THE IMPACT OF WAL-MART ON EMPLOYMENT AND WAGE DIFFERENTIALS IN ALABAMA

STANLEY R. KEIL, skeil@bsu.edu
Ph.765-285-5364

and

LEE C. SPECTOR 00lcspector@bsu.edu
Ph. 765-285-5374

Stanley Keil and Lee Spector are associate professors of economics at Department of Economics, Ball State University, Muncie, Indiana, 47306.

Data gathering assistance was provided by Gregory Martz. Other than the opening dates for the Wal-Mart Stores in Alabama all data are drawn from the 1980 and 1990 Census. We are prepared to share all of the data used in this paper. All statistical analysis was done using EVIEWS or Microsoft EXCEL 2002 and the data are available from the authors in either format.

THE IMPACT OF WAL-MART ON EMPLOYMENT AND WAGE DIFFERENTIALS IN ALABAMA

Abstract

Using Alabama county data from 1980 and 1990 censuses and store opening dates, this paper presents an econometric study of the impact of the presence of Wal-Mart's on black-white income and unemployment differentials. It is posited that Wal-Mart changes the competitive nature of the labor market in a way that is beneficial to blacks. After establishing baseline relationships between unemployment and income with respect to demographic and economic variables, the impact of a Wal-Mart is tested by using a dummy variable and a cumulative years variable. Wal-Mart is found to have significantly lowered the relative unemployment rates of blacks in those counties where it is present, but to have had no significant impact on relative incomes after the influences of other social-economic variables are taken into account.

I. Introduction

Income and unemployment differentials between whites and blacks (or males and females) have been the subject of a substantial amount of literature. The wage differential and, similarly, the unemployment differential literature posit three reasons for these differentials: human capital variation, discrimination or different utility functions. Because isolating these effects is very difficult, this paper does not focus on why any wage or unemployment differentials occur.[1] Rather, it attempts to answer a more general question. Following Holzer's (1991) work on the relationship of demand shifts on employment, this paper tests the hypothesis that the introduction of a Wal-Mart into a county, by increasing the demand for labor, reduces income or employment differentials between blacks and whites. Establishing a new Wal-Mart increases the demand for labor primarily at the low end of the human capital distribution. If blacks are substantially over represented at the low end, the effect should be a reduction of the unemployment rate of blacks relative to whites. And, depending on the salaries obtained by these newly employed members of the labor force relative to previously employed members, Wal-Mart might have an impact on income differentials as well. This paper, then, adds to the literature that examines the role of competition in reducing income and employment differentials between blacks and whites. However, while most of these studies focus on industry wide effects, we examine the impact of one large firm entering a particular geographic area. Specifically, we test the hypothesis that the existence of a Wal-Mart in an Alabama county changed the

[1] For example, two teachers with degrees in the same subject might have different wages or employment opportunities due to location preferences. Likewise, two individuals might have different human capital due to past discrimination.

employment and wage and salary income differentials between blacks and whites in that county during the decade of the 1980s.

While the impact of competition on income and employment differentials in particular geographic areas has been studied, most of this research involves the impact of relaxing trade restrictions.[2] There is also the possibility that Wal-Mart has reduced both labor market discrimination and customer discrimination (by raising the premium those customers who discriminate pay for their preferences) both of which could reduce unemployment differentials and income differentials.[3] Testing these discrimination hypotheses is beyond the scope of the data available for this paper. However, if these forms of discrimination exist, and Wal-Mart reduces them, we should find Wal-Mart to have a stronger impact on both employment and income differentials. Finally, the new employment opportunities provided by Wal-Mart are likely to change the expected rates of return for workers in the retail sector, thereby leading more individuals to find it utility maximizing to search for employment in that sector.

---

[2] For example, Jones and Walsh (1991) and Hazarika and Otero (2002) find that the reduction of trade restrictions lowers employment and wage differentials. On the other hand, Berik, Rodgers and Zveglich, Jr. (2002) find foreign trade leads to an increase in the wage differentials between men and women.

[3] Becker (1957), Alchian and Kessel (1962) and others have cogently argued that, in a competitive product market, employer and employee discrimination eventually disappear. Until Kahn's (1991) paper, it was also the consensus that customer discrimination could not cause permanent wage differentials (see Cain, 1986). Also see Heywood (1987), Medoff (1980), Hassel and Palmer (1978), Johnson (1978) and Hellerstein et al (2002). The literature on discrimination is, of course, huge.

II. Why Wal-Mart?

Wal-Mart was chosen for three reasons. First, it is a large enough employer to have an impact on a given area.[4] Second, since it is a national concern, its business practices reflect a national policy of equal opportunity hiring practices, rather than the historical practices of any given area. Third, Wal-Mart hires mostly lower skilled workers. Many researchers have found that lower skilled workers are less apt to migrate or commute to areas where demand has increased. However, most increases in demand are not for lower skilled workers.[5] Thus, while we hypothesize that a new Wal-Mart results in a net increase in employment in local low skill labor markets, we recognize that what happens to local income and unemployment rates depends, in part, on how many of the new jobs go to previously unemployed local workers, to job switchers, to local persons who were not in the labor force, and to migrants and commuters from other counties. We will comment on this where we can, but we do not have data of sufficient detail to parse new job takers into these separate categories.

Recently, there has been substantial controversy concerning the employment impact of the entrance of a Wal-Mart into a particular geographic area. Often newspaper stories appear when a new Wal-Mart opens voicing concerns that it will destroy jobs in the retail sector and put smaller retailers (usually downtown or neighborhood retail centers) out of business.[6] The geographic impact of Wal-Mart is less clear. Some downtown businesses in cities where Wal-Marts have located have benefited from the greater draw of customers. Others have been

---

[4] In a recent article (Yencer, 2004), it was estimated that a super Wal-Mart employs 450 people.

[5] See Bound and Holzer (2000),

[6] See Welles (1993) for a discussion of the total impact of Wal-Mart on traditional downtown retail jobs.

devastated by the overwhelming new competition for their customers' dollars. In a study of the impact of 14 Wal-Marts in Iowa, Kenneth Stone (1993) found positive impacts in towns where Wal-Mart had located. However, there was clearly a negative impact on other towns in the surrounding area; towns within a 20-mile radius of the Wal-Mart stores saw total retail sales drop an average of 25 percent after five years. Wal-Mart attracts customers from a substantial distance. Businesses that sell goods or services not sold by Wal-Mart tend to experience higher sales because of the spillover effect. But some of these sales come at the expense of smaller town retailers. The stores that perform the best are those selling complimentary products and are willing to move from downtown to strip malls near a Wal-Mart store. However, businesses that sell the same goods as Wal-Mart tend to experience reductions in sales after Wal-Mart opens. This loss may be as much as 10 percent within three years of the opening of a Wal-Mart. While our research speaks to these concerns, it does so only in an indirect way.

III. Why Alabama?

Alabama was chosen for several reasons. In 1980, Alabama had a substantial black population with a mean income less than 68% of whites and an unemployment rate 2.39 times higher than whites. To the extent that these differences are attributable to the demand side of the labor market, there was substantial room for Wal-Mart to have an impact. Opening dates for each of the Wal-Mart stores in Alabama show that only one store was open before 1980. By 1990, 44 counties had one or more Wal-Marts. There were sufficient counties in 1990 without a Wal-Mart to form a control group for “with and without” measurements. We also have the opening dates for the Wal-Mart stores in each county which will allow testing the cumulative impact of Wal-Mart from opening date through the beginning of 1990. We dropped one county

(Walker) that had a Wal-Mart open in the 1970s. In the remaining counties, either one or more Wal-Marts opened during the 1980's, or there was no Wal-Mart present as of January 1, 1990. We have 1980 and 1990 census data for Alabama's 67 counties for most of the basic socioeconomic variables outlined below in the description of the base model. Data are missing for some variables in small counties in both census years due, according to the U.S. Census Bureau, to inadequate samples or samples with substantial sampling errors.

IV. Empirical Analysis

A. Summary Statistics

Our analysis focuses on changes in relative unemployment rates and incomes for blacks compared to whites. Absolute unemployment rates were lower in 1990 than in 1980 for both blacks (13.2% versus 13.4%) and whites (5.0% versus 5.3%). Table 1 shows the ratio of the black unemployment rate to the white unemployment rate for Alabama and the U.S. It indicates that relative unemployment rates of blacks compared to whites rose even as the absolute unemployment rates fell for both Alabama and the U.S. as a whole. It also shows that those counties in Alabama without a Wal-Mart store saw the worst relative deterioration in relative unemployment rates. Part of the analysis presented here explores whether this apparent effect is statistically significant, ceteris paribus.

We examined three income concepts in this paper, median total income, mean earned income, and mean wage and salary income. All income data are for households. Median income of blacks in Alabama was 52.0% of whites in 1980 and 52.2% of whites in 1990. Median income data is less sensitive to elongation of the upper tail of the income distribution than mean income data. However, detailed data for income are only available for means. One concern

with either mean or median total income is that relative gains in black earned income may be offset or dampened by changes in unearned income beneficial primarily to white households during the rapid growth in financial wealth in the 1980s. Tables 2A and B show the number of households with various sources of income, the mean income by type, and a profile of a typical white and black household. Earned income includes wage, salary, non-farm self-employment and farm self-employment income. Unearned income is the remainder of the categories in Table 2A. There are some substantial differences between blacks and whites. Less than 10 percent of blacks (versus 35% for whites) received rent, interest, or dividend income while more than 25% of blacks (versus 7% of whites) received public assistance income in 1980. The rent, interest and dividend gap opened further in 1990. This gives rise to the possibility that using either median or mean total household income hides the impact of Wal-Mart on black income. Mean earned income, especially wage and salary income, would be most directly affected by an improvement in the employment situation of blacks. However, a glance at Tables 2A and 2B indicates that both the relative mean earned income and mean wage and salary income of blacks declined slightly relative to whites.

Table 2C makes it clear that mean wage and salary income is higher in counties that attained Wal-Marts during the 1980s than in those that did not, that counties with Wal-Marts gained nominal income faster than non-Wal-Mart counties, and that the relative income position of blacks deteriorated more in non-Wal-Mart counties than in Wal-Mart counties. These data suggest that further analysis would be worthwhile. With respect to relative income, our working hypothesis may be restated as: blacks fared relatively better in those counties in which a Wal-Mart opened during the 1980s because a Wal-Mart opened in those counties, ceteris paribus.

B. The Baseline Models

We develop two baseline models, one for relative income differences and one for relative unemployment rate differences. The baseline models incorporate variables which, prior to the establishment of a Wal-Mart, may help explain the observed differences between blacks and whites. Both models assume linear relationships between the black to white ratios of the dependent variables and black to white ratios of a set of demographic variables and variables measuring the industrial composition of each county. All regressions use the Newly-West technique to correct for heteroskedasticity. Table 3 identifies and briefly describes the variables used in the statistical analysis.

We first estimate the differences in black and white incomes using the ratios of mean total income, mean earned income, and mean wage and salary income of blacks to whites as dependent variables in separate regressions.[7] We posit that these income differentials are impacted by the relative ages of the two populations, relative years of education, the industrial mix of the county and the percentage of the county that is black. Younger workers have less on-the-job training and less accumulative experience. In addition, younger workers have more frequent spells of unemployment. In Alabama the black population is significantly younger than the white population. In county data, median age is highly correlated with the percent of county population that is black. Heavily black counties have younger black populations and older white populations than the average county. The correlation coefficient of the ratio of median ages with

[7] The remaining discussion of the baseline models is intended to indicate our priors. Some of these are not uniformly agreed to in the literature.

the percent of the county population that is black is 0.6. Since we have no age data for seven counties, we use percent black as a surrogate variable for median age.

We further posit that income differentials diminish with level of education completed by blacks relative to that of whites. Thus, the ratio of the percentage of the black population over 25 with a college degree to the same percentage for the white population is also used as a control variable. While income differences of whites relative to blacks tend to increase as education for both groups increase, an increase in this ratio is equivalent to an increase in educational attainment of blacks, holding that of whites constant. We expect that the ratio of black income to white income will increase with the percent of the labor force in manufacturing and decrease with the percent in retail trade. The case of agriculture is more complex. Agricultural employment includes self-employed farmers, farm workers, and employment in agricultural services. Market rates of return to equally capitalized farms should be color blind. It may be the case that black farms are undercapitalized compared to white farms. The data show that farm self employment was earned by 4.2% and 2.6% of white households in 1980 and 1990 respectively but by only 0.8% and 0.4% of black households. White self-employed farmers earned 150% and 205% more than self-employed black farmers in 1980 and 1990 respectively. The data suggest that black farms are substantially different from white farms and we would expect the percent of employment in agriculture to negatively affect the ratio of black to white income. However, it is also the case that self-employment income in agriculture is a minuscule part of the typical black household income.

The baseline model for relative unemployment rates is similar to that for incomes. Blacks had unemployment rates in 1980 that averaged 2.39 times the unemployment rates of

whites. We again posit that part of this difference is accounted for by the lower educational level and the younger ages of blacks. The more manufacturing contributes to the local economy, the smaller should be the difference in unemployment rates for two reasons. The first is that color blind hiring in lower skill positions (operatives) would result from cost minimizing behavior. Manufacturing is more likely to compete in a national market than is the low skilled end of the service sector. Discriminating employers in manufacturing are likely to pay a higher price for utility maximizing behavior than those in the low skilled end of the service sector. The second is that discrimination in manufacturing is more visible and thus more subject to equal opportunity law enforcement. National data indicate that the unemployment rate of black males is consistently higher than that of black females. We do not have separate unemployment data for males and females by race. Thus, we use the male to female ratio to partially account for this difference. A high male to female ratio, holding racial composition constant, is expected to raise the black to white unemployment ratio.

These two baseline models are tested with 1980 data. Table 4a shows the results of weighted least squares regressions of the ratio of black income to white income for each of the income concepts, and the results of regressing the ratio of the unemployment rate for blacks over that of whites on the same set variables for 1980. All of the signs for the significant explanatory variables for the relative income regressions are as postulated. Blacks in counties with relatively more college educated blacks consistently have higher relative incomes for each income concept. The higher the percent of employment in agriculture and retail trade and the higher the percent of population in the county that was black, the lower the relative total earned income and wage and salary income. The results for relative unemployment rates (Table 4b) are

similar to those for income and have the expected signs. In this equation, neither the percentage of the labor force in agriculture nor that in retail trade is statistically significant. Interestingly, the male to female ratio is statistically significant, but has an unexpected sign.

C. Testing the Impact of Wal-Mart

Over the course of the decade of 1980s Wal-Marts opened in 43 counties, leaving 23 counties with no Wal-Mart present at the beginning of 1990. One way to use these counties as a control group is to employ a {0, 1} dummy variable for the presence of a Wal-Mart. However, it is possible that the presence of a Wal-Mart would require some time to have an effect on black-white differentials. This was explored by using a variable that measures the time between the opening date the first Wal-Mart in each county and January 1, 1990.

To explore the impact of Wal-Mart on relative income and unemployment rates, we use ratios of ratios. That is, we use the ratio of the black-white income ratios in 1990 to the black-white income ratios in 1980 as the measure of the impact of the independent variables on income. We use a similar procedure for unemployment rates. With respect to income, convergence would imply that the ratio of ratios would be greater than one and the impact of Wal-Mart would be positive. For unemployment convergence, the ratio of ratios will be less than one and the impact of Wal-Mart is expected to be negative. Similarly an increase in the ratio of college educated blacks to college educated whites or an increase in ratio of average ages would positively affect the income ratio and negatively affect the unemployment ratio. No significant results were obtained for any of these income concepts and our set of explanatory variables, with the exception of YEARSWITH, have no significant impact on the ratio of wage and salary income. Table 5 shows the regression results for the wage and salary income ratios.

Given the F-statistics, it appears that the independent variables had no joint impact on the relative incomes of blacks during this decade. In a regression in which YEARSWITH is the only explanatory variable, however, the length of time that Wal-Mart was present in a county is significantly ($p = .08$) and positively related to improvement in relative wage and salary income for blacks.

Table 6 shows the results for the ratio of unemployment ratios. All of the significant variables have the expected sign. Both the Wal-Mart dummy and the "Yearswith" Wal-Mart variables are significant and of the correct sign. The results suggest that the number of years that a Wal-Mart is present is important in reducing the unemployment rate discrepancy between blacks and whites.

V. Interpretation

In the counties for which data is available both wage and salary income and total mean earned income of blacks relative to that of whites decreased slightly (0.639 to 0.636). The relative decline of median incomes of blacks is somewhat more substantial (0.564 to 0.543) than the decline in wage and salary income because of the comparatively large decline in the relative amount of unearned income going to blacks. The relationship of income changes and the Wal-Mart-non-Wal-Mart distinction is even more complex. This may be due, in part, to sampling artifacts in 1980 as the U.S. Census was able to successfully sample seven more counties in 1990. Nonetheless, for the 51 counties for which there are consistent total income measures in both 1980 and 1990, the decline in relative total incomes was less in Wal-Mart counties (0.022) than in non-Wal-Mart counties (0.041). Thus, the decline in relative incomes of blacks may be due to changes in other demographic variables which the presence of Wal-Mart partially

mitigated. In a regression with only the Wal-Mart dummy present, Wal-Mart's presence is associated with an increase in relative incomes of blacks at the 15% level of significance but the R^2 for that regression is not significant. Thus, we can draw no conclusions about the impact of Wal-Mart on relative incomes.

Our focus has been on relative incomes. It is also possible to examine whether counties with Wal-Marts performed differently with regard to absolute incomes. To test this possibility, we examined the absolute change in real income (created using the Personal Consumption Expenditure Price Index). For the 53 counties with valid income measures for both 1980 and 1990, the average increase in real absolute wage and salary income for blacks was 17.8%. There is substantial variance in individual county outcomes with changes ranging from a gain of 67.6% (St. Clair County) to a loss of 22.3% (Franklin County). To test whether the variance in county income changes had any relationship to the presence of a Wal-Mart, we controlled for several socioeconomic variables. The average age of the black population increased by 4 years over this decade. The percentage of blacks with college education increased by 39%. Again there was a great deal of variance with Jackson County seeing more than a 400% gain and DeKalb county seeing a 62.5% decrease. We tested the hypothesis that ratio of black wage income in 1990 to that in 1980 would be sensitive to the relative increase in average age, the relative change in the percent of blacks with college education and the presence of Wal-Mart. The results, shown in Table 7, indicate that none of these variables explain any part of the county to county variation in changes in real income during the 1980s.

Recall that Table 1 shows the ratios of unemployment rates for all counties, Wal-Mart counties, and non-Wal-Mart counties for 1980 and 1990. As indicated in that table, the relative

unemployment rate of blacks increased in all counties, but by substantially less in counties with a Wal-Mart than in those counties without a Wal-Mart. The results shown in Table 6 seem to verify that the presence of one or more Wal-Marts was mitigating the influence of other socioeconomic factors on the relative unemployment rates of blacks. In the counties where Wal-Mart is present, blacks fare better in jobs than in those counties without a Wal-Mart.

While these results might seem contradictory, three possible explanations come to mind.[8] First, neoclassical economics suggests that to the degree that rational individuals know that the existence of a Wal-Mart might lead to better opportunities, low skilled workers would migrate to those areas where a Wal-Mart exists. This would lower the labor force in non-Wal-Mart counties and raise the labor force in Wal-Mart counties. This migration *could*, theoretically, both increase mean wage and salary income and decrease unemployment rates in non-Wal-Mart counties while reducing average incomes and increasing unemployment rates in Wal-Mart counties. The actual outcome depends on the employment status of migrants at their point of origin. Depending on the relative impacts of these effects on the labor markets of the two types of counties, it is certainly empirically possible that the unemployment differential could lessen without an accompanying decrease in the income differential.

The possibility that migration might have an important impact on employment differentials, but not income differentials, is quite intriguing. With respect to employment, our result, as stated above, is consistent with those of Bartik (1991, 1993). There are three sources of employees for newly created jobs: the currently unemployed, new entrants via an increase in the participation rate of current residents, and nonresidents who either migrate or commute to the

[8] We, of course, do not believe that the following explanations are all encompassing.

new jobs from outside the local area. If Bartik's results apply to our case, and if the workers in the locale of a new Wal-Mart are just as qualified for these new jobs as workers in other counties, approximately 25% of the new jobs would go to local residents, with 8% of these jobs going to those who were previously unemployed and 17% going to local residents who previously did not participate in the labor force. While the percentage of jobs going to local residents is relative low, the expansion of jobs is relatively large for the currently unemployed and low skilled workers in Bartik's model. We seem to be verifying this for Alabama. On the other hand, with respect to income differentials, our results seem to agree with Blanchard and Katz (1992) who suggest that, in the long run, migration eliminates almost all gains in unemployment rates and incomes from a demand increase in the host county. Since Wal-Mart provides a nondiscriminating employer at the low end of the wage and skill scale, these newly created jobs would be expected to lower the unemployment rate, ceteris paribus. Thus it is possible that Wal-Mart, by providing such jobs, creates results that are atypical.

A second explanation follows Hirsch's (1978) hypothesis of "occupational crowding." It is possible that the wages of whites may have been depressed in Alabama in the 1970s because the concentration of non-whites combined with the structure of occupations and industries that focused on low skill workers. If this was the case, then, according to Hirsch, occupational crowding would have occurred. If Wal-Mart increased demand for low skilled workers sufficiently to overcome such occupational crowding, white low-skilled workers would see an increase in wages that matched or exceeded the increase in wages of low-skilled black workers. This would leave no improvement in the relative earnings of blacks, even though the relative employment of blacks would improve.

Third, it must be noted that employment and income data are garnered from where people live and not where they work. Therefore, if there is any commuting, some of the income and employment benefits accrue to people who actually don't live in the county where the Wal-Mart is established. By dividing our data into Wal-Mart and non-Wal-Mart counties, we are potentially underestimating Wal-Mart's effect on income and employment differentials. For example, suppose blacks get all the new jobs at a Wal-Mart in county X. If all these new employees lived in county Y, then relative to county X, it would appear that Wal-Mart hurt employment differentials with respect to blacks when this isn't the case. This would suggest that an examination of commuting data might be useful.

We did examine county to county commuting patterns which are shown in Table 8. Commuting increased substantially in the 1980s as service sector employment followed the earlier dispersal pattern of manufacturing employment and the real cost of gasoline declined. As the table indicates, commuting increased more for non-Wal-Mart counties than for those counties that obtained Wal-Marts. However, when commuting patterns are controlled for the effects of counties being central city counties or counties adjacent to central city counties, Wal-Mart's presence does not explain a significant amount of the remaining variance. It is positively but not quite statistically significantly associated with out-commuting and bears no relationship to in-commuting.[9]

Finally, another possible caveat concerning our results must be addressed. While we have found evidence that Wal-Mart has an impact on unemployment rate differentials, this

[9] There is evidence that rural to urban commuting does reduce wage disparities (Hazans, 2004), but the data requirements were beyond the scope of this study.

impact could be deceiving if Wal-Mart generally placed their stores in counties that had a trend of narrowing unemployment rate differentials. Thus, it might be worthwhile to examine Wal-Mart's location decisions. Wal-Mart does not release explicit statistical information about how it chooses locations. However, given that we are only interested in the counties chosen (not the particular location in the county) we can shed some light on the choice of particular counties. Using a {0,1} dummy (WALDUM) to indicate the absence or presence of Wal-Mart, we performed a probit analysis of Wal-Mart's choice of counties. The independent variables were the rate of population growth during the decade of the 1970s (POPGRO70S), the growth of per capita income in the 1970s (PCIGRO70S), the percentage of employment in the retail sector as of 1980 (PRETAIL80), the male to female ratio (MFRATIO80), and the percentage of the local population that was black in 1980 (PERBLK80). The explanatory variables are data that would have been readily available to Wal-Mart at the beginning of the 1980s. The results are shown in Table 9. All of the variables, except the ratio of males to females, were significant at the 10% level or better.

The composite picture that emerges from this probit analysis is that Wal-Mart was seeking counties in which retail trade was under represented in the local employment mix, incomes were rising relatively slowly, population was growing relatively rapidly and the racial composition was relatively whiter than the average Alabama county. It appears, then, that Wal-Mart, by establishing a discount retailer that employed a substantial amount of low skilled workers, was filling a niche that was not adequately served in these counties. That is, in the counties that Wal-Mart chose there would be little displacement effect on retail workers. If this is the case, then there is some reason to believe that the income and employment improvements

that occurred in the Wal-Mart counties would not have occurred in the same magnitude in the absence of Wal-Mart.[10]

VI. Conclusions.

This paper examines the impact of a Wal-Mart on the income and employment differentials in Alabama counties during the decade of the 1980's. It differs from previous work in that it focuses on the impact of one large firm that hires workers at the low end of the skills distribution. Thus, one might expect that human capital considerations would not be relevant in terms of excluding workers from obtaining these new job offerings. Furthermore, since most of the migration literature generally examines increases in labor demand over the full spectrum of skills, it is thought that such an investigation might yield atypical results. In fact, this is somewhat the case since our findings are mixed. Our empirical work indicates that, the existence of a Wal-Mart and the length of time in which a Wal-Mart was present make a significant impact on the relative unemployment rate of blacks in Alabama counties. On the other hand, it does not appear that the presence of Wal-Mart has any impact on improving the relative incomes of blacks compared to whites. There may be reason to believe, however, that the long run results could differ. The impact on unemployment rates suggest that local residents obtained jobs they would not otherwise have had. These jobs provide job skills. While the opening of a Wal-Mart is a one time event, those receiving jobs are permanently better off because of these increased skills. Thus, one direction for future research would be to examine

[10] Of course, this assumes that had Wal-Mart not come to these counties, others discount retailers wouldn't have entered these counties instead.

the impact of Wal-Mart (or any other big box retailer) on the long run effects on those hired after an opening by following a cohort of those employees for a number of years.

There are four important reservations with this analysis. First, because of the possibility of laborers from non-Wal-Mart counties commuting to Wal-Mart counties, it is possible that our results understate the impact of Wal-Mart on both income and unemployment differentials. That is, some of the benefits might be accruing in the workers' place of residence rather than their place of work. Second, from our data set it is impossible to determine what the long-run effects on retail activities that are compliments to and/or substitutes of Wal-Mart. We have only examined the impact of Wal-Mart over a ten-year period. Since most Wal-Marts are longer lasting, it is quite possible that we are examining this issue too early. Third, the results obtained are only relevant for Alabama during this time period. It is likely that the labor markets, the culture and the legal environment facing Wal-Mart are quite different in other states and might even be different for Alabama over different periods of time. These results represent only a small part of the impact of a Wal-Mart upon the inhabitants of a given economic area. Each of these reservations provides an avenue for further research. Finally, the results of this study would not be, for the most part, very useful for those who argue either for or against the establishment of a Wal-Mart in any given community.

REFERENCES

Alchian, Armen, and Kessel, Reuben E., (1962), "Competition, Monopoly, and the Pursuit of Money," in Lewis, H. Gregg, ed., Aspects of Labor Economics, Princeton University Press, Princeton, pp. 157 - 175.`1

Bartik, Timothy J. (1991). *Who Benefits from State and Local Economic Development Policies?* W.E. Upjohn Institute for Employment Research, Kalamazoo, MI.

Bartik, Timothy J. (1993) "Who Benefits from Local Job Growth: Migrants or the Original Residents?" Regional Studies, Vol. 27.4 pp. 297-311

Becker, Gary S., (1957), The Economics of Discrimination, University of Chicago Press, Chicago.

Berik, Gunseli, Rodgers, Yana van der Meulen, and Zveglich, Jr., Joseph E., (2002), International Trade and Wage Discrimination: Evidence from East Asia," Working Paper.

Blanchard, O.J. and L.F. Katz (1992) "Regional evolutions", Brooking Papers on Economic Activity, 1, 1-76.

Bound, John and Harry J. Holzer (2000), "Demand Shifts, Population Adjustments, and Labor Market Outcomes During the 1980's." Journal of Labor Economics, 18(1): 20-54.

Cain, Glen G., (1986), " The Economic Analysis of Labor Market Discrimination: A Survey," in Ashenfelter, O. And Layard, R. ed. Handbook of Labor Economics, Elsevier.

Hassel, Walter and Palmer, John, (1978), "Market Power and Employment Discrimination" Journal of Human Resources, XIII, pp. 545 - 560.

Hanson, Gordon H. and Harrison, Ann, (1999), "Trade Liberalization and Wage Inequality in Mexico," Industrial and Labor Relations Review, 2, pp. 271 - 288.

Hazans, Mihails, "Does Commuting Reduce Wage Disparities?", Growth and Change, Vol. 35, No., 3 (Summer, 2004), pp 360-390

Hazarika, Gautam and Otero, Rafael, (2002), "Foreign Trade and the Gender Earnings Differentials in Urban Mexico", United Nations University Working Paper.

Hellerstein, Judith K., Neumark, David, and Troske, Kenneth R., (2002), "Market Forces and Sex Discrimination," Journal of Human Resources, 37, pp. 353 - 380.

Heywood, John S. (1987), "Wage Discrimination and Market Structure," *Journal of Post Keynesian Economics*, 9, pp. 617 - 628.

Hirsch, Barry T. "Earnings Inequality Across Labor Markets: A Test of the Human Capital Model," *Southern Economic Journal*, Vol. 45, No. 1, July 1978, pp. 32-45

Holzer, Harry J. (1991) "Employment, Unemployment and Demand Shifts in Local Labor Markets," The Review of Economics and Statistics, Vol 73, No. 1, February

Johnson, William R. (1978), "Racial Wage Discrimination and Industrial Structure," *Bell Journal of Economics*, 9, pp. 70 - 81.

Jones, J.C.H., and Walsh, William D., (1991), "Product Market Imperfections, Job Content Differences, and Gender Employment Discrimination at the Management Level: Som Evidence from the Canadian Manufacturing Sector in 1971 and 1981," *Canadian Journal of Economics*, 24, pp. 844 - 858.

Kahn, Lawrence M. (1991), "Customer Discrimination and Affirmative Action," *Economic Inquiry*, 29, pp. 555 - 571.

Medoff, Marshall H. (1980), "On the Relationship Between Discrimination and Market Structure: Comment," *Southern Economic Journal*, 46, pp1227 - 1233.

Nardinelli, Clark and Simon, (1990), "Customer Racial Discrimination in the Market for Memorabilia: The Case of Baseball," *Quarterly Journal of Economics*, 105, pp. 575 - 596.

Stone, Kenneth, (1995) Impact of Wal-Mart Stores and other Mass Merchandisers in Iowa, 1983-1993 *Economic Development Review* , Spring, 1995

U.S. Bureau of the Census, 1982, *1980 Census of Population, General Population Characteristics - United States*, Washington, D. C.: Government Printing Office

U.S. Bureau of the Census, 1992, *1990 Census of Population, General Population Characteristics - United States*, Washington, D. C.: Government Printing Office

U.S. Bureau of the Census, 1982, *1980 Census of Population, General Population Characteristics - Alabama*, Washington, D. C.: Government Printing Office

U.S. Bureau of the Census, 1992, *1990 Census of Population, General Population Characteristics - Alabama*, Washington, D. C.: Government Printing Office

U.S. Bureau of Economic Analysis, *State and Local Personal Income*,http://www.bea.doc.gov/bea/regional/statelocal.htm

Welles, Edward O. "When Wal-Mart Comes to Town." *INC*. July 1993. p. 78.

Yencer, Rick, “New Wal-Mart Could Attract More Development” *Muncie Star Press*, July 21, 2004

Tables

Table 1: Ratio of black to white unemployment rates Alabama and USA

Relative unemployment Rates	Counties	1980	1990
Alabama	67	2.528	2.640
Valid counties*	55	2.387	2.745
Valid Wal-Mart counties*	38	2.250	2.446
Valid Non- Wal-Mart counties*	17	2.693	3.413
USA	all	2.306	2.375

* Valid indicates that unemployment data were available for both 1980 and 1990. The data shown are based on weighted averages of unemployment rates.

Table 2A. Alabama Income by type: 1980

	Whites			Blacks			Black to White Ratios	
Type of Income	numbers of households	mean income	typical family profile	numbers of households	mean income	typical family profile	Ratio of means	Ratio of profile
		$			$			
Earned	841,613	19,127	$ 15,485	213,517	12,320	$ 8,902	0.644	0.575
Unearned			3,094			2,207		0.713
Wage and Salary	800,686	18,308	14,102	210,632	12,189	8,688	0.666	0.616
Non-farm self emp.	97,256	12,563	1,175	8,293	6,614	186	0.526	0.158
Farm self employment	43,759	4,948	208	2,481	3,308	28	0.669	0.133
Interest, Dividends and Rent	355,745	2,672	914	20,535	1,052	73	0.394	0.080
Social Security Inc	286,314	3,850	1,060	96,928	3,141	1,030	0.816	0.972
Public Assistance	73,379	1,912	135	72,675	1,907	469	0.997	3.475
Retirement Income								
All other	251,488	4,068	984	62,900	2,985	635	0.734	0.646
Total	1,039,531	18,579	$ 18,579	295,503	$11,109	$ 11,109	0.598	

Table 2B: Alabama income by type: 1990

State Profile 1990

Type of Income	Whites			Blacks			Black to White Ratios	
	numbers of households	mean income	typical family profile	numbers of households	mean income	typical family profile	Ratio of means	Ratio of profile
Earned	911,101	$ 34,632	$ 27,262	243,734	$ 21,844	$ 15,901	0.631	0.583
Unearned			6,485			3,322		0.512
Wage and Salary	876,927	33,180	25,139	240,093	21,661	15,532	0.653	0.618
Non-farm self emp.	124,474	17,876	1,922	12,880	9,109	350	0.510	0.182
Farm self employment	27,071	8,575	201	1,466	4,177	18	0.487	0.091
Interest, Dividends and Rent	418,078	6,028	2,177	24,566	2,070	152	0.343	0.070
Social Security Inc	335,444	7,259	2,104	96,580	5,504	1,588	0.758	0.755
Public Assistance	64,280	3,231	179	65,548	2,745	537	0.850	2.995
Retirement Income	192,434	9,741	1,620	39,117	6,142	718	0.631	0.443
All other	122,271	3,829	405	37,093	2,954	327	0.771	0.809
Total	1,157,406	$ 33,747	$ 33,747	334,828	$ 19,223	$ 19,223	0.570	

Table 2C Mean Wage and Salary Income for Wal-Mart and Non-Wal-Mart Counties

		Mean Wage and Salary Income		
	valid Counties*	White	Black	Black/White Ratio
1980 Wal-Mart Counties	38	18,362	12,495	0.671
1980 Non Wal-Mart Counties	16	16117	10,855	0.674
Ratio of non-Wal-Mart to Wal-Mart		0.865	0.869	
1990 Wal-Mart Counties	39	34,038	22,144	0.651
1980 Non Wal-Mart Counties	22	28,999	18,690	0.644
Ratio of non-Wal-Mart to Wal-Mart		0.852	0.844	

*Valid means that data was not suppressed due to sampling errors

Source: 1980 and 1990 U.S. Census: Social and Economic Characteristics

Table 3: Definition of Variables

Variable Name	Description
pagr80, pagr90	The percentage of the labor force employed in agriculture in 1980 and in 1990
pmanu80, pmanu90	The percentage of the labor force in manufacturing in 1980 and 1990
pretail80, pretail90	The percentage of the labor force in retail trade in 1980 and in 1990
rmdage80, rmdage90	The ratio of the median age of Blacks to the median age of whites
rcoll80, rcoll90	The ratio of the percent of blacks with a college degree to the percent of Whites with a college degree
rmdinc80, rmdinc90 rearned80, rearned90 rwages80, rwages90	The ratio of median income of Blacks to the median income of Whites The ratio of mean earned incomes The ration of mean wage and salary incomes
runrate80 runrate90	The ratio of the black unemployment rate to the white unemployment rate
waldum	Dummy for at least one Wal-Mart entering the market during the 1980's
yearswith	years from opening of the first Wal-Mart in each county until 1990
Incratio	ratio of rmdinc80 to rmdinc90
Unemratio	Ratio of runrate90 to runrate80
Perblk80	Percent of county population that is black in 1980
Growhite Growblk	Percent growth of the white and black populations by county, 1980 to 1990
Ageratio Collratio Manuratio Agratio Retailratio Rperblk90to80	Ratios of the 1990 variable to the corresponding 1980 variable

Table 4a: Baseline regressions for black to white income concepts ratios (t-statistics are in parentheses)

Dependent Variable:	RWAGES80	REARNED80	RMDINC80
Included observations:	48	48	48
Independent Variables	Coefficient	Coefficient	Coefficient
Constant	1.0283***	1.0130***	0.4700*
	(5.0212)	(4.9656)	(1.9580)
RCOLL80	0..11295**	0.1224**	0.1399**
	(2.3963)	(2.6095)	(2.3574)
PAGR80	-0.0124*	-0.0173**	0.0036
	(-1.7272)	(-2.4183)	(0.3602)
PMANU80	-0.0017	-0.0020	0.0036
	(-0.7918)	(-0.9430)	(1.4785)
PRETAIL80	-0.0184**	-0.0178**	-0.0006
	(-2.0902)	(-2.031)	(0.0569)
PERBLK80	-0.0024***	-0.0023***	-0.0032***
	(-2.9914)	(-2.9649)	(-3.4249)
R-squared	0.4303	0.46582	0.5033
Adjusted R-squared	0.3625	0.3938	0.4442
S.E. of regression	0.0845	0.0842	0.0990
F-statistic	6.3451	7.1059	8.5111
Prob(F-statistic)	0.0002	0.0001	0.0000

Table 4b: Baseline run for 1980 ratio of black to white unemployment ratios

Dependent Variable:	RUNRATE80	
Included observations:	55	
Independent Variable	Coefficient	t-Statistic
Constant	13.129	5.379***
RMDAGE80	-3.295	-1.989**
RCOLL80	-0.884	-1.884*
PAGR80	-7.708	-1.368
PMANU80	-3.959	-3.937***
PRETAIL80	2.225	1.149
MFRATIO80	-0.070	-2.277***
R-squared		0.445
Adjusted R-squared		0.376
S.E. of regression		0.719
F-statistic		6.420
Prob(F-statistic)		0.0001

Significance levels: *** 1%, ** 5%, * 10%

Table 5: Presence and length of presence of Wal-Mart - impact on black to white relative incomes

Dependent Variable:	WAGESRATIO		WAGESRATIO	
observations	47		47	
Independent Variables	Coefficient	t-Statistic	Coefficient	t-Statistic
Constant	0.686	0.916	0.742	1.039
AGERATIO	0.107	0.219	0.077	0.162
COLLRATIO	0.003	0.080	-0.003	-0.084
MANURATIO	0.083	0.331	0.094	0.390
AGRATIO	-0.029	-0.310	-0.073	-0.783
RETAILRATIO	0.119	0.059	0.159	0.723
RPERBLK90to80	-0.017	-0.044	-0.057	-0.162
WALDUM	0.065	1.283	-------	-------
YEARSWITH	-------	------	0.011	1.889*
R-squared	0.050		0.093	
Adjusted R-squared	-0.120		-0.070	
S.E. of regression	0.135		0.132	
F-statistic	0.294		0.572	
Prob(F-statistic)	0.952		0.774	

Table 6: Presence of Wal-Mart and the ratio of 1990 to 1980 relative unemployment rates

Dependent Variable:	UNEMRATIO		UNEMRATIO	
observations:	55		55	
Independent Variables	Coefficient	t-Statistic	Coefficient	t-Statistic
Constant	4.454	3.057***	4.074	2.809***
COLLRATIO	-0.167	-1.877*	-0.165	-1.817*
AGERATIO	-3.779	-3.562***	-3.289	-2.022**
AGRATIO	-0.295	-1.227	-0.189	-0.769
MANURATIO	0.398	0.621	0.599	0.955
RETAILRATIO	0.592	1.154	0.556	1.067
RBERBLK90TO80	0.3156	0.663	0.235	0.492
WALDUM	-0.260	-2.042**	----------	----------
YEARSWITH	----------	----------	-0.026	-1.677*
R-squared	0.313		0.294	
Adjusted R-squared	0.211		0.189	
S.E. of regression	0.369		0.374	
F-statistic	3.061		2.801	
Prob(F-statistic)	0.010		0.016	

Table 7: Ratio of absolute changes in black income

Dependent Variable:	RBLW90TO80		
Observations	51		
Dependent Variables	Coefficient	t-Statistic	Prob.
C	0.800798	1.611500	0.1138
RCOLLBKS	0.005539	0.199587	0.8427
RAGEBLK	0.293524	0.709338	0.4816
WALDUM	0.033502	0.733696	0.4668
R-squared	0.020069	F-Statistic	0.320860
Adjusted R-squared	-0.042479	Prob(F-statistic)	0.810231
S.E. of regression	0.148769		

Table 8 Change in Commuting Patterns in Alabama 1980 -1990

Type of commute	Wal-Mart Counties			Non-Wal-Mart Counties		
	1980	1990	Change	1980	1990	Change
Percent of County Workforce Commuting Into County of Employment	15.9%	19.3%	3.37%	18.0%	22.8%	4.77%
Percent of Employed Residents Commuting Out of Country of Residence	16.6%	19.7%	3.04%	30.2%	34.1%	3.95%

Source: U.S. Census, County to County Worker Flow Files

Table 9. Binary Probit analysis of probability of Wal-Mart locating in a county

Variable	Coefficient	Std. Error	z-Statistic	Prob.
Constant	8.146611	6.347102	1.283516	0.1993
PRETAIL80	-5.413865	2.948385	-1.836214	0.0663
POPGRO70S	5.675169	2.787522	2.035897	0.0418
MFRATIO80	-0.041951	0.059718	-0.702487	0.4824
PERBLK80	-0.023645	0.014290	-1.654705	0.0980
PCIGRO70S	-1.963208	0.955841	-2.053906	0.0400
Mean dependent var	0.629032	S.D. dependent var		0.487007
S.E. of regression	0.399168	Sum squared resid		8.922770
Log likelihood	-28.11676	Avg. log likelihood		-0.453496
LR statistic (5 df)	25.54061	McFadden R-squared		0.312331
Probability(LR stat)	0.000110			
Obs with Dep=0	23	Total obs		62
Obs with Dep=1	39			