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The Effect of Labor Market Changes from the Early 1970s to the Late 1980s on Youth Wage, Earnings, and Household Economic Position

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Abstract

While overall employment in the United States has risen in the last 30 years, the employment and earnings prospects for youths have fallen relative to those for older workers. This deterioration in youth labor market conditions has been most pronounced for low-skilled youths, high school dropouts, and those with low IQs. Using data from national longitudinal studies of young men, young women, and youths, this paper examines a number of aspects of the labor market outcomes of youths entering the labor market at two different times. The first group entered the robust labor market of the late 1960s, while the second group entered the deteriorated labor market of the mid-1980s. Consistent with previous research, this paper finds an improvement over the two periods in levels of employment and earnings for high-skilled youths, with a corresponding deterioration for lower-skilled youths. The paper presents a unique analysis of the growth trajectories of earnings and employment for high- and low-skilled youths in the two cohorts. We find substantial within-cohort growth for high-skilled youths in both cohorts (as well an improvement in household economic circumstances), with a corresponding deterioration in earnings, employment, and household economic circumstances for lower-skilled youths, especially those in the later cohort.

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I. INTRODUCTION AND BACKGROUND

The U.S. labor market has seen a remarkable transformation over the last 30 years. An unprecedented number of jobs have been created, and the unemployment rate has drifted downward over time. The average unemployment rate in the 1990s has been less than 6 percent, which is lower than its average over the 1970–1990 period. However, these employment gains have been offset by other less attractive changes.

While aggregate unemployment has drifted down, the unemployment rate of youths, minorities, and less-skilled workers has remained about three times the aggregate level, with the gap between youths and older workers rising over time, especially among African Americans. Moreover, the level of joblessness among less-skilled male workers has drifted up over time so that by the early 1990s about 50 percent of out-of-school youths aged 16–24 without a high school degree were not employed. These changes have occurred at the same time that job creation after 1980 has been concentrated among younger and less-skilled workers, in part related to increases in the relative supply of such workers.

Partly because of shifts in the composition of the nation's workforce, the rate of U.S. productivity growth has been meager. As a result, the wage of the median worker has remained stagnant since the early 1970s. Indeed, for males, the median wage of full-time workers has actually fallen, while it has risen somewhat for females.

Also because of shifts in the supply and demand patterns, wage rates and earnings at the bottom of the distribution have fallen in absolute terms over time, especially after 1980. For example, during 1967–1979, earnings growth for both high and low earners was positive, with growth at the top exceeding growth at the bottom only slightly. However, in the period after 1980, earnings growth

continued for high earners but fell by about 2 percent per year for workers at the 20th percentile of the earnings distribution.

This rising gap between high and low earners is also reflected in growing gaps between more-educated and less-educated workers, high-skilled and low-skilled workers, and younger and older workers. From 1967 to 1979, the relative earnings of college graduates fell slightly, while in the post-1980 period the "college premium" soared. Relative to a worker with a high school degree or less, the earnings premium received by a college graduate increased from about 30 percent in 1979 to about 65 percent by the end of the 1980s.

This overview of labor market developments and their implications for young, less-skilled, and minority workers has been noted and documented by several researchers.[1] The basic message is one of severe deterioration in the earnings prospects for those at the bottom of the skills distribution from the period *prior to the late 1970s* to that *after the mid-1980s*. This erosion in earnings prospects has had a particularly potent effect on young workers, especially those with low education and earnings capacity.

While the absolute and relative erosion of wages and earnings of less-skilled workers and youths from the robust labor market prior to 1975 to the deteriorated labor market after 1985 has been reported, other aspects of the lives and living conditions of these workers are not known. In this paper, we present the first results from our study of the effects of the deterioration of the low-skill labor market over this period on the economic, social, and lifestyle circumstances of those who rely on it for their well-being. We accomplish this by first identifying two groups of young workers. The first group entered and worked in the robust labor market of the early period; the second group of young workers had to cope with the deteriorated labor market of the late 1980s. By comparing the experiences of these two groups, a more

[1]See Card and Lemieux (1997); Mishel, Bernstein, and Schmitt (1997); Blackburn, Bloom, and Freeman (1990); and Freeman (1990).

informed picture of the effect of the erosion of labor market prospects on the lives and living conditions of young people can be obtained.

In this study, we focus on four aspects of the circumstances of these groups of youths:

- wage and earnings levels
- employment (unemployment) experiences
- the growth of wages and earnings
- the level and growth in the well-being of the households in which they live

We construct indicators of "success" in these various dimensions and then report our results in both tables and graphs. While early-to-late cohort differences in the *level* of earnings and employment have been discussed in prior studies, ours is the first to measure the differences between the cohorts in the *growth trajectory* of these labor market variables. This paper is also the first to observe differences between the cohorts in the *level* of household (family) well-being and the *growth trajectory* in household economic circumstances.

II. RESEARCH PURPOSE

Our focus in this paper is on the changes over the last three decades in labor market results and household economic status of low-skilled youths (relative to their peers with more skills). As indicated, we study the labor market success and economic well-being of youths in two periods—the buoyant labor market prior to the late 1970s (1968–1976) and the deteriorated market of the late 1980s (1984–1990). We define youths as those individuals aged 19–25 in the first year of each of the periods.

While economy-wide unemployment rates in the two periods are similar,[2] we noted above that the later period generally afforded poorer labor market opportunities, especially for low-skilled and

[2]The average unemployment rate was 5.6 percent over the early period and 6.3 percent over the late period.

young workers. Among the youths studied here, the male unemployment rate rose from 4.2 percent in the early period (approximately 1968–1976) to 9.6 percent in the late period (1984–1990). For males with a college degree, unemployment rose only slightly, from 3.8 percent to 5.1 percent. However, for those males without a high school degree, unemployment rose from 4.6 percent to 16.7 percent. The female youth unemployment rate actually fell from 11 percent to 10.1 percent. For females with a college degree, unemployment fell from 5.6 percent to 3.1 percent, but for those without a high school degree, unemployment rose from 21.1 percent to 25.6 percent.

As indicated, we focus here on the labor market success and family economic status dimensions of youths' lives and living conditions. The emphasis on the differences in household economic status of youths between the two periods is important, because youths may respond to deteriorated labor market conditions in many ways. For example, a youth may choose to continue to live with parents in the face of unemployment; while such a youth would fare worse using labor market measures, he or she may have a higher family income than would be implied if only labor market outcomes were recorded. Hence, the household economic status measure captures the overall effect of youth labor market conditions on the final economic position of the youth (as indicated by the status of the household in which he/she lives).

In order to study the changes in youths' lives and living conditions, a cohort of youths from approximately 1968–1976 is compared with a cohort from 1984–1990. Starting at ages 19–25, each youth is tracked for 7 years. The longitudinal aspect of this study is unique. Whereas previous research has documented a deteriorated labor market by looking at employment and earnings levels across youth skill categories at different points in time, this study allows for a comparison of 7-year longitudinal employment and earnings profiles among youths of different skill levels for two distinct cohorts.

III. DATA SOURCES

The research uses three comparable data sources: the National Longitudinal Study (NLS)-Young Men, the National Longitudinal Study (NLS)-Young Women, and the National Longitudinal Study of Youth (NLSY). All three data sets follow youths who are completing their education and entering the labor force. Within a data set, the same sample of youths are questioned annually on a broad array of topics including education completed, labor market success, living arrangements, marital status, number of children, and poverty status.

The NLS-Young Men began in 1966 and consists of 5,225 men aged 14–24. The NLS-Young Women began in 1968 and consists of 5,159 women aged 14–24. The NLSY began in 1979 and consists of 12,686 men and women aged 14–22.

IV. SELECTION OF COHORTS

Individuals in each of the two youth cohorts were followed over a 7-year sample period. In the first year of the sample period, the youths were aged 19–25. For men, the early cohort covers the years 1968–1971, 1973, 1975, and 1976 (NLS-Young Men interviews were not conducted in 1972 and 1974). The 1973 and 1975 interviews were conducted by phone and are thus less detailed. For example, the variable unemployment (the CPS definition) is not available in those years. For women, the early cohort covers the years 1968–1973 and 1975 (NLS-Young Women interviews were not conducted in 1974).

For both men and women, the late cohort covers the years 1984–1990. Despite the quite different low-skill market opportunities in the two periods, the early 1970s and late 1980s have similar overall macroeconomic conditions. The major recessions in the last three decades occurred in the early 1980s and the early 1990s, and these years are thus excluded from the analysis.

This study selects youths from the relevant data set if they meet both of the following two criteria. First, a youth must meet the age profile (aged 19–25 in the first year of the sample period). Second, a youth must have been interviewed in the last year of the sample period—that is, the youth must not have attrited from the panel.

V. DEFINITION OF SKILL LEVEL

This study defines skill along two dimensions: an education definition and an IQ/intelligence definition. Both definitions incorporate three skill groups: high, medium, and low.

The education skill definition classifies those with at least 16 years of education (college graduates) as high-skilled, those with 12–15 years (high school graduates) as medium-skilled, and those with less than 12 years (high school dropouts) as low-skilled. Years of education is an imperfect measure of the highest degree completed; for example, a youth could complete 16 years of education and still not have a college degree. Unfortunately, data on highest degree are incomplete; therefore, highest grade completed is used as a proxy measure. Years of schooling completed is measured as of the fourth year of the sample period (1971 for the early cohort and 1987 for the late cohort), at which time the youths are aged 22–28; almost all youths are thus given time to complete a college degree.[3] Respondents missing a

[3]For the purpose of the education skill definition, this study ignores education acquired by youths after the fourth year of the sample period for two reasons. First, it is necessary to have one skill classification for each youth over the entire sample period due to the longitudinal component of the study. For example, one of the measures of labor market success is whether the youth experiences an increase in wages between the beginning and end of the sample period. To compare averages of this one indicator for each youth across skill levels, it is necessary to have one definition of skill for each youth. Second, a youth returning to school to complete a college degree in the last year of the sample period would have experienced the labor market over the majority of the years studied as a youth with only a high school degree. Therefore, it would be inappropriate to classify such a youth as a high-skilled college graduate when comparing the labor market experiences of youths across different skill levels for the entire sample period.

highest grade completed in the fourth year of the sample period are excluded from the education skill analysis.[4]

The IQ skill definition classifies those in the top 25 percent (population weighted) of the IQ distribution as high-skilled, those in the middle 50 percent as medium-skilled, and those in the bottom 25 percent as low-skilled. Youths are classified into a quartile after correcting for oversampling by using the population weights. About 65 percent of both the men and women in the early cohort took an IQ test administered by the NLS. No IQ test was administered in the late cohort; however, in 1980 over 90 percent of respondents took the Armed Services Qualification Test (AFQT) administered by the NLS. The AFQT test score is used as a proxy for IQ. Respondents missing a test score are excluded from the IQ skill analysis.[5]

The education definition is absolute in the sense that it does not change between the two cohorts, while the proportion of youths in each skill classification does vary. By contrast, the IQ definition is relative in the sense that the definition of skill varies between the cohorts, while the proportion of youths (in the population) in each skill is constant across cohorts.

To obtain unbiased estimates of the population means for each skill group, sample averages are adjusted using population weights (the number of individuals in the U.S. population represented by each youth) within each skill group throughout the analysis. This weighting scheme is designed to account for any differences in sampling procedures used by the NLS between the two cohorts—for example, there may be more oversampling among minority youths in the later period. Without population weights, time-invariant, inferior labor market experiences for minorities would be mistakenly interpreted as the effect of a deteriorating labor market.

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[4]This restriction eliminates approximately 191 men and women from the early period and 332 from the late period.

[5]This restriction eliminates approximately 1038 men and women from the early period and 248 from the late period.

This weighting scheme within skill groups is used in addition to the population weighting procedure employed when classifying youths into IQ skill categories. The former corrects for differences in NLS sampling procedures affecting the distribution of youths *within* a skill category while the latter corrects for differences affecting the distribution of youths *across* skill categories.

Sample size counts (unweighted) for the two cohorts are given in the table below.

Education Definition	*Men Early Cohort*	*Men Late Cohort*	*Women Early Cohort*	*Women Late Cohort*
0–11 years education	432	634	425	540
12–15 years education	1035	2386	1497	2498
>15 years education	446	526	292	563
Cohort total	1913	3546	2214	3601
IQ Definition				
Bottom 25%	485	1340	530	1448
Middle 50%	723	1639	796	1558
Top 25%	345	611	401	635
Cohort total	1553	3590	1727	3641

Notice that the bottom 25 percent of the IQ distribution accounts for more than 25 percent of each cohort. This difference reflects the oversampling of disadvantaged youths. The number of youths in the later cohort is higher than the number of youths in the early cohort for two reasons. First, there was less attrition in the later cohort data set (NLSY) than in the early cohort data sets (NLS-Young Men and NLS-Young Women). Second, the NLS tends to oversample younger youths, those closer to age 14, relative to older youths, those closer to age 24. A youth aged 14 in 1966 (the first year of the NLS-Young Men) is 16 in 1968 (the first year of the later sample period) and would be excluded from this study. By contrast, a youth aged 14 in 1979 (the first year of the NLSY) is 19 in 1984 (the first year of the later sample

period) and would be included in this study. This oversampling of younger youths thus better fits the age profile of the later cohort.[6]

VI. DEFINITIONS OF VARIABLES

The following definitions of variables are employed throughout the analysis:

1. *In the labor market.* A youth is in the labor market if he is working, with a job not at work, or looking for work during the survey week.

2. *Employed.* A youth is employed if he performed any paid work during survey week or is with a job but not at work (CPS definition).

3. *Unemployed.* A youth is unemployed if he was looking for work in past 4 weeks, waiting to be recalled from layoff, or waiting to report to new job within 30 days (CPS definition).

4. *Salary.* This includes all labor market wages and salary in the past year.

5. *Hourly wage.* This includes earnings before deductions (converted into a weekly rate) divided by hours per week usually worked.

6. *Family income.* This includes all cash income attributable to all family members living with the youth (including the youth). To make the variable comparable across interviews, the income component "other income" is assumed to incorporate all sources not queried in a given year. For example, the level of family AFDC receipt is queried in the later cohort but not the early cohort. Thus, in the early cohort other income is assumed to include AFDC receipt.

7. *Family needs.* These are poverty thresholds for a family of a given size (source: *Social Security Bulletin,* Annual Statistical Supplement, 1997).

8. *Poverty.* A youth is in poverty if his family needs exceed his family income.

9. *Persistent poverty.* A youth is in persistent poverty if he is in poverty for over half of the sample period (at least 4 of the 7 years).

10. *Jobless.* A youth is jobless if he earns zero salary over the entire year.

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[6]This oversampling of younger youths leads to different unweighted age distributions in the early and late cohort. However, the use of population weights will provide unbiased estimates of means for the population of youths fitting the age profile in the study.

11. *Full-time.* A youth is a full-time worker if his hours worked per week exceed 34.

VII. LABOR MARKET SUCCESS INDICATORS

A. The Eight Indicators Defined

To measure the differences in labor market success between the two cohorts, we investigate eight indicators of labor market success. These indicators attempt to incorporate both dollar-denominated measures and more qualitative measures. All dollar-denominated measures are in 1990 dollars. Indicators 3, 4, and 5 measure longitudinal labor market success (how a youth performs at the end of the sample period relative to the beginning). Thus, these three indicators are measured once for each individual, and the average is the population-weighted average of these indicators. For all other indicators, the average is the population-weighted average of the 7-year average for each youth. Within the eight indicators, there are three categories: wage and earnings levels, wage and earnings growth, and employment. The eight indicators are described below.

Wage and earnings levels

1. Annual salary exceeds $10,000 (for youths *in the labor market)*

2. Hourly wage greater than $6 (for youths *working*)

Wage and earnings growth

3. Salary grows – real salary is higher at end of sample period than beginning (for youths *in the labor market* at both the beginning and end of the sample period)

4. Hourly wage grows – real wage is higher at end of sample period than beginning (for youths *working* at both the beginning and end of the sample period)

Employment

5. Hours grow – the number of hours worked is higher at end of sample period than beginning (for youths *working* at both the beginning and end of the sample period)

6. Employed – youth is employed using CPS definition above (for youths either *employed* or *unemployed*)

7. Not jobless (for youths *in the labor market*)

8. Full-time (for youths *working*)

B. Results for Males

Table 1 presents the estimates of the population proportion of male youths achieving labor market success for each of the eight indicators for the early and late period separately. The average of the proportions within each category is also included. Using these averages as a summary measure of youth labor market success, male wage and earnings levels success fell from 0.883 in the early period to 0.758 in the late period, a decrease of 14.2 percent. Male wage and earnings growth success fell from 0.794 in the early period to 0.768 in the late period, a decrease of 3.3 percent. Male employment success fell from 0.885 in the early period to 0.866 in the late period, a decrease of 2.1 percent. Thus, the most noticeable aspect of the labor market deterioration for males was the fall in wage and earnings levels from the early to the late period.

This deterioration of real wages and earnings most strongly affected high school dropouts. Using this education skill definition, low-skilled male youth (HS dropout) wage and earnings level success fell 24.6 percent, medium-skilled male (HS grad) success fell 17.7 percent, and high-skilled male (college grad) success fell 1.1 percent. While males as a group experienced deterioration in wage and earnings growth, more males with college degrees experienced success in this area in the later cohort (a rise of 6.82 percent).

The IQ skill definition reveals similar patterns. Males in each skill group experienced labor market deterioration in all three categories. This deterioration was most noticeable among low-skilled males.

The ratios of the average scores reveal changes in skill differentials. These skill differentials can be interpreted as measures of labor market success inequality across skill levels. The college graduate to high school graduate ratio rose from 0.990 to 1.188 in the wage and earnings levels category, from 1.036

TABLE 1
Male Labor Market Measures

	All Men		HS Dropout		HS Grad		College Grad	
	Early	Late	Early	Late	Early	Late	Early	Late
Salary > $10K	0.831	0.742	0.787	0.612	0.860	0.729	0.821	0.870
Wage > $6	0.936	0.773	0.847	0.620	0.952	0.763	0.972	0.903
Salary grows	0.761	0.793	0.655	0.675	0.778	0.794	0.840	0.913
Wage grows	0.828	0.743	0.749	0.696	0.851	0.728	0.848	0.890
Hours grow	0.726	0.791	0.669	0.742	0.700	0.784	0.812	0.848
Employed	0.958	0.904	0.954	0.833	0.962	0.905	0.962	0.949
Not jobless	0.947	0.910	0.952	0.917	0.946	0.899	0.943	0.951
Full-time	0.907	0.858	0.964	0.857	0.939	0.876	0.833	0.806
Wage/earnings levels avg	0.883	0.758	0.817	0.616	0.906	0.746	0.897	0.886
% change		-14.23%		-24.61%		-17.65%		-1.13%
Wage/earnings growth avg	0.794	0.768	0.702	0.686	0.815	0.761	0.844	0.901
% change		-3.33%		-2.34%		-6.58%		6.82%
Employment avg	0.885	0.866	0.885	0.837	0.887	0.866	0.888	0.889
% change		-2.12%		-5.39%		-2.34%		0.12%

	Wage/Earnings Level		Wage/Earnings Growth		Employment Level	
College grad to HS grad ratio	0.990	1.188	1.036	1.184	1.001	1.026
College grad to HS dropout ratio	1.098	1.439	1.202	1.315	1.003	1.061
HS grad to HS dropout ratio	1.109	1.211	1.161	1.110	1.002	1.034

	All Men		Low IQ		Middle IQ		High IQ	
	Early	Late	Early	Late	Early	Late	Early	Late
Salary > $10K	0.831	0.742	0.832	0.619	0.865	0.765	0.798	0.827
Wage > $6	0.936	0.773	0.923	0.618	0.970	0.801	0.957	0.877
Salary grows	0.761	0.793	0.702	0.735	0.771	0.804	0.897	0.823
Wage grows	0.828	0.743	0.786	0.684	0.844	0.741	0.848	0.802
Hours grow	0.726	0.791	0.669	0.781	0.756	0.805	0.797	0.780
Employed	0.958	0.904	0.954	0.835	0.962	0.914	0.957	0.952
Not jobless	0.947	0.910	0.937	0.908	0.952	0.903	0.941	0.938
Full-time	0.907	0.858	0.955	0.861	0.910	0.864	0.826	0.844
Wage/earnings levels avg	0.883	0.758	0.878	0.618	0.917	0.783	0.877	0.852
% change		-14.23%		-29.55%		-14.67%		-2.87%
Wage/earnings growth avg	0.794	0.768	0.744	0.710	0.808	0.772	0.873	0.813
% change		-3.33%		-4.62%		-4.39%		-6.86%
Employment avg	0.885	0.866	0.879	0.846	0.895	0.871	0.880	0.878
% change		-2.12%		-3.69%		-2.65%		-0.20%

	Wage/Earnings Level		Wage/Earnings Growth		Employment Level	
College grad to HS grad ratio	0.956	1.088	1.080	1.052	0.984	1.008
College grad to HS dropout ratio	0.999	1.378	1.173	1.145	1.002	1.038
HS grad to HS dropout ratio	1.045	1.266	1.086	1.088	1.018	1.030

to 1.184 in the wage and earnings growth category, and from 1.001 to 1.026 in the employment category. The college to high school dropout and high school graduate to high school dropout ratios also rose in all three categories (except wage and earnings growth category for high school graduate to high school dropout ratio). The IQ definition is similar except in wage and earnings growth; two of the three indicators fell in this category. Consistent with the overall pattern revealed in this study, almost all ratios exceed 1, and all of the inequality ratios increased between the early cohort and the late cohort. Labor market success thus increased with skill, and the gap between low-skilled and high-skilled males widened in moving from the early to the late cohort.

Charts 1 through 7 graphically illustrate the widening gap between low-skilled and high-skilled males. Chart 1 depicts the proportion of all male youths attaining the labor market success indicators. This chart reveals that young men did worse in all labor market dimensions except *salary grows* and *hours grow*. The increases in these two categories, coupled with the decline in the wage growth category, suggest that youths increased their work hours during the later sample period as one means of adjusting to the deteriorated wages being offered for their services.

Charts 2 through 4 display the results for each of the education skill definitions separately. Male high school dropouts perform worse in all labor market dimensions except the *salary grows* and *hours grow* dimensions. Males with high school degrees also performed markedly worse in the late cohort, with decreases in all but two dimensions (*salary grows* and *hours grow*). By contrast, males with college degrees performed better in five of the eight dimensions (*salary exceeds $10,000, salary grows, wage grows, hours grow,* and *not jobless*).

The *salary exceeds $10,000* indicator demonstrates the growing gap in labor market success between low-skilled male youths and their higher-skilled peers. Both high school dropouts and high school graduates experienced a lower proportion of youths with salaries exceeding $10,000 in the late cohort than in the early cohort. Among male high school dropouts (graduates), 78.7 percent (86.0

Male labor market measures

Chart 1
All men

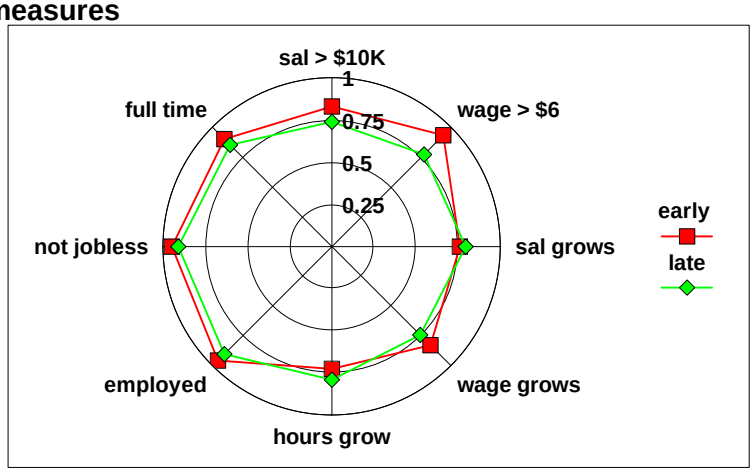


Chart 2
Male HS dropouts

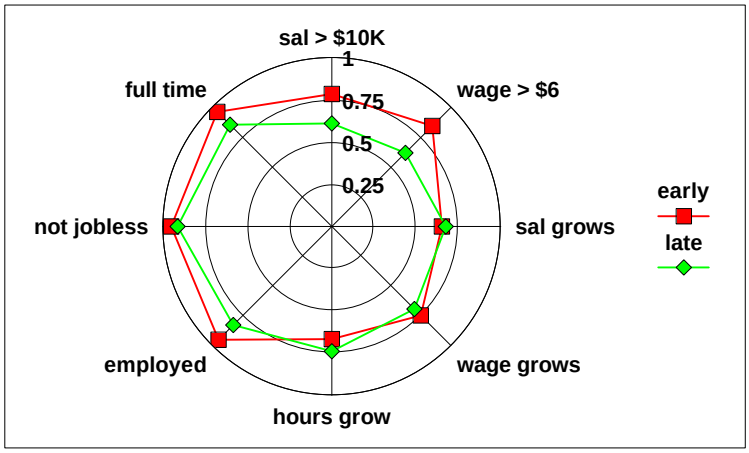


Chart 3
Male HS grads

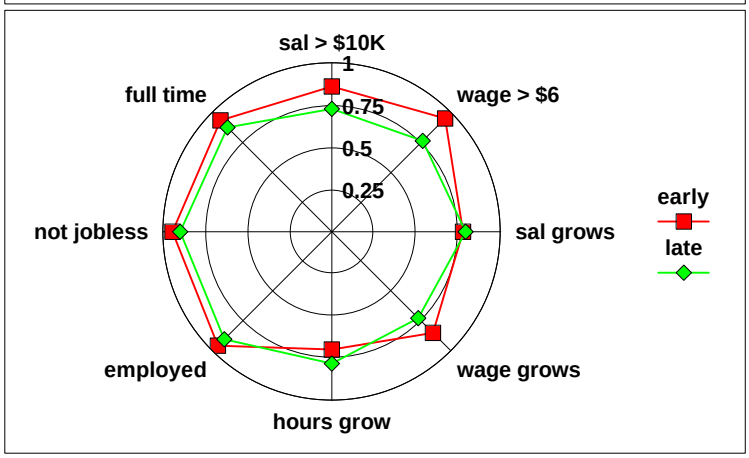


Chart 4
Male college grads

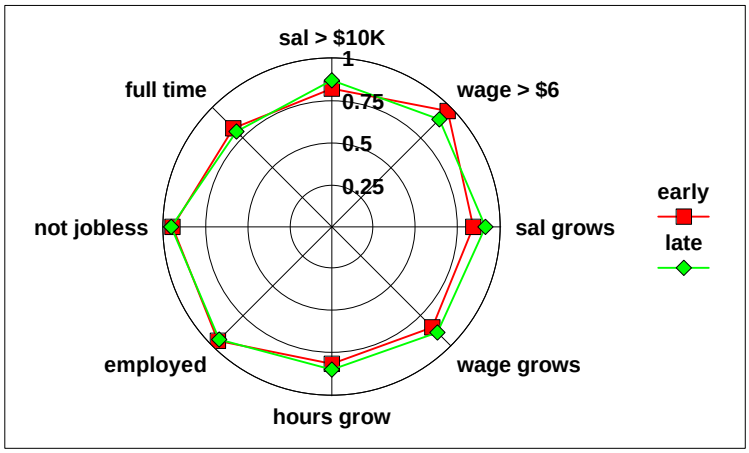


Chart 5
Low IQ males

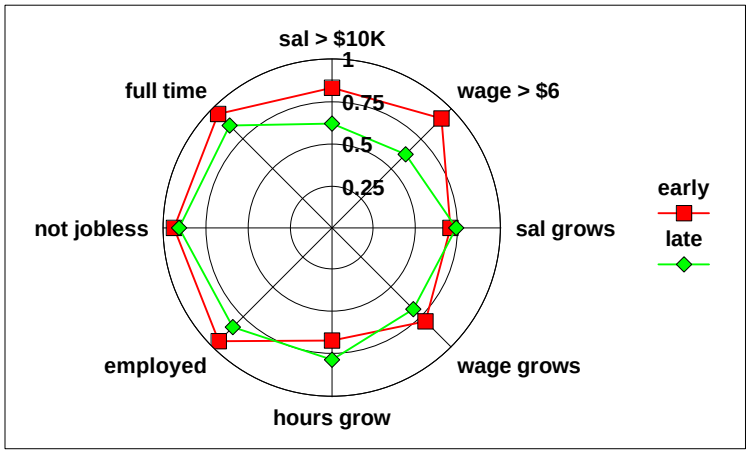


Chart 6
Medium IQ males

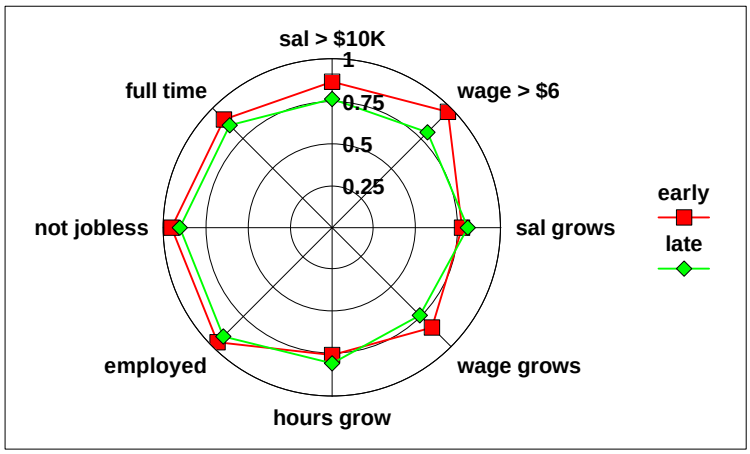
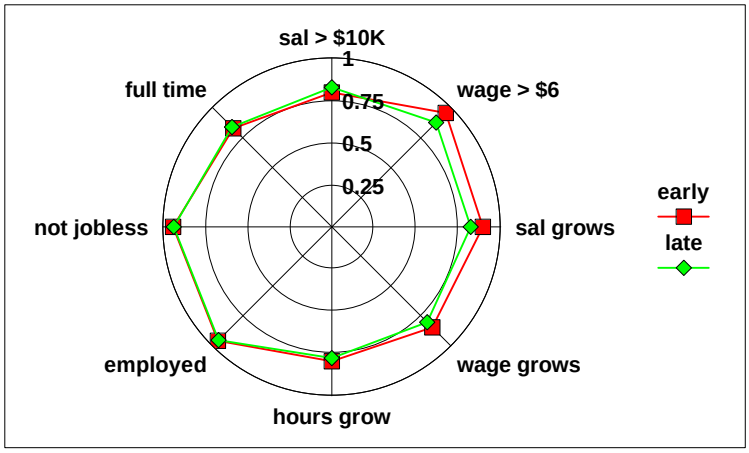


Chart 7
High IQ males



percent) in the early cohort, but only 61.2 percent (72.9 percent) in the later cohort, had salaries in excess of $10,000. By contrast, the proportion of male college graduates with earnings exceeding $10,000 *rose* from 82.1 percent to 87.0 percent.

Charts 5 through 7 display results for each of the IQ skill definitions separately. These results are similar to those for the education skill definition. Men with low skills (low IQs) and medium skills (medium IQs) performed worse in all indicators except for *salary grows* and *hours grow*. Men with high IQs performed better in only two of the eight indicators, although the results are similar in most dimensions.

Male youths as a group experienced sorely deteriorated labor market outcomes, especially lower real wages, in the late cohort relative to the early cohort. This worsening was felt most strongly among those without college degrees and those without high IQs. High-skilled men, those with college degrees and high IQs, experienced similar labor market outcomes in the two cohorts.

C. Results for Females

Table 2 presents the estimates of the population proportion of female youths achieving labor market success for each of the eight indicators. Using the category averages as a summary measure of youth labor market success, female wage and earnings levels success fell from 0.671 in the early period to 0.649 in the late period, a decrease of 3.3 percent. Female wage and earnings growth success rose from 0.741 in the early period to 0.763 in the late period, an increase of 3.0 percent. Female employment success rose from 0.802 in the early period to 0.818 in the late period, an increase of 2.06 percent. Similar to their male peers, females experienced lower wage and earnings levels in the late period; unlike males, females experienced better wage and earnings growth and employment.

While wage and earnings levels fell for females as a group, women with college degrees experienced higher wages and earnings levels (an increase of 4.8 percent) in the later period; women without college degrees experienced dramatically lower wages and earnings levels (a fall of 15.1 percent

TABLE 2
Female Labor Market Measures

	All Women		HS Dropout		HS Grad		College Grad	
	Early	Late	Early	Late	Early	Late	Early	Late
Salary > $10K	0.554	0.616	0.295	0.291	0.576	0.593	0.703	0.837
Wage > $6	0.788	0.682	0.519	0.400	0.806	0.651	0.954	0.900
Salary grows	0.713	0.772	0.661	0.727	0.701	0.748	0.814	0.868
Wage grows	0.768	0.754	0.797	0.656	0.777	0.738	0.702	0.834
Hours grow	0.627	0.734	0.602	0.703	0.632	0.712	0.627	0.801
Employed	0.890	0.899	0.789	0.744	0.902	0.898	0.944	0.969
Not jobless	0.949	0.936	0.936	0.823	0.949	0.948	0.959	0.970
Full-time	0.742	0.705	0.730	0.655	0.747	0.711	0.736	0.710
Wage/earnings levels avg	0.671	0.649	0.407	0.345	0.691	0.622	0.828	0.868
% change		-3.34%		-15.11%		-10.05%		4.84%
Wage/earnings growth avg	0.741	0.763	0.729	0.691	0.739	0.743	0.758	0.851
% change		3.00%		-5.15%		0.53%		12.21%
Employment avg	0.802	0.818	0.764	0.731	0.807	0.817	0.816	0.862
% change		2.06%		-4.31%		1.24%		5.63%

	Wage/Earnings Level		Wage/Earnings Growth		Employment Level	
College grad to HS grad ratio	1.198	1.397	1.026	1.145	1.011	1.055
College grad to HS dropout ratio	2.035	2.514	1.040	1.230	1.068	1.179
HS grad to HS dropout ratio	1.698	1.800	1.014	1.075	1.056	1.118

	All Women		Low IQ		Middle IQ		High IQ	
	Early	Late	Early	Late	Early	Late	Early	Late
Salary > $10K	0.554	0.616	0.486	0.401	0.603	0.648	0.632	0.765
Wage > $6	0.788	0.682	0.707	0.476	0.829	0.690	0.920	0.857
Salary grows	0.713	0.772	0.738	0.713	0.678	0.786	0.762	0.796
Wage grows	0.768	0.754	0.715	0.689	0.781	0.744	0.833	0.833
Hours grow	0.627	0.734	0.670	0.724	0.589	0.746	0.659	0.722
Employed	0.890	0.899	0.852	0.798	0.907	0.916	0.937	0.968
Not jobless	0.949	0.936	0.955	0.871	0.949	0.961	0.960	0.957
Full-time	0.742	0.705	0.763	0.696	0.734	0.699	0.751	0.730
Wage/earnings levels avg	0.671	0.649	0.597	0.438	0.716	0.669	0.776	0.811
% change		-3.34%		-26.53%		-6.59%		4.51%
Wage/earnings growth avg	0.741	0.763	0.726	0.701	0.730	0.765	0.798	0.814
% change		3.00%		-3.51%		4.84%		2.09%
Employment avg	0.802	0.818	0.810	0.772	0.795	0.831	0.827	0.844
% change		2.06%		-4.67%		4.52%		2.10%

	Wage/Earnings Level		Wage/Earnings Growth		Employment Level	
College grad to HS grad ratio	1.084	1.213	1.093	1.064	1.040	1.016
College grad to HS dropout ratio	1.301	1.851	1.098	1.162	1.020	1.093
HS grad to HS dropout ratio	1.200	1.526	1.005	1.092	0.981	1.075

for high school dropouts and 10.0 percent for high school graduates). High school dropouts fared worse in all three categories while women with high school degrees fared better in the wage and earnings growth and employment categories; women with college degrees experienced better conditions in all three categories. The IQ skill definition reveals very similar patterns; women with low IQs experienced a decrease of 26.5 percent in the indicators in the wage and earnings category.

The ratios of the average scores reveal changes in labor market success inequality across skill levels. The college graduate to high school graduate ratio rose from 1.198 to 1.397 in the wage and earnings level category, from 1.026 to 1.145 in the wage and earnings growth category, and from 1.011 to 1.055 in the employment category. The college to high school dropout and high school graduate to high school dropout ratios also rose in all three categories; the college graduate to high school dropout ratio rose from an already high 2.035 to 2.514. The IQ definition is similar except in the college to high school graduate ratio for the wage and earnings and employment categories; the ratios fell in these areas. Female youths with higher skills performed better than their lower-skilled peers, and this gap widened in the late cohort.

Charts 8 through 14 graphically display labor market success for women. Chart 8 displays results for all women. As a group, women performed better in four of the eight dimensions: *salary greater than $10,000, salary grows, hours grow,* and *employed*. Similar to men, females responded to lower wage levels by increasing their working hours over the sample period in the late cohort.

Charts 9 through 11 display results for women for each of the education skill definitions separately. Female youths without high school degrees performed worse in six of the eight dimensions (all except *salary grows* and *hours* grow). Those with high school degrees performed worse in five of the eight dimensions; more of these youths experienced salaries exceeding $10,000, growing salaries, and growing hours in the late cohort than in the early cohort. Finally, females with college degrees performed

Female labor market measures

Chart 8
All women

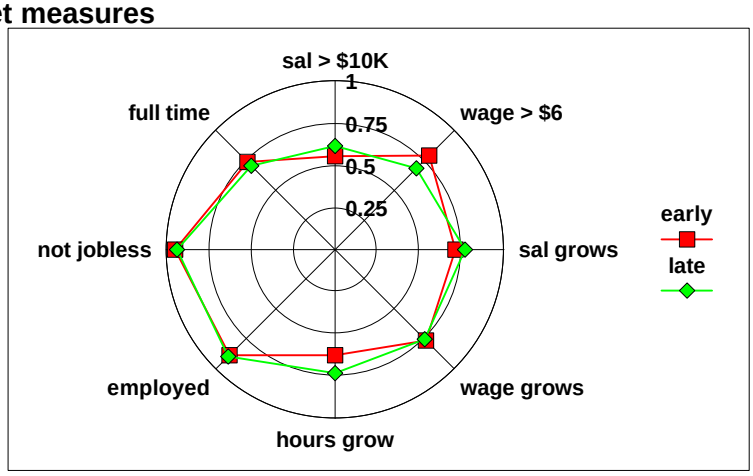


Chart 9
Female HS dropouts

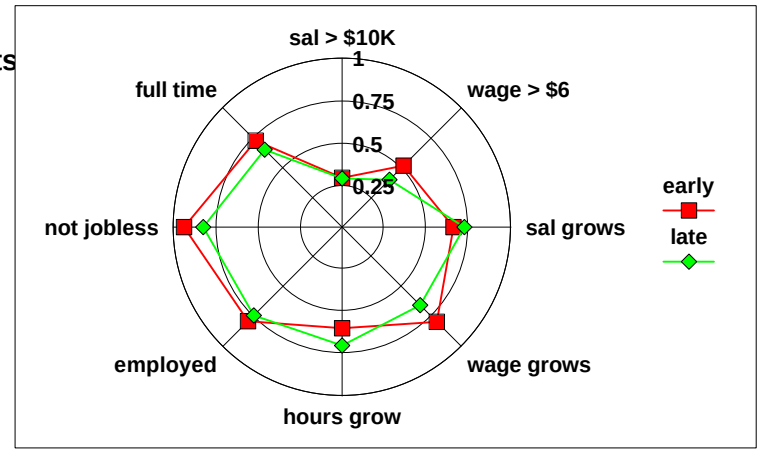


Chart 10
Female HS grads

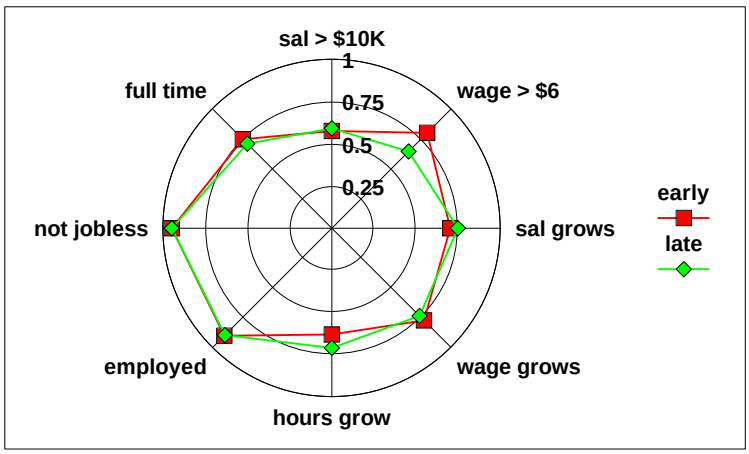


Chart 11
Female college grad

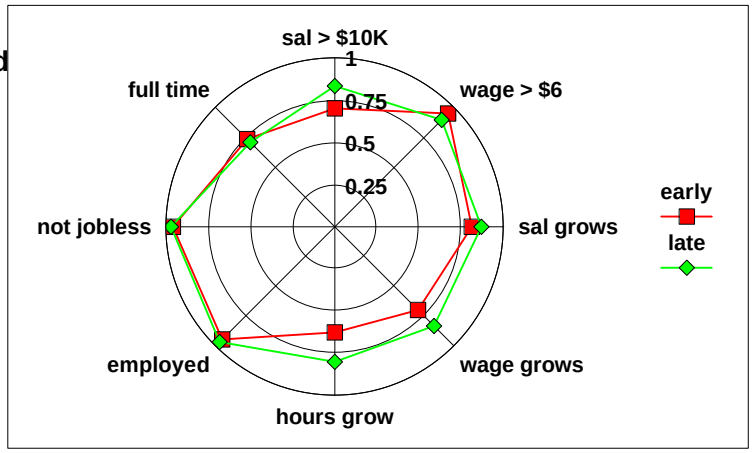


Chart 12
Low IQ females

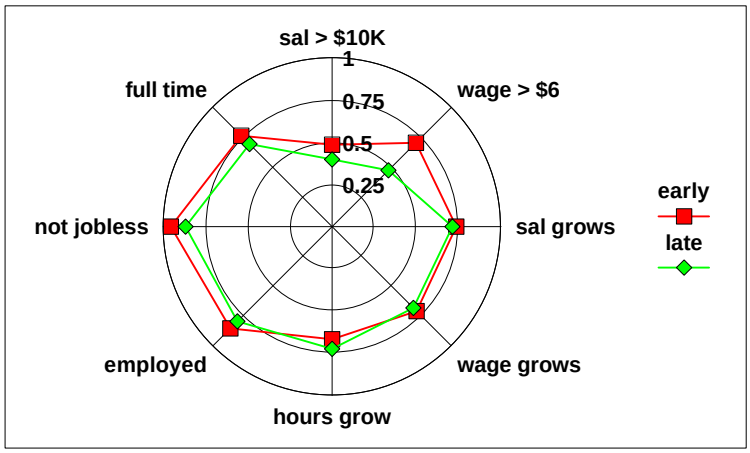


Chart 13
Medium IQ females

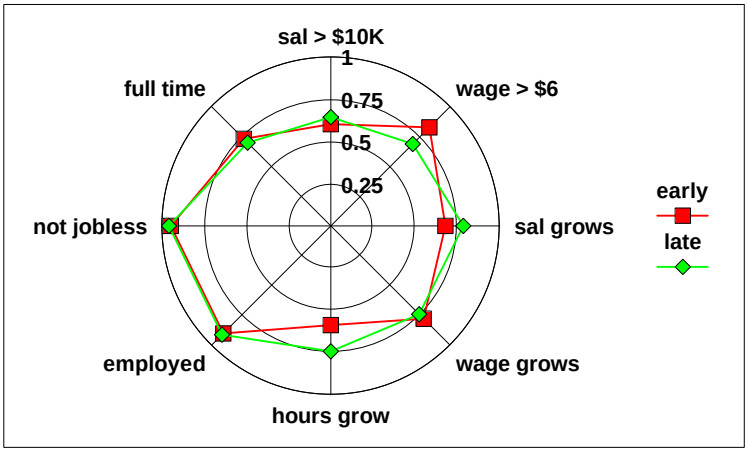
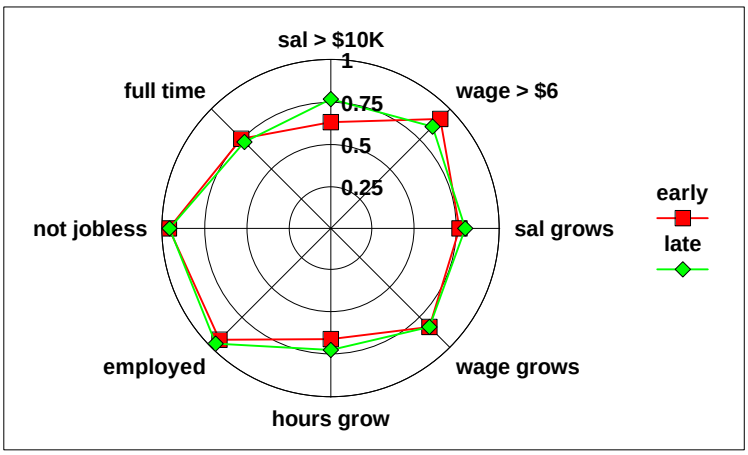


Chart 14
High IQ females



better in six of the eight dimensions: *salary exceeding $10,000, salary grows, hours grow, wage grows, employed,* and *not jobless*.

The *employed* indicator demonstrates the growing gap in labor market success between high-skilled female youths and their lower-skilled peers. Unemployment rates rose for female high school dropouts from 21.1 percent to 25.6 percent. For those with only a high school degree, unemployment rose from 9.8 percent to 10.2 percent. Finally, for women with a college degree, unemployment *fell* from 5.6 percent to 3.1 percent.

A similar pattern emerges in the *salary greater than $10,000* indicator. The proportion of female youths with salary exceeding $10,000 remained low and fairly constant across cohorts for high school dropouts (from 29.5 percent to 29.1 percent) and high school graduates (from 57.6 percent to 59.3 percent). By contrast, the proportion of female college graduates with a salary exceeding $10,000 rose from 70.3 percent to 83.7 percent, an increase of 19.1 percent.

Charts 12 through 14 display female labor market success along the IQ skill definition. Using the IQ measure for females, the patterns are similar to those for the education definition. Women with low IQs performed worse in the late cohort in all dimensions except *hours grow*. The proportion of low-IQ female youths with a wage in excess of $6 fell from 92.3 percent in the early cohort to 61.8 percent in the late cohort, a decrease of 33 percent. Women with medium IQs performed better in five of the eight dimensions: *salary over $10,000, salary grows, hours grow, employed,* and *not jobless*. Finally, women with high IQs performed better in four of the eight dimensions *(salary exceeds $10,000, salary grows, hours grow,* and *employed*) and about the same in the *wage grows* dimension.

Females as a group experienced similar labor market outcomes in the early and late cohorts. Whereas female youths with high skills experienced uniformly better labor market outcomes, their lower-skilled peers, especially women without high school degrees and those with low IQs, experienced worsening conditions.

D. Summary of Labor Market Outcomes

Youths as a group experienced less labor market success in the late cohort relative to the early cohort. This worsening of labor market conditions affected males more strongly than females. For both sexes and both skill definitions, the low-skilled and middle-skilled groups performed significantly worse in the late cohort. The high-skilled groups performed better in the late cohort. High-skilled female youths were the only group to consistently experience better labor market outcomes in the late cohort.

VIII. FAMILY ECONOMIC STATUS INDICATORS

A. The Four Indicators Defined

Similar to the indicators of labor market success, the following four indicators of family economic position are analyzed:

1. Family income grows (i.e., real family income at end of period exceeds real family income at beginning of period)
2. Not in poverty
3. Not in persistent poverty
4. Family income to needs ratio exceeds 200 percent

All indicators except 1 and 3 are calculated every year for each youth. Thus, the average of indicators 2 and 4 is the population-weighted average across all youths of the 7-year average for each youth.

B. Results for Males

Table 3 presents estimates of the population proportion of male youths experiencing each of the four indicators of family economic status. Using the average score as a summary measure of family economic status, males as a group experienced a fall from 0.794 to 0.756, a decrease of 4.8 percent. This fall in family economic status is concentrated among high school dropouts, who experienced a decline of 17.1 percent. Male youths with high school degrees experienced a decline of 5.0 percent while those with

TABLE 3
Male Family Income Measures

	All Men		HS Dropout		HS Grad		College Grad	
	Early	Late	Early	Late	Early	Late	Early	Late
Family income grows	0.570	0.641	0.590	0.592	0.553	0.633	0.619	0.706
Not in poverty	0.915	0.887	0.839	0.720	0.936	0.906	0.935	0.941
Not in persistent poverty	0.951	0.822	0.887	0.603	0.968	0.853	0.989	0.952
Income/needs > 200%	0.741	0.675	0.504	0.422	0.777	0.681	0.832	0.817
Average	0.794	0.756	0.705	0.584	0.809	0.768	0.844	0.854
% change		-4.82%		-17.12%		-4.99%		1.23%
College grad to HS grad ratio	1.043	1.112						
College grad to HS dropout ratio	1.197	1.462						
HS grad to HS dropout ratio	1.147	1.315						

	All Men		Low IQ		Middle IQ		High IQ	
	Early	Late	Early	Late	Early	Late	Early	Late
Family income grows	0.570	0.641	0.543	0.583	0.584	0.630	0.521	0.700
Not in poverty	0.915	0.887	0.909	0.762	0.955	0.922	0.924	0.943
Not in persistent poverty	0.951	0.822	0.950	0.622	0.977	0.877	0.979	0.930
Income/needs > 200%	0.741	0.675	0.685	0.463	0.823	0.718	0.805	0.805
Average	0.794	0.756	0.772	0.607	0.835	0.787	0.807	0.844
% change		-4.82%		-21.28%		-5.76%		4.58%
High IQ to medium IQ ratio	0.967	1.073						
High IQ to low IQ ratio	1.046	1.390						
Medium IQ to low IQ ratio	1.082	1.295						

a college degree experienced an *increase* of 1.2 percent. Using the IQ skill definition, those with low IQ experienced a fall of 21.3 percent, those with medium IQ had a decline of 5.8 percent, and those with high IQ had an *increase* of 4.6 percent.

The ratios of the average scores reveal changes in family economic status inequality across skill levels. The college graduate to high school graduate ratio rose from 1.043 to 1.112, the college graduate to high school dropout rose from 1.197 to 1.462, and the high school graduate to high school dropout ratio rose from 1.147 to 1.315. Using the IQ definition, the high IQ to medium IQ ratio rose from 0.967 to 1.073, the high IQ to low IQ ratio rose from 1.046 to 1.390, and the medium IQ to low IQ average score ratio rose from 1.082 to 1.295. Almost all ratios exceed 1 and are larger in the late cohort than in the early cohort. Male youths with higher skills experienced more family economic success, and this gap widened.

Charts 15 through 21 graphically depict the widening skill gap in family economic status. Chart 15 displays the results for all men. As a group, male youths experienced more family economic success in only one dimension, *family income grows*. More young men experienced increasing family income over the sample period in the late cohort than in the early cohort.

Charts 16 through 18 display the results separately for each education skill group. More male high school dropouts experienced poverty, persistent poverty, and an income to needs ratio under 200 percent, while slightly more high school dropouts experienced growing family income over the sample period. Among males with high school degrees, more youths in the late cohort had a growing family income while fewer were not in poverty, were not in persistent poverty, and had an income to needs ratio over 200 percent. Male college graduates performed better in the *family income grows* dimension; they experienced similar conditions in the other three dimensions.

The poverty rates illustrate the widening gap in family economic status between high- and low-skilled youths. Males without high school degrees experienced an increase in poverty from 16.1 percent

Male family income measures

Chart 15
All men

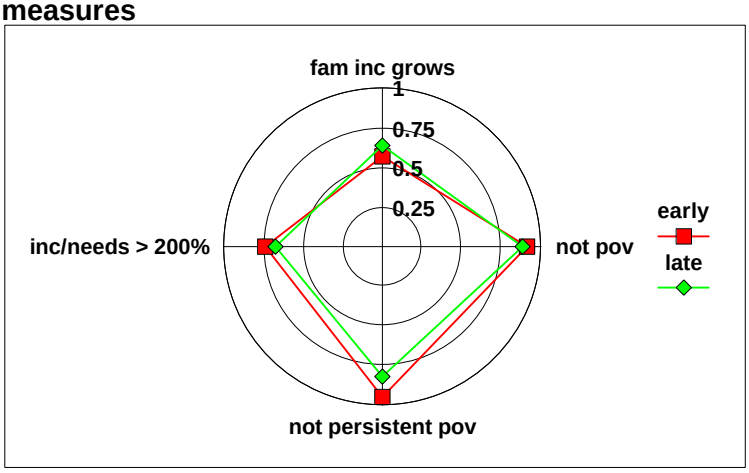


Chart 16
Male HS dropouts

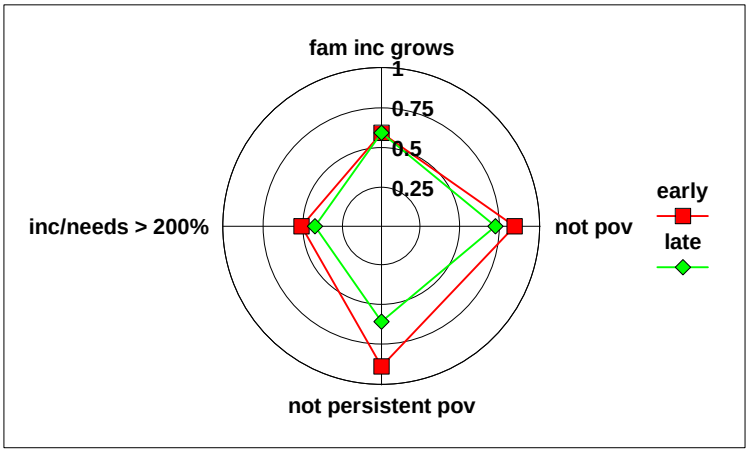


Chart 17
Male HS grads

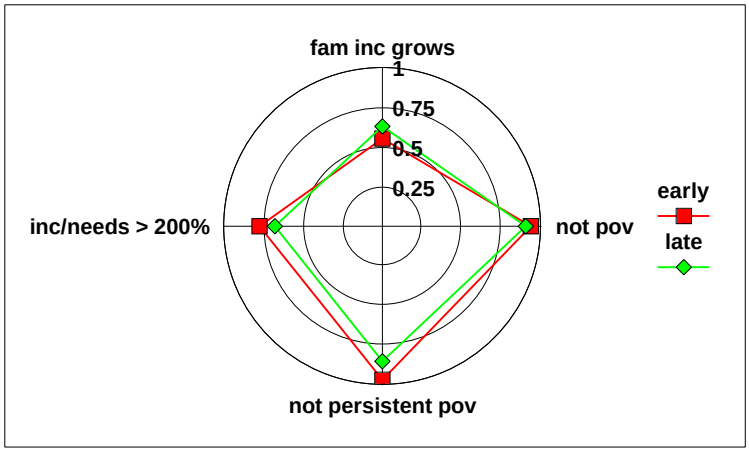


Chart 18
Male college grads

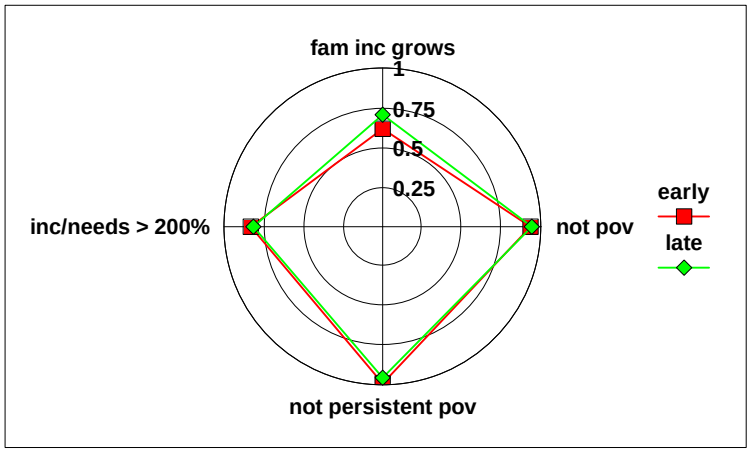


Chart 19
Low IQ males

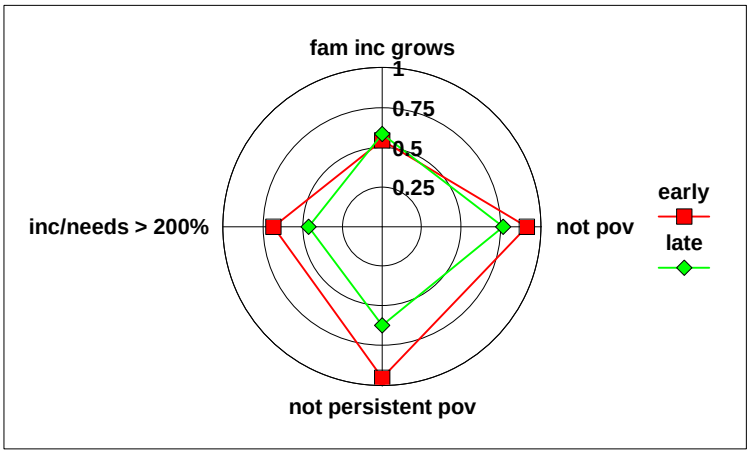


Chart 20
Medium IQ males

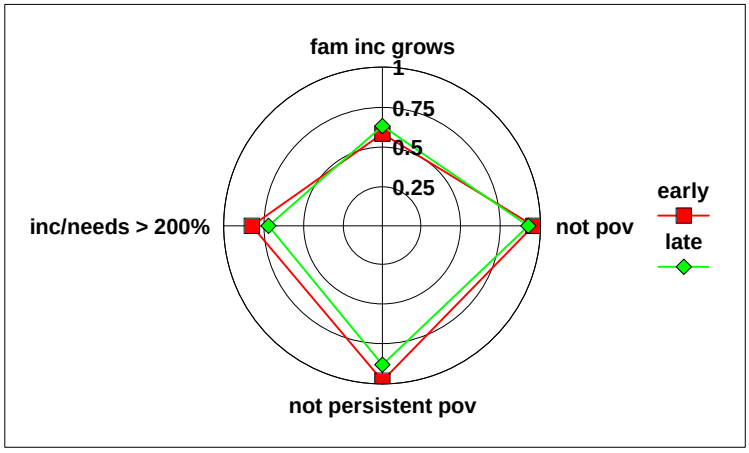
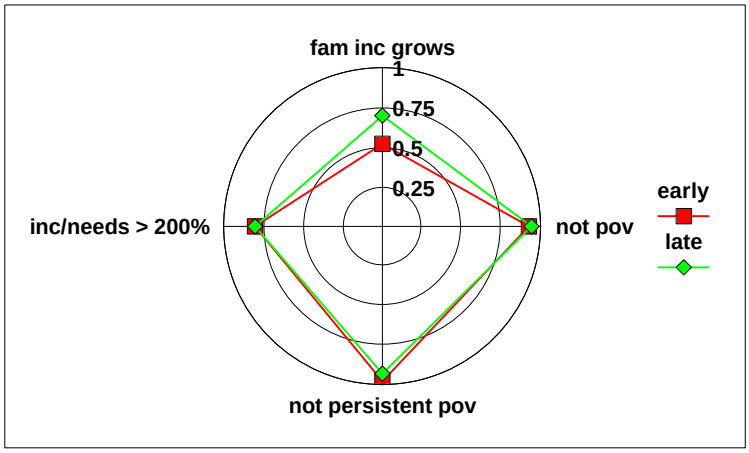


Chart 21
High IQ males



to 28.0 percent, an increase of 73.9 percent. Moreover, while only 11.3 percent of male high school dropouts were in poverty in at least half of early sample period (persistent poverty), 39.7 percent of male high school dropouts were in persistent poverty in the late cohort. Males with high school degrees experienced a smaller increase in poverty, from 6.4 percent to 9.4 percent, while males with college degrees experienced a *reduction* in poverty, from 6.5 percent to 5.9 percent.

Charts 19 through 21 display similar results along the IQ skill dimension. Male youths with low IQs experienced worsening family economic status in all indicators except *family income grows*. Their poverty rate rose from 9.1 percent to 23.8 percent, an increase of 162 percent, and their persistent poverty rate rose from 5 percent to 37.8 percent. Among males with a medium IQ, more youths in the late cohort had a growing family income while fewer had an income to needs ratio over 200 percent, were not in poverty, and were not in persistent poverty. Males with high IQs performed better in the *family income grows* dimension; they experienced similar conditions in the other three dimensions.

Males as a group experienced worsening family economic status in the late cohort relative to the early cohort. Male youths with college degrees and high IQs experienced more family economic success, while male youths without high school degrees and those with low IQs were most affected by this decrease in family economic success.

C. Results for Females

Table 4 presents estimates of the population proportion of female youths achieving family economic success for each of the four indicators. Using the average score as a summary measure of family economic status, females as a group experienced a slight decrease of 0.5 percent. Female high school dropouts experienced a decline of 18.8 percent. Female youths with high school degrees experienced a decline of 4.2 percent, while those with a college degree experienced an *increase* of 10.0 percent. Using the IQ skill definition, those with low IQ experienced a fall of 22.1 percent. Those with medium IQ had a decrease of 1.5 percent, and those with high IQ had an increase of 8.9 percent.

TABLE 4
Female Family Income Measures

	All Women		HS Dropout		HS Grad		College Grad	
	Early	Late	Early	Late	Early	Late	Early	Late
Family income grows	0.567	0.657	0.554	0.574	0.579	0.642	0.524	0.738
Not in poverty	0.848	0.839	0.677	0.553	0.883	0.854	0.908	0.944
Not in persistent poverty	0.896	0.792	0.721	0.439	0.933	0.818	0.958	0.957
Income/needs > 200%	0.624	0.634	0.332	0.288	0.675	0.629	0.773	0.840
Average	0.734	0.730	0.571	0.464	0.767	0.736	0.791	0.870
% change		-0.47%		-18.81%		-4.16%		9.98%
College grad to HS grad ratio	1.030	1.182						
College grad to HS dropout ratio	1.385	1.876						
HS grad to HS dropout ratio	1.344	1.587						

	All Women		Low IQ		Middle IQ		High IQ	
	Early	Late	Early	Late	Early	Late	Early	Late
Family income grows	0.567	0.657	0.563	0.589	0.572	0.654	0.552	0.725
Not in poverty	0.848	0.839	0.806	0.645	0.905	0.889	0.897	0.948
Not in persistent poverty	0.896	0.792	0.837	0.534	0.946	0.856	0.962	0.947
Income/needs > 200%	0.624	0.634	0.539	0.370	0.701	0.679	0.753	0.824
Average	0.734	0.730	0.686	0.534	0.781	0.770	0.791	0.861
% change		-0.47%		-22.10%		-1.50%		8.89%
High IQ to medium IQ ratio	1.012	1.119						
High IQ to low IQ ratio	1.153	1.611						
Medium IQ to low IQ ratio	1.139	1.440						

The ratios of the average scores reveal how family economic status inequality across skill levels changed between the two cohorts. Similar to previously discussed ratios, the college graduate to high school graduate ratio rose from 1.030 to 1.182, the college graduate to high school dropout rose from 1.385 to 1.876, and the high school graduate to high school dropout ratio rose from 1.344 to 1.587. Using the IQ definition, the high IQ to medium IQ ratio rose from 1.012 to 1.119, the high IQ to low IQ ratio rose from 1.153 to 1.611, and the medium IQ to low IQ average score ratio rose from 1.139 to 1.440. All ratios exceed 1 and are larger in the late period than in the early period. Female youths with higher skill levels experienced more family economic success, and this gap increased.

Charts 22 through 28 graphically illustrate the widening skill differential in family economic status among female youths. Chart 22 displays the results for women as a group. Women performed better in the *family income grows* indicator, worse in the *income to needs ratio exceeds 200 percent* and *not in persistent poverty*, and similarly in the *not in poverty* indicators.

Female high school dropouts (Chart 23) performed markedly worse in three of the four dimensions (*not in poverty*, *not in persistent poverty*, and *income to needs ratio exceeds 200 percent*) and similarly in the *family income grows* dimension. Female high school graduates (Chart 24) performed better in the *family income grows* variable but worse in the other three indicators. Finally, females with college degrees (Chart 25) performed better along three of the four dimensions of family economic status and similarly in the *not in persistent poverty* dimension.

Poverty rates rose significantly for high school dropouts, from 32.3 percent to 44.7 percent, and rose slightly for high school graduates, from 11.7 percent to 14.6 percent. Poverty rates *fell* significantly for college graduates, from 9.2 percent to 5.6 percent. Persistent poverty rates displayed even more severe trends. This rate rose markedly for high school dropouts, from 27.9 percent to 56.1 percent, and for high school graduates, from 6.7 percent to 18.2 percent. The rate was slightly below 5 percent in both periods for college graduates.

Female family income measures

Chart 22
All women

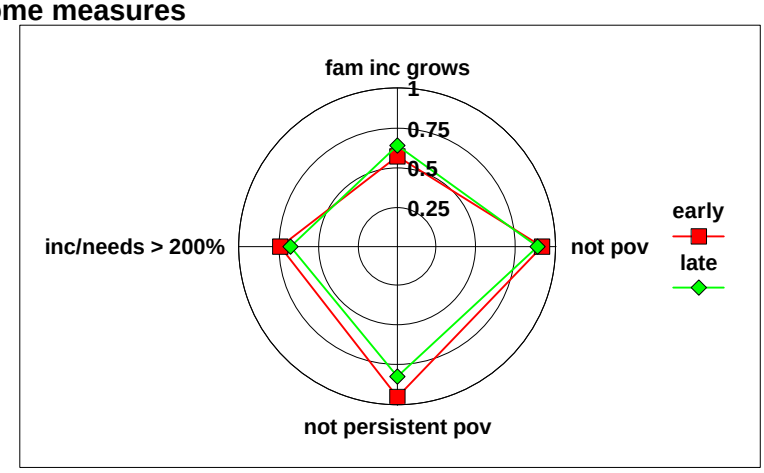


Chart 23
Female HS dropouts

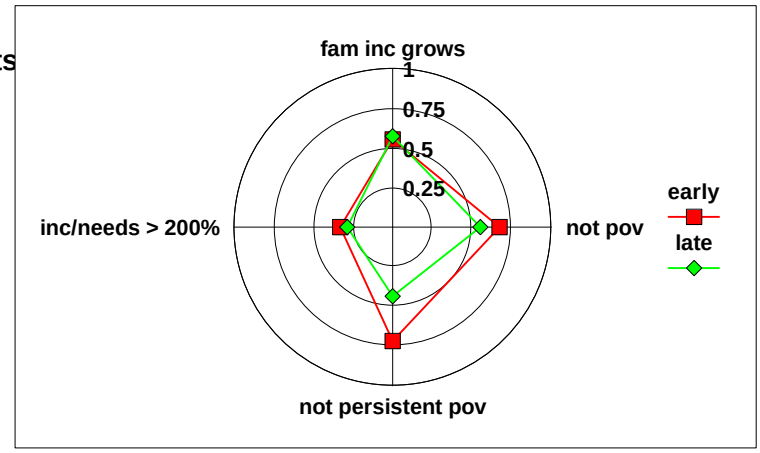


Chart 24
Female HS grads

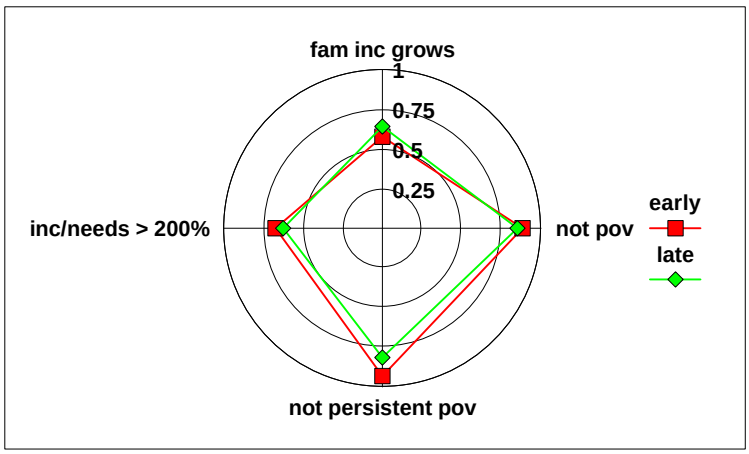


Chart 25
Female college grad

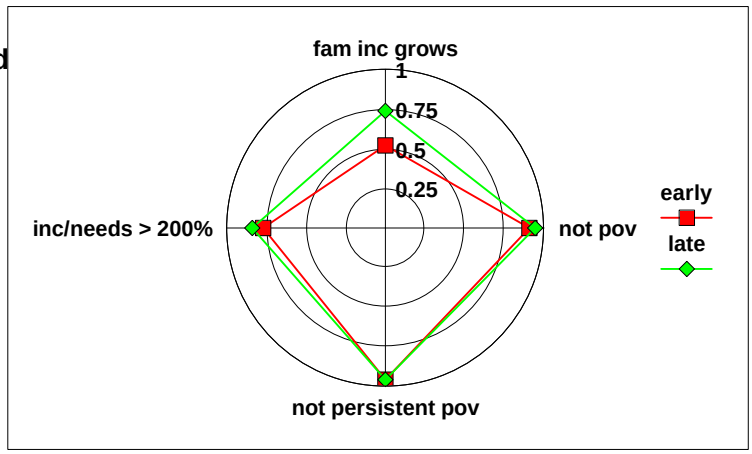


Chart 26
Low IQ females

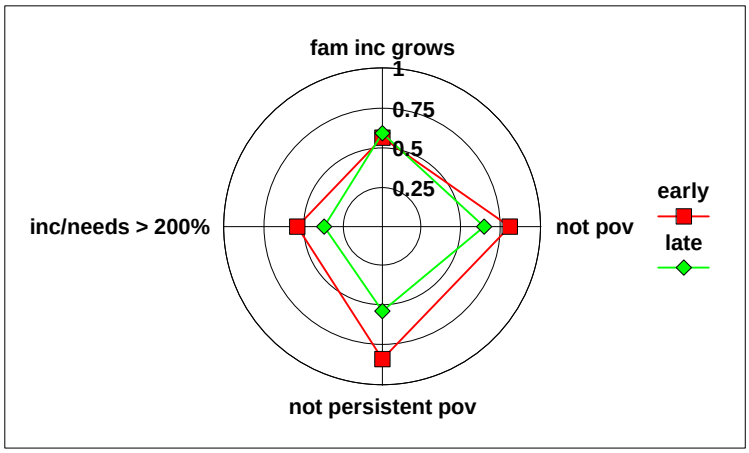


Chart 27
Medium IQ females

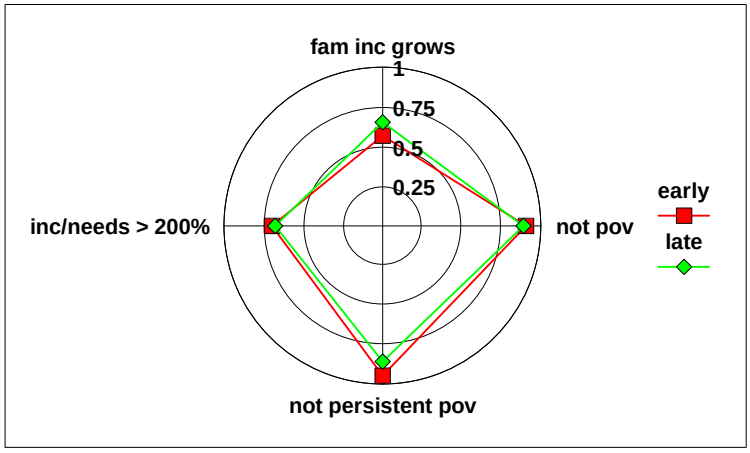
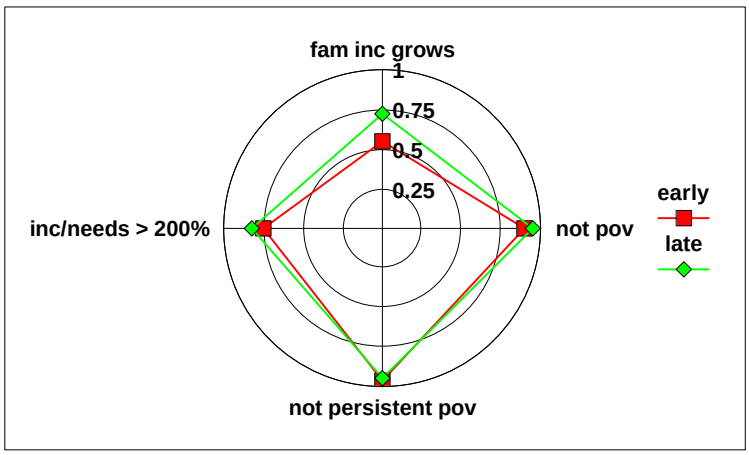


Chart 28
High IQ females



The results are similar for the IQ measure (Charts 26 through 28). Women with low and medium IQs experienced worsening family economic status in all dimensions except *family income grows*. Women with high IQs experienced more success in all dimensions. For women with low IQs, the poverty rate rose from 19.4 percent to 35.5 percent, and the persistent poverty rate rose from 16.3 percent to 46.6 percent.

Female youths as a group experienced more family economic success in the late cohort. However, female youths without a high school degree and those with a low IQ experienced much worse family economic status. Women with a high school degree and a medium IQ experienced similar family economic status, while those with a college degree and high IQ experienced marked improvements.

D. Summary

Although males as a group experienced worsening family economic status, females as a group experienced better family economic status. Both sexes experienced a widening gap in family economic status between high- and low-skilled youths. Both the gap and the widening are more pronounced among females whose high-skilled group experienced uniformly more family economic success and whose low-skilled group experienced uniformly less family economic success.

IX. GENDER COMPARISON

While the gaps between low- and high-skilled youths widened between the early and late cohorts, this widening is most pronounced among women. Table 5 offers another perspective on this gender difference across cohorts by providing male to female ratios for each of the three labor market category averages and the family status average; these ratios are first provided for all males and females and then by skill category.

TABLE 5
Gender Comparisons

	All Youths		HS Dropout		HS Grad		College Grad	
	Early	Late	Early	Late	Early	Late	Early	Late
Wage/earnings levels ratio	1.316	1.168	2.007	1.783	1.311	1.200	1.082	1.021
Wage/earnings growth ratio	1.072	1.007	0.963	0.991	1.102	1.024	1.113	1.059
Employment level ratio	1.103	1.058	1.158	1.145	1.098	1.059	1.087	1.030
Family income ratio	1.082	1.035	1.235	1.260	1.054	1.044	1.067	0.982

	All Youths		Low IQ		Middle IQ		High IQ	
	Early	Late	Early	Late	Early	Late	Early	Late
Wage/earnings levels ratio	1.316	1.168	1.472	1.411	1.281	1.171	1.130	1.050
Wage/earnings growth ratio	1.072	1.007	1.024	1.013	1.107	1.009	1.094	0.998
Employment level ratio	1.103	1.058	1.085	1.096	1.126	1.049	1.065	1.041
Family income ratio	1.082	1.035	1.125	1.137	1.069	1.022	1.021	0.980

For youths as a group, the gap between males and females narrowed but remained in favor of males in all four categories; for example, the measurement of family economic status is above 1 in both periods but declined from 1.316 to 1.168. By education skill category, the gap between sexes is widest for high school dropouts, and the ratios increased in two of the four areas. By contrast, the ratios for high school and college graduates are fairly low, smaller than for high school dropouts (except for the wage and earnings growth category), and declined in all four areas between the early and late cohorts. This trend is especially noticeable for college graduates, whose ratios are all near unity in the late period. The ratios are fairly similar for the IQ skill definition; the ratios are smaller and declined more for those with high IQs.

While the differences between genders fell, these changes are more noticeable among the highly skilled. This is simply another perspective on the fact that while the skill gap widened for all youths, the widening was most pronounced between low-skilled and high-skilled females.

X. CONCLUSIONS

As a group, youths in the late cohort experienced lower wages, declining real wages, a higher incidence of poverty, and more persistence in poverty relative to their peers in the early cohort. One way they reacted to this was through increasing their hours worked throughout the sample period. While males experienced more labor market success and better family economic status than females, the gender gap diminished between the early and late cohort. The decline in labor market and family economic status was concentrated among youths without high school degrees and those with low IQs. By contrast, youths with college degrees and high IQs experienced more labor market and family economic success in the late cohort. Thus, the gap between low- and high-skilled youths widened between the early and late cohorts. This widening, while affecting both sexes, was more pronounced for female youths. High-skilled

females are the only group that experienced uniformly better labor market and family economic conditions in moving from the early to the late cohort.

Although there was both absolute and relative deterioration in the levels of labor market and family well-being for low-skilled youths from the early to the late periods, these youths also experienced substantially flatter growth trajectories in wage rates as they aged. For male youths without a high school degree and those with a degree, the deterioration in this indicator was 7.1 percent and 14.4 percent, respectively. On the other hand, the wage growth indicator for youths with a college degree increased from the early to the late period by 5 percent. Not only did the *levels* of labor market success and family economic status decrease both absolutely and relatively for low-skilled youths from the early to the late period, but the *year-to-year growth* in wages also fell both absolutely and relatively for youths with low skills and schooling.

References

Blackburn, McKinley L., David E. Bloom, and Richard B. Freeman. 1990. "The Declining Economic Position of Less-Skilled American Males." In *A Future of Lousy Jobs*, edited by Gary Burtless. Washington, DC: Brookings Institution.

Card, David, and Thomas Lemieux. 1997. "Adapting to Circumstances: The Evolution of Work, School, and Living Arrangements among North American Youth." Working Paper #6142, National Bureau of Economic Research.

Freeman, Richard B. 1990. "Employment and Earnings of Disadvantaged Young Men in a Labor Shortage Economy." Working Paper #3444, National Bureau of Economic Research.

Mishel, Lawrence, Jared Bernstein, and John Schmitt. 1997. *The State of Working America: 1997–98.* Washington, DC: Economic Policy Institute).