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Racial Differences in Adult Labor Force Transition Trends

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I. Introduction

The deterioration of adult black employment and unemployment rates relative to white rates over the past two decades represents a largely unresolved issue in economics. This trend is particularly disturbing in light of widespread implementation of equal employment opportunity and affirmative action laws (Leonard, 1990) and a significant narrowing of human capital differentials (O'Neill, 1990). Further complicating the issue is the mounting evidence that employed blacks have made significant wage gains relative to their white counterparts over the past two decades (Smith and Welch, 1989) and have made significant inroads into previously segregated occupations (Jaynes, 1990).

The relative deterioration of adult black employment rates is seen clearly in Figures 1 and 2. Between 1968 and 1987, for example, the employment to population ratio (E/P) for 25 to 59 year old white males declined only slightly while that of their black male counterparts decreased from nearly 80 percent to 70 percent. There has also been a relative deterioration of the black female E/P ratio. Between 1968 and 1987 the black female rate remained relatively steady while the white female rate increased by 15 percentage points. Thus, regardless of gender, adult blacks have been steadily losing ground relative to whites for the last 20 years.

II. Demand and Supply-Side Explanations

Several competing explanations for the relative deterioration of black employment rates have been developed in the literature, some with a demand-side orientation and some with a supply-side orientation. On the demand side, John Kain (1968) has developed the "spatial-mismatch" hypothesis: the rapid deindustrialization of central cities has made traditional jobs with relatively low educational requirements inaccessible to a large portion of the minority population. This inaccessibility, according to Kain, is caused by high commuting costs to the new suburban locations of industrial jobs and a lack of necessary information and contacts among blacks. While some doubt was cast upon this theory by Ellwood (1986) who found both blacks and whites mobile enough to adapt to the new location of jobs, Ihlanfeldt and Sjoquist (1990) have demonstrated that the Ellwood study suffered from a small sample and a lack of necessary control variables. Using a large sample from Philadelphia, as well as data from Chicago and Los Angeles, Ihlanfeldt found that the relocation of industrial jobs is a major cause of the gap between black and white employment.

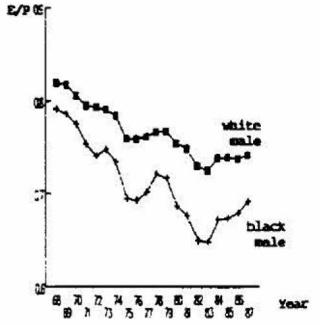

Figure 1. E/P Ratios by Race, Males: 15-59 years

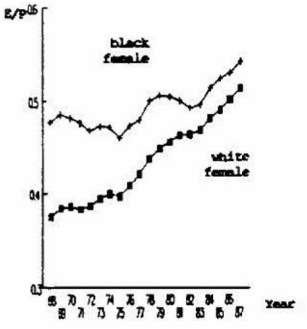

Figure 2. E/P Ratios by Race, Females: 25-59 years

On the supply-side, Murray (1984) has argued that public assistance has eroded work incentives thereby decreasing the E/P ratio of low income families in general and minorities in particular. Similarly, Viscussi (1986) has contended that the returns to criminal activity have been increasing recently in the inner-cities, thus increasing the reservation wage of inner-city workers by enabling them to obtain higher returns from an activity other than work. Using statistics from the

National Bureau of Economic Research Inner City Youth Survey, he found the rate of return from crime to be of prime importance in the decision to work. Hence, he agrees with Murray that the increasing availability of income through means other than work has led many minority workers to drop out of the labor force, thereby decreasing their E/P ratio.

III. Transition Probability Implications

We can begin to determine the importance of each of these theories in explaining the loss of minority employment by noting that they have very different implications concerning changes in the labor market over the last 25 years. The demand side explanation implies that blacks in the labor market lose jobs as a result of deindustrialization in the central cities. Thus, by this theory, intra-labor force shifts (between employment and unemployment) have been the primary cause of the observed trends in the E/P ratio and unemployment rate. That is, the increasing probability that employed blacks become unemployed and the decreasing probability that unemployed blacks gain employment have led to decreasing E/P and increasing unemployment for blacks.

The supply side theories, on the other hand, suggest that increasing welfare support and growing returns to crime have discouraged blacks from participating in the labor market. Thus, supply oriented theories suggest that inter-labor force shifts have been the primary cause of the observed trends in the E/P ratio and unemployment rates. Because of the work disincentives stemming from increased returns from non-market activities (e.g., welfare and crime), more blacks have shifted from employment and unemployment to out of the labor force and fewer have made the opposite shift. While these trends unambiguously imply a secular decrease in the E/P ratio, their combined effects on the unemployment rate are ambiguous.

To assess these two explanations of the relative deterioration of black employment and unemployment rates, data which will provide measures of the effect of inter-labor-market mobility and intra-labor-market mobility on E/P ratios and unemployment rates is required. The data base used here is the unpublished gross flow data which is derived from the Current Population Survey by the Bureau of Labor Statistics (Bureau of Labor Statistics, 1968-87). The gross flows are the number of people who move among three employment states from one month to the next. The three labor market states are: employed (E), unemployed (U) and not in the labor force (N). By dividing the gross flow by the appropriate stock (i.e., number employed, number unemployed or number not in the labor force) a transition probability of moving from one employment state to another can be defined. For example, the transition probability of moving from employment to unemployment (P_{eu}) is defined as the average monthly gross flow from employment to unemployment during a year divided by the average level of employment before the transition. The transition probability of moving from not in the labor force to employment (P_{ne}) is defined as the average monthly gross flow from not in the labor force to employment divided by the average number of individuals not in the labor force. Given three labor force states, six transition probabilities can be defined (P_{eu}, P_{en}, P_{ue}, P_{un}, P_{ne}, and P_{nu}). The transition probabilities for black males, white males, black females and white females, aged 25 to 54, are presented in Table 1 for the years 1970, 1980 and 1987.

Using these data, we will study the proposed supply and demand side explanations by regressing each of these transition probabilities against trend and cycle to determine in what direction they have been moving over time. As indicated by the above discussion, the demand side argument would be supported by shifting trends in P_{ue} and P_{eu}, while the supply side theories would find support in shifting P_{en}, P_{ne}, P_{un}, and P_{nu}. The specific hypotheses for these shifts are detailed below.

IV. Trends in Transition Probabilities

To estimate trends in transition probabilities, while controlling for the effects of the business cycle, we run the following regression for each transition probability for each of the four groups:

$$P_{ij} = a_0 + a_1(\text{TREND}) + a_2(\text{CYCLE}),$$

where P_{ij} is the average monthly transition probability of moving from labor market state i to labor market state j; TREND is a linear time variable in years; and CYCLE is the difference between the actual unemployment rate and the "middle expansion trend" rate. The middle expansion trend unemployment rate is the unemployment rate in the mid-year of each cyclical expansion. (See Halloway, 1986.)

The two theories of the relative deterioration of the black employment situation discussed above have specific implications for the relative magnitudes of these trends. In the spatial mismatch theory, the following hypotheses are suggested:

1. The spatial mismatch theory implies that the trend in P_{eu} should be positive for black males

TABLE 1. Annual Averages of Monthly Transition Probabilities by Race and Gender: 25-59 Years

	1970	1980	1987
Pne B Male	0.064	0.043	0.045
Pne W Male	0.042	0.035	0.034
Pne B Female	0.062	0.036	0.031
Pne W Female	0.031	0.031	0.033
Pen B Male	0.018	0.017	0.018
Pen W Male	0.012	0.013	0.013
Pen B Female	0.062	0.036	0.031
Pen W Female	0.051	0.039	0.033
Peu B Male	0.017	0.023	0.020
Peu W Male	0.010	0.014	0.013
Peu B Female	0.012	0.014	0.015
Peu W Female	0.010	0.011	0.009
Pue B Male	0.331	0.210	0.218
Pue W Male	0.331	0.282	0.287
Pue B Female	0.228	0.165	0.169
Pue W Female	0.266	0.245	0.260
Pnu B Male	0.018	0.028	0.037
Pnu W Male	0.012	0.014	0.015
Pnu B Female	0.019	0.028	0.032
Pnu W Female	0.008	0.012	0.117
Pun B Male	0.131	0.116	0.160
Pun W Male	0.088	0.090	0.108
Pun B Female	0.392	0.312	0.278
Pun W Female	0.294	0.244	0.244

and black females reflecting the secular decline in employment opportunities in central city neighborhoods where minorities are concentrated. For the same reason, we expect the coefficients to TREND to be greater for black males than for white males and greater for black females than for white females.

2. The spatial mismatch theory also implies that the trend in P_{ue} should be negative for black males and black females reflecting the increasing difficulty experienced by unemployed minorities residing in central cities in securing employment in the face of a secular decline in employment opportunities in those neighborhoods. Here, the coefficients to TREND should be smaller for black males than for white males and smaller for black females than for white females.

As explained above, the supply-oriented explanations indicate that the worsening employment and unemployment position of blacks can be attributed to increasing rewards for non-labor market participation, in the form of income from such sources as public assistance and criminal activity. These theories suggest four hypotheses related to inter-labor-market mobility. Each rests on the assumption that since black family income is on average lower than white family income, black inter-labor-market mobility will be more adversely effected by the secular increase in non-market income alternatives. Specifically:

TABLE 2. Intra-Labor-Force Transition Probability Regression Results (t-statistics in parentheses)

	TREND	CYCLE	R-Sq.	D-W
Peu B Male	0.00047	-0.00228	0.84	1.65
	(5.836)	(5.914)		
Peu W Male	0.00031	-0.00151	0.89	1.17
	(6.804)	(7.105)		
Peu B Female	0.00018	-0.00082	0.73	2.19
	(4.086)	(3.952)		
Peu W Female	0.00012	-0.00088	0.80	1.71
	(3.691)	(6.010)		
Pue B Male	-0.00891	0.02641	0.85	1.22
	(7.257)	(4.570)		
Pue W Male	-0.00471	0.02700	0.93	1.03
	(8.174)	(9.935)		
Pue B Female	-0.00526	0.01787	0.81	1.53
	(5.959)	(4.297)		
Pue W Female	-0.00219	0.02576	0.86	1.03
	(3.315)	(8.254)		

3. The trend coefficient for P_{ne} should be more negative for blacks than for whites, as the increasing lure of nonwork income possibilities makes it less likely that blacks will move into the labor force.

4. The trend coefficient for P_{en} should be positive for blacks and greater than that for whites.

5. The trend coefficient for P_{nu} should be negative for blacks since the increasing availability of nonwork income alternatives would discourage labor force entry. Furthermore, the magnitude of the trend coefficient should be more negative for blacks than for whites.

6. The trend coefficient for P_{un} should be positive for blacks and should be of greater magnitude than the trend for their white counterparts.

Tables 2 and 3 present the results of the transition probability regressions needed to test hypotheses 1 through 6. Table 2 shows the results from the intra-labor-market mobility regressions (P_{eu} and P_{ue}) including the trend coefficients needed to test the implications of spatial mismatch theory as specified in hypotheses 1 and 2. In all cases, the spatial mismatch theory is supported by the results. In particular, blacks showed a stronger positive trend in the transition probability from employment to unemployment (P_{eu}) and a stronger negative trend in transition probability from unemployment to employment (P_{ue}).

Table 3 presents the results from the inter-labor market mobility regressions needed to test the four hypotheses suggested by the supply oriented theories (hypotheses 3 through 6). The results are mixed, at best, offering relatively little support for these hypotheses. Hypothesis 3 is the only one supported. For both black males and black females, P_{ne} is more negative than for whites, indicating that blacks have become less likely to move from out of the labor force to employment. White males have also become less likely to make this shift, but their decrease has been considerably smaller than that for blacks; white females have increased their probability of making this transition.

Hypotheses 4 through 6, on the other hand, are not supported by the data. Black males and females both have negative P_{en} which means that they have become less likely to drop out of the labor force from employment. Additionally, their coefficients are more negative than those for whites. White males have actually become more likely to drop out of the labor force over time, while white females' probability of dropping out has decreased more slowly than that of black females. Similar results can be seen with

TABLE 3. Inter-Labor-Force Transition Probability Results (t-statistics in parentheses)

	TREND	CYCLE	R-Sq.	D-W
Pne B Male	-0.00112	0.00242	0.85	1.90
	(7.840)	(3.607)		
Pne W Male	-0.00046	0.00089	0.90	1.25
	(9.83)	(4.073)		
Pne B Female	-0.00068	0.00210	0.81	1.20
	(6.102)	(3.987)		
Pne W Female	0.00011	0.00076	0.71	2.09
	(4.058)	(5.874)		
Pen B Male	-0.00005	0.00022	0.14	2.96
	(.977)	(.984)		
Pen W Male	0.00008	0.00016	0.57	1.55
	(4.746)	(1.882)		
Pen B Female	-0.00181	0.00230	0.92	0.66
	(11.962)	(3.228)		
Pen W Female	-0.00133	0.00109	0.95	1.39
	(16.735)	(2.906)		
Pnu B Male	0.00112	-0.00236	0.88	1.17
	(8.717)	(3.915)		
Pnu W Male	0.00021	-0.00129	0.90	2.00
	(6.365)	(8.323)		
Pnu B Female	0.00088	-0.00155	0.91	1.13
	(11.142)	(4.166)		
Pnu W Female	0.00032	-0.00083	0.92	1.33
	(10.917)	(6.058)		
Pun B Male	-0.00003	0.00965	0.29	2.10
	(.038)	(2.541)		
Pun W Male	-0.00076	0.01016	0.73	1.83
	(2.022)	(5.683)		
Pun B Female	-0.00669	0.01751	0.81	1.32
	(6.443)	(3.578)		
Pun W Female	-0.00562	0.01828	0.86	1.17
	(7.190)	(4.969)		

hypotheses 5 and 6. In each of these regressions, the sign of the black coefficient is the opposite of that predicted. Blacks' probability of moving into unemployment from out of the labor force has increased, while the probability that they will drop out of the labor force when unemployed has decreased. Furthermore, their position relative to whites is the opposite of that predicted by hypotheses five and six in all cases except P_{un} for males. Overall, there is little support for the claim that the labor force attachment of black adults is decreasing over time or even for the claim that it is decreasing relative to that of whites.

We also attempted to estimate the effects that trends in each of the six transition probabilities have on the actual unemployment rates and E/P ratios of the four cohorts. This was possible because, under steady state assumptions, unemployment rates and E/P ratios can be defined as functions of the six transition probabilities DeBoer and Seeborg, 1989; Ehrenberg, 1980; and Marston, 1976). The demand-side oriented spatial mismatch theory suggests that the secular deterioration of black male unemployment rates and E/P ratios would be primarily caused by changes in intra-labor-force mobility (i.e., decreases in P_{ue} and increases in

P_{eu}) and that black males should experience more adverse effects than any of the other three groups. The simulation results, which are available from the authors, provide support for these arguments. For example, almost all of the upward trend in black unemployment rates can be explained by trends in P_{ue} and P_{eu}. Also consistent with demand-side arguments is that the simulated effects of trends in transition probabilities on unemployment rates and E/P ratios were much greater for black males than for any of the other three groups. The simulations provided little support for the supply-side explanations which are based on trends in P_{ne}, P_{en}, P_{nu} and P_{un}.

VI. Conclusions

Taken as a whole, the results of the transition probability regressions and the employment and unemployment simulations provide substantial indirect support for the demand-side explanation of the relative deterioration in black E/P ratios and unemployment rates. Trends in P_{eu} and P_{ue} are consistent with the spatial mismatch demand side theory that the reduction in job opportunities in central cities has made traditional jobs with relatively low educational requirements inaccessible to a large portion of the black population and that housing segregation and other barriers to mobility have hindered the adjustment process. Employed adult blacks have consequently become more likely to become unemployed (P_{eu} increases) and unemployed adult blacks have become less likely to become employed (P_{ue} decreases). Policy implications of the spatial mismatch explanation are straightforward: 1) increase the demand for labor in central city neighborhoods and/or 2) reduce transportation barriers and other obstacles which reduce access to jobs for central city minority populations.

Arguments which focus on the supply-side of the labor market do not receive much support from this transition probability analysis. Perhaps this is the result of our focus on adults age 25 through 59. Future research using transition probabilities will focus on youth (Seeborg and DeBoer, 1991). Minority youth may find non-market income alternatives to be closer substitutes for employment than adults who have, on average, greater income producing skills and a stronger emotional commitment to work.

Footnotes

1. The authors are, respectively, from the Department of Economics at Illinois Wesleyan University and the University of Wisconsin-Madison. The authors gratefully acknowledge the helpful comments from Mak Arvin, Robert Leekley, the referees and editorial staff of this journal.

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