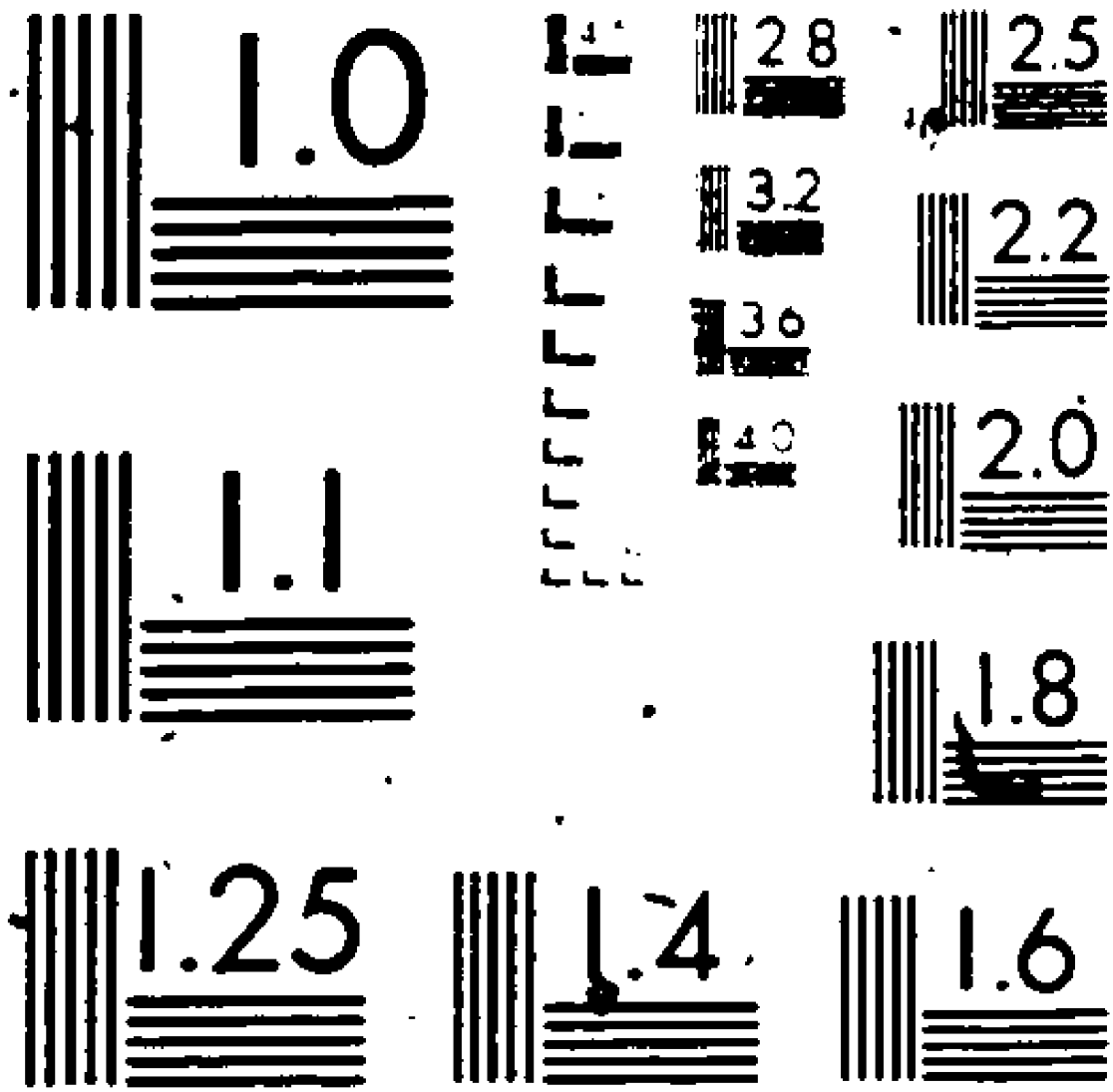

MICROCOPY RESOLUTION TEST CHART

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ABSTRACT

This document is a continuation of CE 028 077 and uses the same statistical model (Markov Processes) with slight variations on the technique to carry out a simulation of the impact of the expansion in youth employment programs which occurred in fiscal 1978. Department of Labor 1977 figures for the total number of job/training positions funded by program were obtained, and 1978 figures were projected. These positions were then allocated across demographic groups on the basis of the distribution of enrollees by demographic group in the two years. The total expansion consisted of 221,000 jobs. Using the figures above and other factors in a simulation, it was estimated that the equilibrium impact of an expansion in youth employment and training programs by 221,000 slots with labor market conditions being what they were in fiscal 1977 would be reductions in unemployment rates of slightly more than one percent for nonwhite teenagers and small or negligible changes for other population groups. (KC)

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ADDENDUM: THE POTENTIAL IMPACT OF EMPLOYMENT AND TRAINING PROGRAMS ON YOUTH UNEMPLOYMENT

by

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I. ADDITIONAL SIMULATIONS

Using slight variations on the technique described in Section III of the paper, a simulation of the impact of the expansion in youth programs which occurred in fiscal 1978 was carried out. To do the simulations on a fiscal year basis, the equilibrium distribution of persons by labor force state in fiscal 1977 was derived by using average values of monthly transition probabilities for the period October 1976 to September 1977. These equilibrium distributions are reported in Table A-1 along with the unemployment rates for each of eight groups. The actual average values for employment, unemployment, and the unemployment rate for that period are also reported. The actual values exceed the equilibrium values for all groups. For a discussion of why, see p. 24 of the main paper. The transition probabilities used to compute the Markov equilibrium distributions are displayed in Table A-2.

The total number of job/training positions funded by program in fiscal 1978 and 1977 were obtained from the Department of Labor. The 1978 figures are projections. These positions were then allocated across demographic groups on the basis of the distribution of enrollees by demographic group in fiscal 1977 and 1978.[1] Where the data on the distribution of enrollees by demographic group did not conform to the eight groups defined in the model, estimates were made of the distributions across the eight groups. A description of the procedures used is available upon request from the author.

In Tables A-3 and A-4, the distribution of funded person-years for youth (average number of slots if they are always filled) by program and demographic group are presented for fiscal 1977 and 1978, respectively. In Table A-5, the change between fiscal 1977 and 1978 in the number of job/training slots

Table A-1

Markov Equilibrium and Actual Values
for Employment and Unemployment in Fiscal 1977

Sub-Group	Population	Markov Equilibrium			Actual		
		Employment	Unemployment	Unemployment Rate	Employment	Unemployment	Unemployment Rate
WM 16-19	6959	3885	679	14.9	3709	702	15.9
20-24	7962	6342	616	8.8	6236	682	9.9
WF 16-19	7017	3369	577	14.6	3182	623	16.4
20-24	8356	5145	520	9.2	5081	542	9.6
NM 16-19	1204	369	171	31.6	325	190	36.9
20-24	1184	728	200	21.5	723	207	22.3
NF 16-19	1285	278	142	33.8	256	164	39.0
20-24	1457	664	169	20.3	655	198	23.2

WM = white male
WF = white female
NM = Nonwhite male
NF = Nonwhite female

Table A-2

Averge Transition Probabilities
Fiscal 1977

Probability Type	WM		WF		NM		NF	
	16-19	20-24	16-19	20-24	16-19	20-24	16-19	20-24
EN	.0957	.0285	.1078	.0470	.1653	.0415	.1568	.0589
EU	.0436	.0292	.0326	.0198	.0715	.0502	.0583	.0347
EE	.8607	.9423	.8596	.9332	.7632	.9083	.7849	.9064
NE	.1429	.1579	.1029	.0738	.0893	.1124	.0453	.0605
NU	.0798	.0927	.0679	.0643	.0988	.1212	.0762	.0917
NN	.7773	.7494	.8292	.8619	.8119	.7664	.8785	.8478
UE	.2932	.3367	.2720	.2795	.1640	.1897	.1444	.1447
UN	.2379	.1153	.2797	.2498	.3748	.1495	.4348	.3300
UU	.4689	.5480	.4483	.4707	.4612	.6608	.4208	.5253

Table A-3

Funded Person Years, Fiscal 1977
(in thousands)

	WM		WF		NM		NF		
	16-19	20-24	16-19	20-24	16-19	20-24	16-19	20-24	
CETA Title 1									
%	18.1	11.1	17.0	10.6	13.8	8.6	12.9	8.0	100
P-Y	41.9	25.7	39.4	24.5	31.9	19.9	29.9	18.5	231.7
CETA Titles II & VI									
%	21.8	21.0	13.2	12.9	9.8	9.8	6.0	5.6	100
P-Y	20.2	19.4	12.2	11.9	9.1	9.1	5.6	5.2	92.7
Job Corps									
%	16.7	4.4	7.8	1.9	37.9	9.7	17.2	4.4	100
P-Y	3.4	0.9	1.6	0.4	7.8	2.0	3.5	0.9	20.5
Summer Youth									
%	15.9	7.9	13.7	6.9	19.9	9.9	17.2	8.6	100
P-Y	38.6	19.2	33.3	16.8	48.3	24.0	41.8	20.9	242.9
Total	104.1	65.2	86.5	53.6	97.1	55.0	80.8	45.5	581.8

Table A-4

Funded Person Years, Fiscal 1978
(in thousands)

	WM		WF		NM		NF		
	16-19	20-24	16-19	20-24	16-19	20-24	16-19	20-24	
CETA Title 1									
%	17.9	11.2	18.3	11.6	12.5	7.8	12.7	8.0	100
P-Y	50.1	31.4	51.2	32.5	35.0	21.8	35.6	22.4	280
CETA Titles II & VI									
%	20.2	19.4	13.9	13.6	10.3	9.5	6.6	6.6	100
P-Y	29.0	27.8	19.9	19.5	14.8	13.6	9.5	9.5	143.6
YETP									
%	24.2	2.9	24.9	2.9	19.9	2.4	20.4	2.5	100
P-Y	14.7	1.8	15.1	1.8	12.1	1.5	12.4	1.5	60.9
YIEPP									
%	7.4	0.7	7.9	0.7	35.8	3.7	39.0	4.8	100
P-Y	0.56	0.05	0.6	0.05	2.72	0.28	2.96	0.36	7.58
YCCIP									
%	39.2	1.6	11.1	0.40	35.7	1.4	10.1	0.4	100
P-Y	3.2	0.13	0.9	0.03	2.9	0.11	0.82	0.03	8.12
Job Corps									
%	18.1	3.5	7.3	1.5	41.7	7.9	16.9	3.2	100
P-Y	4.3	0.8	1.7	0.4	9.8	1.9	4.0	0.8	23.7
Summer Youth									
%	15.9	7.9	13.7	6.9	19.9	9.9	17.2	8.6	100
P-Y	41.2	20.4	35.5	17.9	51.5	25.6	44.5	22.3	258.9
YACC									
%	31.7	2.25	18.0	1.65	27.8	1.9	15.25	1.45	100
P-Y	8.1	0.6	4.6	0.4	7.1	0.5	3.9	0.4	25.6
Total	151	83.0	129.5	72.6	135.9	65.3	113.7	57.2	808.4

going to each demographic groups is indicated. The total expansion consists of an increase of 220.7 funded person-years for youth. The simulation reported here assumes a total expansion of 221 thousand slots. The allocation across demographic groups is that indicated in Table A-5 with allocations rounded to the nearest thousand.

Using data from the Continuous Longitudinal Manpower Survey (CLMS),[2] estimates were made of the distribution of entrants by their labor force status prior to entering the program and the distribution of terminees by their labor force status after leaving the program. In some cases the data did not show variation by age, race, or sex. In those cases it was assumed that there was no variation across groups in the distributions. The estimated distributions are shown in Table A-6. The average length of time spent in the programs was estimated at five months.

Using the procedures described in Section III, new equilibrium values of employment, unemployment, and non-participants in the labor force were derived for those outside of the program. These results are reported in Table A-7. The change in measured unemployment (from the old equilibrium values in Table A-1) is also reported under four different assumptions:

ΔU_1 - program participants are counted as not in the labor force

ΔU_2 - program participants are counted as employed

ΔU_3 - program participants are counted as unemployed

ΔU_4 - program participants are counted differently depending on their program. How participants in various programs are counted is shown in Table A-8.

Table A-5

Changes in Person-Years Funded
Fiscal 1977-78
(in thousands)

	WM		WF		NM		NF		
	16-19	20-24	16-19	20-24	16-19	20-24	16-19	20-24	
CETA Title 1	8.2	5.7	11.8	8.0	3.1	1.9	5.7	3.9	48.3
CETA Titles II & VI	8.8	8.4	7.7	7.6	5.7	4.5	3.9	4.3	50.9
Job Corps	0.9	-0.1	0.1	0	2.0	-0.1	0.5	-0.1	3.2
SPDY	2.6	1.2	2.2	1.1	3.2	1.6	2.7	1.4	16.0
YETP	14.7	1.8	15.1	1.8	12.1	1.5	12.4	1.5	60.9
YIEPP	0.5	0	0.6	0.1	2.7	0.3	3.0	0.4	7.6
YCCIP	3.2	0.1	0.9	0	2.9	0.1	0.8	0.1	8.1
YACC	8.1	0.6	4.6	0.4	7.1	0.5	3.9	0.4	25.6
	47.0	17.7	43.0	19.0	38.8	10.3	32.9	12.0	220.6

Table A-6

Labor Force Status Prior to Entry and after Termination by Demographic Group

Group	Prior To Entry			After Termination		
	% E	% U	% N	% E	% U	% N
WM 16-19	+19	33	47	65	22	13
WM 20-24	20	34	46	66	21	12
WF 16-19	19	33	47	55	19	26
WF 20-24	20	34	46	57	18	25
NM 16-19	20	33	47	60	26	15
NM 20-24	20	34	46	61	25	13
NF 16-19	20	33	47	50	21	29
NF 20-24	20	34	46	52	22	27

Table A-7

Employment and Unemployment after the Program Expansion

Group	G	EMP	UNEMP	UR1*	UR2	UR3	UR4	ΔUR1**	ΔUR2	ΔUR3	ΔUR4
WM 16-19	47	3869	674	14.8	14.7	15.7	14.9	-0.1	-0.2	0.8	0
20-24	18	6331	614	8.8	8.8	9.1	8.9	0.0	0.0	0.3	0.1
WF 16-19	43	3337	570	14.6	14.4	15.5	14.7	0.0	-0.2	0.9	0.1
20-24	19	5140	517	9.1	9.1	9.4	9.2	-0.1	-0.1	0.2	0
BM 16-19	39	365	166	31.3	29.1	36.0	30.5	-0.3	-2.5	4.4	-1.1
20-24	10	724	197	21.4	21.2	22.2	21.3	-0.1	-0.3	0.7	-0.2
BF 16-19	33	277	138	33.2	30.8	38.2	32.5	-0.6	-3.0	4.4	-1.3
20-24	12	663	167	20.1	19.8	21.3	20.1	-0.2	-0.5	1.0	-0.2
	221										

*UR1, UR2, and UR3 are the new unemployment rates with program participants counted as out of the labor force, employed, and unemployed, respectively. UR4 is the unemployment rate with program participants counted as shown in Table A-8.

*ΔUR1, ΔUR2, ΔUR3, and ΔUR4 are the changes between the new rates (UR1, UR2, UR3, and UR4, respectively) and the old rates in Table A-1.

Table A-8

Classification of Participants
Program*

	Percent		
	Employed	Unemployed	Not-in-the Labor Force
FY 1977			
CETA Title I	50	50	
CETA Titles II & VI	100		
Job Corps			100
SPDY	100		
FY 1978			
CETA Title I	50	50	
CETA Titles II & VI	100		
Job Corps			100
YETP YICCIP	70	30	
YIEPP	100		
YACC	100		

*Program participants in public or private jobs or receiving training allowances or classified as employed except for Job Corps participants who are classified as out-of-the labor force; participants in classroom training or receiving transition services are classified as unemployed.

As can be seen in Table 5, the change in the unemployment rate attributable to the expansion in youth programs ($\Delta UR4$) lies in between the estimates based on counting program participants as employed and counting them as unemployed. Because more job/training slots per capita are allocated to nonwhites aged 16-19, than to other population groups, the impact on unemployment rates for those groups is greater. Also, there is a tendency for nonwhites to be more heavily represented in programs which provide jobs as distinct from transition services or classroom training; thus, nonwhite program participants are more likely to be counted as employed than are their white counterparts. (The estimated program impact for whites is to raise unemployment rates for the 20-24 groups!)

In conclusion, the equilibrium impact of an expansion in youth employment and training programs by 221 thousand slots with labor market conditions what they were in fiscal 1977 is estimated to be reductions in unemployment rates of slightly more than one percent for nonwhite teenagers and small or negligible changes for other population groups.

II. LONG-TERM IMPACTS

The solution of the Markov process described in the text of the report captures only the short-run on "statistical" impact of individuals being in a government program rather than in some other labor market state. The analysis can be extended to deal with the impact of changes in behavior which result from having been in a governmental program. At any point in time, the youth population will consist of both persons who have participated in and been terminated from a government program and those who have not. The labor market for the two groups can be modelled separately. The four-state model described in the text can be applied to the latter group (those never having participated and those currently in programs). A three-state model can be applied to the former group consisting of those who have been terminated from programs. The matrix of transition probabilities for the terminees would differ from that for those who have never participated. Each model can be solved separately.

The aggregate distribution would be a weighted average of the two groups, with the weights being the fraction of the youth population in each group. If an individual can enter a program only once,[3] the age limits on program eligibility are such that only individuals between the ages of x and x+n qualify, and G/ℓ individuals participate in each year; then in the stationary state, the number of persons ever having participated in a program (T^P) will be given by:

$$T = n!\,\frac{G}{\ell} \quad \text{s.t.} \quad \begin{aligned} n!\ G/L &< T \\ n\ G/L &< t(n) \\ (n-1)G/L &< t(n-1) \\ &\vdots \\ G/L &< t(1) \end{aligned}$$

where t(i) is the number of persons of age x+i.

The aggregate state vector Π is then a weighted average of the state vectors for the two processes Π^p (those having been terminated) and Π^n (those currently enrolled and never having participated).

$$\Pi = w\Pi^p + (1-w)\Pi^n$$

where $w = \frac{T^p}{T}$

$$\Pi^p = (\Pi^p_E \; \Pi^p_U \; \Pi^p_N \; \Pi^p_G)$$

$$\Pi^n = (\Pi^n_E \; \Pi^n_U \; \Pi_N \; 0)$$

where Π^p_L and Π^n_L are the expected fraction of the population T^p and $T-T^p$, respectively, in state i.

In a future paper, the author plans to explore the possibility of estimating the long-term impacts of programs after removing the statistical effects of the programs on the measured unemployment rates. The estimation procedure will be based on the dual Markov process approach outlined here.

Footnotes

1. The distribution of positions by the demographic characteristics of the person holding the position may differ from the distribution by characteristics of all enrollees if the length of time spent in a position differs by demographic charcteristics. For example, individuals with high turnover rates who come in and leave frequently would be a higher share of the enrollee population than of the population in positions at a point in time. The data on the distribution of enrollees by demographic group came from a variety of sources. The data on the youth programs in fiscal 1978 were based on published quarterly summaries (March and June). The CETA data were fiscal year summaries for 1977 and three quarter summaries for 1978.

2. The data on status prior to enrollment were taken from CLMS, Report No. 5, April 1977, Characteristics of Enrollees Who Entered CETA Programs During January-March 1976. The data on post-program status of terminees was taken from a follow-up report on participants who entered CETA programs during January-June 1975. The follow-up survey was conducted 18 months after the initial interview.

3. The assumption that once terminated a person never again participates in a program can be modified by assuming that the program accepts applicants from the pool of terminees at some known rate. To the extent that programs serve a small population repeatedly, their potential for reducing the aggregate unemployment rate may be reduced unless a program's impact on the subsequent behavior of participants is greater for repeaters than it is for new participants.