

# CAN TARGETING INDUSTRIES IMPROVE EARNINGS FOR WELFARE RECIPIENTS MOVING FROM WELFARE-TO- WORK?: PRELIMINARY FINDINGS

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# **Can Targeting Industries Improve Earnings for Welfare Recipients Moving from Welfare-to-Work?: Preliminary Findings**

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## **SUMMARY**

### *A. Background*

Since passage of the Personal Responsibility and Work Opportunity Act (PRWORA) by the Congress in 1996, the focus of the nation's welfare reform efforts have been on moving welfare recipients from welfare to work. The focus on rapid attachment to the labor market, or "work first" has encouraged welfare recipients to move directly into employment rather than to training or education. By most accounts, this strategy has been remarkably successful at moving recipients off the welfare rolls. Employment rates among those leaving welfare appear to have improved substantially over pre-PRWORA welfare to work efforts despite fears that the labor market could not absorb the influx of new low-skilled job seekers.

However, available research suggests that welfare recipients disproportionately find work in low-wage, industries and occupations. As Congress is preparing to re-authorize PRWORA, the question many are now asking is whether long-term economic self-sufficiency can be enhanced by paying more attention to the quality of work available to those leaving welfare.

### *B. Research Study*

This paper presents preliminary findings from a larger study that examines whether targeted industry employment and workforce development interventions—such as, sector employment initiatives—might improve the quality of employment for welfare recipients. The study explores the link between pre and post-PRWORA employment in certain industries and the quality of jobs held by former welfare recipients. The goal is to determine if the economic well being of former welfare recipients might be improved if welfare to work efforts targeted specific industries for employment initiatives for welfare recipients.

Such a study appears timely for several reasons. First, the Congress and Administration are currently in the process of reauthorization of the 1996 PRWORA. Second, all the existing research indicates that simply moving non-working welfare recipients into the labor market does not lead to significant improvements in their level of economic self-sufficiency. On average, former welfare recipients' earnings tend to hover around the poverty level. This suggests that their long-term economic prospects may be uncertain at best. Third, there is an existing infrastructure of targeted industry workforce development projects known as Sector Employment Initiatives (SEI) operating in different parts of the country. SEIs are aimed at connecting low-income job seekers to quality employment in growing economic sectors in local regional economies. These projects might serve as models for how state and local government can improve the quality of job placements for welfare recipients' transitioning from welfare-to-work.

### *C. Findings*

- First, it appears that job characteristics, such as industry and occupation, are associated with higher average annual earnings and greater job quality for single mothers, including single mothers on welfare. The paper finds that there are several sectors where single mothers earn more than average after controlling for their education and labor market experience. The data seems to suggest that there may be a number of industries where less educated single mothers can obtain above average annual earnings. This is a useful finding given that the vast majority of women on welfare are less educated.
- Second, that certain industries might provide not only higher average entry-level annual earnings, but also in addition may present the potential for upward wage progression and career advancement. For less educated single mothers, sectors such as manufacturing and health services appear to have provided above average earnings for low-income and high-income single mothers as well as women on welfare. That is, there is evidence that in some industries greater labor market experience translates into higher average annual earnings for less educated single mothers. One interpretation is that labor market experience (i.e., job experience) indicates job and occupational skills that employers are willing to pay extra for.
- Third, this sample of employed single mothers tends to be concentrated in those sectors where earnings are below average.

A major implication of these findings is that if the public and policymakers are concerned about improving long-term economic self-sufficiency as well as reducing welfare dependency designing welfare-to-work efforts that explicitly focus on job characteristics, such as industry, may be an effective strategy. In practice this would mean designing employment interventions that target specific industries because they offer relatively high annual earnings and advancement opportunities, and have relatively low access barriers to employment for less educated single women.

## I. INTRODUCTION

Since passage of the Personal Responsibility and Work Opportunity Act (PRWORA) by the Congress in 1996, the focus of the nation's welfare reform efforts have been on moving welfare recipients from welfare to work. The focus on rapid attachment to the labor market, or "work first" has encouraged welfare recipients to move directly into employment rather than to training or education. By most accounts, this strategy has been remarkably successful at moving recipients off the welfare rolls. Employment rates among those leaving welfare appear to have improved substantially over pre-PRWORA welfare to work efforts despite fears that the labor market could not absorb the influx of new low-skilled job seekers.

Lerman and Ratcliffe<sup>1</sup> found that the labor markets in 20 large metropolitan areas successfully absorbed the large number of welfare recipients. They found that labor force participation for single mothers increased substantially between 1996 and 1998 without any evidence that they displaced other low-skilled workers. While work effort has improved, it is less clear whether working more has led to greater economic self-sufficiency for recipients leaving welfare for work. One reason may be that the quality of employment held by former welfare recipients is poor.

Several studies have examined the characteristics of employment held by former welfare recipients. In a 1999 study, Brauner and Loprest<sup>2</sup> reviewed 11 evaluations of state welfare reform efforts. They found that while employment rates for welfare recipients appeared to have increased the quality of employment was poor. In general, these state studies show that employed former welfare recipients were not earning enough to raise their incomes much above the poverty level.<sup>3</sup>

MDRC also found similar results in their National Evaluation of Welfare-to-Work Strategies (NEWWS).<sup>4</sup> In their study of state welfare-to-work employment programs, MDRC found that while employment rates for welfare recipients entering the labor market improved earnings were generally low. This pattern seemed to hold whether a state's program emphasized, "work first" or focused on training and education.

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<sup>1</sup> See, Did Metropolitan Areas Absorb Welfare Recipients without Displacing Other Workers?, Robert Lerman and Caroline Ratcliffe, The Urban Institute, November 2000.

<sup>2</sup> See Where are they now? What States' Studies of People Who Left Welfare Tell Us by Sarah Brauner and Pamela Loprest, The Urban Institute, 1999.

<sup>3</sup> In Welfare Recipients Who find Jobs: What do We Know About Their Employment and Earnings?, Sharon Parrott, Center on Budget and Policy Priorities, November 1998, also found that those leaving welfare improved their employment rates but were not able to earn enough to escape poverty.

<sup>4</sup> The National Evaluation of Welfare-to-Work Strategies Evaluation: The Experiences of Welfare Recipients who find Jobs, Karin Martinson, MDRC, December 2000.

Finally Loprest<sup>5</sup> found that the results identified in the selected state studies appear to be consistent with national results. That is, despite improvements in employment rates, former welfare recipients held low-quality jobs. Not only were earnings low, but most jobs held by former welfare recipients did not provide traditional fringe benefits such as health insurance. Moreover, the study found that consistent with state level studies former welfare recipients nationally also tended to be concentrated in low-wage industries and occupations.

Several of these studies suggest a possible link for former welfare recipients between industry and occupation and the quality of employment. That is, after controlling for relevant human capital and personal characteristics and labor market conditions some industries appear to provide higher quality jobs for welfare recipients than other industries do.

A study of jobs held by welfare recipients in Milwaukee County found that while differences in education levels for welfare recipients were positively correlated with earnings, there still appeared to be certain industries where welfare recipients received higher earnings.<sup>6</sup> For example, health care and manufacturing seemed to offer more full-time and higher wage employment for welfare recipients' transitioning into the labor market. However, this study does not appear to have controlled for differences in human capital.

A statewide study of Wisconsin found that former welfare recipients employed in the Financial, Insurance, and Real Estate Industry (FIRE), Durable Manufacturing, and Health Services tended to have higher median wages in the first quarter following exit from welfare than former recipients employed in other industries. Unfortunately, this study did not control for other factors that might affect both employment and earnings.

Bartik in a 1997 study attempted to examine the link between industry and occupation and job quality for welfare recipients after controlling for differences in human capital and labor market conditions.<sup>7</sup> The study covered a 13-year period from 1983 to 1995—pre-PRWORA. The Bartik study examined whether initial employment in the previous year in certain industries led to higher rates of employment and earnings for welfare recipients. He found a statistically significant positive relationship between the industry a welfare mother works in one year, and her employment and earnings in the next year.

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<sup>5</sup> How Families That Left Welfare Are Doing: A National Picture, Pamela Loprest, The Urban Institute, August 1999.

<sup>6</sup> The Employer Perspective: Jobs Held by the Milwaukee County AFDC Single Parent Population (January 1996-March 1997), John Pawasarat, Employment and Training Institute, University of Wisconsin-Milwaukee, December 1997.

<sup>7</sup> Short-term Employment Persistence for Welfare Recipients: The Effects of Wages, Industry, Occupation, and Firm Size, Timothy Bartik, W.E. Upjohn Institute for Employment Research, June 1997.

If there is a link between industry and job quality for welfare recipients, as the studies above suggest, than targeting employment efforts by industry may be an effective strategy for improving the economic wellbeing of recipients attempting to leave welfare for work. However, at this point there has been no effort to examine whether the link between industry and job quality for former welfare recipients exists after controlling for human capital characteristics and labor market conditions in the post-PRWORA period.

## II. BACKGROUND

This paper presents preliminary findings from a larger study that examines whether targeted industry employment and workforce development interventions—such as, sector employment initiatives—might improve the quality of employment for welfare recipients. The study explores the link between pre and post-PRWORA employment in certain industries and the quality of jobs held by former welfare recipients. The goal is to determine if the economic wellbeing of former welfare recipients might be improved if welfare to work efforts targeted specific industries for employment initiatives for welfare recipients.

Such a study appears timely for several reasons. First, the Congress and Administration are currently in the process of reauthorization of the 1996 PRWORA. Second, all the existing research indicates that simply moving non-working welfare recipients into the labor market does not lead to significant improvements in their level of economic self-sufficiency. On average, former welfare recipients' earnings tend to hover around the poverty level. This suggests that their long-term economic prospects may be uncertain at best. Third, there is an existing infrastructure of targeted industry workforce development projects known as Sector Employment Initiatives (SEI) operating in different parts of the country. SEIs are aimed at connecting low-income job seekers to quality employment in growing economic sectors in local regional economies. These projects might serve as models for how state and local government can improve the quality of job placements for welfare recipients' transitioning from welfare-to-work.

## III. METHODOLOGY

### A. Study Indicator

The most obvious and universally accepted measure of job quality is *average earnings*. Given this, the dependent variable in this study is *average annual earnings*. Most available research seems to indicate that on average former welfare recipients often earn wages that are not high enough to keep a family out of poverty. However, there clearly appears to be some variation in earnings. One hypothesis is that after controlling for personal characteristics and variations in labor market conditions earnings vary by industry. The alternative is that earnings do not vary by industry. Instead, differences in worker productivity and local labor market

conditions explain earnings variations. This preliminary findings paper explores whether earnings vary for employed former welfare recipients based on industry after controlling for differences in education and differences in labor market attachment.

### *B. Sample and Data*

The study will examine 18-64 year old single women with children under the age of 18 years old. The sample will be divided into three groups controlled by education:

- The target population for the study is single employed women with children under 18 years old who received welfare in the previous year. Because the data set cannot specifically identify former welfare recipients, this group serves as a proxy for single mothers transitioning from welfare-to-work. This group is referred to as welfare moms.
- The second group is single employed women with children under 18 years old who did not receive welfare in the previous year and whose earned income is less than or equal to 150 percent of the poverty level for a family of three. This group is referred to as low-income mothers, and is used as a comparison group. One expectation is that this group will have very similar labor market experiences as welfare moms.
- The third group is single employed women with children under 18 years old whose earned income is greater than 150 percent of the poverty level for a family of three. This group is referred to as high-income mothers. This group is also used as a comparison group.

Each of these three groups is divided into four categories based on educational attainment:

- Individuals that did not receive a high school degree or its equivalent.
- Individuals that received only a high school degree or equivalent.
- Individuals that have some college but no degree.
- Individuals with a college degree or more.

Table 1 presents the groups.

<b>TABLE 1. CATEGORIES FOR SAMPLE OF SINGLE MOTHERS USED IN STUDY</b>				
WELFARE STATUS/INCOME GROUP	EDUCATIONAL ATTAINMENT			
	< HS	= HS	HS+	>=BA
Employed Welfare Recipients	X	X	X	X
Employed, non-welfare recipients with income 150% or less of the poverty level for a family of 3	X	X	X	X
Employed, non-welfare recipients with income above 150% of the poverty level for a family of 3	X	X	X	X

The Sample was drawn from the March 1993 – 2000 Current Population Survey (CPS). The CPS is a 50-year old monthly survey of about 50,000 households conducted by the Bureau of the Census for the Bureau of Labor Statistics (BLS). The CPS is the primary source of information on the labor force characteristics of the U.S. population. Estimates are available for a range of employment-related and other indicators available by a variety of demographic characteristics, as well as by industry, occupation, and class of worker. The major advantage of the CPS is its frequency. However, the survey is designed to be statistically reliable primarily at the national level. While analysis of the data at the sub-national level is possible, it should be done with great care.

### *C. Analytical Approach*

The study compares industry level differences in average earnings within and across the three groups in the sample. This paper tests the hypothesis that there are differences in average earnings by industry after controlling for education and labor market experience. The industry of employment is the key predictor variable. The expectation is that employed single mothers experience statistically significant differences in average earnings between industries after controlling for education and labor market experience.

To test this hypothesis, the average annual industry earnings for each category in table 1, is compared to a standard to determine if there is a statistically significant difference. The standard is the average annual earnings for the average individual within each group. Specifically, the average wage for single mothers employed in a given industry<sup>8</sup> is compared to the average earnings for the average employed single mother. Holding education and

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<sup>8</sup> Industries are derived from the census industries. Because of small sample sizes industries are generally presented at the 1-digit or major industry groups. In some instances it was necessary to combine several major industry groups.

welfare/income status constant, the test asks: On average, does a single welfare mother working in given target industry have statistically higher earnings than the average employed single welfare mother? For example, the average annual earnings for single welfare mothers without a high school education working in manufacturing is compared to the average wage for all single employed welfare mothers without a high school education.

In order to determine if observed earnings differences are statistically significant standard scores are calculated using the following formula:

$$\text{Standard score for the earnings differences (ED)} = ((X_{ig} - M_g) / (SD / N_2)) / Z\text{-test}$$

Where:

$X_{ig}$  = Average earnings for industry “i”, group “g”

$M_g$  = Average earnings for all workers in Group “g”

SD = Standard deviation for  $X_{ig}$

$N_2$  = Square root of sample size for number of subjects in industry “i”, group “g”

Z-test = test for statistical significance at 5% level using normal distribution<sup>9</sup>.

The statistical test is:  $X_{ig}$  is not equal to  $M_g$ . A standard score of 1 or more indicates that annual earnings in a given industry are above the average. It means there is a 95 percent probability that  $X_{ig}$  is greater than  $M_g$ . A standard score of -1 or less indicates that average annual earnings for a given industry were less than average. It means there is a 95 percent probability that  $X_{ig}$  is less than  $M_g$ . Standard scores between 1 and -1 indicate there are no statistical differences between  $X_{ig}$  and  $M_g$ .

Variations in education and work experience are considered central to explaining differences in earnings and job quality between individuals and groups. Given this, one explanation for the generally low wages of welfare recipients transitioning to work observed in several studies is that welfare recipients have less human capital (i.e., education and work experience) than other workers. Similarly, earnings differences between industries for welfare recipients transitioning to work might also be explained by variations in human capital. That is, what has been observed in some studies as industry-based differences in earnings might actually reflect the fact that some welfare recipients have higher levels of human capital than others do.

In order to control for differences in human capital that might affect the results, education, welfare receipt, and income group are used as proxies for human capital and labor market skills. Education is used to indicate general skill and preparation for work. Individuals

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<sup>9</sup> If sample size is less than 30 the student's t-distribution is used to obtain test statistic.

with higher education levels are considered more highly skilled, and therefore all other things being equal should be expected to earn more than individuals with lower levels of education. On the other hand, if there are variations in earnings for individuals with the same education level then other factors should be considered.

One possibility is that employers reward workers based on their perception of the quality of an individual's education. For instance, employers may consider those educated in rural or inner-city schools to be less competent than individuals educated in suburban settings. This quality variable is often difficult to measure.

Another factor that might influence the earnings of workers with the same education level is work experience. Employers may also pay a premium to workers who have acquired additional job skills from on-the-job experience. This type of work-related job skills is difficult to directly measure, but there are indirect measures that might be used.

In this paper, welfare status and income group are used as a proxy for work experience and labor market attachment. Welfare status provides an indication of weak labor market attachment. Women on welfare have generally had a very limited employment history. Welfare status may also be an indicator of the quality of job skills and educational attainment. Welfare recipients may have had less success in the labor market because the quality of their education may be low compared to other women with similar levels of educational attainment. Finally, welfare receipt may indicate poor attitudes toward work and the lack of employability skills often called "soft skills". On the other hand, an assumption can be made that single mothers not receiving welfare who have higher incomes than welfare recipients probably have more work experience and a higher level of labor market attachment.

The result of this analysis is presented in a series of charts and tables. Each chart presents the standard score for the wage difference, between the average industry wage and the average wage for the average worker within an education category for each of the three groups of single mothers. In addition to the charts, industries with above average earnings are presented in three summary tables controlled for educational attainment and income/welfare status.

### **III. FINDINGS**

#### *A. Employment Distribution for Single Women with Minor Children*

Examining employment distribution provides insight into where single mothers are most likely to work. While the distribution does not explain the employment concentration it does provide some sense of actual or perceived access. Figure 1-4 presents the employment distribution by industry for single mothers controlling for education, income and welfare status.

The interesting finding, in figures 1-4 is that in general the industry of employment seems to be determined primarily by educational attainment and not income or welfare status.

Single mothers without a 4-year college degree tended to work disproportionately in the trade sector (wholesale and retail trade) regardless of welfare status or income level. In general, while there were some variations, the employment distribution of working single mothers without a 4-year college degree was very similar even after controlling for income and welfare status.

Surprisingly, after controlling for income and welfare status, college educated women also have a similar industry employment distribution. However, college educated single mothers tended to be concentrated in educational services.

### *B. Earnings and Education*

Before turning to the role that industry plays in earnings differences, two assumptions are addressed. First, there is an assumption that welfare status and income level can serve as proxies for labor market experience. This assumption allows for labor market experience to be used as a control in explaining earnings differences. Second, there is an assumption that education is related to earnings. That is, as education increases so do earnings. If this assumption holds then it makes sense to control for education as a proxy for work skills.

To test the assumption that welfare status and income can serve as rough proxies for labor market experience, the paper examines whether there are statistically significant differences in earnings between employed single mothers receiving welfare and employed single mothers not receiving welfare. Holding education and industry constant, the earnings of low- and high-income women are compared to the earnings of welfare recipients. The hypothesis is that employed low- and high-income single mothers should have higher average earnings than employed welfare mothers with the same education employed in the same industries.

Holding education and industry constant, figures 5-8 (9-12) present the difference in average annual earnings between high and low-income single mothers and single mothers on welfare. First, high-income women earned more than women on welfare across all industries and all education groups. Given this, the focus will be on the differences between employed single mothers on welfare and employed single mothers earning less than 150 percent of poverty for a family of three. For women without a high school education, there were only three sectors--educational services, construction/ transportation, and personal services--where low-income women did not earn more on average than welfare recipients did.

Low-income high school educated women, earned more than women receiving welfare in all but two sectors--resource industries<sup>10</sup>, and financial and business services. Similarly,

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<sup>10</sup> Resource industries are composed of agriculture, mining, and forestry and fishing.

there were only two sectors--resource industries and manufacturing--where low-income women with some college education, but no college degree, did not earn more than welfare recipients did. (See figures 5-8 [9-11].)

Surprisingly, there were only two sectors--manufacturing and construction/transportation--where college-educated low-income women earned more than welfare recipients did. In fact, on average across all industries college-educated, low-income women had lower average annual earnings than employed welfare recipients did. There were four sectors--wholesale and retail trade, health services, personal services, and educational services--where low-income women actually statistically lower annual earnings than similarly educated welfare recipients. (See figure 8[12].) It's difficult to discern why such a situation should exist. It is possible that low-income college educated women may actually have unobservable barriers that overwhelm the potential advantage derived from greater employment experience when compared to welfare recipients. However, the most likely explanation is a problem with the data. The number of college educated single welfare mothers during the timeframe of the study was extremely modest. The small sample size may have created these anomalies.

In general, welfare recipients moving into the labor market appear to earn less than other single mothers did even after controlling for education and industry. The findings suggest that welfare and income might be acceptable proxies for labor market experience.

Table 2 examines whether education is related to earnings. Holding welfare status and income constant and using high school only graduates as the reference group, table 2 presents the standard scores for the earnings differences between non-high school graduates, individuals with some college, but no degree, and college graduates, and high school only graduates. Table 2 indicates that in general education and earnings have a positive relationship as education goes up earnings also increase. In general, high school graduation seems to lead to the most consistently dramatic improvement in earnings for all three groups of employed single mothers.

The major exception is for employed high-income single mothers. For this group, getting a college degree made the most significant contribution to earnings. The most surprising finding from table 2 is that for college educated employed low-income single mothers do not appear earn more than high school graduates. This result may reflect differences in educational distribution. That is the sample sizes for college educated low-income single mothers may be too small to capture the real variations. Employed high-income mothers are substantially more likely to have a college education than either welfare or low-income single mothers. (See figure 9.) However, welfare and low-income single mothers have a very similar educational distribution and college education does appear to increase earnings for single mothers receiving welfare. (See figure 9.)

<b>TABLE 2. STANDARDIZED EARNINGS DIFFERENCES WITH HIGH SCHOOL ONLY GRADUATES BY WELFARE STATUS AND INCOME GROUP</b>			
	< HIGH SCHOOL	SOME COLLEGE-NO DEGREE	COLLEGE GRADUATE
Welfare	-4.43	1.18	2.88
Low-Income	-7.97	-0.29	-0.80
High-Income	-11.96	2.84	19.05
Authors calculation from 1993 – 2000 Current Population Survey			

The results seem to suggest that education is a good proxy for job skills for all employed single mothers since earnings tend to rise as education increases. Welfare status and income also appear to be reasonable rough proxies for labor market experience since low-and high-income single mothers tend to earn more than welfare recipients with the same education employed in the same industries.

*B. Relationship between earnings and Industry*

The main question this paper seeks to address is whether there are statistically significant differences in earnings for working single mothers based on what industry they are employed in. Figures 10-13 [5-8] present the standardized wage gaps by industry for single mothers controlling for education, income level and welfare status. A standard score of 1 or more indicates that average annual earnings are statistically different from average annual earnings for the average single mother within the education and income/welfare group. For example, a standard wage score of 1.24 for welfare moms without a high school education employed in manufacturing, means that average annual earnings in manufacturing are higher for single welfare mothers without a high school education than average annual earnings for all employed welfare mothers without a high school education.

After controlling for education, welfare status, and income level, there were several industry groups that provided above average annual earnings for single mothers (see figures 10-13 [5-8]). Interestingly, these industry groups were not necessarily the industries where single mothers were most likely to be employed. For example, while women without a college degree, were disproportionately employed in wholesale and retail trade (see figures 1-3), the trade sector generally provided below average annual earnings (see figures 10-12 [5-7]). On the other hand, despite the fact that single mothers had relatively low rates of employment in the construction/transportation sector, this industry group often provided above average annual earnings (see figures 1-4 and figures 10-13 [5-8]). However, there were several industry groups,

such as manufacturing, health services, and financial and business services<sup>11</sup>, where single mothers seemed to have had reasonable access to employment (see figures 1-4), and above average annual earnings (see figures 10-13 [5-8]).

Table 3 summarizes the findings from figures 10-13 [5-8]. The table allows several questions to be answered. First, which industries provided consistent opportunities for above average annual earnings within education groups? Second, which industries provided above average annual earnings within income/welfare groups after controlling for education? Third, which industries provided the potential for career and wage advancement?

Within education groups, there are four sectors—manufacturing, health services, construction/ transportation, and financial and business services—that seem to consistently provide above average annual earnings for single mothers (see table 2). While these four industry groups were particularly important for single mothers with no more than a high school degree, they also provided above average wage opportunities for women with at least some college education (see table 3).

For single mothers receiving welfare manufacturing or health services provided above average annual earnings regardless of educational attainment (see table 2 and figures 10-13). Within this same group, those with no more than a high school degree, also found above average annual earnings in financial and business services, and the construction/ transportation industry group. While the data suggests a relationship between wage levels and industry for all single mothers receiving welfare, the association seems strongest for less educated welfare mothers.

Low-income single mothers, not receiving welfare, regardless of education, also tended to find above average annual earnings in manufacturing and health services (see table 3). Indeed, low-income single mothers not receiving welfare and single mothers receiving welfare seemed to find above average annual earnings in roughly the same industry groups. This relationship is most noticeable for less educated low-income and welfare single mothers (see table 2).

While it might be reasonable to assume that high-income single mothers would most likely find their best opportunities in different industries than single low-income and welfare mothers; this is not entirely accurate. In fact, the four industries—manufacturing, financial and business services, construction/ transportation, and health services—that consistently provided above average annual earnings for high income single mothers, also tended to provide above average annual earnings for single low-income and welfare mothers. This relationship was particularly noticeable for less educated high-income, single mothers. (See table 2.)

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<sup>11</sup> Financial business services are composed of the financial, insurance and real estate sector (FIRE), business services, and communications.

<b>TABLE 3. STANDARD SCORES FOR INDUSTRIES PROVIDING ABOVE AVERAGE ANNUAL EARNINGS FOR SINGLE MOTHERS BY EDUCATION AND INCOME/WELFARE STATUS (1= ABOVE AVERAGE)</b>				
	EDUCATION			
INDUSTRY GROUP	<HS	HS ONLY	SOME COLLEGE	>= BA
SINGLE MOTHERS RECEIVING WELFARE:				
Manufacturing	1.24		2.38	
Health Services	1.95	1.44		1.82
Construction/ Transportation	1.07	1.23		
Financial and Business Services		1.80		
LOW-INCOME SINGLE MOTHERS NOT RECEIVING WELFARE				
Manufacturing	5.37	4.00	3.65	1.20
Health Services	4.28	3.31	2.44	
Financial and Business Services	1.22		1.02	
Personal Services (except household)	2.46	1.11		
Other Services		2.22		
Educational Services			1.38	
HIGH-INCOME SINGLE MOTHERS NOT RECEIVING WELFARE				
Manufacturing	3.56	1.75	2.52	2.11
Health Services	1.07			1.31
Financial and Business Services	1.78	2.30	2.75	
Personal Services (includes household)				2.77
Other Services		2.83	4.52	1.54
Construction/ Transportation	2.40	2.97	4.37	

\* Standard Scores are based on 5 percent level of significance.

The findings presented in figures 10-13 [5- 8] and table 3, support the hypothesis that after controlling for education, welfare status, and income level, that certain industries provide single mothers with above average annual earnings. This suggest then that certain industries are more likely than others to provide employment with the type of annual earnings and working conditions necessary to assist single welfare and low-income mothers to achieve economic self-

sufficiency. However, long-term economic self-sufficiency also depends on whether industries also provide opportunities for wage and career advancement.

### *C. Possible Existence of Career Ladders within Industries*

One approach to testing whether an industry provides opportunities for upward mobility is to examine whether workers with similar personal characteristics and education find opportunities to earn higher annual earnings based on different levels of labor market experience. If we assume that welfare status indicates, among other things, a weaker lifelong attachment to the labor market, then it is possible to treat the non-welfare group as representing individuals with greater attachment and experience in the labor market. (See figures 5-8.) Based on this assumption, it is possible to assess whether an industry that provides above average annual earnings for welfare recipients also provides above average annual earnings for higher income single mothers with the same educational background.

Given this assumption, tests can be performed to assess the existence of potential industry job ladders. First, holding education constant, determine whether there were industry groups that provided above average annual earnings for all single mothers regardless of their welfare or income status. Second, again holding education constant, determine whether low- and high-income single mothers earn more than single mothers receiving welfare employed in the same industries.

Table 4, along with table 3, presents the results of these two tests for selected industry groups. Column 1 presents four industry groups that consistently appeared to provide above average earnings for both welfare and non-welfare employed single mothers. Column 2 presents the standard score for wage differences between employed single welfare mothers employed in these target industries and the average employed single welfare mother by education. Column 3 and 4 compare the earnings of low-income and high-income employed single mothers to welfare moms. The results are presented as standardized wage differences between low-income mothers and high-income mothers, and welfare moms in each of the target industries.

<b>TABLE 4. STANDARDIZED ANNUAL EARNINGS DIFFERENCES BY INDUSTRY, EDUCATION, WELFARE STATUS AND INCOME GROUP FOR SINGLE MOTHERS</b>			
	WAGE DIFFERENCE COMPARED TO AVERAGE	EARNINGS DIFFERENCES COMPARED TO WELFARE MOTHERS	
INDUSTRY	FOR WELFARE RECIPIENTS	FOR LOW-INCOME	FOR HIGH-INCOME
Less than High School			
Manufacturing	1.24	8.35	14.95
Health Services	1.95	3.58	7.88
Financial and Business Services	-0.53	5.97	7.80
Construction/ Transportation	1.07	0.47	4.65
High School Only			
Manufacturing	0.54	9.31	19.49
Health Services	1.44	5.07	21.67
Financial and Business Services	1.80	0.76	13.94
Construction/ Transportation	1.23	1.31	8.71
Some College			
Manufacturing	2.38	2.56	15.98
Health Services	0.91	4.24	15.66
Financial and Business Services	0.13	4.40	14.52
Construction/ Transportation	-1.18	3.87	17.47
College Educated			
Manufacturing	-0.49	1.50	9.86
Health Services	1.82	-2.01	16.78
Financial and Business Services	0.44	-0.94	11.00
Construction/ Transportation	-1.66	1.96	12.57
Source: Authors Calculation from annual Current Population Survey 1993-2000.			

The standard scores<sup>12</sup> can be compared to each other to assess the size of the wage differences. Holding education constant, the table allows an assessment of whether the assumed additional work experience and labor market attachment of non-welfare mothers translates into higher wages. If work experience and labor market attachment is associated with higher earnings it suggests the possible existence of a job ladder.

Table 4 seems to confirm that higher levels of work experience and labor market attachment in the target industries appear to lead to earnings growth—an indication of a possible job ladder. Holding education constant, with only a few exceptions, low-income and high-income mothers earned more in the target industries than welfare mothers. If welfare recipients are assumed to be moving primarily into entry-level positions these results seem to suggest job and earnings progression from entry-level work to more experienced and higher skilled jobs. For single mothers without a college degree, manufacturing, health services, financial and business services, and construction/ transportation appear to provide above average earning possibilities for entry-level workers<sup>13</sup> and to reward increased labor market experience even without increasing formal education.<sup>14</sup> (See tables 3 and 4.) In general, holding education constant, single mothers employed in these industries tended to have above average annual earnings and it appears that job or labor market experience tended to lead to higher annual earnings.

A review of the standard scores within industries indicates that the average earnings progression from welfare to low-income, to high-income in some instances were quite substantial. For example, in manufacturing for single mothers without a high school education, the standard wage difference between low-income mothers and welfare mothers was 8.35, while the earnings gap, between high-income mothers and welfare mothers, was 14.95. Because education was held constant, these often, substantial wage gaps cannot be explained by differences in educational attainment. As a result, industries such as manufacturing and health services appear to have the potential of providing above average entry-level annual earnings and opportunities for wage and career advancement. (See table 4 and figures 5-8 [9 – 12].)

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<sup>12</sup> See methodology section for explanation of standard scores.

<sup>13</sup> The assumption is that women leaving welfare for work are most likely to be hired into entry-level positions that require limited experience.

<sup>14</sup> Figures 9-12 present standardized wage differentials between high and low-income single mothers and employed welfare recipients. If the industry rewards labor market experience then high and even low-income single mothers should on average receive higher wages than women on welfare with the same education levels. For the most part, this seems to be the case.

#### IV. SUMMARY AND IMPLICATIONS

This paper presents preliminary findings from a larger study that examines the relationship between average annual earnings and other measures of job quality, and job characteristics, such as industry and occupation for single mothers leaving welfare, after controlling for personal, demographic, and economic factors. This preliminary paper examines the relationship between average annual earnings and industry for single mothers, 18-64 years old with children under 18 years old, after controlling for education and income/welfare status.

The tentative finding of this preliminary paper is that job characteristics, such as industry and occupation, are associated with higher average annual earnings and greater job quality for single mothers, including single mothers on welfare. The paper finds that there are several sectors where single mothers earn more than the average wage after controlling for their education and income/welfare status. The data seems to suggest that there were several industries where less educated<sup>15</sup> women on welfare earned above average annual earnings. This is a useful finding given that the vast majority of women on welfare are less educated.

The paper also found that certain industries might provide not only higher average entry-level annual earnings, but in addition may present the potential for upward annual earnings and career advancement. For less educated single mothers, sectors such as manufacturing and health services appear to have provided above average earnings regardless of income/welfare status. That is, holding education constant, there is evidence that in some industries it was possible for less educated single mothers to receive higher average annual earnings as they increased their job experience and labor force attachment.

This is also a useful finding. It implies that in several sectors it may be possible for these women to substitute work experience and on-the-job training for formal education, and still achieve improvements in earnings and job quality. This does not mean that better educated welfare recipients do not earn more than less educated welfare recipients. In fact, this paper tends to generally support the assertion that education and earnings are positively related—as education goes up so do earnings.

However, the preliminary findings in this paper suggest that work experience is also an important attribute for job progression. Moreover, many single mothers entering the labor force, either because of policy changes such as welfare reform, or simple economic necessity will find it difficult or might even be unwilling to work and simultaneously attempt to increase their level of education. Given this, knowing that there are some industries where job and earnings advancement can be achieved without increases in formal education is good news.

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<sup>15</sup> Less educated is the same as no more than a high school education.

Finally, it is important to note that non-college educated employed single mothers are often concentrated in economic sectors where their earnings are below average. There are several possible explanations for this finding. These higher earnings sectors for a variety of reasons, may be difficult for women, especially single mothers, to access. Single mothers may not find these higher earning sectors attractive. Because the study examines earnings differences nationally, it does not control for differences in geographic concentration and mix of industry. It is possible that the high earning sectors are geographically concentrated in only a few locations around the country. However, if there is an interest in promoting economic self-sufficiency, it might be useful to further explore what if anything might be done to increase transitioning from welfare to work to enter those sectors that provide higher than average earnings.

A major implication of these findings is that if the public and policymakers are concerned about improving long-term economic self-sufficiency as well as reducing welfare dependency designing welfare-to-work efforts that explicitly focus on job characteristics, such as industry, may be an effective strategy. In practice this would mean designing employment interventions that target specific industries because they offer relatively high annual earnings and advancement opportunities, and have relatively low access barriers to employment for less educated single women.

These preliminary findings do have some limitations. First, because sample sizes were small for certain industry categories, it was necessary to combine industries. This process of aggregating industries runs the risk of creating categories that may not be entirely meaningful. Where possible industries were aggregated based on the census 1-digit and 2-digit industry codes. When sample sizes were still too small industries were aggregated based on similarity of activities, services, and products. For example, agriculture, mining, forestry, and fishing were combined into a resource sector.

Second, while the industry aggregations in the paper do suggest the potential importance of job characteristics such as industry, the level of aggregation may be misleading when applied to a specific urban or rural economic region. For example, manufacturing, one of the industries that was shown to have produced higher than average annual earnings for single mothers, is composed of a large number of industries, industry clusters, and products. Nationally, manufacturing may provide above average jobs in the aggregate, but in any individual community it may be far less promising.

Third, the statistical techniques used in this paper only controlled for a relatively small number of factors that might be relevant to determining differences in average annual earnings. For instance, the differences in earnings between industries for single mothers could be the result of a variety of demand or supply side issues. On the demand side, earnings might be higher for several reasons. Earnings may be higher in a given industry even if it does not pay higher hourly wages because it provides greater opportunities to work full-time or overtime

hours. Some industries, for example are primarily structured around part-time work, while others primarily provide full-time opportunities. Earnings may also be higher because employers are paying for unobserved job related skills. Finally, the strength of the local labor market or institutional factors such as unionization or the existence of right-to-work laws may also influence earnings.

There are also supply side considerations that might affect earnings. A worker may trade work for leisure (or family) time, if there is an additional source of reliable household or family income. Such income may be provided by a live-in partner or child support and alimony payments from an ex-spouse. Welfare benefits and other government supports might reduce labor market supply as well. Single mothers may also be forced to work less because of childcare responsibilities. As a result, earnings differences may actually reflect differences in labor market attachment.

However, even with these caveats these preliminary research findings suggest that the economic wellbeing of welfare recipients moving from welfare to work can be improved by using employment and workforce strategies that target specific sectors, industries and industry clusters. While these preliminary findings are not conclusive, it might be well worth exploring how to encourage industry targeting as a component of welfare-to-work efforts.

The next stage in this research project will be to develop a series of econometric models that will be used to test the hypothesis concerning the relationship between average wage and job characteristics while controlling for a variety of human capital, demographic, and economic factors related to individual wage differences. However, a second, preliminary findings paper is planned that will examine whether there are differences in the availability of health care benefits based on industry. One of the major hurdles facing single mothers attempting to move from welfare to work is concern about whether low-wage jobs are likely to cover healthcare benefits currently provided by welfare. Presumably, industries with both higher annual earnings and healthcare benefits would make the most appealing targets for industry targeting efforts.

## REFERENCES

- Bartik, Timothy, Short-term Employment Persistence for Welfare Recipients: The Effects of Wages, Industry, Occupation, and Firm Size, W.E. Upjohn Institute for Employment Research, June 1997.
- Brauner, Sarah and Pamela Loprest, Where are they now? What States' Studies of People Who Left Welfare Tell Us, The Urban Institute, 1999.
- Lerman, Robert and Caroline Ratcliffe, Did Metropolitan Areas Absorb Welfare Recipients without Displacing Other Workers? , The Urban Institute, November 2000.
- Loprest, Pamela, How Families that Left Welfare are Doing: A National Picture, The Urban Institute, August 1999.
- Martinson, Karin, The National Evaluation of Welfare-to-Work Strategies Evaluation: The Experiences of Welfare Recipients who find Jobs, MDRC, December 2000.
- Parrott, Sharon, *Who finds Jobs: What do we Know About Their Employment and Earnings?* , Center for Budget and Policy Priorities, November 1998.
- Pawasarat, John, The Employer Perspective: Jobs Held by the Milwaukee County AFDC Single Parent Population (January 1996-March 1997), Employment and Training Institute, University of Wisconsin-Milwaukee, December 1997.

## FIGURES

Figure 1. Employment by Industry for Single Mothers with Less than High School, 1993-2000

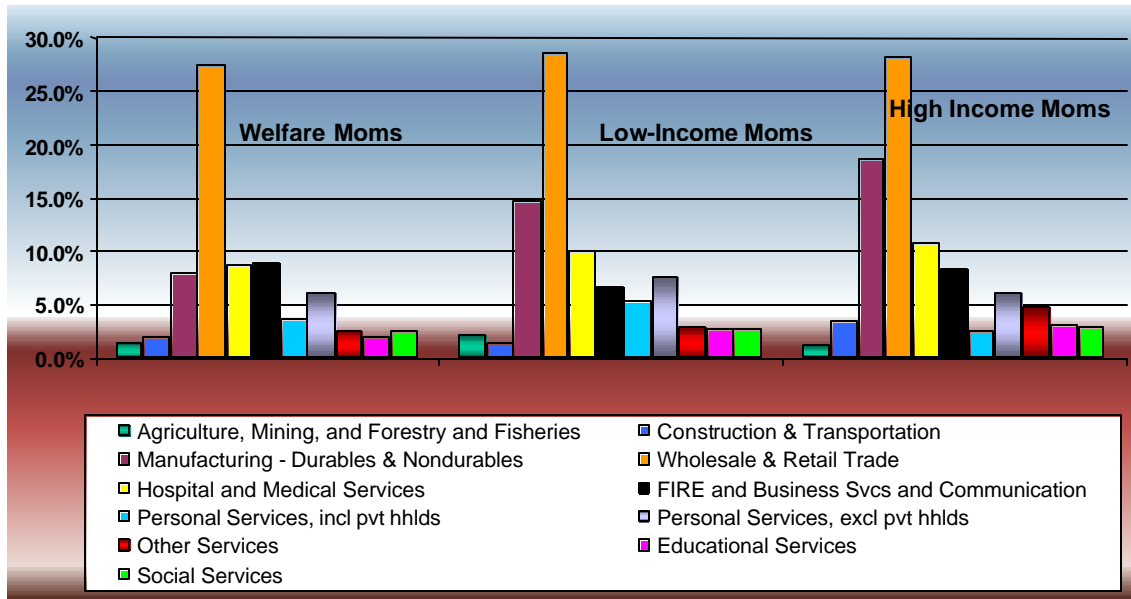


Figure 2. Employment by Industry for Single Mothers with High School Education only, 1993-2000

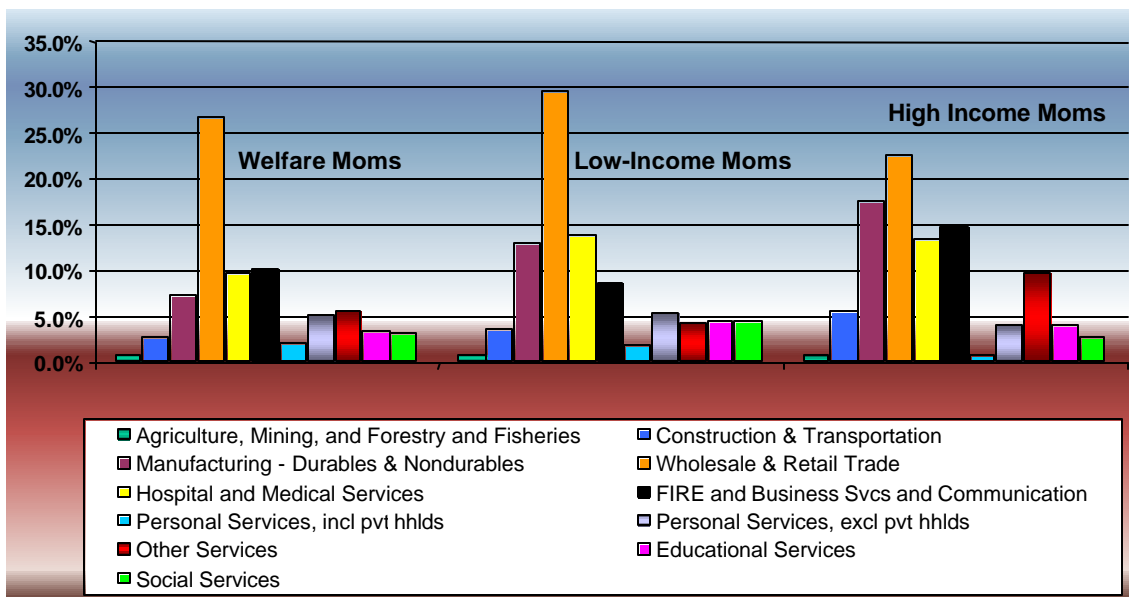


Figure 3. Employment by Industry for Single Mothers with Some College Education, 1993-2000

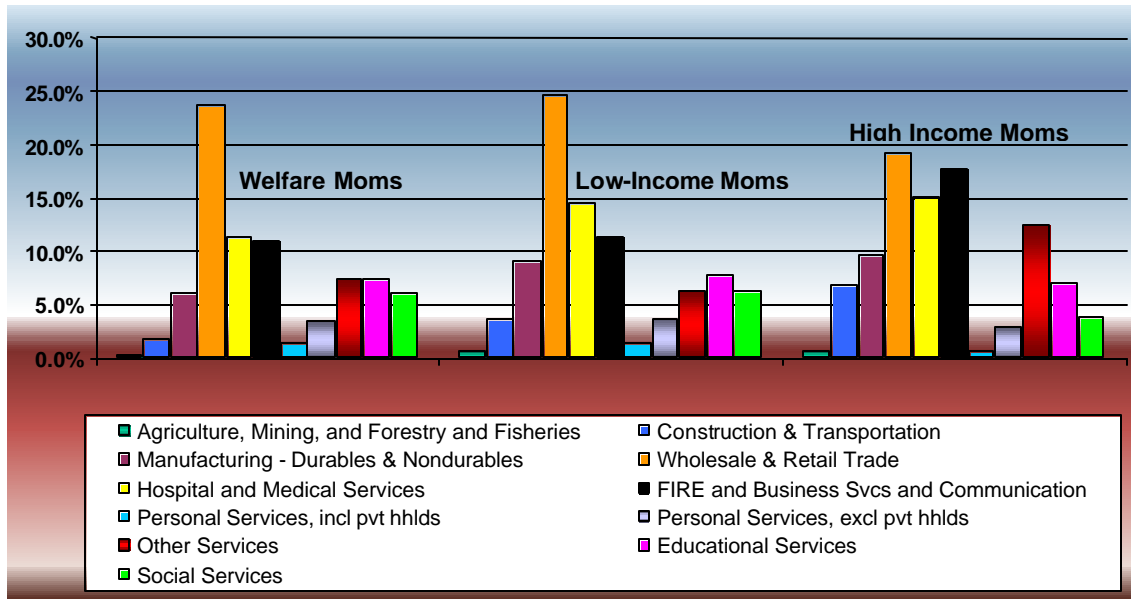


Figure 4. Employment by Industry for Single Mothers with College Education, 1993-2000

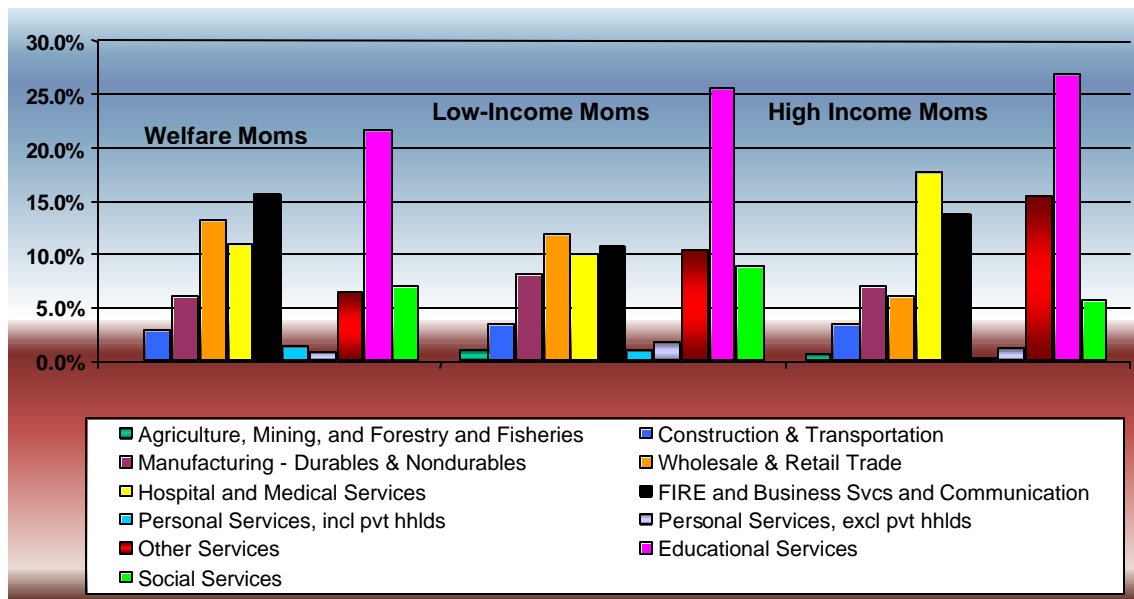


Figure 5. Standard Earnings Gaps with Welfare Moms by Industry for Less Than HS, 1993-2000

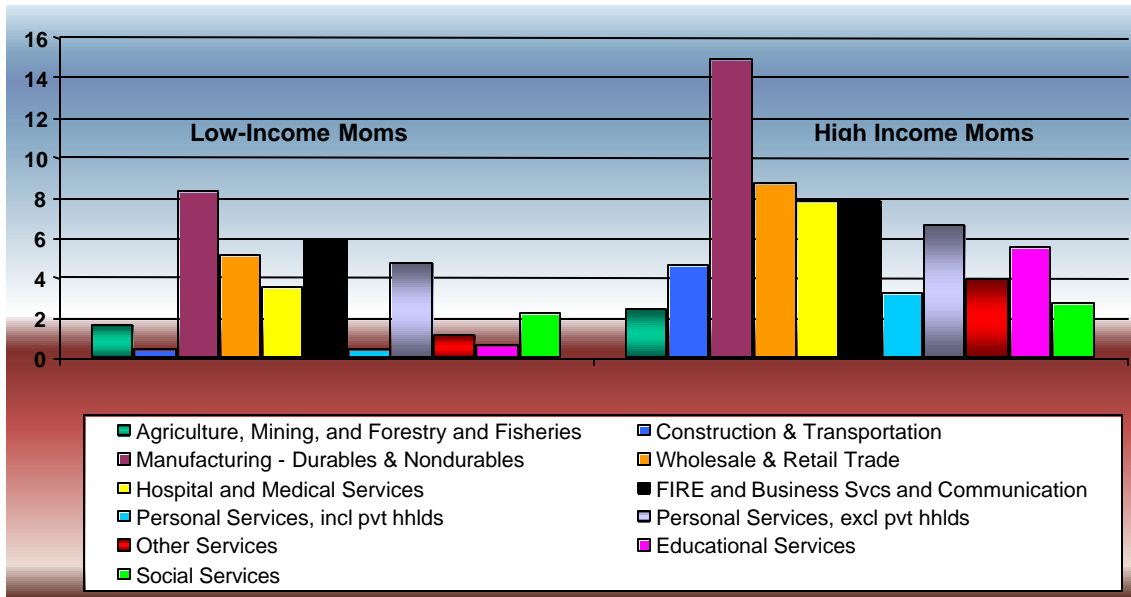


Figure 6. Standard Earnings Gaps with Welfare Moms by Industry for HS Grads, 1993-2000

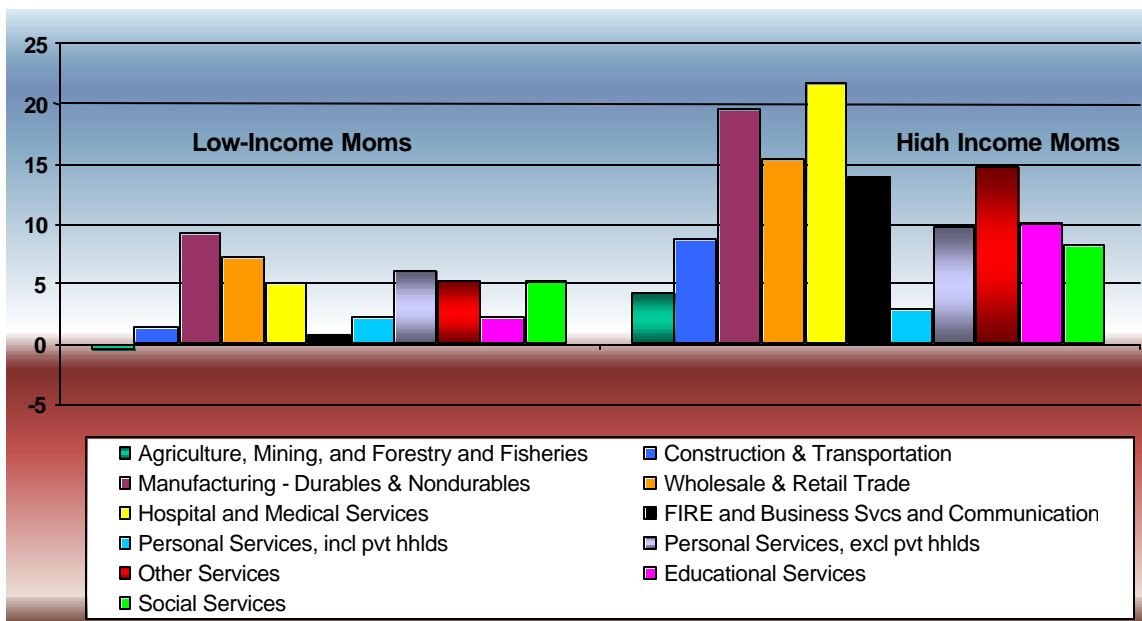


Figure 7. Standard Earnings Gap with Welfare Moms by Industry for Some College, 1993-2000

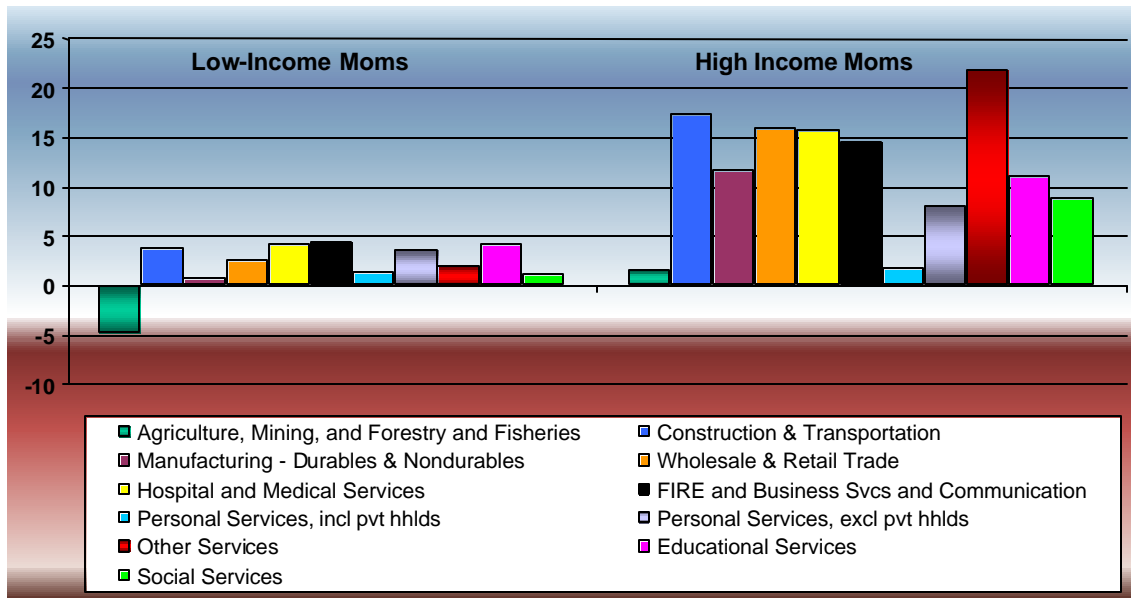


Figure 8. Standard Earnings Differences with Welfare Moms by Industry for College Graduates, 1993-2000

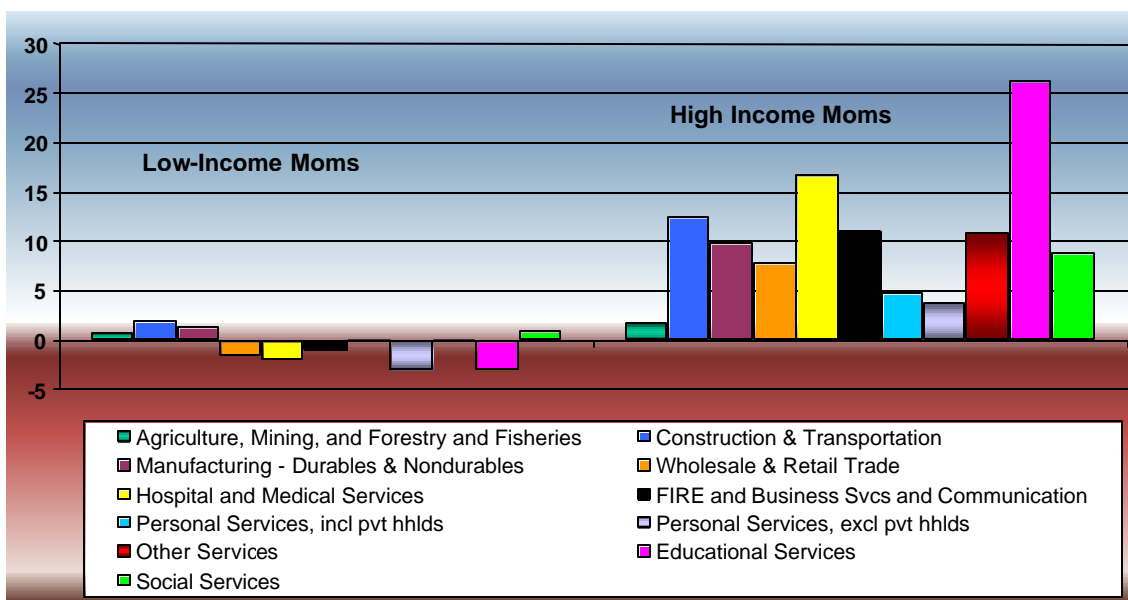


Figure 9. Education Distribution by Welfare and Income, 1993-2000

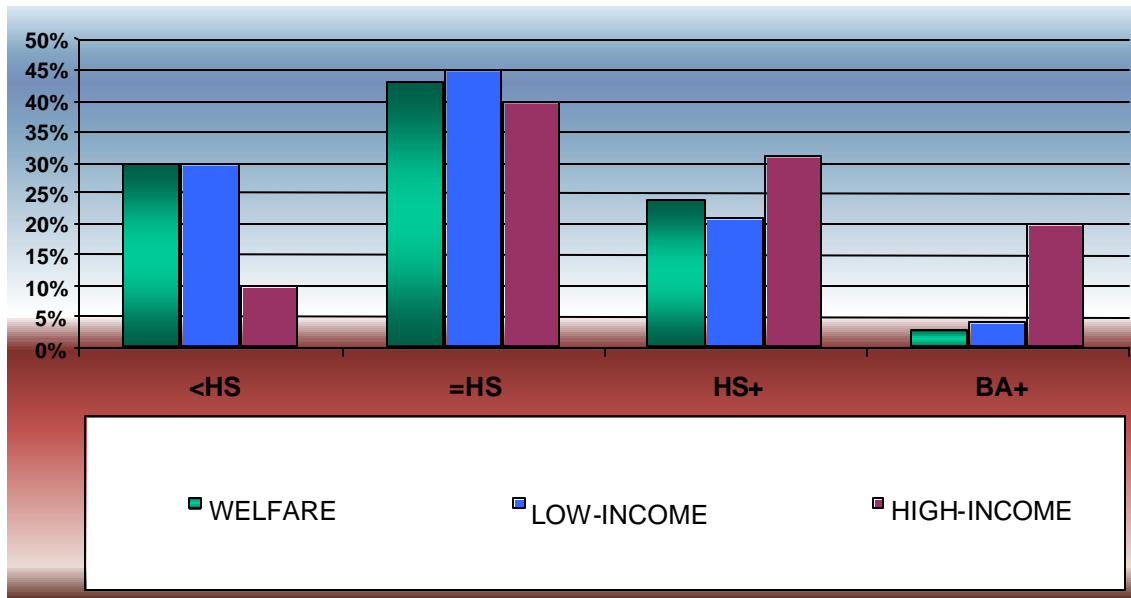


Figure 10. Standardized Earnings Differences by Industry for Single Mothers Without High School Education, 1993-2000

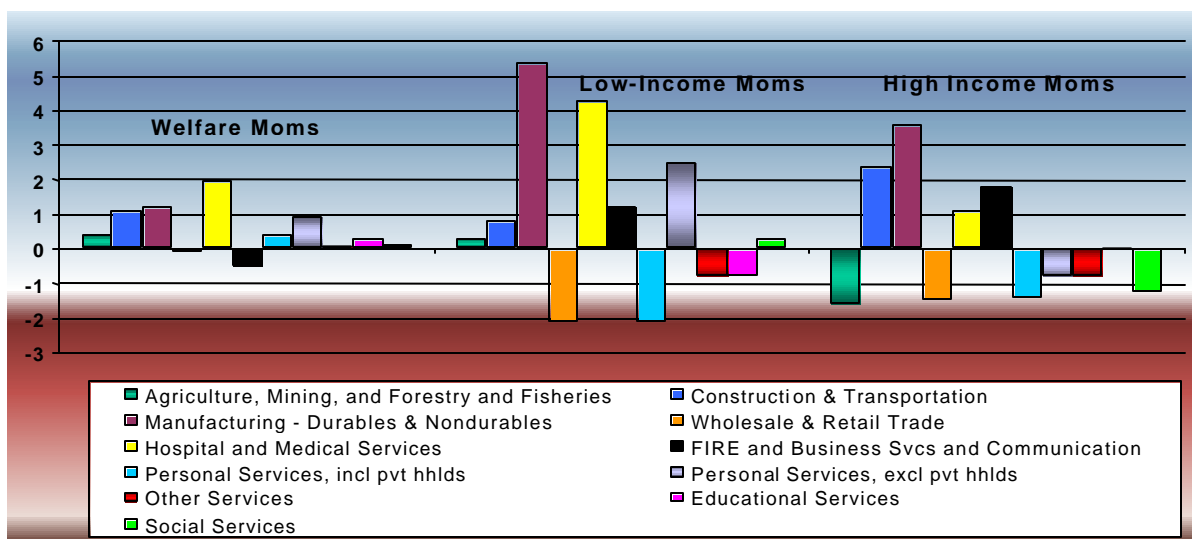


Figure 11. Standardized Earnings Differences by Industry and Welfare Receipt for Single High School Educated Mothers, 1993-2000

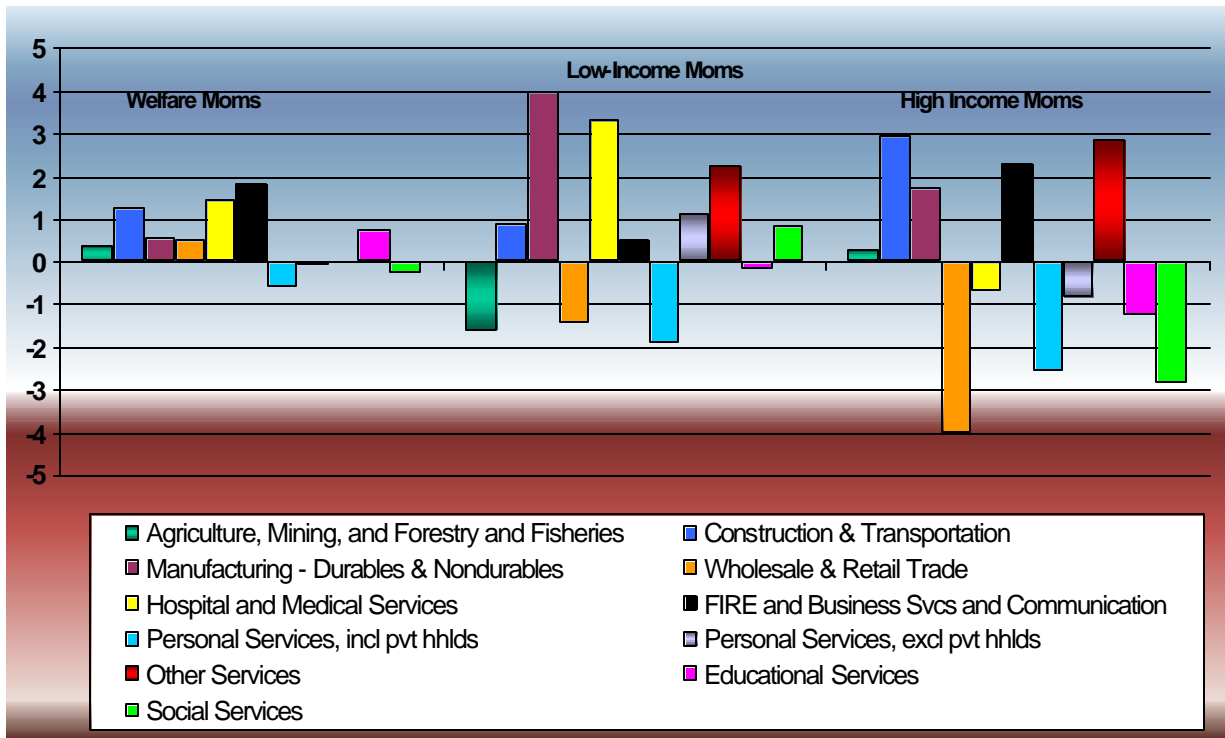


Figure 12. Standardized Earnings Differences by Industry and Welfare Receipt for Some College, 1993-2000

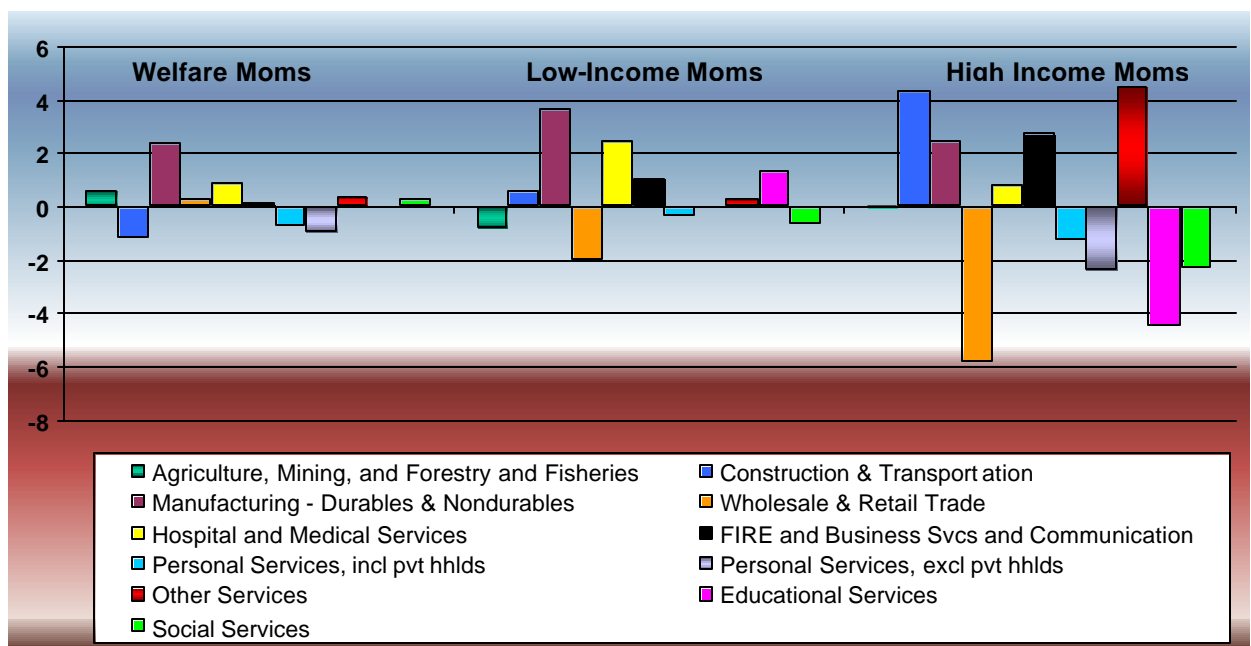


Figure 13. Standard Earnings Differences by Industry and Welfare Receipt for College Grads, 1993-2000

