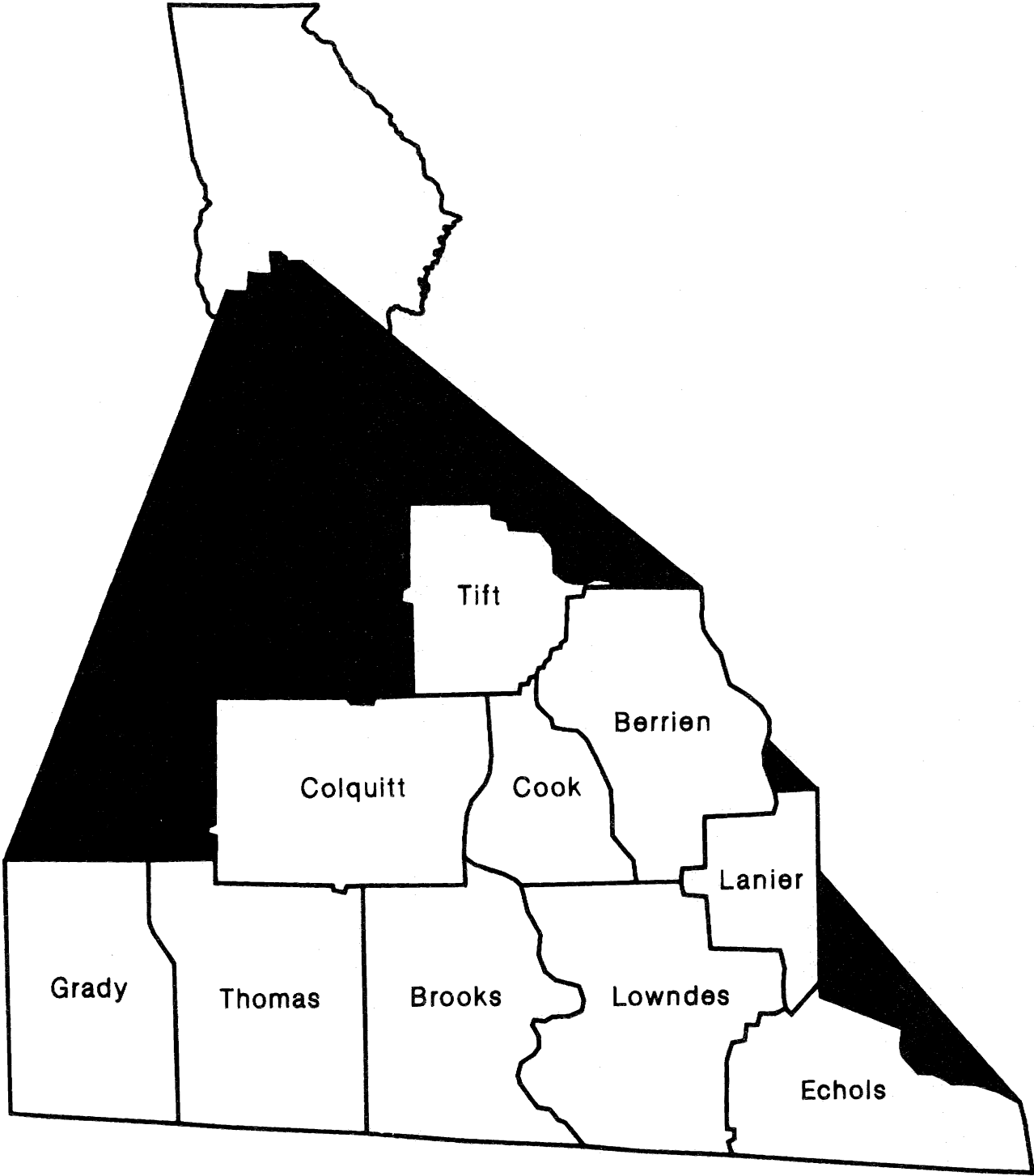
A major objective of the study was to identify new and existing sources of employment and to learn how these job opportunities were distributed among population subgroups. This required a survey design which would collect data from both establishments and households and would directly link employees and their households with their

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<sup>2</sup>When the study site was selected in 1980, the most recent available county employment and population data were 1977 Bureau of Economic Analysis (BEA) data. Later BEA data showed that between 1976 and 1981 total employment in the area increased 11.5 percent, while population increased 4.6 percent compared with national nonmetro employment and population growth of 8.8 percent and 5.7 percent, respectively.

Figure 1

# The 10-County Georgia Study Site



employers. To account for all workers and all households in the area, the sample included small businesses with no paid employees and households with no workers. We used two questionnaires and two surveys to collect data, one for establishments and one for households. The questionnaires were adaptable to the varying circumstances of establishments and households.<sup>3</sup>

Sampling establishments required a complete list of employers and businesses in the 10-county site.<sup>4</sup> We compiled the list from data supplied by the Employment Security Agency of the Georgia Department of Labor, the Georgia Department of Industry and Trade, telephone books, and various trade and association directories. This list was stratified by industry and number of employees, and researchers randomly selected a fraction of the employers in each stratum for interviews. Enumerators visited the selected establishments in December 1981. The establishment questionnaire elicited data on the date the responding private establishment or government unit began operation in the 10-county area; legal organization; primary product produced or service provided; current and 1976 employment, payrolls, and revenues; occupations of employees distributed by sex of employee and by full-time and part-time employment; wages paid to occupation groups; fringe benefits; turnover and vacancy problems; use of Comprehensive Employment and Training Act (CETA) or similarly subsidized workers; sources of new hires; and sources of funds for starting or expanding operations. Data for 1976 provided a base for measuring growth. We believed that 5 years was enough time for growth to occur and for its effects to be distributed through the economy. Also, our Kentucky study found that respondents were able to recall data from 5 years earlier.

The direct linkage, or cross-referencing, of workers' households with their employers used data obtained from a random sample of employees whose names and addresses came from interviewed employers. Enumerators selected this sample of employees

from employment rolls. This list of employees formed the list frame sample of households. Enumerators interviewed these workers and members of their households at their homes using the household questionnaire. Thus, we linked information about working residents with information about their employers.

Area frame samples of establishments and households supplemented the list frames in three ways. First, the area frame sample of establishments accounted for incompleteness of the employer universe list. Although we attempted to prepare a list that included all establishments, some establishments were not on the list. Enumerators attempted to contact any establishment found in the sampled land segments and not on the universe list. Second, we used the area frame for households to sample households which would not be eligible for sampling through the list frame. These would include households with no employed members, households whose employed members worked in establishments within the study area but not on the universe list of establishments, or worked in establishments outside the study area. Third, we used the area frame sample of households to increase the number of questionnaires completed from black households. This assured an adequate number of black households available for analysis. This was accomplished by stratifying the area frame to include a stratum including large numbers of black residents.<sup>5</sup>

Enumerators interviewed list frame and area frame households in January and February 1982 using the household questionnaire. Data collected included household composition and demographics, including age, race, sex, relationship to head, educational attainment, marital status, and health status. All persons interviewed who were 16 years and older were asked about their current, 1981, and 1976 labor force and employment status. Interviewers obtained occupation, employing industry, hours and weeks worked, and wage rates for those working. For those not working at the time of interview, in 1981, or in 1976, information on primary activity, reasons for not working, and job search ef-

<sup>3</sup>For more information on the survey design, see (9).

<sup>4</sup>Churches, private households employing workers, and military units were not included in the establishment universe. Farms and farm operators were not sampled as establishments but were eligible for household interviews. See appendix A for details.

<sup>5</sup>Details on the survey design, stratification, sampling rates, and response rates are presented in appendix A.

forts was collected. Interviewers asked all adults about participation in job training programs and migration to the study site. Each household reported whether any member had operated a farm in 1981 or 1976, and for those who had, farm operation data were obtained. Interviewers asked each household a series of questions on sources and amounts of income and participation in public assistance and food programs in 1981 and 1976. Establishments furnished 553 completed reports. A total of 1,015 households containing 3,003 persons completed interviews. These counts represented an 85-percent completion rate for both establishments and households.

We measured the establishments and households in south Georgia as they existed at the time of the survey. Enumerators asked both establishments and households to recall their circumstances in 1976. An important note: interviews with current populations cannot fully describe the 10-county economy as it existed in 1976 because some establishments closed or moved away between 1976 and the time of interview, and some people left the area. The study measured and analyzed the establishments and households remaining from 1976 and newcomers to the area. The survey design did not allow data collection from establishments and households that came into the study site after 1976 but were no longer there in December 1981.

Because the data were derived from a survey rather than a census, all estimates of totals, proportions, and means in this report are subject to sampling error. Although a given estimate differs between two or more subpopulations or variables, the differences may not be statistically significant because of sample variation. Discussion in the text that compares differences of subpopulations will be restricted to those comparisons which are statistically significant at the 95-percent confidence level, unless otherwise noted. Where the number of sample establishments, households, or persons associated with a given attribute was less than 30, statistical testing was not attempted. The tables show when establishment, household, and person estimates were based on fewer than 10 sample observations. Such estimates typically have very large standard errors and should be interpreted with care. However, for the majority of estimates, the coefficient of variation

did not exceed 15 percent. Appendix B explains the statistical tests.

## Study Area's Economy and People

EDD selected the south Georgia study area because it was a fast-growing rural economy with a mixed agricultural/manufacturing industrial base. Another important consideration in selecting the area was the presence of a substantial black population which permits analyses of the impacts of growth for blacks. Our other growth studies won't sample enough blacks to do this. This section describes the study area's industrial structure and population.

### Industrial Structure

The 10-county area's industrial structure was typical of much of nonmetro America. It was dominated numerically by services-producing establishments. Fewer than 1,000 nonagricultural goods producers and just 150 government units existed. The majority of all establishments had fewer than 20 workers, and owners operated 1,160 units (20 percent) with no paid help. The public sector units were typified by mean- and high-wage levels. Private sector employers were characterized as low-wage, but a fifth of the private enterprises were classified as high-wage. One of every three establishments was new since 1976, and 55 percent started operations after 1971.

Data from the establishment survey represented an estimated 5,800 private sector establishments and 150 government units (table 1). These units employed about 74,000 persons in December 1981. Employment among private sector establishments in the study area was similar to the U.S. nonmetro employment mix, by major industry group (24, 35). However, the proportion of employment in government was slightly greater in the 10-county area than in all nonmetro areas.

The study area's two largest industrial sectors, government and wholesale and retail trade, each supplied about the same number of wage and salary jobs. Trade establishments were the most important nonfarm source of self-employment jobs. Government had the largest annual payroll, manufacturing



was second, and wholesale and retail trade was third. Manufacturing establishments were the largest employers in the private goods-producing sector. The manufacturing sector included plants producing wood products, textiles and clothing, and processed agricultural products. The diverse wholesale and retail trade industries included establishments serving the agricultural sector. Much of the government employment was in education and health.<sup>6</sup>

Although the study area had a substantial commercial farming sector and sold \$243 million of agricultural products in 1978, agriculture was not a major employer in the area (31). Self-employed farm operators accounted for 5.5 percent of all workers in the area, and just over 6 percent of all wage and

salary earners worked in agriculture. The area's industrial growth was robust between 1972 and 1982, when 54 percent of the area's establishments began local operations. Manufacturing, construction, and wholesale and retail trade started more recently than the balance of the services-producing sector and government. Only a third of the goods-producing establishments and 38 percent of wholesale and retail trade establishments were more than 10 years old. In contrast, 60 percent of services establishments and TCPU-FIRE (transportation, communications, and public utilities-finance, insurance, and real estate) establishments operated in the area before 1972.

Ninety percent of the establishments were small, employing fewer than 20 workers and supplying 28 percent of the area's wage and salary jobs. However, most of the wage and salary employment was in the 10 percent of the establishments that

<sup>6</sup>Establishment data in this report exclude civilian and armed forces employment at Moody Air Force Base, Lowndes County.

Table 1—Distribution of estimated establishments and employment, by selected characteristics, December 1981

Item	Establishments		Employment			
			Total		Wage and salary	
	Number	Percent	Number	Percent	Number	Percent
Type of establishment:						
Goods-producing	960	16.1	22,020	29.7	20,880	30.9
Construction, mining	620	10.4	6,750	9.1	6,010	8.9
Manufacturing	340	5.7	15,270	20.6	14,870	22.0
Services-producing	4,840	81.4	34,820	47.1	29,660	43.8
Wholesale, retail trade	2,540	42.7	19,940	27.0	17,160	25.3
TCPU-FIRE <sup>1</sup>	630	10.6	6,000	8.1	5,460	8.1
Other services <sup>2</sup>	1,670	28.1	8,880	12.0	7,040	10.4
Government <sup>3</sup>	150	2.5	17,150	23.2	17,150	25.3
Size of establishment:						
Fewer than 20 paid employees	4,220	70.8	23,690	32.0	19,280	28.5
20 or more paid employees	570	9.7	48,840	66.0	48,410	71.5
No paid employees <sup>4</sup>	1,160	19.5	1,460	2.0	--	--
Total	5,950	100.0	73,990	100.0	67,690	100.0

-- = not applicable.

<sup>1</sup> TCPU is transportation, communications, and public utilities; FIRE is finance, insurance, and real estate.

<sup>2</sup> Includes hotels, personal, business, amusement, health, legal, education, and social services.

<sup>3</sup> Includes Federal, State, county, city, or town government agencies.

<sup>4</sup> Includes establishments operated by self-employed owners or partners with no paid employees.

employed 20 or more workers. Government units and manufacturing establishments had the greatest average size, 114 and 44 employees, respectively. Some of the large government units were the public school systems, public colleges, and hospitals. Wholesale and retail trade establishments and other services establishments were smallest. These two industry groups had over 1,000 establishments with no paid employees, which generally provided employment only for establishment owners and their families.

Most of the jobs (80 percent) provided by the area's establishments were full-time wage and salary positions. Self-employed owners held 9 percent of the area's jobs.<sup>7</sup> The distribution of jobs among major occupation groups was similar to that for all nonmetro areas. About 18 percent of the wage and salary jobs were held by executives, managers, and professionals (including teachers and registered nurses), and 53 percent of these executives, managers, and professionals worked in government. Nearly 43 percent of the wage and salary jobs were held by technical workers, sales and service workers, and clerks. The services-producing industries contained more than 65 percent of these jobs. The remaining 39 percent of the wage and salary jobs were in production and related occupations, just fewer than half of which were in the goods-producing industries.<sup>8</sup>

Average wages paid to full-time workers in the area's sampled establishments were below the national average (\$224 per week compared with the U.S. average of \$255 per week paid by private sector industries in 1981) (38).<sup>9</sup> Low-wage establishments were the predominate employer among those with full-time workers (table 2).<sup>10</sup> But, weekly wages varied across industries and among establishments within industries. Manufacturing, wholesale and retail trade, and other services had the largest pro-

portions of establishments in the low-wage category. Government and TCPU-FIRE had the largest proportions of establishments in the high-wage category.

The distribution of establishments by wage level was different than the distribution of wage and salary jobs across wage categories. For example, 62 percent of employers with full-time workers were classified as low-wage, but these employers accounted for 44 percent of the full-time wage and salary employment. Low-wage establishments averaged 10 full-time employees compared with 20 in mean-wage and high-wage establishments. The private sector, in both the goods- and services-producing industries, had more employment in low-wage establishments than did the government sector. Within the private sector, services industries, particularly TCPU-FIRE, reported more employment in high-wage establishments than did goods-producing industries.

New jobs added during the previous 5 years furnished about 21 percent of the area's 1981 employment. More than 65 percent of the new jobs came in establishments starting operations in the area after 1976, and the rest were net additions from older establishments. A third of the establishments in 1981 were new to the area since 1976. Most of the new establishments were in the private-service sector, but some new government units and goods producers also appeared. Older establishments tended to have stable or increasing employment; only 16 percent reported fewer employees in 1981 than in 1976.

### Area Residents

The household sample represented 75,130 households and 213,780 persons (table 3). Almost one-third of the area's population was black compared with 9 percent for all nonmetro areas (34). (All other racial and ethnic groups were included in the overall population, but at less than 0.5 percent

<sup>7</sup>Self-employed farmers are not included in table 1. They were surveyed only through the household survey; thus, we excluded farm operators in the establishment data.

<sup>8</sup>See Glossary for details about the specific occupations making up each aggregate group. All occupational aggregations were based on the groupings found in the 1977 Standard Occupational Classification Manual (37).

<sup>9</sup>While there is a difference in the methods used to estimate area and national wages, the difference was judged not serious enough to prohibit the comparison. An industry wage level for all nonmetro areas was not available.

<sup>10</sup>The wage classifications, low-, mean-, and high-wage, refers to relative wage levels of establishments in the area only. The classification is not intended to indicate wage differences of establishments within and outside the area. Full-time employees in low-wage establishments received weekly wages averaging less than \$202, full-time employees in mean-wage establishments earned average weekly wages of \$202 to \$246, and in high-wage establishments, full-time employees received wages averaging more than \$246 per week.

of the population, were statistically insignificant.) The age structure of the area closely resembled that for all nonmetro areas (32).<sup>11</sup> About 74 percent of the whites and 63 percent of the blacks were of labor force age, 16 or more years old.

More than 75 percent of the adult population was long-term residents, having lived in the area con-

<sup>11</sup>The survey data are from 1982, but the race and age data for all nonmetro areas come from the 1980 Census. It is not expected that the racial composition and age structure of the 10-county area changed significantly in 2 years.

tinuously since 1966. Fifty-eight percent of the immigrants had moved to the area after 1976. Nearly half of the immigrants were return immigrants; that is, they had lived in the area, moved away, and then returned sometime after 1966. Most of the relatively few black immigrants were return immigrants.

The area's population had fewer years of formal education than did the nonmetro population in general. Only 54 percent of the area's adult population graduated from high school (56 percent of

**Table 2—Average weekly wage levels of full-time wage and salary workers in private sector establishments and government units, December 1981**

Item	Type of industry									
	Total	Goods-producing			Services-producing				Government <sup>4</sup>	
		Total	Construc- tion, mining	Manufac- turing	Total	Wholesale, retail trade	TCPU- FIRE <sup>2</sup>	Other services <sup>3</sup>		
Establishment <sup>1</sup>	Number									
	4,240	810	480	330	3,280	1,810	560	910	150	
	Percent									
	Low-wage (less than \$202 per week)	61.5	60.6	56.9	65.9	63.2	65.8	44.5	69.3	28.8 <sup>6</sup>
	Mean-wage (\$202–\$246 per week)	16.7	26.5	35.1	14.0	13.7	14.2	11.0 <sup>6</sup>	14.6	28.4
High-wage (more than \$246 per week)	21.8	12.9	8.0 <sup>6</sup>	20.1	23.1	20.0	44.5	16.1	42.8	
Full-time wage and salary workers <sup>5</sup>	Number									
	59,110	20,340	5,720	14,620	23,870	13,070	5,070	5,730	14,900	
	Percent									
	Low-wage (less than \$202 per week)	43.7	55.2	69.6	49.6	53.0	57.6	23.0	69.0	13.1 <sup>6</sup>
	Mean-wage (\$202–\$246 per week)	26.4	29.0	20.2	32.5	14.7	14.1	14.6 <sup>6</sup>	16.0	41.7
High-wage (more than \$246 per week)	29.9	15.8	10.2 <sup>6</sup>	17.9	32.3	28.3	62.4	15.0	45.2	

<sup>1</sup>Includes only establishments with full-time wage and salary workers.

<sup>2</sup>TCPU is transportation, communications, and public utilities; FIRE is finance, insurance, and real estate.

<sup>3</sup>Includes hotels, personal, business, amusement, health, legal, education, and social services.

<sup>4</sup>Includes Federal, State, county, city, or town government agencies.

<sup>5</sup>Represents workers working 30 or more hours per week.

<sup>6</sup>Estimate based on fewer than 10 unweighted observations.

**Table 3—Description of the area's population, January 1982**

Item	Units	Total	White	Black
Estimated total persons	No.	213,780	145,460	68,320
Persons, by sex:				
Male	Pct.	46.5	47.4	44.6
Female	do.	53.5	52.6	55.4
Persons, by age:				
Under 16 years	do.	29.3	25.5	37.4
16 to 24 years	do.	14.6	13.3	17.3
25 to 34 years	do.	15.4	16.8	12.3
35 to 54 years	do.	20.4	22.0	17.0
55 to 64 years	do.	9.3	10.4	7.0
65 years and over	do.	11.0	12.0	9.0
Mean age	Years	32.2	34.0	28.3
Adult population, 16 years and older	No.	151,120	108,360	42,760
Residency status: <sup>1</sup>				
Long-term resident	do.	115,290	77,110	38,180
Immigrant	do.	35,830	31,250	4,580
Early immigrant	Pct.	41.7	39.7	54.8
Recent immigrant	do.	58.3	60.3	45.2
Return immigrant	do.	49.1	46.6	65.9
New immigrant	do.	50.9	53.4	34.1
Schooling completed:				
Less than 12 years	do.	46.2	39.1	64.1
12 years	do.	32.8	34.7	28.1
More than 12 years	do.	21.0	26.2	7.8
Mean schooling	Years	10.8	11.4	9.3
Estimated households	No.	75,130	54,960	20,170
Mean household size	Persons	2.8	2.7	3.4
Mean household income	Dollars	15,200	17,026	10,447
Per capita income	do.	5,313	6,408	3,080

<sup>1</sup>Long-term residents resided in the study area continuously between December 31, 1966, and January 1982. Early immigrants moved to the study area between January 1, 1967, and December 31, 1976. Recent immigrants moved to the study area between January 1, 1977, and January 1982. Return immigrants, both early and recent immigrants, had moved from the study area, lived outside the area for some time, and then moved back to the area after January 1, 1967. New immigrants had not previously lived in the area.

adults age 18 years and older) compared with 65 percent for all nonmetro areas (33).<sup>12</sup> Blacks completed less education than whites. More than 60 percent of the whites graduated from high school, but less than 36 percent of the blacks completed high school. Mean years of schooling for whites was 11.4 years compared with only 9.3 years for blacks.

The average household size, 2.8 persons, was similar to that for all nonmetro places (29). Black households were larger and more likely to be headed by a woman than were white households. The mean household income for whites was nearly \$6,600 higher than for blacks. Average household income in the study area for 1981 was \$2,700 below the average for the nonmetro South (30). Below-average incomes may be related to the finding that survey households had fewer earners per household and the income earners earned lower weekly wages in 1981 compared with national averages.

At the time of the household survey in January 1982, almost 60 percent of the study area's adult population was in the labor force, either working or looking for work, compared with 60.5 percent of all nonmetro adults (table 4) (35). The balance of residents had no current attachment to the labor force. About 8 percent of the labor force in the 10-county area was unemployed, lower than the 10.2-percent rate in all nonmetro areas.

<sup>12</sup>The Bureau of the Census reports educational levels for all persons age 18 and older.

**Table 4—Labor force status of adult population, January 1982**

Item	10-county study area
	<i>Number</i>
Adult population	151,120
Labor force	90,110
Employed	82,470
Unemployed	7,640
Not in labor force	61,010
	<i>Percent</i>
Labor force participation rate	59.6
Unemployment rate	8.5

Bureau of Economic Analysis (BEA) data showed that total employment in the area increased by 11.5 percent between 1976 and 1981, which provided opportunities for persons entering the labor force (36). Twenty percent of the area's work force in January 1982 was not in the labor force 5 years earlier. About 75 percent of these new entrants were white. The majority of the new entrants were youths (16 to 24 years of age), a group which typically has little prior work experience. Women made up a large share of the new entrants, accounting for over 60 percent of both the white and black entrants. The influx of women into the area's labor force paralleled the trend in other nonmetro areas in the last decade (24, 35).

Less than 5 percent of all workers held more than one job at the time of the survey. Out-commuting by the employed residents of the area was minimal; only 5.5 percent of the employed commuted to jobs outside the 10-county area.

### Employment Growth

Jobs exist because establishments demand labor as well as land, energy, and raw materials. Each establishment determines the number of workers it wishes to hire based on the price of labor, prices of other inputs, the methods of production available, and the demand for the final goods and services produced. The composite of individual establishment decisions and the willingness of people to supply their labor determines an area's employment.

About 21 percent of the jobs in the area in 1981 were created after 1976, and more than 65 percent of them were in new establishments. Large employers (who employed 20 or more workers) created more new jobs than did small establishments. The typical new establishment was in the private services-producing sector and had fewer than 20 employees. New manufacturing establishments employed more workers than new services-producing establishments. Old or ongoing establishments added about one-third of the new jobs. These employers were larger than the new ones, and they were more likely to pay higher wages than the new establishments. New

establishments had a significantly smaller proportion of their workers in high-wage executive, managerial, and professional occupations than the ongoing establishments.

Branch and headquarter plants of multiestablishment firms employed 46 percent of the area's wage and salary workers. The headquarters for about 52 percent of these employees were outside the study area. Public officials watch closely multiestablishment employers because of the policy concern that absentee owners would give less consideration to the community's welfare than would local owners in making decisions to cut back or even close out operations.

### Sources of New Jobs

New jobs result from the formation of new firms and the expansion of existing firms (1, 5, 9, 25). These sources of new employment provided jobs for new labor force entrants, immigrants, and displaced workers from establishments that closed, moved away, or reduced their work forces. One-third of the establishments in south Georgia were new, that is, they started local operations between 1976 and 1981 (table 5). Nearly a fourth of the establishments were ongoing units that increased employment after 1976. Clearly, development efforts should not look solely to new establishments for job creation; ongoing establishments can expand to generate jobs. Table 5 classifies 2,540 establishments as not expanding employment. Only 620 of these establishments decreased employment; the remainder had stable employment. If even a fraction of these stable employers expanded, significant employment gains could result. Survey procedures did not permit estimation of the number of establishments ceasing operations between 1976 and 1981.

Nearly 40 percent of the establishments formed since 1976 reported no full-time wage and salary workers. Nevertheless, they are important because they provided jobs for owner-operators, some part-time jobs for salaried employees, and goods and services to the community. Some of these small units may eventually expand employment, but many will likely remain small enterprises like the 950 ongoing establishments that reported no full-time employees. Only 6 percent of the new employers

employed 20 or more workers. Half of these new employers were in wholesale or retail trade. Entry into trade is relatively easy because only general entrepreneurial skills are usually needed. Industries like manufacturing and construction require specialized skills and perhaps more capital. Most new establishments either had no full-time workers or paid average weekly wages less than \$202, but one-fifth of them paid either mean or high wages.

Expanding establishments had some characteristics like the new establishments, small work forces, services-producing, and low-wage, but some important characteristics were different. First, more expanding establishments employed 20 or more workers. Second, government had a higher percentage of ongoing units expand than did goods producers or services producers. Third, high-wage

establishments accounted for a larger percentage of expanding establishments than new or nonexpanding establishments. So, expanding employers offer the durability associated with bigness, the insulation from recession associated with government units, and the larger income gains associated with high-wage establishments.

### Numbers and Types of Jobs

New establishments created more jobs than ongoing ones. Net new wage and salary jobs totaled 15,650, two-thirds of which were in new establishments (table 6). Large employers were more important sources of job growth than small ones. Among new establishments, newly created jobs were about evenly divided between large and small employers, but among expanding establishments, 70 percent of the

**Table 5—Establishments, by selected characteristics, 1981**

Item	Establishments	New establishments, 1976-81	Establishments increasing employment, 1976-81	Establishments decreasing or not changing employment, 1976-81
<i>Number</i>				
Total	5,950	1,970	1,440	2,540
<i>Percent</i>				
Wage category of establishment: <sup>1</sup>				
Low-wage	43.8	39.6	49.8	43.6
Mean-wage	11.9	11.7	15.7	9.9
High-wage	15.5	9.9	27.8	13.0
No full-time workers	28.8	38.8	6.7 <sup>5</sup>	33.5
Type of establishment:				
Goods-producing <sup>2</sup>	16.1	19.2	15.6	14.0
Services-producing <sup>3</sup>	81.4	78.8	79.4	84.6
Government <sup>4</sup>	2.5	2.0 <sup>5</sup>	5.0	1.4
Size of establishment in 1981:				
Fewer than 20 paid employees	90.3	93.8	79.4	93.8
20 or more paid employees	9.7	6.2	20.6	6.2

<sup>1</sup>Based on average wages paid to full-time workers working 30 or more hours per week.

<sup>2</sup>Includes manufacturing, construction, and mining.

<sup>3</sup>Includes wholesale and retail trade; transportation, communication, public utilities; finance, insurance, and real estate; hotels, personal, business, amusement, health, legal, education, and social services.

<sup>4</sup>Includes Federal, State, county, city, or town government agencies.

<sup>5</sup>Estimate is based on fewer than 10 unweighted observations.

job growth came from large employers. Development efforts, focusing on attracting large employers, pay off in that a single large unit created as many new jobs as 18 small units in the study area. Other definitions of small and large employers would change this particular relationship, but any reasonable definition of size applied to the Georgia study data would show that the number of employees of an establishment and job creation are related, and that large employers created more jobs. However, the risk of losing more jobs from a single plant closure is greater than with a large employer.

Growth from expansion of ongoing establishments created jobs more uniformly across the goods, services, and government sectors than growth from new establishments which created jobs primarily in the services sector. This is not surprising because most of the new units were in the services sector. An expanding government unit added significantly more jobs than an expanding private sector establishment, an average of 30 jobs per unit compared with 5 jobs per establishment. And, jobs created by government units tended to be high-wage.

Table 6—Employment change, by selected establishment characteristics, 1976–81

Item	New jobs since 1976	Employment change by—		
		New establishments, 1976–81	Establishments increasing employment, 1976–81	Establishments decreasing or not changing employment, 1976–81
Total jobs	15,650	10,330	<i>Number</i>	
			8,880	–3,560
Jobs in establishments, by wage category, 1981: <sup>1</sup>			<i>Percent</i>	
Low-wage	58.2	70.7	36.8	41.0
Mean-wage	19.2	12.5	29.1	24.5
High-wage	21.3	13.1	32.7	25.9
No full-time workers	1.3	3.7	1.4 <sup>5</sup>	8.6
Establishments, by type, 1981:				
Goods-producing <sup>2</sup>	29.4	37.7	32.8	62.0
Services-producing <sup>3</sup>	55.6	58.0	43.2	31.8
Government <sup>4</sup>	15.0	4.3 <sup>5</sup>	24.0	6.2
Establishments in 1981 with:				
Fewer than 20 paid employees	38.1	46.8	31.2	46.0
20 or more paid employees	61.9	53.2	68.8	54.0

<sup>1</sup>Based on average wages paid to full-time workers working 30 or more hours per week.

<sup>2</sup>Includes manufacturing, construction, and mining.

<sup>3</sup>Includes wholesale and retail trade; transportation, communication, and public utilities; finance, insurance, and real estate; hotels, personal, business, amusement, health, legal, education, and social services.

<sup>4</sup>Includes Federal, State, county, city, or town government agencies.

<sup>5</sup>Estimate based on fewer than 10 unweighted observations.



Net employment growth from ongoing units tended to be evenly distributed across different wage-level establishments, while new establishment employment concentrated in low-wage units (table 6). Expanding employers did not create as many jobs as new ones, but they paid their employees higher wages (table 7). A job created by expansion in the study area increased incomes more than a job created by a newly formed establishment because the average weekly wage paid was \$237 in expanding establishments compared with \$189 in new establishments. Again, about four of five of the new establishments were services-producing, an industry which paid relatively low wages in the study area.

Besides type of industry, the occupations employed by new and expanding establishments affected wage rates and income levels. New employers provided relatively few salaried executive, administrative, managerial, and professional jobs (table 8), and the wages paid these workers were below wages of ongoing establishments (table 7). Instead, these functions were frequently performed by owner-operators in the new establishments, which employed more people at entry-level positions, requiring little experience or training. In general, sales, clerical, and services workers were employed

by new retail and service industries, while construction workers, machine operators, and low-skill general laborers were employed by new goods-producing industries. We did not ask expanding employers which occupations made up their newly created jobs, but we do know their overall occupation mix and two distinctive results. First, high-wage job growth was more likely in expanding establishments because 20 percent of their work force included executive and professional jobs compared with 10 percent for new establishments. Second, expanding units employed a greater variety of occupations than new establishments because the industry mix of expanding units was more diverse. Thus, expanding establishments offered a wider assortment of jobs and salary ranges.

New establishments hired men and women in about equal numbers, but few women were in executive or managerial positions. The chief occupational group for women in both new and ongoing units was the technical, sales, clerical, and service group. Wages for this group were about the same as wages in the production and related occupations group, but they were significantly lower than wages for executives, managers, and professionals (table 7). Like new establishments, expanding units hired men and

**Table 7—Average weekly wage of wage and salary workers in new and ongoing establishments, 1981**

Item	All establishments	New establishments, 1976-81	Ongoing establishments	
			Expanding employment	Not expanding employment
	<i>Dollars</i>			
Average weekly wage of all establishments <sup>1</sup>	224	189	237	216
Average weekly wage, by occupation:				
Executive, administrative, managerial, professional	351	315	357	352
Technical, marketing, sales, clerical, services	193	182	198	186
Production and related occupations <sup>2</sup>	193	163	205	188

<sup>1</sup>Based on wages received by full-time workers in private sector establishments and government agencies. Establishments with no full-time workers are not included in this table. See table 5 for percentage of establishments with no full-time workers.

<sup>2</sup>Includes construction, mining, manufacturing, transportation and material moving, mechanics and repairers, material handlers, equipment cleaners, and general laborers.

women in equal numbers. But, unlike new establishments, they employed equal numbers of men and women in executive and professional occupations. Women had access to jobs in both new and expanding units, and they had greater access to better paying executive and professional work in expanding establishments.

A larger percentage of the jobs in new establishments were part-time positions compared with ongoing establishments. Although part-time jobs do not provide as much income as full-time jobs and often do not carry the fringe benefits associated with full-time jobs, they should not be assumed to be undesirable. Moonlighters benefit

**Table 8—Selected characteristics of wage and salary workers in new and ongoing establishments, 1981**

Item	All establishments	New establishments, 1976-81	Ongoing establishments	
			Expanding employment	Not expanding employment
	Number			
Total wage and salary workers	67,690	10,330	38,090	19,270
	Percent			
Male	50.5	48.8	48.2	56.1
Female	49.5	51.2	51.8	43.9
Full-time workers <sup>1</sup>	87.3	82.5	87.8	88.9
Part-time workers	12.7	17.5	12.2	11.1
Wage and salary workers in establishments with: <sup>2</sup>				
Fewer than 20 paid employees	28.5	46.8	19.2	37.0
20 or more paid employees	71.5	53.2	80.8	63.0
Wage and salary workers in:				
Goods-producing establishments	30.9	37.8	28.1	32.6
Services-producing establishments	43.8	58.0	36.8	50.0
Government <sup>3</sup>	25.3	4.2 <sup>5</sup>	35.1	17.4
Wage and salary workers, by occupation:				
Executive, administrative, managerial, professional	18.2	10.9	21.0	16.6
Technical, marketing, sales, clerical, service	42.8	44.6	42.9	41.6
Production and related occupations <sup>4</sup>	39.0	44.5	36.1	41.8

<sup>1</sup>Full-time workers worked 30 or more hours per week. Part-time workers worked fewer than 30 hours per week.

<sup>2</sup>Based on the number of full- or part-time employees.

<sup>3</sup>Includes Federal, State, county, city, or town government agencies.

<sup>4</sup>Includes construction, mining, manufacturing, transportation and material moving, mechanics and repairers, material handlers, equipment cleaners, and general laborers.

<sup>5</sup>Estimate based on fewer than 10 unweighted observations.

from part-time jobs used to supplement their income, and workers who can't commit themselves to full-time schedules benefit from the availability of part-time employment.

### The Influence of Multiestablishment Firms

Multiestablishment firms employ a substantial portion of the workers in nonmetro areas and play an important role in job creation (1, 5, 9, 25). The policy interest in multiestablishment firms arises from their ability to create jobs in several areas and the concern that branch establishments with absentee owners may be more likely to be lured away than establishments with local owners.

The area had about 1,000 establishments that were branches or headquarters of multiestablishment firms. These establishments employed 46 percent of the area's private sector wage and salary workers (table 9). Multiestablishment employers in the goods-producing sector were relatively few in number but large in size, averaging 90 employees. In the services-producing sector, multiestablishment employers were smaller but still larger than the average single establishment.

Multiestablishment employers were a fruitful source of jobs in the study area, responsible for adding

5,030 net new jobs between 1976 and 1981, which was one-third of the new jobs created. A new multiestablishment headquarters or branch plant added an average 5 jobs per unit compared with 1.7 jobs per new single establishment. Expanding multiestablishment employers also created more jobs than expanding single establishments, 3,810 jobs in multiestablishment units and 2,940 jobs in single establishments.

The area's vulnerability to employment and operating decisions made outside the local area was assessed by examining the characteristics of multiestablishment firms with headquarters located elsewhere. Several large manufacturing plants, if closed, would trigger large job losses, but the area's economy was mostly locally controlled. Out-of-area headquarters oversaw 58 percent of the multiestablishment firms and 24 percent of the private sector employment. Most concern was focused on the few large branch manufacturing plants. However, two factors limited the risk of substantial manufacturing employment losses from outside decisions. Some large plants were processors of inputs from the area's large agricultural sector and forests. These sources of inputs were stable. And, the other plants collectively manufactured more than a single type of product, a diversification that makes it unlikely that many

**Table 9—Estimated number of private sector establishments and wage and salary employment, by location of headquarters, December 1981**

Type of establishment	Total		Type of industry			
	Establishments	Employment	Goods-producing		Services-producing	
			Establishments	Employment	Establishments	Employment
All private sector establishments	5,800	50,540	960	20,880	4,840	29,660
			<i>Percent</i>			
Single establishments	82.8	54.1	87.5	48.5	81.8	58.0
Multiestablishments	17.2	45.9	12.5	51.5	18.2	42.0
Headquarters in area	7.2	22.0	8.3 <sup>1</sup>	29.8	7.0	16.5
Headquarters not in area	10.0	23.9	4.2 <sup>1</sup>	21.7	11.2	25.5

<sup>1</sup>Estimate based on fewer than 10 unweighted observations.

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***Distribution of Employment Growth in 10 Georgia Counties: A Case Study***, by James D. Schaub and Victor J. Oliveira.  
SN: 001-019-00412-6.

Rapid economic growth in a 10-county rural area in south Georgia during 1976-81 favored employment of whites, men, and immigrants. They earned higher average weekly salaries than blacks, women, and long-term residents. This study of growth in a mixed manufacturing- and agricultural-based economy flows from a research project on the impacts of economic expansion in nonmetro economies with different industrial bases. The Georgia area's job growth was greatest in the trades and services sectors. Few businesses used public sector funds to start or expand their operations. Government employed 25 percent of the area's wage and salary workers.

***Distribution of Employment Growth in Nine Kentucky Counties: A Case Study***, by Stan G. Daberkow, Donald K. Larson, Robert Coltrane, and Thomas A. Carlin.  
SN: 001-019-00337-5.

Rapid employment growth between 1974 and 1979 in a nine-county study area of south central Kentucky provided job opportunities both for local residents and for persons with limited labor force experience. But, recent immigrants held a disproportionate share of better paying executive jobs. This case study, which examines the distributional effects of rapid employment growth in a nonmetro area, shows that immigrants also held a disproportionate share of jobs in growing business establishments. Although manufacturing was the major economic force in the study area in January 1980, jobs in the private service sector increased more than in other sectors.

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### Long-term Residents and Immigrants

Do immigrants reduce the employment benefits accruing to the long-term residents in developing areas? Some researchers hypothesize that immigrants have an advantage over long-term residents in the labor market because immigrants usually have more schooling, training, and skills (7, 9, 10, 15, 19, 20, 28). Long-term residents may be unable to compete successfully for higher wages

and better jobs and may be crowded out of lower wage and less desirable jobs. Thus, rural development may be a process of hosting employment opportunities for newcomers with only minor labor market gains for the indigenous population.

Analysis of the Georgia data revealed that immigrants had a significantly higher labor force participation rate than long-term residents (table 10). Among employed persons, the educational attain-

**Table 10—Selected characteristics of the adult population, by residency status, January 1982**

Item	Total	Residency status			
		Long-term residents	All immigrants	Early immigrants	Recent immigrants
		Number			
Adult population	151,120	115,290	35,830	14,930	20,900
		Percent			
Race:					
White	71.7	66.9	87.2	83.2	90.1
Black	28.3	33.1	12.8	16.8	9.9
Labor force participation rate	59.6	56.4	70.1	72.2	68.7
Employment rate	54.7	51.3	65.0	68.3	63.0
Unemployment rate <sup>1</sup>	8.5	9.0	7.0	5.5	8.2
		Number			
Employed persons	82,470	59,100	23,370	10,200	13,170
		Percent			
Major occupation:					
Executive, administrative, managerial, professional	15.0	12.6	21.0	23.4	19.1
Technical, marketing, sales, clerical, services	47.7	49.1	44.1	45.7	42.9
Production and related occupations	37.3	38.3	34.9	30.9	38.0
		Years			
Average age	38.1	38.9	35.9	39.3	33.3
Average education	11.8	11.3	12.9	12.6	13.2
		Dollars			
Average weekly earnings, 1981 <sup>2</sup>	238	223	275	265	283

<sup>1</sup>Percentage of the labor force unemployed.

<sup>2</sup>Based on earnings of full-time wage and salary workers.

ment of both early and recent immigrants was higher than for long-term residents. Eighty-two percent of recent immigrants and 74 percent of early immigrants had completed high school compared with 63 percent of the long-term residents. Recent immigrants were younger than both early immigrants and long-term residents, and a larger proportion of immigrants than long-term residents reported participation in a job training program since 1970. Immigrants were better prepared to compete in the labor market in terms of formal education and job training, and this apparently allowed immigrants to get higher paying jobs.

The mean weekly earnings of long-term residents lagged those of early immigrants by \$42 and those of recent immigrants by \$60. This difference in earnings was consistent with the occupational distributions of the two groups. Immigrants more often worked in the higher wage executive and professional positions; long-term residents had a larger proportion of jobs in blue-collar service and production occupations and tended to receive lower wages.

Finding that immigrants enjoyed superior labor market status compared with long-term residents supports the hypothesis that immigrants not only compete more successfully for jobs but also obtain better paying jobs than long-term residents. Not all immigrants were newcomers in the strict sense, taking jobs that long-term residents might feel were rightfully theirs. Forty-nine percent of all adult immigrants were returnees, and 52 percent of employed immigrants had lived in the 10-county area before. Thus, the labor market competition between immigrants and long-term residents was not as great as it might seem because half of the return immigrants were area natives.

It might be expected that immigrants to a rapidly growing region like the Georgia study area would take a disproportionate share of the newly created jobs in new establishments and expanding establishments, especially when long-term residents have inadequate skills and numbers to meet the demands of employers. This hypothesis can't be tested directly because we were unable to identify the newly created jobs in establishments in operation in the area in both 1976 and 1981. The only newly created jobs which we could specifically identify were those in newly created establish-

ments. The large difference in earnings levels between long-term residents and immigrants suggested that long-term residents may be disproportionately represented among low-wage establishments, and that immigrants may be disproportionately represented among high-wage establishments.

The link analysis in table 11 shows that the distribution of employed persons across establish-

**Table 11—Selected characteristics of linked wage and salary employees, by residency status, 1981<sup>1</sup>**

Item	Total	Residency status	
		Long-term residents	All immigrants <sup>2</sup>
		<i>Number</i>	
Total linked wage and salary employees	55,870	40,920	14,950
		<i>Percent</i>	
Establishment characteristics:			
Wage category—			
Low-wage	42.6	45.1	35.8
Mean-wage	32.2	31.3	34.5
High-wage	25.2	23.6	29.7
Type—			
Goods-producing	35.8	37.5	31.1
Services-producing	36.7	37.0	35.8
Government	27.5	25.5	33.1
Size—			
Fewer than 20 paid employees	30.2	30.8	28.9
20 or more paid employees	69.8	69.2	71.1
Employment change, 1976–81—			
New establishments	10.7	11.1	9.6
Growth establishments <sup>3</sup>	57.7	55.8	62.9
No-growth establishments <sup>3</sup>	31.6	33.1	27.5

<sup>1</sup>Wage and salary workers sampled from the employment rolls of the surveyed establishments.

<sup>2</sup>There were fewer than 30 early and recent immigrant observations for most of the establishment characteristics shown.

<sup>3</sup>Represents private and public ongoing establishments.

ment types was related to residency status. Long-term residents were more likely to be employed in low-wage establishments; however, immigrants showed no advantage in securing employment in either mean-wage or high-wage establishments. Immigrants were not significantly more likely to get jobs in new and growth establishments, and no significant differences existed in the industry types or establishment sizes employing immigrants and long-term residents, except for government. Immigrants had a significant employment advantage in government. Survey data showed that long-term residents benefited from growth because they could compete successfully for jobs in new and growth establishments, in the private sector, high-wage establishments, and in various industries and sizes of establishments. Immigrants appeared, however, to have an advantage over long-term residents in securing higher paying jobs, and a larger percentage of the immigrant adults participated in the labor force.

### Blacks and Whites

Labor market theory suggests that because of higher educational attainment, better training, greater work experience, and possible discrimination against hiring blacks, whites have an advantage over blacks when competing in the labor market. The higher unemployment rate for blacks and the greater average earnings of white workers is well documented (12, 24, 26, 27, 39). Analysis of the 10-county Georgia data, in agreement with other studies, showed that blacks and whites did not share equally in the benefits from increased employment opportunities.

Results showed that blacks were three times as likely as whites to be unemployed (table 12). Employed blacks were concentrated in lower wage occupations, and about half of all black workers worked in the lower wage production and related jobs compared with only a third of the white workers. Within the executive and professional, and technical, sales, and service occupation categories, blacks tended to hold lower paying jobs, such as teachers, social workers, and service workers. Whites were more likely than blacks to be executives, managers, salespersons, or clerks. This difference in jobs held by blacks and whites was reflected in the average weekly earnings for whites which were \$65 greater than that of blacks.

Economic growth in the area did not eliminate the employment and earnings disadvantages of blacks.

**Table 12—Selected characteristics of workers, by race, January 1982**

Item	Total	White	Black
<i>Number</i>			
Total adult population	151,120	108,360	42,760
<i>Percent</i>			
Labor force participation rate	59.6	61.8	54.1
Employment rate	54.6	58.5	44.6
Unemployment rate <sup>1</sup>	8.5	5.4	17.5
<i>Number</i>			
Employed persons	82,470	63,380	19,090
<i>Percent</i>			
Sex:			
Male	56.9	58.4	51.7
Female	43.1	41.6	48.3
Residency status:			
Long-term residents	71.7	67.5	85.4
Early immigrants	12.4	14.0	6.9
Recent immigrants	15.9	18.5	7.7
Wage workers working:			
Full-time <sup>2</sup>	81.0	80.6	82.2
Part-time	9.4	8.0	14.1
Self-employed workers	9.6	11.4	3.7 <sup>4</sup>
Major occupation:			
Executive, administrative, managerial, professional	15.0	16.8	9.0
Technical, marketing, sales, clerical, services	47.7	50.1	39.8
Production and related occupations	37.3	33.1	51.2
<i>Years</i>			
Average age	38.1	38.2	37.6
Average education	11.8	12.2	10.3
<i>Dollars</i>			
Average weekly earnings, 1981 <sup>3</sup>	238	253	188

<sup>1</sup>Percentage of the labor force unemployed.

<sup>2</sup>Worked 30 or more hours per week.

<sup>3</sup>Based on earnings of full-time wage and salary workers.

<sup>4</sup>Estimate based on fewer than 10 unweighted observations.



Two important factors might explain the relatively lower labor market position of the black population: education and work experience. More than 70 percent of all white workers had completed high school compared with 50 percent of employed blacks. On average, white workers completed about 2 years more schooling than black workers; low educational achievement may have excluded many blacks from skilled jobs. To measure the work experience of blacks and whites, we compared the two groups using employment status in 1976 (working or not working) and weeks worked in 1976. The results showed no significant difference by race in either measure. Apparently, low levels of education and not lack of work experience limited the benefits of growth from accruing to blacks.

Self-employment was rare among blacks compared with whites. A similar self-employment pattern existed in national nonmetro employment data (35). Blacks' lower self-employment levels could be one factor in explaining their higher unemployment rate because self-employed persons are less likely than wage and salary workers to be counted as unemployed. To the extent that women received lower wages than men, the sex composition of the area's work force may have reduced the overall average weekly earnings of blacks because women made up a larger proportion of black than white workers. Whites constituted a larger proportion of immigrants than did blacks, and area newcomers received higher wages and had lower unemployment rates than long-term residents. Few observations on black immigrants limit statistically reliable conclusions about their participation in the area's job market.

The difference in average weekly earnings by race suggests that blacks worked at low-wage jobs and whites at high-wage jobs. Although the linked worker sample (table 13) showed no significant difference by race in the distribution of employment across low-wage and mean-wage establishments, white workers were significantly more likely than black workers to be employed in high-wage establishments.

Blacks were most often employed in goods-producing establishments which employ most lower wage production and related occupations. Whites most frequently worked in services-producing in-

dustries. Government employed about the same proportion of workers in each race. Black workers were more likely than whites to work in large establishments and growth establishments.

Although blacks had a higher unemployment rate than whites, blacks were able to obtain jobs related to the growth process as shown by the substantial numbers of black workers in growth establishments. However, blacks appeared to have a disadvantage in getting higher wage jobs. The high unemployment rate of the area's blacks may have been related to their occupations being particularly vulnerable to declining economic conditions such as those at the time of the survey in late 1981 and early 1982. While large establishments and growth establishments offered employment opportunities for blacks, apparently occupation, and not establishment type, was the more important factor resulting in the lower labor market position of blacks.

**Table 13—Selected characteristics of linked wage and salary workers, by worker's race, 1981**

Item	Total	White	Black
<i>Number</i>			
All linked wage and salary employees <sup>1</sup>	55,870	41,710	14,160
<i>Percent</i>			
Establishment characteristics:			
Wage category—			
Low-wage	42.6	41.3	46.5
Mean-wage	32.2	30.5	36.9
High-wage	25.2	28.2	16.6
Type—			
Goods-producing	35.8	29.5	54.1
Services-producing	36.7	41.9	21.4
Government	27.5	28.6	24.5
Size—			
Fewer than 20 paid employees	30.2	34.4	18.1
20 or more paid employees	69.8	65.6	81.9
Employment change, 1976–81:			
New establishments	10.7	11.5	8.3
Growth establishments <sup>2</sup>	57.7	54.8	66.1
No-growth establishments <sup>2</sup>	31.6	33.7	25.6

<sup>1</sup>Wage and salary workers sampled from the employment rolls of the surveyed establishments.

<sup>2</sup>Represents private and public ongoing establishments.

The survey data suggested that rural development which generated jobs without regard to type of job failed to provide equal employment benefits for blacks compared with whites. The lower education levels of blacks may at least partially explain their lower average weekly earnings, by concentrating blacks in low-skill, low-wage production and related occupations.

### Men and Women

Between 1973 and 1982, a net of 13 million women entered the U.S. labor force (35). During that period, the number of nonmetro female workers increased by 31 percent, more than four times the growth for nonmetro males. Possible explanations for the increased labor force participation of women included: more favorable attitudes toward women who work outside the home; inflation that caused many households to add a second income to maintain standards of living; decisions to postpone having children and limit family size which enabled more women to work; and decreased discrimination in hiring women (24).

Employment opportunities resulting from rural development can have important consequences for women (9). Besides helping maintain or increase a family's standard of living, working women are sometimes the sole breadwinner in many households. Nearly 28 percent of all households in the 10-county study area were female-headed, creating a policy interest in determining the extent to which women in the study area participated in the labor force and benefited from employment growth during 1976-81.

Women made up 43 percent of the 10-county area's employed residents in January 1982 (table 14). Their labor force participation rate was about 49 percent, significantly below that for males in the area, while their unemployment rate of 11.8 percent was twice the rate for males. While labor force participation rates for both sexes were similar to national nonmetro rates, males in the study area experienced an unemployment rate below the national rate for men, while females had an unemployment rate above that found in all nonmetro areas for women (35). Employed men and women had similar average ages, educational levels, and residency statuses. However, women were less likely than men to be self-employed, and among wage earners, more likely to work part-time.

Male workers earned an average of \$94 per week more than female workers partly because women in the area tended to hold lower skilled and lower wage jobs than men. The proportions of male and

**Table 14—Selected characteristics of workers, by sex, January 1982**

Item	Total	Male	Female
<i>Number</i>			
Total adult population	151,120	68,040	83,080
<i>Percent</i>			
Labor force participation rate	59.6	73.1	48.6
Employment rate	54.6	68.9	42.8
Unemployment rate <sup>1</sup>	8.5	5.7	11.8
<i>Number</i>			
Employed persons	82,470	46,910	35,560
<i>Percent</i>			
Residency status:			
Long-term residents	71.7	70.0	73.8
Early immigrants	12.3	12.5	12.2
Recent immigrants	16.0	17.5	14.0
Wage workers working:			
Full-time <sup>2</sup>	81.0	80.2	81.9
Part-time	9.4	5.1	15.1
Self-employed workers:	9.6	14.7	3.0
Major occupation:			
Executive, administrative, managerial, professional	15.0	14.8	15.2
Technical, marketing, sales, clerical, services	47.7	39.0	59.1
Production and related occupations	37.3	46.2	25.7
<i>Years</i>			
Average age	38.1	38.7	37.2
Average education	11.8	11.6	12.0
<i>Dollars</i>			
Average weekly earnings, 1981 <sup>3</sup>	238	279	185

<sup>1</sup>Percentage of the labor force unemployed.

<sup>2</sup>Worked 30 or more hours per week.

<sup>3</sup>Based on earnings of full-time wage and salary workers.

female workers in the executive and professional occupational group were not significantly different. However, within that group, men more likely held executive, managerial, and administrative positions, while women worked in such professional occupations as teacher and nurse. Female workers were more likely than males to work in technical, sales, and service occupations. Within that group, women dominated the clerical occupations, while men held sales, marketing, and agricultural occupations. Male workers were significantly more likely than females to work in production and related occupations. Within the production and related occupational group, men were more prevalent among construction, transportation, and repair-related occupations, while most women in this group were machine operators.

The proportion of females working for low-wage establishments was significantly larger than that of males, and the proportion of females working for high-wage establishments was significantly smaller than that of male workers (table 15). Women were more likely than men to work in large establishments.

Many services industries allow more flexible work hours than capital-intensive production industries (13). Flexible work hours permit some people to accept employment who would not be able to work rigid work schedules. For example, flexible schedules enable women to better balance the duties of child care and other family responsibilities with the demands of employment outside the home. While females were more likely than males to work part-time, results showed that females were not significantly more likely to work in services-producing industries than males. No difference existed in the distribution of employed men and women across any industry sector. Access to jobs in new, growth, or no-growth establishments was about the same for men and women.

Both women and men benefited from economic growth as shown by their employment in new and growth establishments. However, despite similar levels of education and age, and similar access to jobs in new and growth establishments, females did not experience the same degree of success as males in the labor market. Men more frequently got jobs in higher salaried occupations. Women usually

worked in large establishments and low-wage establishments, probably because of the large numbers of women employed as clerks and machine operators. The higher than average unemployment rate for the area's women workers may be a result of the low-skilled occupations they held, which were more prone to layoffs during the 1981 recessionary period.

### Youth and Older Workers

Youth, because of their low labor market skills and limited work experience, encounter substantial labor market difficulties (6, 18, 24). Young persons seeking employment, especially those still in school, tend to have less mobility and more constraints on the types of jobs they can hold than workers in prime working years. Youth in many rural areas have found jobs scarce, and where outmigration occurs, youth are typically the most likely to leave (9).

**Table 15—Selected characteristics of linked wage and salary workers, by worker's sex, 1981**

Item	Total	Male	Female
<i>Number</i>			
All linked wage and salary employees <sup>1</sup>	55,870	27,650	28,220
<i>Percent</i>			
Establishment characteristics:			
Wage category—			
Low-wage	42.6	36.9	48.2
Mean-wage	32.2	32.6	31.7
High-wage	25.2	30.5	20.1
Type—			
Goods-producing	35.8	37.2	34.3
Services-producing	36.7	38.1	35.3
Government	27.5	24.7	30.4
Size—			
Fewer than 20 paid employees	30.2	36.6	24.1
20 or more paid employees	69.8	63.4	75.9
Employment change, 1976–81:			
New establishments	10.7	10.7	10.7
Growth establishments <sup>2</sup>	57.7	53.8	61.4
No-growth establishments <sup>2</sup>	31.6	35.5	27.9

<sup>1</sup>Wage and salary workers sampled from the employment rolls of the surveyed establishments.

<sup>2</sup>Represents private and public ongoing establishments.

When youth share in rural development employment gains, the gap between the unemployment rates of youth and older workers narrows and the incentive for outmigration lessens. Age is not a guarantee of labor market success, and older persons may not secure jobs resulting from economic development because they do not have the necessary formal education or may not possess skills demanded by employers (17, 22, 24).

Like all nonmetro youth, those 16 to 24 years old in the study area had a lower labor force participation rate than prime-age persons, and youth had a higher unemployment rate than workers 25 years and over. Youth made up 20 percent of the adult population and labor force but accounted for 47 percent of the unemployed (table 16). Lack of schooling was not a factor in higher unemployment rates for youths because their mean years of schooling were the same as the mean years of schooling for prime-age workers and were actually higher than the mean schooling of workers 50 years and older. Inadequate job skills and little work experience caused unemployment among the area's youth.

The proportion of youths employed in technical, service, and sales occupations was larger than the proportion for prime-age workers (table 16). Executive and professional jobs were relatively infrequent for youth, causing lower average weekly earnings for youths compared with prime-age and older workers. Within all the broad occupational groups reported, youth tended to work in the lower paying occupations of the groups.

Young labor force participants were not as successful as other workers in obtaining jobs, and the jobs they got didn't pay as well. Self-employment appeared to be an option for older persons but not for youth who not only lacked experience but generally had little access to capital for starting a business.

The link analysis in table 17 shows that young workers did not have the same access to certain types of establishments as prime-age and older workers. A disproportionately large number of youths worked in low-wage establishments, and a relatively small number worked in high-wage establishments. Youth seldom had access to govern-

**Table 16—Selected characteristics of workers, by age, January 1982**

Item	Total	Age		
		16 to 24 years	25 to 49 years	50 years and over
		<i>Number</i>		
Total adult population	151,120	31,210	69,250	50,660
		<i>Percent</i>		
Labor force participation rate	59.6	55.6	78.9	35.8
Employment rate	54.7	44.1	74.2	34.3
Unemployment rate <sup>1</sup>	8.5	20.7	6.0	4.1 <sup>4</sup>
		<i>Number</i>		
Employed persons	82,470	13,760	51,350	17,360
		<i>Percent</i>		
Residency status:				
Long-term residents	71.7	82.6	64.1	85.3
Early immigrants	12.3	.4 <sup>4</sup>	16.9	8.5
Recent immigrants	16.0	17.0	19.0	6.2
Wage workers working:				
Full-time <sup>2</sup>	81.0	76.3	87.4	65.8
Part-time	9.4	17.7	4.5	17.2
Self-employed workers	9.6	6.0	8.1	17.0
Major occupation:				
Executive, administrative, managerial, professional	15.0	8.1	17.0	14.3
Technical, marketing, sales, clerical, service	47.7	52.9	44.0	54.6
Production and related occupations	37.3	39.0	39.0	31.1
		<i>Years</i>		
Average age	38.1	21.3	35.7	58.4
Average education	11.8	12.2	12.2	10.2
		<i>Dollars</i>		
Average weekly earnings, 1981 <sup>3</sup>	238	179	251	239

<sup>1</sup>Percentage of the labor force unemployed.

<sup>2</sup>Worked 30 or more hours per week.

<sup>3</sup>Based on earnings of full-time wage and salary workers.

<sup>4</sup>Estimate based on fewer than 10 unweighted observations.

ment jobs, but they appeared to have access to jobs in new establishments, growth establishments, and no-growth establishments. Youth found jobs in small establishments at a greater rate than did workers age 25 to 49 years.

Even in this rapidly growing area, youth had difficulty in the labor market but they were not excluded from jobs in new and growth establish-

ments. Public sector establishments didn't employ many youth; these young workers tended to be in low-wage occupations and in low-wage establishments. Most workers under 25 years old will probably follow the pattern of workers 25 years old and over as they mature and accumulate experience that will enable them to move into higher wage occupations and establishments.

Older adults' labor force participation rate was low compared with the rates for youth and prime-age workers, but their unemployment rate was also low, similar to all nonmetro areas (table 16). Older workers had an average 2 years less schooling than youth and prime-age workers, but older workers received average weekly wages significantly higher than wages received by youth. Older persons' earnings were not statistically different from wages received by prime-age workers. Older workers more likely had executive and professional jobs than workers age 16 to 24 years old.

The older linked workers remarkably resembled prime-age workers in the characteristics of their employing establishments (table 17). No significant differences were found in employer's wage levels, industry, or size. However, older workers more frequently worked in no-growth establishments, while prime-age workers more frequently worked in growth establishments. Older workers less frequently had jobs in low-wage establishments and worked more frequently than youth in government. Despite these differences by worker's age, no statistical evidence showed that older workers had less access to jobs in new or growing establishments than anyone else. Nevertheless, people over 50 years of age did not appear to participate in the growth process to the extent that younger residents did. Part of this was by choice because many of the older residents chose to retire rather than remain in the labor force.

### Recent Entrants

One assumption of rural development policies is that employment growth will improve the economic well-being of those rural residents with little labor force experience (3, 4, 8, 10, 11). Many public officials see jobs as a means to reduce dependence on public assistance while raising incomes and enhancing tax revenues. Such thinking appears

**Table 17—Selected characteristics of linked wage and salary workers, by workers' age, 1981**

Item	Total	Age		
		16 to 24 years	25 to 49 years	50 years and over
		<i>Number</i>		
All linked wage and salary employees <sup>1</sup>	55,870	8,450	36,140	11,280
		<i>Percent</i>		
Establishment characteristics:				
Wage category—				
Low-wage	42.6	53.9	41.3	38.4
Mean-wage	32.2	26.5	31.8	37.6
High-wage	25.2	19.6	26.9	24.0
Type—				
Goods-producing	35.8	41.4	35.8	31.4
Services-producing	36.7	44.4	35.5	34.8
Government	27.5	14.2	28.7	33.8
Size—				
Fewer than 20 paid employees	30.2	37.4	28.0	32.1
20 or more paid employees	69.8	62.6	72.0	67.9
Employment change, 1976-81:				
New establishments	10.7	17.3	9.7	9.0
Growth establishments <sup>2</sup>	57.7	51.7	62.0	48.2
No-growth establishments <sup>2</sup>	31.6	31.0	28.3	42.8

<sup>1</sup>Wage and salary workers sampled from the employment rolls of the surveyed establishments.

<sup>2</sup>Represents private and public ongoing establishments.

justified when nonworkers are able to move into the work force. We found that employment growth provided jobs for inexperienced workers in Georgia. Twenty-four percent of those persons reporting at least 1 week of employment in 1981 had not been employed anytime in 1976 (table 18). We call these 22,730 workers recent entrants in the following discussion.

Over half the recent entrants were youth making the transition from student to worker. Sixty-two percent of the recent entrants were women, and a third of the women employed in 1981 had not worked in 1976 compared with 17 percent of the men.

Recent entrants were primarily wage and salary workers; self-employment was almost entirely an experienced worker status. A larger percentage of recent entrants than experienced workers worked part-time. Among full-time wage and salary workers, recent entrants received significantly lower wages. These lower weekly earnings resulted in part from differences in occupations held by the two groups. Recent entrants tended to be employed in lower paying service, sales, and clerical jobs, while experienced workers held higher paying construction, production, and professional jobs.

Large establishments provided the most jobs for recent entrants and experienced workers. However, compared with experienced workers, recent entrants more likely worked in small, low-wage, or service establishments (table 19). Government, which tends to be a high-wage employer, provided few jobs for recent entrants. Growth establishments provided over half the employment for recent entrants; however, recent entrants also found positions in new and no-growth establishments.

## Roles of Government in Employment Growth

Government makes an important contribution to rural job creation because it adds to communities' total employment and income levels. In all nonmetro areas of the United States, government accounted for 16.6 percent of employment in 1982 and 22 percent of the net employment growth between 1973 and 1982 (24, 35). Government is a

**Table 18—Selected characteristics of recent entrants and experienced workers, 1981**

Item	Total	Employed in 1981 who were— <sup>1</sup>	
		Employed in 1976	Not employed in 1976 (recent entrants)
		<i>Number</i>	
Employed persons	93,390	70,660	22,730
		<i>Percent</i>	
Residency status:			
Long-term residents	71.4	69.6	77.1
Immigrants	28.6	30.4	22.9
Sex:			
Male	54.9	60.4	37.8
Female	45.1	39.6	62.2
Race:			
White	75.8	76.0	75.3
Black	24.2	24.0	24.7
Age:			
16–24 years	19.4	7.0	57.8
25–34 years	29.0	31.4	21.9
35 years and older	51.6	61.6	20.3
Education:			
Less than high school	34.8	35.5	32.5
High school	38.8	37.0	44.4
Beyond high school	26.4	27.5	23.1
Wage workers working:			
Full-time <sup>2</sup>	79.9	80.7	77.4
Part-time	10.7	8.1	18.8
Self-employed	9.4	11.2	3.8 <sup>4</sup>
Major occupation:			
Executive, administrative, managerial, professional	13.9	14.5	12.0
Technical, marketing, sales, clerical, services	48.6	46.4	55.3
Production and related occupations	37.5	39.1	32.7
		<i>Dollars</i>	
Average weekly earnings, 1981 <sup>3</sup>	231	251	164

<sup>1</sup>Includes persons working 1 or more weeks some time in 1981.

<sup>2</sup>Worked 30 or more hours per week.

<sup>3</sup>Based on earnings of full-time wage and salary workers working 1 or more weeks in 1981.

<sup>4</sup>Estimate based on fewer than 10 unweighted observations.

source of capital for private sector establishments who begin operations and expand facilities. Federal economic development programs for business assistance of the Economic Development Administration, Farmers Home Administration, and Small Business Administration made \$2.5 billion in grants and loans available to nonmetro areas in 1980 (16, 21). Government also provides job training programs for the unemployed and others seeking marketable skills, and through public employment services, attempts to improve the efficiency of the labor market by matching employers who have job vacancies with job seekers.

Government was a major employer of the area's residents, employing about 25 percent of all wage and salary workers. Many area businesses, however, did not use government grants, direct loans, and guaranteed loans as a source of capital for starting or expanding their operations. Most establishments instead used retained earnings, sales of stocks, and commercial loans. Less than 10 percent of the area's adult population participated in a job training program. The least educated and unemployed people received training at a lesser rate than the more highly educated and employed persons.

### Government as an Employer

Governments added 2,350 new jobs between 1976 and 1981. The public sector provided many of the area's higher paying professional and administrative jobs; nearly 50 percent of the government workers worked in high-wage units. The linked data analyses showed that the proportions of workers employed in government varied neither by race nor sex. Immigrants and workers over age 24 were more likely to be employed in government than long-term residents and youth.

### Government as a Source of Capital

One objective of this study is to determine the extent to which public sector funds expanded employment opportunities in the area. We asked private sector establishments the following question regarding sources of funds:

"Since January 1, 1970, were the following sources of capital used to finance outlays for land, building, or equipment when first locating in the 10-county area, or for any expansions that resulted in more persons being employed by this unit?"

We followed this question with a list of sources, including public agencies, private sector financial institutions, savings or retained earnings, personal

**Table 19—Labor force experience of workers, by selected characteristics of industries in which workers were employed, 1981**

Item	Total	Linked worker's employment status in 1981	
		Experienced workers	Recent entrants
		<i>Number</i>	
All linked wage and salary employees <sup>1</sup>	55,870	45,130	10,740
		<i>Percent</i>	
Industry characteristics:			
Wage category—			
Low-wage	42.6	38.0	61.9
Mean-wage	32.2	34.9	20.7
High-wage	25.2	27.1	17.4
Type—			
Goods-producing	35.8	36.2	33.9
Services-producing	36.7	34.9	44.0
Government	27.5	28.9	22.1
Size—			
Fewer than 20 paid employees	30.2	28.8	36.5
20 or more paid employees	69.8	71.2	63.5
Employment change, 1976–81:			
New establishments	10.7	8.7	18.8
Growth establishments <sup>2</sup>	57.7	58.8	53.1
No-growth establishments <sup>2</sup>	31.6	32.5	28.1

<sup>1</sup>Wage and salary workers sampled from the employment rolls of the surveyed establishments.

<sup>2</sup>Represents private and public ongoing establishments.



noncommercial loans, and corporate stocks. High rates of use of public loans, grants, or guaranteed loans would support the premise that public sector funds are important in promoting rural development. Low rates of utilization, while not sufficient to prove that public funds are unimportant to rural development, would suggest that the role of government in providing direct capital is limited.

Only 6 percent of the respondents used a public agency's direct or guaranteed loan during the preceding 12 years to start or expand their businesses (table 20). About half of all private sector establishments used internal sources (retained earnings, savings, and sales of corporate stock). And, half of the private sector establishments had used external sources (private sector financial institution loans and personal noncommercial borrowing). Some establishments used more than one source.

We made no statistical tests for differences in the use of public agency capital because too few establishments reported using such sources. Use of internal and external sources of capital appeared to be unrelated to establishment wage level and size. Goods-producing establishments reported using borrowed funds more often than services-producing establishments. Publicly assisted capital may have been a significant source of funds for a few businesses, but overall, dependence on government capital was small in the study area.

The data presented in table 20 do not address the other ways in which government outlays can encourage establishments to start up or expand. Public outlays for capital projects are important contributions to the infrastructure which supports and encourages commerce in nonmetro areas. Transportation facilities, including highways and

**Table 20—Distribution of private sector establishments by sources of capital, January 1970 to December 1981**

Private sector establishments	Establishments	Sources of capital <sup>1</sup>		
		Retained earnings, savings, or sale of corporate stock	Private sector or personal loans	Public agencies
	<i>Number</i>		<i>Percent</i>	
All establishments	5,800	47	56	6
Establishment wage category:				
Low-wage	2,560	44	63	7 <sup>2</sup>
Mean-wage	670	47	64	8 <sup>2</sup>
High-wage	860	43	50	9
No full-time employees	1,710	52	45	3 <sup>2</sup>
Type of industry:				
Goods-producing	960	57	76	8
Services-producing	4,840	45	52	5
Size of industry:				
Fewer than 20 paid employees	5,290	47	55	5
20 or more paid employees	510	46	61	11
Single establishments	4,800	48	58	6
Multiestablishments	1,000	46	53	4 <sup>2</sup>

<sup>1</sup>Private sources of capital include banks and savings and loan institutions. Public sources of capital include loan guarantees or capital borrowed directly from such public agencies as the Small Business Administration, Farmers Home Administration, Economic Development Administration, or through State or local bond issues. An establishment may have used more than one source. Thus, the percentages may not add to 100.

<sup>2</sup>Estimate based on fewer than 10 unweighted observations.

airports, water delivery systems, and waste treatment plants, were vital capital projects associated with development in the study area.

### Employment Services and Training

Government, among its other activities in economic development, also provides job training programs and employment services for unemployed, low-skilled, inexperienced, and displaced workers. In 1981, less than 2 percent of the establishments surveyed reported that they had workers whose wages were paid or supplemented by CETA or other Federal and State employment programs. That figure was not substantially different from the one reported by establishments for 1976, although between 1976 and 1981, the number of subsidized employees virtually doubled to 1,100. In January 1982, among the population 16 years old and over, 8.7 percent had participated in job training programs, whether sponsored by CETA, vocational schools, or other organizations (table 21). Participants in job training programs were more likely than nonparticipants to be men, young (under age 35), high school graduates, and recent immigrants. Most participants in job training were employed in January 1982.

Women, older people, and long-term residents did not participate in job training programs in numbers that matched their share of the adult population. This situation also existed for those with less than a full high school education. People with 0 to 11 years of schooling made up only 17 percent of job training participants but were almost half of all nonparticipants. On the other hand, the training programs did appear to be reaching racial minorities because about one-fourth of both trainees and nontrainees were blacks.

The most frequently reported institution where job training took place was the public vocational school, followed by government agencies and colleges. About 70 percent of all participants completed their training, and two-thirds of these said their training resulted in obtaining a job or promotion. When type of training is considered by broad occupational categories, the occupations most represented were mechanics/repairers, sales/clerical, service, and professional/technical (table 21).

**Table 21—Selected characteristics of participants and nonparticipants in job training programs, January 1982<sup>1</sup>**

Item	Participants in job training	Nonparticipants in job training
	<i>Number</i>	
Adult population	13,220	137,900
	<i>Percent</i>	
Sex:		
Male	54.3	44.1
Female	45.7	55.9
Race:		
White	74.1	71.5
Black	25.9	28.5
Age:		
16–24 years	33.1	19.5
25–34 years	31.1	20.9
35 years and older	35.8	59.6
Education:		
Less than high school	17.4	49.0
High school	52.2	30.9
Beyond high school	30.4	20.1
Residency status:		
Long-term residents	57.1	78.1
Early immigrants	13.9	9.5
Recent immigrants	29.0	12.4
Employment status:		
Employed	78.5	52.3
Unemployed	6.7	4.9
Out of labor force	14.8	42.8
Occupation trained for:		
Executive	6.1	—
Professional and technical	20.5	—
Sales and clerical	21.5	—
Service	20.9	—
Construction, transportation, and equipment operators	6.4	—
Mechanics, repairers, and production workers	21.6	—
Laborers and military	3.0 <sup>2</sup>	—

— = not applicable.

<sup>1</sup>Includes job training received in high school, college, public vocational school, private professional or occupational school, the military, private firms, and the government. Excludes informal on-the-job instructions or courses taken at elementary and high school or college for the purpose of completing graduation requirements.

<sup>2</sup>Estimate based on fewer than 10 unweighted observations.

The occupations for which most trainees prepared corresponded with the occupations employers indicated they had difficulty in filling. About one-third of all employers reported they had difficulty in finding qualified persons to fill positions (table 22). The hardest positions to fill were mechanics/repairers, professional, service, and sales. Although these occupations corresponded very closely to the occupations for which most training took place, the great majority of employers who reported trouble finding qualified people cited lack of training or skills as the reason for their problem.

The percentage of establishments reporting difficulty in finding qualified workers varied by establishment characteristics (table 22). Fewer low-wage, services-producing, small, and new establishments reported difficulty finding qualified workers than mean- and high-wage establishments, goods-producing establishments, large establishments, and growth establishments. The key factor explaining reports of difficulty in finding qualified workers was the occupations demanded by the establishments. Services establishments, which also tended to be small- and low-wage, employed low-skilled workers who were apparently easier to find than more specialized high-skilled workers.

Use of State employment agencies by establishments seeking workers and by people looking for jobs was limited compared with the numbers of employers and workers who used more informal search methods (table 23). Twenty-two percent of establishments actually hiring workers in 1981 used State employment agencies in their search. Workers hired since 1976 reported even less use of State employment agencies, just 5 percent. But, 47 percent of the currently unemployed adults reported that State employment agencies helped them search for work. However, unemployment insurance recipients must register with the public employment service, which may partially explain why so many cited the State agencies. Public employment services may be important contacts for some employers and job seekers, but walk-ins and referrals most frequently and successfully matched workers to jobs.

**Table 22—Establishments reporting difficulty in finding qualified persons, by establishment characteristics, 1981**

Item	Total establishments	Percentage of establishments with difficulty in finding qualified workers
	<i>Number</i>	<i>Percent</i>
Establishments with one or more employees <sup>1</sup>	4,790	35.7
Establishment wage categories:		
Low-wage	2,600	33.1
Mean-wage	710	47.9
High-wage	920	47.8
No full-time employees	560	12.5 <sup>3</sup>
Type of establishment:		
Goods-producing	860	50.0
Services-producing	3,780	31.8
Government	150	53.3
Size of establishment:		
Fewer than 20 paid employees	4,210	31.1
20 or more paid employees	580	69.0
Employment change, 1976-81:		
New establishments	1,410	29.8
Growth establishments <sup>2</sup>	1,440	50.7
No-growth establishments <sup>2</sup>	1,940	28.9

<sup>1</sup>Represents establishments with one or more employees. Establishments operated solely by self-employed owners or partners are excluded from this table.

<sup>2</sup>Represents private and public ongoing establishments.

<sup>3</sup>Estimate based on fewer than 10 unweighted observations.

## Potential Labor Force

The 10-county area contained a large potential labor force to support future job expansion. Potential workers are people who might accept employment if it were made available but were unemployed or out of the labor force at the time of the survey. If these people all found jobs, total employment would increase 14 percent. The survey data do not permit a detailed analysis of the qualifications of these potential workers for specific occupations, but we did analyze some potential worker characteristics and reasons why these people did not work.

**Table 23—Methods used by establishments to locate employees and methods used by employees to find jobs**

Item	Establishments reporting hires in 1981 <sup>1</sup>	Workers starting jobs since 1976 <sup>2</sup>
	<i>Number</i>	
Establishments and workers	2,980	45,540
	<i>Percent</i>	
Methods used to locate workers or jobs: <sup>3</sup>		
State employment agencies	21.6	4.6
Walk-ins	52.4	55.5
Local or national ads	17.8	4.2
Referrals <sup>4</sup>	64.5	25.6
Other sources <sup>5</sup>	22.3	18.4

<sup>1</sup>Fifty percent of the new and ongoing establishments with one or more paid employees had new hires in 1981.

<sup>2</sup>Data were not obtained from persons who were employed in their current primary job prior to 1976.

<sup>3</sup>Because some establishments and persons used more than one source, percentages will not sum to 100.

<sup>4</sup>Includes referrals by friends, relatives, and other establishments.

<sup>5</sup>Includes vocational schools, unions, colleges or universities, private employment agencies, and other sources not already identified.

At the time of the survey, almost 69,000 adults were not employed (table 24). About 11 percent (7,640) of them were unemployed individuals seeking work and available for immediate employment. Nearly one-half of the unemployed were less than 25 years old, and very few were 55 years old and over. Nearly 60 percent had less than a high school education, although some were still in school. The unemployed had completed, on average, 10.4 years of school, which was only slightly below the average for the area's entire population. Women and blacks constituted the majority of the unemployed in proportions considerably higher than their proportions in the general population.

Of all those not employed at the time of the survey, about 61,000 were out of the labor force, not actively seeking work. Just over one-quarter of these individuals, about 17,230, had worked some time during 1976–81 but had left their last employment an average 2.1 years ago. The large majority of this group were female and white. Over half had not completed high school, and almost 40 percent were 55 years old or over. When asked why they didn't seek work, 60 percent of those with recent work experience said they were not interested in paid employment, and about 30 percent said they could not work because of ill health (table 25). The remainder were potential labor force participants; they included discouraged workers, that is, they believed jobs were unavailable and had stopped looking, and persons interested in paid employment but unable to work because of family responsibilities or inadequate transportation. The survey data showed that disproportionate numbers of blacks and young people were among discouraged workers, perhaps reflecting the special difficulties minorities and youth had in finding jobs.

About 40 percent of the individuals outside the labor force worked prior to January 1976 but not since then. This group was composed primarily of older persons, especially retirees, whose average age was 64.1 years. Again, the large majority were female, white, and had finished less than 12 years of school (table 24). Most said that they were not interested in paid employment, and substantial numbers could not work because of poor health, an expected result for a group made up mostly of older and retired persons (table 25). This group contained only a few potential labor force participants.

One-third of those not in the labor force had never been employed. More than one-half of these people were under 25 years old. A large proportion of the group with no labor force experience was young, still enrolled in high school or college, and had not yet entered the labor market. Most people in this group said they were simply not interested in paid employment, but about 1,000 said they were either discouraged workers or interested in paid employment but couldn't work because of other responsibilities.

The 10-county area contained about 11,000 residents at the time of the survey who were either unemployed, discouraged workers, or reported being interested in paid employment but unable to work because of family responsibilities or lack of transportation. Taken together, these groups constituted the primary pool for the potential labor force. Their numbers amounted to about 14 percent of the total employed residents in January 1982. Seventy percent of them had previous work experience.

**Table 24—Adult population, 16 years and older, not employed in January 1982, by previous work experience**

Characteristic	Persons not employed				
	Total	Unemployed	Not in labor force		
			Worked some time between January 1976 and January 1982 <sup>1</sup>	Worked prior to January 1976 <sup>1</sup>	Never employed
	<i>Number</i>				
Adult population	68,650	7,640	17,230	24,080	19,700
	<i>Percent</i>				
Male	30.8	37.5	30.4	33.7	24.9
Female	69.2	62.5	69.6	66.3	75.1
White	65.5	47.0	71.5	69.6	62.5
Black	34.5	53.0	28.5	30.4	37.5
Age in 1981:					
16-24 years	25.4	47.1	21.4	0	51.7
25-54 years	28.7	45.6	40.3	22.0	19.9
55 years and over	45.9	7.3 <sup>3</sup>	38.3	78.0	28.4
Education:					
Less than high school	62.3	56.6	53.4	66.3	67.3
High school	24.3	37.0	25.8	18.1	25.4
Beyond high school	13.4	6.4 <sup>3</sup>	20.8	15.6	7.3
	<i>Years</i>				
Average age	47.3	29.8	43.9	64.1	36.4
Average years of school completed	9.6	10.4	10.4	9.0	9.6
Average length of time since last worked	—	2	2.1	14.6	—

— = not applicable.

<sup>1</sup>Includes persons who worked 1 or more weeks for pay or were self-employed.

<sup>2</sup>Average not shown because the unemployed included 1,268 persons who had never worked; 81 percent of the unemployed workers had worked since January 1976.

<sup>3</sup>Estimate based on fewer than 10 unweighted observations.

A substantial number of adults who were not working in January 1981 could have immediately entered the area's work force and supported additional job growth. They could have satisfied a portion of industry's labor demand but probably not total demand. They were reasonably well educated but lacked experience needed to fill managerial and skilled service jobs. In the short run, inmigrants and experienced workers already in the area's labor force were the primary source of workers for these jobs.

## Conclusions

Our Georgia findings substantially agreed with the results from EDD's earlier study of employment growth in nine Kentucky counties. Both studies strongly support the following conclusions about rural economic growth. All population groups studied can acquire growth-related jobs, but in-

migrants, whites, men, persons over 24 years, and experienced workers obtain better paying jobs than long-term residents, blacks (data on blacks were not available in Kentucky), women, youth, and recent entrants. Ongoing establishments are important sources of new jobs, especially high-wage jobs. And, at least in rapidly growing areas, few establishments require public-sector capital to start or expand operations.

Rural development strategies that promote job creation appear to succeed in reaching all segments of the population. Yet, both studies showed some groups still experienced higher unemployment rates and received lower wages than others. It is not reasonable to expect employment growth to remove all labor force and employment differences within the population. Even if job growth promotes equality in employment outcomes, the period considered in our studies was too brief to expect such a result.

**Table 25—Reasons given for not looking for work by the adult population, 16 years and older, by previous work experience**

Item	Persons not in the labor force, January 1982			
	Total	Previous work experience		
		Worked sometime between January 1976 and January 1982 <sup>1</sup>	Worked prior to January 1976 <sup>1</sup>	Never employed
	<i>Number</i>			
Adult population	61,010	17,230	24,080	19,700
	<i>Percent</i>			
Discouraged worker <sup>2</sup>	4.0	8.0	1.0 <sup>4</sup>	4.2 <sup>4</sup>
Ill health	29.7	28.3	39.9	18.4
Not interested in paid employment	64.5	60.1	58.2	76.0
Interested in paid employment but could not work <sup>3</sup>	1.8	3.6 <sup>4</sup>	.9 <sup>4</sup>	1.4 <sup>4</sup>

<sup>1</sup>Includes persons who worked 1 or more weeks for pay or were self-employed.

<sup>2</sup>Includes persons who had stopped looking for work because they believed none was available.

<sup>3</sup>Includes persons who were interested in paid employment, but had to care for a child, or sick or aged adult, or did not have transportation to and from a work place.

<sup>4</sup>Estimate based on fewer than 10 unweighted observations.

This suggests that rural development policy should include human capital development programs to complement job creation programs. Rural planners should also consider the diversity and quality of jobs created and not just the quantity of jobs.

Where should rural development strategists look for new jobs? Large establishments seem to be more efficient in creating jobs than small establishments, so efforts aimed at attracting large employers into the area and efforts supporting expansion by large employers are justified. New establishments clearly are a fruitful source of jobs, but ongoing establishments should not be neglected in rural development strategies. Such ongoing firms typically pay higher average weekly wages than new businesses. Rural communities can also attract high-wage jobs by hosting government offices, particularly regional headquarters, colleges, and medical facilities. These operations have direct income impacts, benefit residents by the proximity of their services, and may enhance the area's attractiveness to potential private sector employers.

Future reports by the Agriculture and Rural Economics Division (formerly the Economic Development Division) will give a more complete understanding of rural economic growth. Work is in progress analyzing the income effects of growth, especially the effects on poverty populations and utilization of public assistance and related programs in the Kentucky and Georgia areas. Our third growth study in Missouri-Arkansas addresses distributional issues in a retirement- and recreation-based economy.

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## Appendix A: Survey Design and Procedures

ERS researchers designed the study, developed the questionnaires, edited the data, and conducted the analysis. SRS statisticians helped develop the sample and survey materials. Enumerators from the Athens, GA, SRS office collected the data.

A random stratified multiple-frame design was used to survey employers and households. The establishment list frame included both private sector and public sector employers.<sup>13</sup>

We excluded military installations and churches from the list frame. Private households that employed servants or grounds keepers were not considered establishments. We selected a sample of establishments for interview which provided the characteristics of employers. We selected a sample of persons employed in the sample establishments for interview in the household survey, which became the list frame for the household sample and the basis for the linked worker sample.

Area frames accounted for the incompleteness of the list frames. We used the establishment area frame to estimate establishments not included on the list. The household area frame was used to collect data on those households whose members were either all unemployed, out of the labor force, self-employed, employed by establishments not on the list, employed by establishments on the list that refused to participate in the survey, or employed outside the study area. We used the household area frame to increase the number of black households available for analysis by stratifying the area frame to include an urban minority stratum.

<sup>13</sup>The list frame of establishments was constructed from telephone directories, a State Employment Security list of employers, and contact with local officials.

The establishment sample, stratified by Standard Industrial Classification (SIC) and by three size groups as measured by the number of employees, included six SIC groups: (1) mining and construction, (2) manufacturing, (3) transportation, communication, and public utilities; finance, insurance, and real estate, (4) wholesale and retail trade, (5) other services, including agricultural services, and (6) government units. The three establishment size groups were: 19 or fewer employees, 20 to 99 employees, and 100 or more employees (app. table 1).

The employer size groups were not proportionately distributed; thus, each employer size group was sampled at a different rate to assure a representative sample. Private and public establishments with 19 or fewer employees were sampled at the rate of 1 in 10; units with 20 to 99 employees, at a rate of 1 in 3; and all large establishments with 100 or more employees were enumerated. We anticipated that some list establishments selected for interview would refuse to participate in the study, and we accounted for this in the *a priori* sampling rates. Information collected from the establishments included principal products or services provided; total employment for 1976 and 1981; and employment characteristics, such as occupations of workers, male and female workers, part-time and full-time workers, and average wage and salary of full-time workers.

Before ending the interview with a sampled list frame establishment, the enumerator drew a random sample of employees from the establishment's list of current employees. Each employee selected from the list became part of the list frame for households and was interviewed at home. Enumerators collected information on household composition, characteristics of household members, employment status, employment in 1976, type of job held by all household members 16 years of age and older, residency status, and household income. The establishment's identification, included on the employees' questionnaires, assured linkage with the unit's characteristics during data analysis.

The sampling rate of employees also varied by establishment size. We sampled 1 in 4 employees in establishments employing 19 or fewer employees; 1

in 18 employees in establishments with 20 to 99 employees; and 1 in 70 employees in establishments with over 100 employees.

We stratified the supplemental area frame sample for households and establishments into classes, or strata, based on three land use patterns and the concentration of minorities in the 10-county

Georgia site (app. table 2). The four strata were urban, urban minority, suburban, and rural.

Blacks in the 10-county study area mainly lived in cities and towns and generally resided within definable boundaries in these urban areas. We mapped these minority neighborhoods as a distinct stratum from the balance of urban places to insure

**Appendix table 1—List frame universe and sample of establishments, employees, household members, and employer-employee link sample, by strata**

Industry and size strata <sup>1</sup>	Establishment universe	Establishments (primary sample units)		Employee household completion <sup>3</sup>	Employee household members completion, age 16 years and over	Employer-employee link sample	
		Completions	Out of business <sup>2</sup>			Employers	Employees
	Number						
Mining and construction:							
Small	503	39	9	34	83	23	34
Medium	41	14	0	17	39	11	16
Large	7	6	0	9	20	5	9
Manufacturing:							
Small	277	17	5	23	57	13	20
Medium	71	15	3	30	63	12	30
Large	47	28	1	65	158	19	62
TCPU and FIRE: <sup>4</sup>							
Small	384	33	4	30	70	19	30
Medium	34	9	2	11	26	6	11
Large	3	3	0	6	16	3	6
Wholesale and retail trade:							
Small	1,548	127	14	121	271	77	120
Medium	125	39	0	52	112	32	52
Large	8	5	1	13	31	4	12
Other services:							
Small	1,057	81	4	61	144	47	56
Medium	59	18	0	23	50	11	21
Large	25	22	1	98	220	21	99
Government:							
Small	85	8	0	11	20	7	11
Medium	20	7	0	22	50	7	22
Large	14	14	0	40	89	11	40
Total	4,308	485	44	666	1,519	328	651

<sup>1</sup>Small, fewer than 20 employees; medium, 20–99, employees; and large, 100 or more employees.

<sup>2</sup>Establishments that were part of the sample but had terminated operation by the survey date.

<sup>3</sup>In situations where a household had more than one member employed by a list frame employer, we adjusted the household expansion factor to reflect the household's increased probability of being selected.

<sup>4</sup>TCPU is transportation, communication, and public utilities. FIRE is finance, insurance, and real estate.

**Appendix table 2—Area frame universe, sample segments, and completions for establishments and households, by strata**

Strata	Segment universe	Segments sampled	Establishments		Households		
			Segments with one or more completions	Employer completions	Segments with one or more completions	Completions	
						Households	Household members 16 years old and over
	Number						
Urban minority	1,103	52	9	11	31	54	95
Urban	1,532	56	11	23	30	46	78
Suburban	1,714	63	15	26	44	145	265
Rural	3,948	144	6	8	70	104	190
Total	8,297	315	41	68	175	349	628

a final sample size of blacks adequate for analysis. Two concerns were that the high unemployment of blacks might limit list frame contacts and that the spatial distribution of blacks was such that an area frame not stratified by race could by chance fail to pick up enough black households for statistically reliable inferences. Each segment was a parcel of land varying in size by stratum. Segments were approximately city-block size in the urban and urban minority strata. In the suburban stratum, the segment covered about one-eighth of a square mile, and the rural segments were about 1 square mile each. We sampled the segments at a rate of 1 in 27 in the urban segments, 1 in 21 in the urban minority segments, 1 in 28 in the suburban segments, and 1 in 27 in the rural segments. The household sampling rate within the sampled segments was 1 in 4 in the urban minority stratum and 1 in 3 in all other strata. Enumerators interviewed all establishments not included on the list frame of establishments that were found in the sampled segments.

We divided the survey fieldwork into three phases. Phase 1 identified households and establishments in the area frame. The area frame sample was a two-stage stratified cluster design, where the first stage of sampling was the segment and the second stage was the household or establishment. In phase 2, we interviewed the selected list frame establishments and obtained the employee list. Phase 3 required screening area frame households and area frame

**Appendix table 3—Questionnaires completed by establishments and households, by sample frame**

Sample frame	Establishment questionnaires completed	Household questionnaires completed	Questionnaires completed for household members 16 years old and over
<i>Number</i>			
Establishments:			
Private sector	502	—	—
List frame	434	—	—
Area frame	68	—	—
Public sector	51	—	—
List frame	51	—	—
Total establishments	553	—	—
Households:			
List frame	—	666	1,519
Area frame	—	349	628
Total households	—	1,015	2,147

— = not applicable.

establishments and interviewing qualifying households and establishments. During phase 3, enumerators also interviewed employees' households on lists obtained from employers during phase 2. They collected data by personal interviews

conducted during December 1981 for establishments and January 1982 for households.

We edited the questionnaires from households and employers to detect and correct omissions and inconsistencies, and deleted from the sample those questionnaires with unverifiable data entries.

Respondents were recontacted for additional data before a questionnaire was deleted, and in some cases, missing data were estimated. We received completed questionnaires from 502 private sector establishments, 51 public sector units, and 1,015 households which contained 2,147 persons aged 16 and over (app. table 3).

## Appendix B: Calculation of Variance Statistics

The complexity of the survey design precluded using simple random sample formulas to calculate certain variance statistics required to compute confidence intervals and test differences among means, proportions, and totals. The following formulas approximate the variances required for statistical testing.

We used the same formulas to calculate variances for subclasses. In situations where the subclass size was considerably less than the total number of primary sample units or observations, the resulting estimate may seriously underestimate the subclass variance (14). Unless otherwise noted, we performed no statistical testing unless the subclass contained at least 30 observations.

For the variance of total estimates, the formula is:

$$V(\hat{Y}) = \sum_{h=1}^H (1-f_h) F_h^2 \frac{n_h}{n_h-1} \left[ \sum_{i=1}^{n_h} Y_{hi}^2 - \frac{Y_h^2}{n_h} \right]$$

$f_h$  = the primary sample unit sampling rate for the hth stratum,

$F_h$  = expansion factor for the hth stratum,

$n_h$  = the number of primary sample units in the hth stratum, and

$Y_{hi}$  = the variable to be estimated within the ith primary sample unit and hth stratum where:

$$Y_h = \sum_{i=1}^{n_h} Y_{hi}$$

For the variance of ratio means, the formula is:

$$V(R) = V\left(\frac{\hat{Y}}{\hat{X}}\right) = \frac{1}{\hat{X}^2} [V(\hat{Y}) + R^2 V(\hat{X}) - 2R \text{COV}(\hat{X}, \hat{Y})]$$

For the variance of a difference between two ratio means or two totals, the formula is:

$$V(R - R') = V(R) + V(R') - 2 \text{COV}(R, R')$$

We assumed the covariance term to be zero in all comparisons in the report. Although the clustering aspect of the survey design may underestimate the variance if the covariance term is not included, we did not consider the bias serious (14).

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