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THE DYNAMICS OF YOUTH UNEMPLOYMENT

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SUMMARY

The Dynamics of Youth Unemployment

This paper analyzes the dynamics of youth unemployment. Three broad conclusions emerge. First, the problem of youth joblessness extends beyond the unemployed. We find that over one-half of youth unemployment spells end in labor force withdrawal. Much of youth non-employment is not picked up in the official unemployment statistics, because many young people give up the search for work and leave the labor force. Second, a large part of youth unemployment is accounted for by a relatively small, hard core group of young people who experience long spells of unemployment. While most unemployment spells are short, this is due to the high rates of labor force withdrawal, rather than to job finding. Among male teenagers out of school, for example, we find that over half of unemployment was due to those with more than six months of unemployment in the year. Third, a shortage of attractive jobs is the principle source of long term non-employment. While instability and frequent turnover are major factors in determining the overall pattern of teenage unemployment, we find that the lack of desirable employment opportunities is the crux of the problem for those most seriously affected by youth unemployment.

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Introduction

At any moment during 1977, close to 1 million teenagers were unemployed, and another 1/4 million were out of school and neither working nor looking for work. Close to 40 percent of young black men were unable to find work. These high rates of joblessness have been a source of concern to both economists and policy-makers. Two broad explanations of the cause of high youth unemployment rates have emerged. The turnover view emphasizes extremely frequent movements into and out of employment as the source of most youth unemployment. A second view suggests that the real problem is a shortage of jobs. In this paper, we use the BLS Gross Changes and Work Experience data to examine these issues. We find that both views accurately describe a part of the youth population. The vast majority of young people experience little serious difficulty in moving in and out of the labor market. Consistent with the job instability-turnover view, unemployment among this group arises from frequent lavor force exit and entry. A second, much smaller group has serious difficulty in finding work. They suffer long and frequent spells of joblessness, punctuated occasionally by a very brief spell of employment. It is this group with substantial unemployment experience who suffer most of youth unemployment.

In Section I of the paper, we present the transition probabilities which underlie the results in the remainder of the paper. After pointing up the extraordinarily dynamic character of the youth labor market, we examine the incidence and characteristics of unemployment spells. A key conclusion which emerges is the concentration of most unemployment among a small subgroup of the population.

The research reported here is part of the NBER's research program in Youth Unemployment. Any opinions expressed are those of the authors and not those of the National Bureau of Economic Research. The completion of this paper would not have been possible without the extremely able and willing research assistance of James M. Poterba.

The second section of the paper studies the relationship between schooling, seasonal fluctuations and teenage unemployment and employment. We find that the dynamic character of youth unemployment cannot be attributed in any large part to flows in and out of school. Indeed, it appears that summer entrants actually have a lower unemployment rate than do other workers.

In the third section of the paper, we relate differences in steady-state employment and unemployment rates to differences in flow probabilities. This decomposition makes it possible to divide demographic differences in employment and unemployment into components due to instability and to difficulty in finding attractive jobs. We find that while instability is the dominant cause of high youth nonemployment, most of the racial differential is attributable to difficulties in finding suitable work.

In Section IV, we support our earlier conclusion that a shortage of attractive job opportunities is a principal cause of teenage unemployment by demonstrating the responsiveness of both unemployment and participation to the level of aggregate demand. We also show that it is the cyclical sensitivity of entry into employment, and exit from the labor force which gives rise to the very pronounced cyclic pattern of youth employment.

The fifth and final section of the paper discusses the implications of the results for economic policy, and considers the open questions which remain.

I

In recent years it has become fashionable to view youth unemployment as the result of high rates of turnover. On this view, youth unemployment is not due to a shortage of jobs for young people. Rather, it occurs because young people, especially teenagers, are unwilling or unable to hold jobs for very long. Presentations of this "turnover" view of youth unemployment typically focus on flows between unemployment and employment. Less attention is devoted to movements into and out of the labor force. This section tries to present a fuller picture of the youth labor market by examining in a systematic way movements between all three labor market states (i.e. employment, unemployment, and not in the labor force (NILF)). Our results indicate that flows into and out of the labor force are dominant determinants of patterns of youth employment. After presenting the basic data characterizing the dynamics of youth labor markets, we focus on the distribution of unemployment by duration, and the characteristics of unemployment spells.

The Basic Data

The dynamics of the youth labor market are examined in this section using the BLS gross changes data. Individuals included in the Current Population Survey are in the sample for four months, then out for eight months, and then in the sample for four months before leaving for good. The BLS prepares unpublished tabulations of gross changes -- two-way tabulations of labor force status this month by labor force status last month. From these data, it is possible to find the number of individuals who moved, for example, from unemployment to employment during the last month. Since there are three possible labor market states, nine monthly flows may be calculated.

We summarize the available information for each month in a 3x3 matrix of transition probabilities and a vector of three stocks. Thus, for each of several demographic groups we consider the matrix:

$$P = \begin{vmatrix} P_{ee} & P_{eu} & P_{en} \\ P_{ue} & P_{uu} & P_{un} \\ P_{ne} & P_{nu} & P_{nn} \end{vmatrix} \qquad (1)$$

where, for example, P_{eu} represents the proportion of employed workers last month who were unemployed this month. Since a worker must always be in one of the three labor force states, the rows of P sum to 1. Therefore if any two of the transition probabilities out of a state are known, it is easy to compute the third. In order to calculate aggregate flows between states, we multiply the transition probabilities by appropriate initial stocks. This may be conveniently represented in matrix form as:

$$\begin{vmatrix} F_{ee} & F_{eu} & F_{en} \\ F_{ue} & F_{uu} & F_{un} \\ F_{ne} & F_{nu} & F_{nn} \end{vmatrix} = \begin{vmatrix} S_e & 0 & 0 \\ 0 & S_u & 0 \\ 0 & 0 & S_n \end{vmatrix} P \qquad (2)$$

where F_{ij} represents the flow of workers into state j from state i and S_e, S_u and S_n refer to the stock of workers employed, unemployed and not in the labor force (NILF) respectively.

Since much of the emphasis in this study is on labor force transitions, it will be convenient to define a state L, for labor force, which includes both E and U. It is clear that:

$$F_{nl} = F_{ne} + F_{nu}$$

$$F_{ln} = F_{en} + F_{un} \qquad (3)$$

The transition probabilities may then be represented as:

$$P_{nl} = P_{ne} + P_{nu}$$

$$P_{ln} = \frac{E(-1)}{L(-1)} P_{en} + \frac{U(-1)}{L(-1)} P_{un} \qquad (4)$$

Transition Patterns

In Table 1, we present average transition probabilities and flows for various youth demographic groups and for the total population. A very striking feature is the enormous magnitude of all the flows. For example, in an average month, between 1968 and 1976, close to 15 percent or 644 thousand men aged 16-19, who were in the labor force, withdrew. At the same time about 21 percent of those outside the labor force or 652 thousand young men entered the labor force.

Table 1.1

Employment, Unemployment and Labor Force Transitions - 1968-1976

DEMOGRAPHIC GROUPS	Transitions							
	en	eu	ue	un	nu	ne	nl	ln
M 16-19								
P	.116	.043	.277	.315	.075	.139	.214	.146
F	440.38	158.09	185.47	203.60	231.71	420.91	652.62	643.98
BM 16-19								
P	.147	.062	.197	.345	.094	.093	.187	.204
F	54.66	12.38	27.04	46.58	52.11	48.97	101.08	101.24
M 20-24								
P	.035	.027	.296	.148	.071	.180	.251	.045
F	207.37	162.82	161.84	82.97	85.99	209.13	295.13	290.34
BM 20-24								
P	.033	.035	.216	.121	.084	.130	.214	.046
F	22.76	23.78	24.11	14.06	15.50	21.55	37.04	36.83
W 16-19								
P	.143	.030	.255	.336	.062	.091	.153	.174
F	431.48	88.90	153.59	191.43	257.06	373.01	630.07	622.91
BW 16-19								
P	.184	.040	.176	.367	.084	.049	.134	.249
F	48.39	9.91	24.89	49.20	62.43	34.88	97.23	97.59
W 20-24								
P	.050	.023	.266	.172	.026	.066	.091	.060
F	237.89	108.64	120.97	76.05	90.37	230.97	321.34	313.94
BW 20-24								
P	.062	.022	.117	.289	.065	.068	.133	.099
F	35.04	12.59	13.02	32.92	33.52	34.08	67.60	67.95
Total Population								
P	.034	.041	.258	.220	.019	.049	.068	.044
F	2784.45	1176.52	1220.49	996.58	1071.28	2760.48	3831.76	3781.03

(continued)

Table 1, continued

Note: F indicates flow in thousands; P indicates probability; en indicates employment not in the labor force; eu indicates employment to unemployment, etc.

Source: Unpublished tabulations by the Bureau of Labor Statistics, adjusted by the Urban Institute as described in J. E. Vanski, "Recession and the Employment of Demographic Groups: Adjustments to Gross Change Data," in Holt, C. C., et al, Labor Markets, Inflation, and Manpower Policies, Final Report to the Department of Labor, Washington, D.C.: The Urban Institute (May, 1975).

Racial differences appear significant. Black youth are significantly less likely to get a job when unemployed, and to enter the labor force successfully. They are also almost twice as likely to move from employment to unemployment as other teenagers. More striking is the effect of aging on labor market behavior. Youths between 20 and 24 are about 60 percent less likely to leave employment in a given month than are teenagers. They are also much more likely to enter the labor force. The greater labor force attachment of this group is also evidenced by their much lower probability of withdrawal from the labor force when unemployed.

It is clear from Table L1 that observed changes in rates of participation and unemployment reflect the net of large gross movements in and out of the labor force. As one would expect, young people, especially teenagers, have much higher transition rates in almost all directions. The role of labor force entrance and exit flows in explaining youth employment and unemployment is examined in Table L2. The data in line 1 document the importance of flows from outside the labor force in changes in employment. For most demographic groups, between 60 and 70 percent of those newly employed come directly from outside the labor force without experiencing intervening unemployment.

These results indicate the artificiality of the not-in-the labor force/unemployment distinction for young people. Given the frequency of movements between unemployment and not in the labor force, it is difficult to distinguish between these two states. Since most of the newly employed come from outside of the labor force, it appears that most job finding is not the result of active search by the unemployed. Rather the evidence suggests the possibility that for many teenagers, job search is a passive process, in which the main element is

Table 1.2

Relative Flows Into and Out of Not-in the Labor Force - 1968-1976

FLOW CATEGORY	Total	Demographic Groups M1619	BM1619	W1619	BW1619	M2024	BM2024	W2024	BW2024
1. proportion of flows into employment from NILF ($F_{ne}/(F_{ne}+F_{ue})$)	.696	.694	.645	.711	.581	.570	.480	.656	.723
2. proportion of flows out of employment into NILF ($F_{en}/(F_{en}+F_{eu})$)	.705	.736	.718	.830	.830	.567	.494	.688	.736
3. proportion of flows out of unemployment into NILF ($F_{un}/(F_{un}+F_{ue})$)	.454	.524	.623	.558	.660	.335	.358	.386	.454
4. proportion of flows into unemployment from NILF ($F_{nu}/(F_{nu}+F_{eu})$)	.473	.590	.706	.744	.854	.338	.379	.455	.473
5. proportion of flows into the labor force which result in employment ($F_{ne}/(F_{ne}+F_{nu})$)	.723	.641	.488	.599	.368	.708	.587	.717	.510

Note: F indicates flow; u indicates unemployment; e indicates employment; n indicates not in the labor force; 1 indicates labor force; M indicates male; W indicates female; B indicates non-white

Source: Same as Table 1.

waiting for a job opportunity to be presented. If so, unemployed and NILF teenagers may be functionally almost equivalent. This conclusion is strongly supported by the high rates of labor force withdrawal among unemployed teenagers. It seems reasonable to conjecture that many of those who withdraw would not have withdrawn had a job opportunity became available in the month preceeding withdrawal. It is of course possible that withdrawal also reflects workers who are simply waiting for job opportunities to come, after a period of active search.

The patterns of entrance suggest that the availability of jobs is an important element in determining movements into and out of the labor force. At the same time, the evidence indicating that most teenagers end spells of employment by withdrawing from the labor force provides some indication that teenage unemployment arises from turnover. Among unemployed teenagers, the quit rate is about half the job loss rate. However, it seems reasonable to conjecture that a large proportion of those who withdraw from the labor force following employment are quitters. If, for example, it is assumed that 80 percent of this group is made up of quitters, it follows that about two-thirds of teenage employment spells end in quits. For males in the 20-24 age group, about 60 percent of employment separations end in quits. This illustrative calculation underscores how misleading sole focus on unemployment can be. Of course, quits may reflect the perceived low quality of available employment opportunities, as well as variation in the return from alternative uses of time.

There is an additional interesting implication of the results in Table 2. The final row indicates that among young people, a relatively high proportion of those who enter the labor force become employed directly. Among males 16-19, about 64 percent of entrances are successful; among men 20-24, the corresponding figure is 71 percent. Black entrants fare much less well, with less than half of male teenagers entering successfully. The pattern does not appear to differ very much by sex. This suggests that at least for white youths attractive jobs are fairly readily available.

Spell Durations

The results on flows and rates of transition in Tables 1.1 and 1.2 underscore the dynamic character of the youth labor market. The tremendous volatility in the market behavior of young persons may also be conveyed by examining the mean duration of completed spells in each of the states. It should be emphasized that the estimates presented below differ from the mean duration of those currently in each state. As Kaitz (1970), has shown, the former concept will yield lower estimates than the latter. Table L3 presents estimates of mean duration of completed spells in each state. The brevity of mean durations in each of the states is quite striking. For teenagers between 16 and 19, for example, the average duration of a spell of employment is only about 6 months, rising to about 15 months for those between 20 and 24. Black youth typically experience even shorter spells of employment. For black males between 16 and 19, the average duration in employment is only about 4.7 months. These short durations are not primarily the result of summer jobs. When the experiences of youth during the summer are excluded from the calculation, the average duration of employment rises by only about 10 percent.

Given the brevity of employment spells, the typically short tenures inside the labor force evident in column 2 should not be surprising. For female teenagers, the average completed spell inside the labor force is actually shorter than the typical employment spell. This paradoxical result occurs because some labor force spells involve only unemployment and are of very short duration. Below we present calculations indicating that a significant fraction of female-teenage unemployment spells both begin and end outside the labor force. It is these spells which reduce the average duration of completed spells within the labor force.

It is interesting to compare the very different maturation experience of black men and women reflected in the duration rates. While black male teenagers

Table 1.3

Average Duration of Completed Spells
in Employment, Unemployment, Labor Force
and Not-in-the Labor Force, 1968-1976

DEMOGRAPHIC GROUPS	Employment D_e	Labor Force D_l	NILF D_n	Unemployment D_u	Indomitable Workers D_{ue}
M1619	6.33	6.89	4.68	1.72	3.66
BM1619	4.78	4.92	5.40	1.86	5.36
W1619	5.82	5.78	6.54	1.70	3.93
BW1619	4.54	4.02	7.51	1.86	5.76
M2024	15.97	22.32	3.98	2.32	3.51
BM2024	14.96	22.27	4.69	3.03	4.80
W2024	13.87	16.86	11.07	2.49	4.07
BW2024	11.95	10.15	7.55	2.55	9.24
Total	20.66	22.91	14.67	2.13	3.91

Note: D indicates duration; n indicates not in labor force; u indicates unemployment; e indicates employment; $D_{ue} = 1/P_{ue}$, where P is the probability of moving from unemployment to employment.

have significantly shorter employment and labor force spells than does the overall group, the difference evaporates for the 20-24 group. On the other hand, black female durations remain significantly below those of white women. Comparison of durations also shows that male and female teenagers have very similar experiences. However, between the ages of 20 and 24, the differences in labor market attachment which characterize adult men and women begin to appear. While male teenage labor force spells average only about 20 percent longer than those of women, the difference rises to about 40 percent in the 20-24 age group.

The brevity of spells in the labor force are mirrored by the short duration of spells outside the labor force. For teenagers, time outside of the labor market typically amounts to about 5 months, with little difference for the older age group. It is noteworthy that this figure is much less than would result from a pattern of participation only during the summer. Racial differences are not as large as those between the sexes, with women and blacks experiencing longer NILF spells.

Table L3 presents two estimates of the mean duration of completed unemployment spells. The first, DU, measures the mean duration of unemployment actually experienced. It is interesting that despite their much higher overall rate of unemployment, teenagers actually have shorter average unemployment spells than do the entire population. Black teenagers, who have an unemployment rate more than twice that of white teenagers, experience spells that are only marginally longer. Nor can the excess of teenage unemployment over that of the 20-24 group be accounted for by longer teenage spells. The older group experiences spells which are about 30 percent longer than those of teenagers. These results suggest that virtually all of the differences between group unemployment rates are the result of changes in the number rather than the length of unemployment spells.

The very brief spells of teenage unemployment -- less than two months on average -- have been cited to support the proposition that jobs are readily

available for those who want them. It should be emphasized that the brevity of spells reflects both the ease with which teenagers find work, and the frequency with which they withdraw from the labor force. In the last column of the table we calculate mean durations for a hypothetical "indomitable" worker who never withdraws from the labor force, remaining unemployed until a job is found. Given the high rates of labor force withdrawal among the unemployed, it is not surprising to discover that this figure is much greater than the standard calculation. For black men 16-19, the "indomitable worker" duration is 5.3 months compared to 1.9 months for the duration of all unemployment spells. Since almost 70 percent of unemployment spells among black women 20-24 end outside the labor force, their "indomitable worker" duration is a shockingly high 9.36 months.

These figures suggest that the ease with which many unemployed teenagers can find jobs may have been substantially overstated. Much of the reason for short durations of teenage unemployment is a high propensity to withdraw from the labor force. Of course, the "indomitable worker " estimates may be overly pessimistic regarding the ease of job finding since some of the unemployed probably do not really want to find work, and hence spuriously reduce the probability of transition from unemployment to employment.

The results in Table L3 suggest that differences in mean durations of unemployment spells cannot account for disparities in group unemployment rates. Since unemployment rates may be represented as the product of average duration, and spell frequency, the cause of differing group unemployment rates must be differences in the frequency of unemployment spells. Table L4 illustrates that this is in fact the case. Black teenagers who are in the labor force have twice as high an unemployment rate as other teenagers, and experience about twice as many unemployment spells per year: 1.83 per member of the labor force compared to 1.08 for all teenagers. Alternatively, spell frequency may be expressed per member of the population. Even on this basis, the number of spells is strikingly high with

Table 1.4

Spells of Unemployment Per Person Per Year
1968-1976

	M1619	BM1619	M2024	BM2024	W1619	BW1619	W2024	BW2024	T
Per Full Year Member of the Labor Force	1.083	1.835	.464	.581	1.145	2.209	.441	.803	.313
Per Capita	.627	.842	.390	.471	.535	.754	.267	.461	.190

Source: Calculated as described in the text.

male teenagers averaging .63 compared to .19 for the total population.

The great frequency of spells of unemployment can easily be misinterpreted. First, the fact that there are many short unemployment spells does not imply that most unemployment is due to short spells. Second, the welfare and policy implications of the frequency of unemployment spells depend quite critically on whether a relatively few individuals have many spells or vice-versa. Third, the way in which the spells begin and end is also very relevant. Clark and Summers (1978) show that many people experience several spells of unemployment separated only by brief periods outside the labor force.

Characteristics of Unemployment Spells

In this subsection we examine in greater depth the characteristics of teenage unemployment spells. We noted above that the brevity of most unemployment spells does not imply that most unemployment is accounted for by short spells since the few long spells may account for the bulk of total weeks of unemployment. In order to characterize more fully the distribution of unemployment by spell length and to examine differences in the duration of spells which end in employment and labor force withdrawal, we use the hazard functions technique developed in Clark and Summers (1978). From estimated hazard functions, it is possible to generate density functions for the duration of completed spells ending in both unemployment and labor force withdrawal.

A hazard function relates the probability of exit from a state to the duration in the state. We generalize the notion usually employed in reliability theory by estimating separate hazard functions for exit to unemployment, and to out of the labor force. The data come from the BLS gross-change tabulations. They make available the probability of moving from unemployment to employment, and from unemployment to not in the labor force, within the succeeding month for those unemployed 0-4 weeks, 5-6 weeks, 7-10 weeks, 11-14 weeks, 15-26 weeks and 27+ weeks. The aggregate probabilities for 1974 are presented in Table L5. To estimate hazard functions we fit curves

Table 1.5

Probability of Leaving Unemployment by Duration
Male and Female Teenagers - 1974

Probabilities By Demographic Groups

Duration of Unemployment	MEN 16-19		WOMEN 16-19	
	probability of labor force exit (P_{un})	probability of job finding (P_{ue})	probability of labor force exit (P_{un})	probability of job finding (P_{ue})
less than 4 weeks	.31	.35	.38	.28
5 - 6 weeks	.26	.34	.38	.23
7 - 10 weeks	.27	.26	.34	.24
11 - 14 weeks	.22	.20	.25	.23
15 - 26 weeks	.18	.16	.27	.12
27+ weeks	.23	.20	.25	.15

Source: unpublished BLS tabulations

by associating each range probability with the range midpoint. Various functional forms were tried with only miniscule effects on the conclusions. Results with the logarithmic form are presented here, since its performance was marginally superior. Thus, for each group we estimated a pair of equations:

$$P_{ue} = \alpha_1 + \beta_1 \ln t + u_1$$
$$P_{un} = \alpha_2 + \beta_2 \ln t + u_2 \qquad (5)$$

where t indicates the range midpoint.

Typical regression results for men and women are presented in Table 1.6. The data quite clearly reject the simple Markov model. In virtually all cases the transition probabilities are dependent on duration. This could be the result of two quite different effects. First, it may be that the longer one is unemployed, the more difficult it becomes to find a job, and the less one can afford to take time off from job search and leave the labor force. Second, the observed duration dependence may be the result of heterogeneity. If each individual has a constant escape probability, those who remain unemployed longest will on average have the lowest escape probabilities and the observed escape probability will decline with duration.

The observed hazard functions are used to create monthly transition probabilities. This is done by assuming that each monthly transition may be approximated by the probability at the month's midpoint. Given P^j_{un} and P^j_{ue} for each month j, the distribution of completed spells is easily computed. For example, the proportion of spells ending in labor force withdrawal after t months is:

$$h_{un}(t) = \prod_{j=1}^{t-1} (1-P^j_{un} - P^j_{ue})\, P^t_{un} \qquad (6)$$

Table 1.6

Estimated Hazard Functions
1974

Demographic Group/ Dependent Variable	cons	ln t	R^2	SEE
Men 16-17				
1. P_{un}	.438 (.035)	-.064 (.016)	.845	.025
2. P_{ue}	.349 (.089)	-.059 (.041)	.406	.066
Men 18-19				
3. P_{un}	.276 (.010)	-.042 (.005)	.964	.008
4. P_{ue}	.585 (.036)	-.140 (.016)	.961	.026
Women 16-17				
5. P_{un}	.505 (.070)	-.040 (.032)	.343	.051
6. P_{ue}	.370 (.106)	-.077 (.048)	.461	.078
Women 18-19				
7. P_{un}	.396 (.042)	-.068 (.019)	.808	.031
8. P_{ue}	.341 (.015)	-.054 (.007)	.951	.011

Note: t = midrange of the duration categories, and takes on the values 2.5, 5.5, 12.5 and 20.5.

The proportion of spells of unemployment lasting more than t periods, and ending in labor force withdrawal, $H_{un}(t)$, is:

$$H_{un}(t) = \sum_{t+1}^{\infty} h_{un}(t) \qquad (7)$$

From the density functions, the mean lengths of completed spells, and the proportion of unemployment accounted for by spells of a given length may be computed. For example the mean length of completed spells ending in labor force withdrawal is:

$$D_{un} = \frac{\sum_{t=1}^{\infty} h_{un}(t)t}{\sum_{t=1}^{\infty} h_{un}(t)} \qquad (8)$$

Similar calculations yield the mean duration of completed spells ending in employment and of total completed spells.

The proportion of all unemployment accounted for by each type of spell may also be calculated from the density function of completed spells. If the flow into unemployment is F_u, the number of people unemployed at any moment t is:

$$S_u = F_u(\Sigma_0^{\infty} H_{un}(t) + \Sigma_0^{\infty} H_{ue}(t)) \qquad (9)$$

The proportion of unemployment due to, for example, labor force exiters is:

$$\pi_{nu} = \frac{(\Sigma_0^{\infty} H_{un}(t))}{((\Sigma_0^{\infty} H_{un}(t) + \Sigma_0^{\infty} H_{ue}(t))} \qquad (10)$$

In a similar way, the proportion of unemployment accounted for by those with spells which will exceed k weeks when they are completed can be calculated:

$$\pi_{nu}^{k} = \frac{\sum_{t=k}^{\infty}(H_{un}(t) + H_{ue}(t)) + (k)(H_{un}(k) + H_{ue}(k))}{(\Sigma_0^{\infty} H_{un}(t) + \Sigma_0^{\infty} H_{ue}(t))} \qquad (11)$$

In Table 1.7 we present various features of the distribution of completed

Table 1.7

Estimated Exit and Entry Behavior and the Composition of Unemployment by Duration, 1974 - Calculated from Functions in Table 1.6

	MEN		WOMEN	
	16-17	18-19	16-17	18-19
1. Probability of exit from the labor force for all unemployed (average)	.58	.36	.63	.53
2. Proportion of unemployment accounted for by spells ending in exit from the labor force	.61	.40	.67	.53
3. Mean duration of a completed spell - total (in months)	1.62	1.61	1.35	1.77
4. Mean duration of a completed spell for those who become employed	1.57	1.54	1.29	1.77
5. Mean duration of a completed spell for those who exit	1.65	1.72	1.39	1.77
6. Proportion of spells of unemployment completed in one month or less	.68	.72	.78	.64
7. Mean duration of a completed spell for those committed to employment without withdrawal (indomitable worker)	4.96	3.48	5.86	4.70
8. Proportion of unemployment accounted for by spells ending in one month or less	.43	.45	.58	.36
9. Proportion of unemployment accounted for by spells greater than or equal to				
3 months	.36	.37	.21	.43
4 months	.23	.26	.11	.29
5 months	.15	.19	.06	.20
6 months	.10	.14	.03	.14
9 months	.02	.05	.01	.04
12 months	.00	.02	.00	.01
10. Proportion of unemployment accounted for by spells of six months or more which end in exit	.06	.06	.02	.08
11. Proportion of unemployment accounted for by spells of six months or more which end in employment	.04	.08	.01	.06

spells derived from the estimated hazard functions. The results confirm the importance of exit unemployment, and underscore the importance of examining the entire distribution of completed spells. Two broad conclusions emerge from an examination of the distribution of completed spells.

First, spells of unemployment which culminate in labor force withdrawal, account for a large part of teenage unemployment. As line 1 indicates, among men 18-19 about 36% of unemployment spells end in withdrawal, accounting for about 40% of unemployment. The higher figures in line 2 arise because exit spells are typically of slightly longer duration than those which end in employment. Exit spells are typically longer because a disproportionate share of completed long term spells end in labor force exit. For men 16-17, 67% of spells over 27 weeks end in withdrawal. The comparable figures for other groups are: men 18-19, 43%; women 16-17, 66%, women 18-19, 60%. It is difficult to understand why a person would remain unemployed for that long, and then withdraw from the labor force other than because of discouragement about the prospects of finding a job.

The high rate of labor force exit is a major cause of short measured durations of teenage unemployment. A disproportionate share (about 50%) of very brief spells of unemployment end in withdrawal. This can be seen quite clearly in line 7, which presents the mean duration of completed spells for hypothetical indomitable workers, who remain unemployed until they find a job. The results suggest that many unemployed teenagers encounter substantial difficulty in finding jobs. For men 18-19, the duration calculated on this basis is close to 3.5 months and approaches 6 months for the other groups. Even these figures overestimate the ease of job finding because they ignore the low probability of finding work for those who become discouraged and leave the labor force.

The second broad finding which may be deduced from Table 1.7 is the importance of focusing on unemployment weeks, rather than experiences, in characterizing

the dynamics of unemployment. For all four groups the vast majority of spells are short, with significantly less than half ending in under a month. However much of the unemployment is concentrated in longer spells. For men 18-19, the 72% of spells which last less than 1 month accounted for 45% of 1976 unemployment, while the 6% of spells which lasted 3 or more months accounted for 37% of the unemployment. This also suggests that a large amount of teenage unemployment can be attributed to genuine problems in finding suitable work. Again it should be emphasized that these statistics are bound to underestimate the importance of long term joblessness, since many of those who cannot find work withdraw from the labor force. Moreover, they do not reflect the experience of those who have long spells of joblessness interrupted only by very brief spells of employment.

Work Experience Survey

The hazard function calculations suggest that much of the youth unemployment problem may be the result of fairly long spells of unemployment. As just emphasized, those results underestimate the magnitude of the long term problem because of labor force withdrawal and multiple unemployment spells, separated only briefly by employment experiences. The importance of these issues in determining the length of spells may be addressed using the work experience survey conducted in March of each year. In Table 1.8 we present various features of the distribution of unemployment experiences as reflected in the March 1977 survey of work experience in 1976.

The key conclusion which emerges from the table is that a large part of youth unemployment is concentrated among a relatively small number of teenagers who suffer fairly long-term unemployment. The first line of the table provides average weeks of unemployment for those who experienced unemployment during 1976. Men aged 16-19 who suffered unemployment averaged

Table 1.8

Distribution of Unemployment and
Non-Employment by Duration
1976

	Men 16-19		Women 16-19	
	in school	out of school	in school	out of school
1. Weeks of unemployment per person experiencing unemployment in the year	14.7	16.3	10.3	13.3
2. percent of those with work experience and more than 14 weeks of unemployment	6.6	14.0	4.6	10.8
3. percent of unemployment accounted for by those whith more than 14 weeks of unemployment in year	76.0	77.0	65.0	69.0
4. percent of those with work experience and more than 26 weeks of unemployment	3.2	7.6	1.9	4.2
5. percent of unemployment accounted for by those with more than 26 weeks of unemployment in year	54.0	53.0	37.0	41.0
6. percent of non-employment for those with more than 30 weeks of non-employment in the year	91.0	75.0	89.0	77.0

Source: Work Experience of the Population, unpublished data, BLS, 1976.

three and four months worth, while the typical experience for women was somewhat shorter, averaging about 2 1/2 months. These figures are much greater than the mean duration of spells of unemployment, both because of multiple spells and retrospective underreporting of labor force withdrawal (Clark and Summers, 1978). Most unemployment is concentrated among those who experience more than the mean amount. The calculations reported in the table show that for men 16-19 who are out of school, the 14% of those with work experience who suffered more than 14 weeks of unemployment accounted for fully 77% of total group unemployment, while the 7.6% of men who were unemployed more than 26 weeks suffered 53% of total group unemployment. For females, the burden of unemployment is somewhat more evenly shared.

The calculations in lines 1-5 do not take account of those who had no work experience during the year, or those who withdrew from the labor force because of inadequate job opportunities. Accordingly, we present in line 6 the distribution of "non-employment" for those <u>with work experience</u> during the year. The omission of those with no employment during the year obviously leads to a significant underestimate of the burden of long term non-employment. Nonetheless, non-employment is to a large extent concentrated among those with very little work experience. Among men who are out of school, the group for whom this calculation is most meaningful, about 75% of non-employment is concentrated among the group suffering more than 30 weeks of joblessness.

These results strongly suggest that teenage unemploy ment problem largely may be the result of a small hard core's inability to find attractive work. If this is the case, much of the volatility depicted in this section may be misleading. It appears that there are really two quite different groups of young people in the labor market. Most young people move in and out of employment quite easily and frequently. A small group who cannot find and hold jobs are the source of most of the unemployment problem.

II

Seasonality and the Youth Labor Market

The dynamic character of the youth labor market is often attributed, in part, to flows into and out of school, particularly during the summer months. In this section we briefly consider seasonal movements in employment and unemployment, and the relationship between enrollment status and labor market behavior. While our results confirm the importance of school entrance and exit, they make it plain that these flows can account for at most a small part of movements into and out of the labor force. We find that a large proportion of those in school work full time, while a similarly sizable percentage of those not enrolled have no work experience during a typical year. The evidence suggests that no more than about 20 percent of teenagers follow the traditional pattern of working only during the summer and withdrawing from the labor force for the remainder of the year. We are led to conclude that seasonal movements cannot in any way explain the high youth unemployment rate. Indeed, the evidence indicates that those who enter the labor market only during the summer have a lower than average unemployment rate. Augmented to some extent by public policy, the labor market appears to do a remarkably good job of accommodating the summer influx of youth.

Seasonal Variation in Labor Market Flows

In Table 2.1, we examine the changes over the year in various key labor market rates for males 16-19. Seasonal patterns do not vary much among youth groups, and the male 16-19 group is fairly typical. The first line provides the unemployment rate for the summer months and the remainder of the year. No significant increase in the unemployment rate occurs during the summer months. Indeed, the rates in May, July, August and September are actually lower than the rate over the rest of the year. Of course, the number of

Table 2.1

Seasonal Variation in Labor Market Stocks and Flows
Male 16-19, 1968-1976

Stock/Flow Category	AVERAGE FOR: May	June	July	August	September	Rest of Year	Annual
1. unemployment rate	.129	.182	.152	.122	.149	.160	.155
2. participation rate	.541	.704	.758	.701	.541	.527	.578
3. employment ratio	.471	.575	.643	.615	.459	.442	.488
4. labor force inflow as a percent of the population	.086	.213	.117	.060	.057	.073	.087
5. labor force outflow as a percent of the population	.077	.054	.067	.118	.217	.071	.086
6. probability of successful labor force entry (P_{ns})	.711	.655	.670	.676	.630	.622	.641
7. unemployment inflow as percent of population	.025	.073	.039	.019	.021	.028	.031
8. probability of finding a job if unemployed (P_{ue})	.269	.332	.386	.312	.280	.249	.277

Source: See Table 1.1.

unemployed persons rises substantially because as the second row shows, the participation rate soars. The participation rate in July is almost 40% more than its annual average. As line 3 indicates, a parallel rise in the employed proportion of the population also takes place. Not surprisingly the vast majority of this increase in employment is due to summer-only workers. In the fourth line of the table, we present the proportion of the population who enter the labor force in each month. In June, almost 21 percent of the male teenage population enters the labor force. This figure represents close to 50% of the NILF category. Another 12 percent of the population enter the labor force in July. Of course a certain amount of labor force entrance occurs in all months, averaging about 7 percent of the population. Contrasting this figure with the entry rates for May, June and July one finds that during the summer months about an extra 20 percent of the population enter the labor force. Note that this is a substantial underestimate of the extent of the increase in youths' labor supply, since many teenagers shift from desiring part time to seeking full time work during the summer months. Comparisons of the seasonality in teenage labor market behavior with the patterns observed for other demographic groups leads us to conclude that about three-quarters of summer entrances are due to school ending rather than fluctuations in employment opportunities.

Not surprisingly the high rates of labor force entrance in June and July are mirrored by high rates of labor force exit in August and September. During these months, about 33% of the teenage population exits from the labor force. Since the rate of withdrawal in a typical month is about 7%, the extra labor force exits during August and September almost exactly offset the extra entrances in the early summer months. Thus, both the flow and the stock data suggest that employment only during the summer months characterizes the behavior

of about 20% of male teenagers.

The labor market appears to adapt very well to the surge in those seeking employment. In June when the inflow is at its peak, about two-thirds of labor force entrants find jobs. This figure is actually greater by about 5% than the rate of successful entry during the remainder of the year. Those who do become unemployed during the summer months fare much better than the unemployed in other months, as the job finding rate P_{ue} in May, June, and July far exceeds the rate in the non-summer months. The fact that these flow rates are significantly higher during the summer months suggests that the additional members of the labor force may have an unemployment rate much lower than that of full year workers. Clearly, the average unemployment rate over the summer months is lower than during the rest of the year. This suggests that the summer influx of teenagers actually reduces the average annual unemployment rate, since the additional workers appear to fare substantially better both as labor force entrants and as unemployed job seekers than do other teenagers. This quite striking fact bears futher comment.

Undoubtedly, public employment and training policy affects the behavior of labor market flows during the summer months. Over the first 6 years of the period covered in Table 2.1, (1968-1973), the federal government provided an average of .5 million summer jobs through the Neighborhood Youth Corps. The NYC was eliminated with the enactment of CETA in 1973, but summer jobs remain a component of the decentralized employment and training system. In 1976, for example, just over 820 thousand jobs were provided in the CETA summer program. The great majority of participants were classed as economically disadvantaged (95.9 percent), drawn from the unemployed or from outside the labor force (98.7 percent), and were full time students (87.8 percent). A comparison of the size of the federal summer program with the average flow

into the labor force reveals the relative importance of the summer jobs program. From 1968-1976, an average of 600 thousand summer jobs were provided through NYC and CETA, while the data in Table 2.1 suggest that about 3 million teenagers left school and entered the labor market each summer.

The limited size of the summer jobs program clearly suggests that a large number of young people are able to find jobs in the private sector. The ability of the job market to accommodate an almost 50% increase in those desiring work without any increase in the unemployment rate is testament to an impressive set of institutional and market adaptations. The ability of the labor market to deal with the large inflow of workers in summertime should lead one to question demographic explanations of recent increases in youth unemployment. As Table 2.1 shows, the labor market is able to deal with a three-fold increase in the proportion of the population newly seeking work, without an appreciable increase in individuals' difficulty in finding employment. It seems improbable that the same labor market should be incapable of adapting to the easily forseen, persistent, and much smaller increase in the labor force due to demographic shifts. Indeed, the problem should be much simpler because in this case the time frame is much longer and there is no need to create very temporary jobs. While adaptations such as replacing vacationing workers and work scheduling are less feasible in this case, the longer run should permit much greater flexibility.

School Enrollment and Work Experience

The results presented in Table 2.1 make it clear that the "only works in the summer" pattern accurately describes the behavior of only about a fifth of the teenage population. While it is clear from the table that several lag transition probabilities differ in summer and other months, comparison of the "Rest of Year" and "Annual" columns suggests that the summer months cannot

account for much of the high flow rates documented in Section I. For example, the rate of labor force entry (P_{NL} which may be calculated from Table 2.1) averages .0837 on an annual basis and .073 in the non-summer months. The rate of labor force exits is .071 on an annual basis compared with .086 during the non-summer months. In order to understand the behavior of 80% of young people not characterized by the "summer only" pattern, we make use of the 1970 Census work experience survey.

For each of the demographic groups shown in Table 2.2, we have estimated the proportion possessing various degrees of labor market attachment. The in-school groups are divided into five categories: 1) non-workers, defined as those not in the labor force in March 1970 and without work experience during 1969; 2) summer only, defined as those not in the labor force in March, who had 1-13 weeks of employment experience during 1969; 3) part year, no summer, defined as those in the labor force, but without prior work experience; 4) part year, defined as those with more than a summer's work experience, but significantly less than a full time work experience during 1969; and 5) full year, defined as those in the labor force in March 1970 who worked more than 40 weeks during 1969. The out of school group is divided similarly into non-workers, part year workers, and near full time workers.

The statistics in Table 2.2 support the inference from the flows data that no more than one-fifth of the teenage population follow the "summer only" employment pattern. Surprisingly, among all the demographic groups except men 18 and 19, non-work is much more common than "summer only" employment. Among men 16-19, many more work nearly full time than during the summer. These two in-school groups, the non-workers and full time workers explain why the summer flows are not even larger. The racial differences in the experiences of enrolled youth are quite large. Non-white men 18-19 are about 60% more likely

Table 2.2

Distribution of the Teenage Population by
School Enrollment Status and Labor Market Attachment

	SCHOOL STATUS AND WORK EXPERIENCE							
	In School					Out of School		
Demographic Group	(1) never work	(2) summer only	(3) part year/ no summer	(4) part year	(5) full time	(6) never work	(7) part year/low attachment	(8) full time/ substantial attachment
MEN								
Total								
16-17	.38	.15	.04	.19	.11	.04	.05	.05
18-19	.10	.13	.01	.17	.13	.04	.10	.31
non-white								
16-17	.49	.12	.03	.10	.04	.09	.08	.05
18-19	.16	.09	.02	.09	.06	.11	.17	.30
WOMEN								
Total								
16-17	.54	.10	.04	.12	.05	.08	.04	.03
18-19	.14	.11	.02	.13	.07	.12	.15	.26
non-white								
16-17	.59	.08	.03	.06	.02	.13	.06	.03
18-19	.20	.07	.02	.07	.04	.21	.20	.21
Total Teenagers	.29	.12	.03	.15	.09	.07	.08	.16

Note: Categories defined in the text; data taken from U.S. Census, 1970.

to have no work experience and are about half as likely to work full time as the total group. Not surprisingly the degree of labor force attachment of 18 and 19 year olds is significantly greater than that of younger workers in all race-sex groups.

The proportion of those out of school and their degree of labor force attachment differs significantly among the groups. Among men 18-19, close to a third of the population is out of school and has a substantial degree of labor force attachment. While two-thirds of non-white men of the same age have left school, only about 30% exhibit significant attachment, with another 11 percent who are complete non-workers. Younger persons, 16-17, who have left school seem to have great difficulty finding employment. In most cases, the proportion with no work experience at all exceeds the fraction with significant amounts of employment experience. As in the other results in this paper, the dismal plight of the thrice disadvantaged group of young black women stands out. Of those not in school, only a third show a significant attachment while another third do not work at all.

In sum, the results in Table 2.2 suggest that the role of schooling in the teenage labor market can easily be overstated. The "summer only" pattern characterizes only a minority of the teenage population. About 25% of young people who do not work at all are out of school, while a somewhat higher proportion of full year workers are enrolled in school. These figures lead us to conjecture that if gross-changes data were separately available on an enrolled and non-enrolled basis, the patterns which would emerge for both groups would not be too different from those depicted in Section I.

III

Demographic Differences in Employment and Unemployment

In this section we attempt to get at the reasons for demographic differences in unemployment and employment patterns. The basic technique used involves decomposing differences in group unemployment and employment rates into parts due to disparities in each of the flow probabilities. Marston (1976) has presented similar decompositions of unemployment differences using data for a shorter period. Such a decomposition can shed light on appropriate policies to combat low rates of employment. A finding that high youth unemployment rates were caused by frequent labor force withdrawal followed by re-entry would clearly have very different implications from a result suggesting that the main cause was a low rate of transition from unemployment into employment. After developing the decomposition technique, we apply it to explain age, race, and sex differences in unemployment and employment rates.

The Method

In Table 1 of the first section we presented transition probability matrices for each of the demographic groups examined in this study. The Basic Theorem of Markov Chains holds that any system characterized by such a matrix will eventually reach a steady state which is independent of initial conditions. This steady state proportion of the population in each state may be found as a function of the entire transition matrix. In showing these relationships we let π_{it} represent the proportion of the population in the i^{th} state at time t, and P represents the matrix of transition probabilities discussed in Section 1.

The relationship between π_t and π_{t-1} may be written in matrix form as:

$$\pi_t = P'\pi_{t-1} \qquad (3.1)$$

In a steady state, $\pi_t = \pi_{t-1}$ and so:

$$(I - P')\bar{\pi} = 0 \qquad (3.2)$$

where $\bar{\pi}$ is the steady state value of the vector π. The system (3.2) has an infinity of solutions since the fact that the row sums of P are all 1 implies the singularity of $(I - P')$. We choose a unique solution by imposing the natural normalization that $\Sigma\pi_i = 1$. This system of equations can be solved to find expressions for the $\bar{\pi}$'s as functions of the transition matrices. Since the algebra is somewhat tedious, and the results have no apparent intuitive appeal, the details are relegated to Appendix 2.

It should be emphasized that calculations of sample proportions from changes data are not likely to match exactly rates from the regular survey. The steady state assumptions which underly the decomposition are not satisfied in practice. However, it is hoped that the use of 8-year averages will yield a fairly close approximation. More importantly, the Markov assumption of a constant transition probability independent of the amount of time spent in a state is not likely to be satisfied. The consequences of this problem cannot easily be estimated.

Using each group's transition probabilities, we calculate the implied steady state employment and unemployment rates. To evaluate the sources of differences between two groups, we recalculate the "basic" group's steady state rates, substituting one at a time, the other group's transition probabilities. For example, to decompose the difference between Black and Total unemployment rates, we would first calculate the Black and Total rates implied by the respective group transition probabilities. We would then recalculate the Black rate using the Total value for P_{12}, and subtract this from the actual Black rate. This yields the differential attributable to the differences in P_{12}. We repeat the process for each of the six transition probabilities.

Before turning to the results, it is necessary to discuss a transformation which makes the decomposition exercise more meaningful. Rather than using the transition probabilities, P_{ne} and P_{nu}, we have used P_{nl} and P_{ns}, the total probability of labor force entrance and the probability of successful entry, respectively. These probabilities may be calculated as

$$P_{nl} = P_{nu} + P_{ne}$$

$$P_{ns} = \frac{P_{ne}}{P_{nu} + P_{ne}}$$

These probabilities have more meaningful economic interpretations than do the untransformed variables.

In analyzing the results, differences in employment and unemployment rates may be informally divided into two parts -- those due to instability and to inability to find work. Roughly, differences due to P_{eu} disparities may be classed as reflecting job instability while those due to P_{ue} and P_{ns} differentials may be attributed to inability to find work. These three probabilities account for the bulk of demographic differentials. The remaining probabilities P_{eu}, P_{nl} and P_{un} give much smaller and less easily interpreted differences. Since most of the P_{eu} flow reflects job loss, rather than quitting, and labor force entries respond to available opportunities, it seems most plausible to attribute differences due to these probabilities to difficulties in finding work.

The decomposition of demographic differences in employment and unemployment into differences in transition probabilities are presented in tables 3.1 to 3.4. To provide perspective and to highlight the transition patterns specific to young people, we first examine the differences between the youth experience and the experience of the total population. The first 6 columns of

3.1 indicate the percentage point difference between the actual youth employment ratio (unemployment rate) and the actual youth employment ratio (unemployment rate) and the ratio which would obtain if the particular youth transition probability were replaced by the value for the total population. Thus, for example, the number in column 1 for men 16-19 indicates that the employment ratio of male teenagers would be almost 19 percentage points higher if that group's probability of leaving employment and the labor force (P_{en}) took on the total population values. A similar interpretation applies to columns 2-6. Column 7 contains the summation of the first six columns, which we have labelled "estimated total difference." Because of approximations used in the calculations, the estimates may differ from the difference measured by the monthly CPS, presented in column 8.

The results for the employment ratio in Table 2.1 underscore the importance of labor force transitions in the teenage labor market. Irrespective of the race-sex group, the largest differences between teenagers and the total population arise in the probability of leaving employment and the labor force (P_{en}) and in entering the labor force (P_{nl}). The effect of differences in the propensity to move from employment to unemployment (column 2) are much smaller. These results seem consistent with the view advanced earlier that fluctuations in teenage employment are dominated by movements in and out of the labor force, with movement through the unemployment state playing a

Table 3.1

Differences in Employment and Unemployment
Due to Difference in Transition Probabilities
Youth vs. Total Population, 1968-1976

Differences in Employment Ratios (Youth minus total population)
(percentage points)

Demographic Group	Transition Probabilities P_{en} (1)	P_{eu} (2)	P_{ue} (3)	P_{un} (4)	P_{nl} (5)	P_{ns} (6)	Total Difference est. total diff. (7)	actual total diff. (8)
MEN								
16-19								
Total	-18.73	-4.13	.46	-.68	23.51	-1.82	-1.40	-7.20
Non-White	-20.52	-5.27	-1.98	-1.10	16.66	-5.94	-18.18	-23.00
20-24								
Total	-.31	-3.24	.92	.42	22.44	-.17	20.05	20.50
Non-White	.34	-6.18	-1.70	.95	19.34	-1.71	11.05	13.90
WOMEN								
16-19								
Total	-26.18	-1.81	-.06	-.97	15.69	-2.72	-16.05	-17.60
Non-White	-26.66	-1.87	-2.39	-1.61	9.07	-8.29	-31.74	-33.70
20-24								
Total	-7.10	-2.08	.17	.71	6.53	-.08	-1.87	1.80
Non-White	-10.42	-2.29	-5.56	-.51	13.86	-6.39	-11.31	-8.40

Differences in Unemployment Rates (Youth minus total population)
(percentage points)

MEN								
16-19								
Total	4.68	4.61	-.52	-1.82	0.0	2.06	9.01	9.90
Non-White	9.46	7.67	2.96	-3.77	0.0	8.60	24.92	22.90
20-24								
Total	.06	2,80	-.81	.89	0.0	.15	3.09	3.40
Non-White	-.10	5.70	1.58	2.15	0.0	1.60	10.93	9.00
WOMEN								
16-19								
Total	7.34	2.55	.08	-2.36	0.0	3.80	11.42	10.80
Non-White	16.94	3.92	4.99	-4.38	0.0	16.35	37.82	29.00
20-24								
Total	.98	1.97	-.17	.65	0.0	.09	3.52	3.60
Non-White	3.78	2.16	5.09	-2.07	0.0	5.81	14.77	11.50

Note: Calculations as described in text.

relatively subordinate role. It appears that the difference in the employment ratio between teenagers and the total population lies not in differences in the propensity to obtain a job (i.e., P_{ue}, P_{ns}), but in the higher rates of movement out of employment. Among blacks, this conclusion must be qualified. For black males, and particularly for black female teenagers, differences in the probabilities of obtaining employment are much more important than is the case for the total teenage group. For black men, differences in P_{ns} and P_{ue} account for close to 8 percentage points of the difference in employment ratios; for black women the figure is 10.5 points. Even among blacks, however, differences in the probability of leaving employment are large and important.

The patterns observed in the comparison of employment ratios are altered somewhat in the unemployment results. Differences in employment stability remain important, but the relative importance of differences in the probability of finding a job increase. This is particularly true of black teenagers. Among women, for example, differences in the rate of accession to employment, either from unemployment or from out of the labor force, are equally as important as greater job instability (i.e., P_{en}, P_{eu}) in accounting for the large difference in rates of unemployment between the total population and black female teenagers. The importance of differential job finding success is also evident in the results for 20-24 year olds. For black females in that age group, the estimated difference in the unemployment rate of 15 points is largely accounted for by differences in the probability of obtaining employment. Job instability among black females, particularly P_{en}, is clearly much less important for the older age group. This is also true for the total female 20-24 group. In this connection it is important to note the evident increase in labor force attachment of men 20-24. Differences in P_{ne} for men 20-24 are miniscule, and much of

the difference in unemployment rates arises from differences in P_{eu}, which may reflect both the tendency for less senior people to be laid off first, as well as quit behavior. In general, the differences between the total population and those 20-24 suggests that the latter group behaves much more like adults than like teenagers.

Age Differences

The differences between teenagers and what might be called young adults (20-24) are examined in greater detail in Table 3.2. The interpretation attached to the data is similar to that in Table 3.1, except that here, probabilities for the 20-24 year old group have been substituted into equations for teenagers. The entries in the table confirm the impressions developed in Table 3.1. For virtually all demographic groups employment instability in the form of P_{en} is the dominant source of age differences in employment ratios and rates of unemployment. Young adults in all race-sex groups have a much lower propensity to end spells of employment; greater job attachment is largely due to a lower probability of leaving employment by leaving the labor force. Differences in the rate of movement into employment play a moderate role in determining age differences in the unemployment rates of blacks and the total female category. The key job entrance probability is P_{ns}, the probability of successful labor force entry rather than the probability of obtaining a job if unemployed. The magnitude of the difference due to P_{ns} is much smaller than the job instability component, but sizeable nonetheless. For black women, P_{ns} accounts for 7 points of the unemployment rate disparity, which is about the size of the P_{en} effect. Similar relative magnitudes characterize other demographic groups.

Table 3.2

Differences in Employment and Unemployment
Due to Differences in Transition Probabilities
by Age, 1968-1976

Differences in Employment Ratios (16-19 minus 20-24)
(percentage points)

Demographic Group	Transition Probabilities P_{en} (1)	P_{eu} (2)	P_{ue} (3)	P_{un} (4)	P_{nl} (5)	P_{ns} (6)	Total Difference: est. total diff. (7)	Total Difference: actual total diff. (8)
TOTAL								
Men	-18.4	-2.20	-.43	-1.36	-3.21	-1.49	-27.11	-27.70
Women	-20.35	-.77	-.22	-1.50	10.45	-2.59	-15.00	-15.80
NON-WHITE								
Men	-20.81	-2.78	-.66	-2.44	-2.45	-2.92	-32.07	-36.80
Women	-17.90	-1.26	2.20	-.75	.11	-3.41	-21.00	-25.50

Differences in Unemployment Rates (16-19 minus 20-24)
(percentage points)

TOTAL								
Men	4.62	2.48	.49	-3.52	0.0	1.69	5.77	6.52
Women	6.18	1.09	.32	-3.54	0.0	3.63	7.68	7.20
NON-WHITE								
Men	9.55	4.13	.99	-7.59	0.0	4.33	11.41	13.80
Women	13.15	2.67	-4.83	-2.19	0.0	7.06	15.85	17.00

Note: Calculation as described in text.

Sex Differences

Table 3.3 examines male/female differences in the employment ratio and unemployment rate. The clearest conclusion to be drawn from the table is the importance of differences in the propensity to enter the labor force in determining differences in the employment ratio. This finding emerges in each group, but is particularly evident in the total 20-24 category. Among blacks, entrance probability differences are less important. Sex differences in P_{ns} and P_{ue} play an important role in the teenage category, while differences in employment instability (P_{en}) rather than labor force entry are the major factor among black 20-24 year olds.

Except for black teenagers, unemployment rate differences are generally quite small. Within the black teenage category, much of the male/female disparity appears to be due to a greater difficulty in entering the labor force successfuly, and in obtaining a job if unemployed. Together with the results in Tables 3.1 and 3.2, the evidence on sex differences underscores the disparity between black female teenagers and all other groups. Black young women seem to suffer substantially, by being handicapped three ways.

Differences by Race

The calculations in tables 3.1, 3.2 and 3.3 have suggested substantial racial differences in the relative importance of job instability and job finding in determining movements in employment and unemployment. The role of job finding and instability in racial differences are examined more directly in Table 3.4. Looking first at results for the employment ratio, the evidence suggests that racial differences are largely the result of differences in the probability of obtaining employment. Among teenagers, P_{ns} and P_{ue} account for 6.6 points of the difference in the male employment ratio, and 7.8 points

Table 3.3

Differences in Employment and Unemployment
Due to Differences in Transition Probabilities
by Sex, 1968-1976

Differences in Employment Ratios (women minus men)
(percentage points)

Demographic Group	Transition Probabilities P_{en} (1)	P_{eu} (2)	P_{ue} (3)	P_{un} (4)	P_{nl} (5)	P_{ns} (6)	Total Difference est. total diff. (7)	actual total diff. (8)
TOTAL								
16-19	-4.32	1.36	-.44	-.15	-7.02	-.93	-11.51	-10.40
20-24	-6.60	.88	-.60	-.41	-18.74	.13	-25.34	-22.20
NON-WHITE								
16-19	-3.55	1.38	-.68	-.19	-5.28	-2.89	-11.21	-11.00
20-24	-10.87	3.31	-4.25	-1.62	-9.22	-2.86	-25.53	-22.30

Differences in Unemployment Rates (women minus men)
(percentage points)

TOTAL								
16-19	1.71	-1.96	.62	-.38	0.0	1.32	1.31	0.90
20-24	.92	-.85	.57	-.37	0.0	-.13	.15	0.20
NON-WHITE								
16-19	3.51	-2.99	1.44	-.59	0.0	6.01	7.38	6.10
20-24	3.92	-3.29	3.94	-6.13	0.0	2.68	1.12	2.40

Note: Calculations as described in text.

Table 3.4

Differences in Employment and Unemployment
Due to Differences in Transition Probabilities
by Race, 1968-1976

Differences in Employment Ratios (non-white minus white)
(percentage points)

Demographic Group	Transition Probabilities P_{en} (1)	P_{eu} (2)	P_{ue} (3)	P_{un} (4)	P_{nl} (5)	P_{ns} (6)	Total Difference est. total diff. (7)	actual total diff. (8)
MEN								
16-19	-3.95	-1.91	-2.52	-.22	-2.45	-3.93	-15.00	-15.70
20-24	.68	-2.23	-2.95	.30	-1.88	-1.51	-7.59	6.60
WOMEN								
16-19	-4.00	-.68	-2.31	-.28	-2.05	-5.48	-14.80	-16.30
20-24	-3.97	.27	-5.79	-.97	7.88	-6.22	-8.81	-6.70

Differences in Unemployment Rates (non-white minus white)
(percentage points)

MEN								
16-19	2.37	2.86	3.75	-.82	0.0	5.77	13.93	13.00
20-24	-.20	2.08	2.74	.66	0.0	1.41	6.69	5.70
WOMEN								
16-19	3.91	1.46	4.84	-.84	0.0	11.11	20.48	18.30
20-24	1.58	-.26	5.29	-3.84	0.0	5.66	8.43	7.90

Note: Calculations as described in text.

in the female ratio. The job finding probabilities are also important for the 20-24 age group. The dominance of differential success in finding jobs should not obscure the importance of job instability, particularly for teenagers. Although smaller than the effect of the job finding probabilities, differences in P_{en} and P_{eu} are not trivial. For both men and women, movement from employment out of the labor force is the dominant source of racial differences in employment arising from job instability. In both cases, 4 points of the employment ratio difference between black and total is due to differences in P_{eu}.

The result that job finding probabilities are a major factor in determining racial differences in employment is repeated in the unemployment calculations. Indeed, the dominance of P_{ns} and P_{ue} is even more striking. For male teenagers, for example, 9.5 points of the black-total unemployment rate differential is due to differences in the likelihood of entering employment upon entering the labor force, or obtaining a job if unemployed. For female teenagers, differential success in job finding accounts for almost 16 points of the difference in the black/total unemployment rate. Job finding differences are also a major factor for the 20-24 age group. In each of the demographic groups, job finding is on the order of two times as important as job instability in determining the unemployment differential.

Two main conclusions arise out of the decompositions presented in this section. Much of the disparity between youth and total unemployment and employment rates is due to their much higher rates of labor force exit, only a small proportion of which can be attributed to schooling. Thus the "instability" view can explain much of the youth unemployment problem. On the other hand, a large part of the disadvantage which some groups of young people (especially blacks, and to a lesser extent women) suffer, is due to real difficulties in finding employment. This conclusion strongly suggests the need for special policies designed to attack the qualitatively different employment problems of these groups.

IV

The Cyclical Response of Employment and Unemployment

The cyclical behavior of employment and unemployment is a dominant feature of labor markets. The unemployment rates of different demographic groups move together, though the levels about which they fluctuate differ greatly. Just as the average levels of unemployment for different groups diverge, the amplitude of their cyclical fluctuations varies substantially. An assessment of the benefits and costs of tight labor markets requires consideration of which groups will benefit the most. In this section we examine the sensitivity of youth unemployment to business cycle conditions, using stock and flow data. The results reveal a pronounced cyclical response in both kinds of data. The evidence thus underscores the strong impact of aggregate demand on the youth labor market.

Employment, Unemployment and Participation

The cyclical sensitivity of unemployment is the reflection of two quite different phenomena. Unemployment can increase either because fewer jobs are available or because more workers decide to seek the available jobs. These two sources of unemploymen obviously have quite different welfare implications. While the former is almost certainly indicative of a worsening of labor market performance, the latter may reflect an improvement in conditions. Focus only on unemployment rates is thus very likely to be misleading. Moreover, the results in section I suggest that NILF-unemployed distinction is quite arbitrary. These considerations indicate the importance of examining the cyclical behavior of employment, unemployment, and participation.

These three measures summarize the labor market experience of a given demographic group. They are related by the following identity:

$$\left(\frac{E}{N}\right)_i = \left(\frac{E}{L}\right)_i \left(\frac{L}{N}\right)_i \qquad (4.1)$$

where E is employment, N is population, L is labor force, and i indexes demographic groups. Taking logs and differentiating yields:

$$d \ln \left(\frac{E}{N}\right)_i = d \ln \left(\frac{E}{L}\right)_i + d \ln \left(\frac{L}{N}\right)_i \qquad (4.2)$$

Thus changes in the employment ratio may be decomposed into changes in employment and participation rates. Since persons in the labor force are eithter employed or unemployed it is clear that:

$$d \ln \left(\frac{E}{N}\right)_i = d \ln (1 - UR)_i + d \ln \left(\frac{L}{N}\right)_i \qquad (4.3)$$

where UR is the unemployment rate.

The results of the decomposition in Table 4.1 show clearly the importance of fluctuations in participation during the past few years. For young women, changes in participation are generally much larger than changes in the rate of unemployment. While movements in participation are less pronounced for young men, they still account for a significant part of movements in employment. It is thus clear that serious studies of the youth labor market must examine both unemployment and participation. This point has been drive home by recent experience. Over 60 percent of the increase in youth employment which occurred between 1976 and 1977 was due to increases in employment rather than reductions in unemployment. For black youth, the situation is even more striking. The black male unemployment rate has risen, while at the same time the employment ratio has increased due to the surge in participation.

A Simple Model

The cyclical responsiveness of the youth labor market is estimated using a quite simple model. For each group we postuate that the unemployment rate and participation rate are functions of aggregate demand, seasonal factors, and

Table 4.1

Decomposition of Changes in the Employment Ratio

	Percent Change in Employment Ratio	Percent Change in Participation Rate	Percent Change in Employment Rate
MEN 16-19			
Year			
1972-3	4.8	2.4	2.4
1973-4	-0.5	1.5	-2.0
1974-5	-8.2	-2.6	-5.6
1975-6	1.8	0.6	1.2
1976-7	5.3	3.0	2.3
WOMEN 16-19			
Year			
1972-3	5.8	4.1	1.7
1973-4	1.5	3.1	-1.5
1974-5	-4.0	-0.1	-3.9
1975-6	2.9	1.6	1.3
1976-7	3.4	2.9	0.5

Note: Calculations as described in the text.

time. The time trends are included to reflect the impact of slowly changing social trends, and other gradually moving variables omitted from the equation. Seasonal movements are captured with monthly dummies. The basic equations to be estimated are:

$$\ln(PR)_{it} = \beta_0 + \sum_{j=0}^{8} \beta_{t-j} \, UPRIME_{t-j} + \sum_{k=1}^{11} \Theta_k S_k + \delta_1 T + \delta_2 T67 + V_{it} \qquad (4.4)$$

$$UR_{it} = \alpha_0 + \sum_{j=0}^{8} \alpha_{t-j} \, UPRIME_{t-j} + \sum_{k=1}^{11} \gamma_k S_k + \phi_1 T + \phi_2 T67 + u_{it} \qquad (4.5)$$

where UPRIME is the unemployment rate of men 35-44, T is the time trend, T67 is a second time trend which begins in 1967, and S_i are monthly dummies.

The specification of (4.4) is traditional in analyses of participation. The prime male unemployment rate is assumed to measure variation in job opportunities and the ease of job finding. Since workers may respond to changes in the availability of jobs with a delay, lagged unemployment is also included in the equation. While equations of this sort have not been extensively used in studying the cyclical behavior of group unemploument rates, they are justified by essentially the same arguments.

The model is not designed to provide the best or most detailed explanation of the participation (unemployment) rate of each group. Our purpose is to estimate a common model for each group which captures the response of participation (unemployment) to cyclical fluctuations in aggregate demand. Thus some potential explanatory variables have been excluded precisely because they vary cyclically. Others have been omitted because they are essentially orthogonal to the variables included.

The specification appears to be quite robust. The results presented below are almost completely insensitive to changes in the measure of aggregate demand, or variations in the entry of the second time trend. We have also

examined other variables which have been suggested in recent work (e.g. Wachter 1977). Our experimentation suggests that neither demographic variables, inflationary expectations, or measures of household wealth and liquidity have any systematic effect on participation. Moreover, our results decisively reject theories of labor supply which emphasize the timing of participation and the intertemporarl substitution of leisure and work, and which explain unemployment as a voluntary phenomenon. In any event, these variables have little impact on the estimate of cyclical effects. We have also experimented with a minimum wage variable. While it is sometimes significant, it has little impact on the estimated cyclical effects and so the results are not reported here.

The interpretation of the coefficients of the model is straightforward. For example, the cyclical responsiveness of the participation rate of the i^{th} group is measured by $\gamma^i_{PR} = \Sigma\beta_{t-j}$. A value of γ^i_{PR} of 1.0 implies that a 1% increase in aggregate demand (e.g., UPRIME declines from .06 to .05) produces a 1 percent increase in the participation rate of the i^{th} group (e.g., .430 to .434). Equations (4.4) and (4.5) have been estimated using both annual and monthly data for the period (1948-1977) for various demographic groups. the identity (1) along with the properties of ordinary least squares insures that the relationship between the employment ratio, aggregate demand and time is given by:

$$\ln(EN)_{it} = \beta_0 - \alpha_0 + \Sigma(\beta_{t-j} - \alpha_{t-j})UPRIME_{t-j} + \sum_{k=1}^{11}(\Theta_k - \gamma_k)S_k + (\delta_1 - \phi_1)t + (\delta_2 - \phi_2)T67 + \ell_i \tag{4.6}$$

It follows immeidately that the equations presented here can be used to decompose cyclical movements in the employment ratio into unemployment and participation components since:

$$\gamma^i_{EN} = \gamma^i_{PR} - \gamma^i_{UR} \tag{4.7}$$

In order to insure that this identity is exactly satisfied we have estimated all the quations using ordinary least squares without correcting for serial correlation. The results for individual equations however are not sensitive to this choice. The estimated equations are shown in Table 4.2.

The principal conclusion which emerges is the tremendous responsiveness of youth employment to aggregate demand. For men 16-19, each one point decrease in the prime male unemployment rate increases the employed proportion of the population by about 4.5%. About two-thirds of the response comes through unemployment, with the remainder due to increases in participation. For women 16-19, the cyclical responsiveness estimates are comparable with participation somewhat more responsive, and unemployment somewhat less responsive to aggregate demand. In line with the traditional view of disadvantaged youth as likely to be "last hired" and "first fired," black youth employment is even more cyclically sensitive than the total group. For black men 16-19, each point reduction in the unemployment rate raises the employment ratio by close to 6.3%. A comparable figure obtains for black women.

The substantial cyclic response to changes in aggregate demand suggests that a shortage of job opportunities characterizes the youth labor market. If there were not a dearth of acceptable jobs aggregate demand would not be expected to have a significant impact on youth employment. The very strong response of participation to unemployment confirms the importance of focusing on employment rather than unemployment in assessing labor market conditions. It also supports the argument of Section I that much of the high rate of labor force withdrawal among the unemployed is attributable to discouragement.

The strong cyclic response of employment and participation to aggregate demand reflects the large inflows and outlfows described in the first section. The surges in employment and participation which accompany increases in

Table 4.2

Cyclical Behavior of Unemployment, Participation and Employment by Teenage Demographic Groups

Demographic Group/ Dependent Variable	Independent Variables: CONS	UPRIME	T	T67 (12×10^2)	R^2	SEE	DW
1. Men 16-19: Total							
unemployment rate	.02 (.005)	2.77 (.10)	.35 (.02)	-.15 (.06)	.84	.018	.85
participation rate	-.47 (.01)	-1.87 (.19)	-1.11 (.04)	2.82 (.11)	.95	.035	.73
employment ratio	-.50 (.01)	-4.64 (.20)	-1.45 (.046)	2.98 (.12)	.95	.037	.72
2. Men 16-19: Non-white							
unemployment rate	-.046 (.03)	4.29 (.36)	1.14 (.12)	-.21 (.23)	.69	.051	1.32
participation rate	-.35 ((.03)	-1.99 (.45)	-2.12 (.14)	.84 (.28)	.90	.064	1.13
employment ratio	-.30 (.04)	-6.29 (.59)	-3.26 (.19)	1.05 (.37)	.87	.085	1.27
3. Women 16-19: Total							
unemployment rate	-.009 (.007)	1.78 (.11)	.52 (.03)	-.36 (.07)	.82	.021	.94
participation rate	-.83 (.01)	-2.29 (.22)	-.44 (.05)	3.48 (.12)	.93	.039	.69
employment ratio	-.81 (.01)	-4.07 (.24)	-.96 (.06)	3.84 (.14)	.89	.045	.60
4. Women 16-19: Non-white							
unemployment rate	-.04 (.04)	3.45 (.49)	1.58 (.16)	-.99 (.31)	.58	.070	1.44
participation rate	-1.11 (.05)	-2.96 (.74)	-.22 (.24)	1.02 (.46)	.75	.105	.815
employment ratio	-1.07 (.07)	-6.41 (.92)	-1.80 (.29)	2.00 (.58)	.65	.131	.932

Note: the coefficient on UPRIME is the sum of the coefficients obtained from a nine month Almon lag (first degree, far restriction).

aggregate dmeand may be due either to increased inflows or decreased outflows. That is, low unemployment may raise employment either by helping workers get jobs or by helping them hold jobs. In order to examine this issue we have estimated equations describing the time series movements in the monthly flow probabilities. In addition to trend, cycle, and seasonal varialbes, we also studied the effects of minimum wage legislation and Federal youth employment programs. Since we were unable to isolate a significant effect of either of these measures on transition probabilities, the results of estimating the equations in which they were included are not reported here.

Table 4.3 summarizes the results of the flow probability equations. The first set of equations describe the probability of employment entrance. For all groups, especially men, the rate of entrance is very sensitive to demand. For men, a one point increase in the prime male unemployment rate reduces the probability of entry by .104, or about 9%. It is changes in entry rather than exit behavior which are the prime cause of employment fluctuations among young men. The rate of exit does not appear to exhibit significant cyclical fluctuations. The reasons for this difference are not clear. One possibility is that women are the first to be laid off in downturns. A more plausible explanation is that the entrance rate does not fall as unemployment rises, because more women enter the labor force as their family income falls.

The rates of labor force entry and exit also vary cyclically. The rate of exit falls during recessions largely because the probability of withdrawal is much greater for the unemployed than it is for those who are employed. For the male groups the probability of labor force entrance is strongly cyclical. It is much less cyclical for women because of the added worker behavior noted above.

Table 4.3

Cyclical Behavior of Transition Probabilities
1968-1976

(standard errors in parentheses)

Transition Probability/ Demographic Group	Independent Variables: CONS	UPRIME	$T_{(12x10^2)}$	R^2	SEE	P
Dependent Variable						
1. probability of employment entrance						
M1619	.093 (.073)	-1.44 (.257)	-.185 (.105)	.937	.019	-.050 (.105)
BM1619	.172 (.032)	-1.420 (.357)	-.264 (.146)	.856	.024	.002 (.105)
W1619	.051 (.011)	-.273 (.110)	.169 (.048)	.930	.010	-.293 (.100)
BW1619	.110 (.023)	-.246 (.254)	-.206 (.104)	.796	.017	.029 (.104)
2. probability of employment exit						
M1619	.229 (.018)	.213 (.194)	-.377 (.079)	.946	.015	-.105 (.104)
BM1619	.134 (.051)	-.696 (.557)	.216 (.218)	.839	.038	.002 (.104)
W1619	.250 (.017)	.591 (.184)	-.535 (.075)	.940	.015	-.154 (.104)
BW1619	.364 (.059)	-.493 (.642)	-.714 (.262)	.793	.048	-.080 (.104)
3. probability of labor force entrance						
M1619	.063 (.024)	-.760 (.266)	.378 (.109)	.961	.020	-.122 (.104)
BM1619	.170 (.039)	-1.148 (.435)	-.115 (.178)	.932	.027	
W1619	.032 (.013)	-.036 (.142)	.324 (.058)	.959	.012	-.258 (.101)
BW1619	.104 (.030)	.291 (.377)	-.064 (.133)	.885	.023	-.018 (.105)

(Continued...)

Table 4.3, continued

Transition Probability/ Demographic Group	Independent Variables					
	CONS	UPRIME	T ($12x10^2$)	R^2	SEE	P
Dependent Variable						
4. Probability of Labor force exit						
M1619	.255	.578	-.541	.940	.014	-.041
	(.017)	(.190)	(.077)			(.104)
BM1619	.170	.498	.026	.851	.029	.112
	(.043)	(.478)	(.195)			(.104)
W1619	.280	.627	-.592	.920	.014	-.158
	(.016)	(.173)	(.071)			(.104)
BW1619	.238	1.23	-.149	.753	.036	-.004
	(.047)	(.515)	(.211)			(.106)

Note: the coefficient on UPRIME is the sum of nine month Almon lag (first degree, far restriction); each regression was estimated with seasonal dummies, and a correction for first order autocorrelation.

On balance, the flow probability equations bear out the basic conclusions of this section. They demonstrate that both labor force entry and employment entry become significantly easier during peak periods. This is further evidence that shortages of acceptable jobs account for much of teenage unemployment.

V

Conclusion

The results in this paper suggest that the dynamics of teenage unemployment are to a large extent the result of frequent labor force transitions. We find that movement between jobs with an intervening spell of unemployment is not the dominant pattern of labor market behavior among teenagers. The frequency with which unemployed teenagers leave the labor force, and the extent of flows into employment from outside the labor force lead us to conclude that much of teenage non-employment is hidden in non-participation. The large response of teenage participation rates to aggregate demand supports the view that the youth non-employment problem is even more serious than the unemployment figures suggest. It appears that many of those outside the labor force are functionally indistinguishable from the unemployed.

The frequency of labor force transition among teenagers results in short spells of unemployment, and has led many to emphasize a turnover or job instability view of teenage unemployment. While frequent turnover is clearly an important aspect of the process, we find that the youth unemployment problem extends far beyond teenagers moving frequently between labor force states. Much of the problem is concentrated among a relatively small, disproportionately black, group who experience long term unemployment. Over half of youth unemployment is concentrated among persons who are unemployed for more than half the year. For this group, quite clearly, there is a problem of a shortage of jobs which they find attractive. The direct causal role of the supply of jobs is confirmed by the large cyclical fluctuations in youth employment and unemployment, and our analysis of black-white differences. The time series results are consistent with the available cross-section evidence that young people in areas with low unemployment rates have much higher rates of employment than youths in depressed areas.

The evident responsiveness of teenage employment to shifts in demand, and the apparent difficulty of the long term unemployed in finding attractive jobs raises a number of questions for further research, with important implications for public policy. One of the most important issues relates to the nature of the apparent job shortage, and the design of appropriate policy initiatives. Our findings underscore the substantial impact of economic expansion on the youth labor market. Evidence here and elsewhere (Clark and Summers (1978)) suggests that young people and especially black youth experience relatively substantial employment gains in tight labor markets, gains which belong in benefit/cost evaluations of macro-economic policy. Yet the risk of accelerating inflation places some limit on the viability of expansionary initiatives. In consequence, a good deal of attention has been focused on structural initiatives designed to combat youth unemployment directly, without substantially expanding overall demand.

Evaluation of structural policies designed to raise youth employment must consider the nature of the apparent job shortage we have discussed. Our findings have documented that much of teenage unemployment is due to a small group of young persons who have great difficulty in finding jobs which they regard as suitable. This finding, however, is consistent with two quite different interpretations. The failure to find attractive work may reflect an absolute absence of job offers or possibilities, or unrealistic aspirations on the part of the unemployed. If the problem is a lack of work opportunities, programs designed to better match people and jobs, or ease the school-to-work transition will have little effect unless accompanied by measures to create jobs. The alternative interpretation of the attractive job shortage focuses on the discrepancy between aspirations and the characteristics of the available job supply. The problem is not the quantity, but the quality of the available jobs. This view holds that since at a low enough price employers ought to be willing to hire almost anybody, there must be an abundance of jobs of some sort. This line of argument supports an emphasis on measures which upgrade the quality of jobs open to young people.

We plan to examine in future research the nature and sources of the difficulty some young people have in finding suitable jobs. The existing literature provides little evidence on these issues. We do know that the vast majority of unemployed young people (95+ percent) in the May 1976 Job Search survey, reported having received no job offers in their current spell of unemployment. Further examination of Job Search data is clearly in order. In addition we plan to study newly available longitudinal micro-data on individuals from the CPS. Data on individuals over time make possible analysis of the determinants of the transition probabilities examined in this study. Examination of the effect of wages, aspirations, and industry or occupational factors should help to illuminate the sources of the youth unemployment problem.

References

Clark, K. B. and L. H. Summers, "Labor Force Transitions and Unemployment," April, 1978, unpublished.

Feldstein, M. S. and Brian Wright, High Unemployment Groups in Tight Labor Markets, H.I.E.R. Discussion Paper #488, June, 1976.

Hilaski, H., "The Status of Research on Gross Changes in the Labor Force," Employment and Earnings, October, 1968.

Kaitz, H., Monthly Labor Review, 1970.

Marston, Stephen, "Employment Instability and High Unemployment Rates," Brookings Paper on Economic Activity, 1976: 1, p. 169.

Mincer, Jacob, Schooling, Experience and Earnings (New York: National Bureau of Economic Research, 1969).

Vanski, Jean, "Recession and the Employment of Demographic Groups, Adjustments to the Gross Changes Data," unpublished.