

# The Role of Labor and Marriage Markets, Preference Heterogeneity, and The Welfare System in the Life Cycle Decisions of Black, Hispanic, and White Women

By Michael P. Keane and Kenneth I. Wolpin  
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James J. Heckman



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# 1. Introduction

## 2. Model

- There is also a vector of five permanent unobservables, determined by a woman's latent "type," that shift her tastes for leisure, school, marriage, pregnancy, and welfare participation.
- In addition, there are age-varying preference shocks to the disutility of nonleisure time (i.e., the sum of time spent working, attending school, child-rearing, or collecting welfare), as well as direct utilities or disutilities from school, pregnancy, and welfare participation (unrelated to the time cost), and a fixed cost of marriage.
- Expressing the utility function in terms of the current set of alternatives, the utility of an individual at age  $a$  who is of type  $j$  is

$$(1) \quad U_a^j = U_a(C_a, s_a, m_a, p_a, g_a, h_a^p, h_a^f; \varepsilon_a, I(\text{type} = j), \Omega_a^u),$$

where  $\varepsilon_a$  is the vector of five serially independent preference shocks (one associated with each of the five choices),  $I(\text{type} = j)$  is an indicator function equal to one if the agent is type  $j$ , and  $\Omega_a^u$  is the subset of the state space (the set of past choices and fixed observables) that affects utility.

- The budget constraint, assumed to be satisfied each period, is given by

$$(2) \quad c_a = y_a^o(1 - m_a)(1 - z_a) + [y_a^o + y_a^m]m_a\tau_a^m + [y_a^o + y_a^z\tau_a^z]z_a \\ + \beta_1 g_a b_a - [\beta_3 I(S_a \geq 12) + \beta_4 I(S_a \geq 16)]s_a,$$

- where  $y_a^0$  is the woman's own earnings at age  $a$ ,  $y_a^m$  a husband's earnings, and  $y_a^z$  parents income.
- The first term in (2) is a woman's income if she is unmarried ( $m_a = 0$ ), does not co-reside with parents ( $z_a = 0$ ), and does not receive welfare ( $g_a = 0$ ).
- The second term in (2) indicates that a woman who is married receives the share  $\tau_a^m$  of combined household earnings.
- The third term indicates that a woman co-residing with parents receives her own earnings plus a share  $\tau_a^z$  of her parents' income.

- Each offer rate depends on the woman's previous-period work status.
- If an offer is received and accepted, the woman's earnings is the product of the offered hourly wage rate and the number of hours worked,  $y_a^0 = 500 \cdot w_a^p h_a^p + 100 \cdot w_a^f h_a^f$ .
- The hourly wage rate is the product of the woman's human capital stock,  $\Psi_a$ , and its per unit rental price, which may differ between part- and full-time jobs,  $r^j$  for  $j = p, f$ .
- Specifically, her log hourly wage is given by

$$(3) \quad \ln w_a^j = r^j + \Psi_a(\cdot) + \varepsilon_a^w, \quad j = p, f.$$

- In addition, there is an i.i.d. random component to the draw of the husband's human capital that reflects a permanent characteristic of the husband unknown to the woman prior to meeting,  $\mu^m$ .
- The woman can therefore profitably search in the marriage market for husbands with more human capital and can also directly affect the quality of her husband by her choice of schooling.
- There is a fixed utility cost of getting married, which augments a woman's incentive to wait for a good husband draw before choosing marriage.
- We allow for a cohort effect in this fixed cost.
- After marriage, husband's earnings evolve with a fixed (quadratic) trend subject to a serially independent random shock,  $\varepsilon_a^m$ .
- Specifically,

$$(4) \quad \ln y_a^m = \mu^m + \Psi_{0a}^m(\cdot) + \varepsilon_a^m,$$

- However, the welfare rules are state- and time-specific and are quite complex.
- Thus, in order to make estimation feasible, we approximate the rules by the following function:

(5)

$$\begin{aligned}
 b_t^s(N_{at}^{18}, y_{at}^o, y_{at}^z) &= b_{0t}^s + b_{1t}^s N_{at}^{18} - b_{3t}^s \beta_2 y_{at}^z z_{at} && \text{for } y_{at}^o < y_{at}^{s1}(N_a^{18}) \\
 &= b_{2t}^s + b_{4t}^s N_{at}^{18} - b_{3t}^s [(y_{at}^o - y_{at}^{s1}) + \beta_2 y_{at}^z z_{at}] && \text{for } y_{at}^{s1}(N_a^{18}) < y_{at}^o < y_{at}^{s2}(N_a^{18}) \\
 &= 0 && \text{otherwise.}
 \end{aligned}$$



- The rule parameters, and thus benefits, change over time.
- Therefore, if women are forwardlooking, they will incorporate their forecasts of future benefit rule parameters into their decision rules.
- We assume the rule parameters evolve according to the following vector autoregression (VAR) and that women use the VAR to form their forecasts of future benefit rules:

$$(6) \quad \mathbf{b}_t^s = \lambda^s + \Lambda^s \mathbf{b}_{t-1}^s + \mathbf{u}_t^s.$$

- The woman is assumed to maximize her expected present discounted value of remaining lifetime utility at each age.
- The maximized value (the value function) is given by

$$(7) \quad V_a(\Omega_a) = \max E \left[ \sum_{\tau=a}^{62} \delta^{\tau-a} U_{\tau}(\cdot) \mid \Omega_a \right],$$

- Casting the problem in a dynamic programming (DP) framework, the value function,  $V_a(\Omega_a)$ , can be written as the maximum over alternative-specific value functions, denoted as  $V_a^j(\Omega_a)$ , i.e., the expected discounted value of choice  $j \in J$ , that satisfy the Bellman equation, namely,

$$\begin{aligned}
 V_a(\Omega_a) &= \max_{j \in J} [V_a^j(\Omega_a)] \\
 (8) \quad V_a^j(\Omega_a) &= U_a^j + \delta E(V_{a+1}(\Omega_{a+1}) \mid j \in J, \Omega_a) \quad \text{for } a < A, \\
 &= U_A^j \quad \text{for } a = A.
 \end{aligned}$$

## 3. Data

## *3.1. School Attendance.*

## *3.2. Employment Status.*

### *3.3. Marital Status.*

## *3.4. Pregnancy Status.*

### *3.5. Welfare Receipt.*



- Table 1 provides (marginals of) the sample choice distribution by age, separately for white, black, and Hispanic women, aggregated over the five states.
- As seen, school attendance is nearly universal until age 16, drops about in half at age 18, the normal high school graduation age, and falls to around 10% at age 22.
- Attendance is only about 3% after age 25.

**Table 1: Choice Distributions by Age: Estimation Sample of the Combined Five States**

Age	Attending School			Working (PT or FT)			Married			Becomes Pregnant			Receives AFDC		
	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H
14	100	93.3	100	14.3	10.5	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	97.7	100	100	11.4	9.9	5.2	0.0	0.0	0.0	1.0	3.4	1.0	1.0	1.3	0.0
16	88.3	87.5	90.3	30.0	14.5	19.3	3.0	1.0	2.9	3.1	3.8	2.1	1.0	1.0	1.0
17	84.6	80.7	79.2	50.0	26.9	32.4	8.7	1.4	6.4	5.6	5.3	2.5	1.3	2.5	2.3
18	42.8	50.9	41.5	63.0	32.6	50.7	16.4	3.7	11.9	3.7	4.5	6.7	2.6	9.0	3.3
19	32.5	32.1	27.1	65.6	43.4	51.2	24.9	7.1	19.9	4.5	8.6	5.6	3.6	15.6	6.8
20	23.8	22.2	18.8	67.5	46.4	52.2	31.5	11.7	27.1	4.3	6.0	4.9	5.4	17.3	10.3
21	19.4	12.3	12.2	69.6	49.2	58.3	37.1	14.4	34.2	6.0	7.9	6.3	5.1	21.2	13.7
22	10.8	8.3	7.7	70.0	52.5	60.6	37.5	20.3	35.9	4.5	5.3	5.7	6.1	25.6	15.1
23	4.2	6.2	3.9	72.0	54.2	58.5	49.1	22.3	39.7	5.9	6.1	5.3	6.2	27.2	15.3
24	3.8	5.4	4.6	72.7	55.4	57.7	54.1	22.8	45.7	6.6	6.9	7.9	7.0	27.8	17.2
25	4.0	5.9	2.9	73.8	62.8	55.6	58.5	20.9	47.2	7.6	7.0	7.2	6.4	26.8	16.0
26–29	3.2	3.6	2.2	71.5	61.1	56.7	63.6	25.6	52.1	5.8	4.4	5.8	5.0	25.7	15.4
30–33	4.5	2.3	2.6	72.6	63.3	64.9	72.8	32.0	56.7	4.3	2.3	5.3	2.6	22.3	14.5

## *3.6. Benefit Rules.*

- Table 2 transforms the benefit parameters obtained from the estimates of (5) into a more interpretable set of benefit measures, namely, the total monthly benefits for women who have either one or two children, and who are either (i) not working (with zero nonearned income), (ii) have part-time monthly earnings of 500 dollars, or (iii) have full-time earnings of 1,000 dollars.
- Note that, among the five states, New York, California, and Michigan are considerably more generous than North Carolina and Ohio.
- Michigan is the most generous, with average benefits over the 24 years for a nonworking woman with one child of 654 (1987 NY) dollars per month.

**Table 2: Summary Statistics of Total Monthly Benefits by Numbers of Children And Earnings by State: 1967–90**

Monthly Earnings						
	Zero		\$500		\$1000	
	One Child	Two Children	One Child	Two Children	One Child	Two Children
<b>CA</b>						
$\mu$	589	724	351	517	87	196
$\sigma$	60	67	85	91	89	151
1970	459	568	416	560	297	440
1975	652	794	441	620	132	311
1980	617	757	405	560	156	311
1985	596	730	260	414	0	46
1990	594	728	303	476	0	110
<b>MI</b>						
$\mu$	654	809	429	621	150	304
$\sigma$	92	106	161	179	158	215
1970	671	830	585	799	302	516
1975	735	912	551	762	273	483
1980	660	808	424	602	152	330
1985	561	705	235	405	0	58
1990	551	694	293	484	0	156
<b>NY</b>						
$\mu$	574	718	334	514	92	204
$\sigma$	52	71	126	152	98	189
1970	562	726	469	685	189	406
1975	635	798	443	643	172	372
1980	552	679	322	473	61	211
1985	524	644	189	334	0	0
1990	528	649	230	393	0	31

**Table 2: Summary Statistics of Total Monthly Benefits by Numbers of Children And Earnings by State: 1967–90, Cont'd**

Monthly Earnings						
	Zero		\$500		\$1000	
	One Child	Two Children	One Child	Two Children	One Child	Two Children
NC						
$\mu$	480	566	274	384	35	132
$\sigma$	48	58	68	82	40	66
1970	455	513	348	432	143	227
1975	570	679	356	502	50	197
1980	462	553	260	364	31	134
1985	454	543	199	295	0	69
1990	438	530	249	367	13	131
OH						
$\mu$	489	607	270	414	87	128
$\sigma$	34	43	69	88	36	87
1970	460	565	361	511	106	256
1975	552	688	339	514	27	202
1980	499	619	284	423	11	151
1985	459	570	185	305	0	0
1990	455	566	218	346	0	0

## 4. Empirical Results

## *4.1. Estimation Methods.*



## *4.2. Model Fit and External Validation.*

### *4.3. Parameter Estimates.*

## *4.4. Simulations of Type Differences in Behavior.*

- In Table 3, we compare the behaviors of the two extreme types, types 1 and 6, for white, black, and Hispanic women.
- The differences are pronounced. Black women of type 6 have spent seven more years on welfare by age 30 than have those of type 1, have worked about eight fewer years, have about four and a half years less education, and have two more children.
- Differences in welfare receipt between types are smaller for Hispanic and white women, but still substantial (i.e., about five and three years, respectively), and differences in work experience, schooling, and fertility are about as large as for blacks.
- Type 6s are a larger group than type 1s, by 10, 6, and 1 percentage points for black, Hispanic, and white women, respectively.
- Indeed, type 6s are the largest type for all three race/ethnic groups.

**Table 3: Behavioral Differences by Unobserved Type for Black, Hispanic, and White Women**

	Black Women		Hispanic Women		White Women	
	Type 1	Type 6	Type 1	Type 6	Type 1	Type 6
Number of years receiving welfare by age 30	0.1	7.1	0.0	4.7	0.0	2.8
Number of years of work experience by age 30	9.7	1.9	10.6	2.5	10.3	3.5
Number of years of schooling completed by age 30	15.9	11.5	15.1	11.2	15.4	11.6
Number of years of marriage by age 30	2.6	2.7	5.6	4.5	6.5	5.7
Number of children by age 30	0.8	2.7	0.8	2.6	0.6	2.1
Percent of sample	15.8	25.5	13.8	29.3	19.2	20.4

- As seen in Table 4, unobserved type alone accounts for 65% of the variation in completed schooling (by age 30).
- Whatever the process by which these unmeasured preferences and endowments are formed by age 14, they are critical in determining completed schooling levels.
- In contrast, race/ethnicity accounts for only 2% of the variance, state of residence 4%, and parental schooling (which affects both type and parental income) 11%.
- Together, initial conditions account for 70% of the variance in completed schooling at age 30, with the other 30% due to idiosyncratic shocks.

**Table 4: Proportion of Variance Explained by Initial Conditions**

	Type	B,W,H	State	Parent Schooling	All (With Interactions)
Highest grade completed by age 30	0.65	0.02	0.04	0.11	0.70
Years on welfare by age					
30	0.33	0.07	0.01	0.06	0.49
40	0.36	0.09	0.01	0.05	0.55
Years of work experience by age					
30	0.43	0.03	0.03	0.06	0.52
40	0.51	0.03	0.03	0.07	0.60
50	0.49	0.02	0.04	0.07	0.60
Children ever born by age					
30	0.22	0.04	0.01	0.05	0.28
40	0.26	0.06	0.01	0.05	0.34
Years of marriage by age					
30	0.03	0.12	0.04	0.01	0.23
40	0.02	0.17	0.05	0.01	0.27
Full time wage offer at age					
20	0.44	0.06	0.02	0.08	0.54
30	0.61	0.04	0.01	0.11	0.65
40	0.65	0.04	0.01	0.15	0.70
50	0.64	0.04	0.01	0.11	0.68

**Table 4: Proportion of Variance Explained by Initial Conditions**

	Type	B,W,H	State	Parent Schooling	All (With Interactions)
<b>Potential husband's earnings at age</b>					
20	0.18	0.16	0.08	0.06	0.44
30	0.25	0.14	0.11	0.10	0.47
40	0.28	0.14	0.10	0.10	0.49
<b>Present discounted value of utility</b>					
White women	0.32	–	0.00	0.09	0.36
Black women	0.09	–	0.04	0.03	0.20
Hispanic women	0.17	–	0.02	0.05	0.23
All	0.18	0.24	0.03	0.11	0.47

NOTE: All determinants created as categorical. There are 6 type, 3 race, 5 state, and 13 parent schooling categories.



## *4.5. Counterfactual Experiments.*

- Tables 5a and 5b report the results for blacks and Hispanics, respectively.
- In each table, the first two columns show the baseline model predictions.
- Then, the columns labeled (1)–(4) show the effects of (i) equalizing potential husband's income and women's preferences for marriage, (ii) equalizing offer wage functions (i.e., eliminating labor market discrimination), (iii) equalizing welfare stigma, and (iv) equalizing (the distribution of) parental schooling.

**Table 5A: Accounting for Difference in Outcomes Between White and Black Women**

	Baseline		Counterfactuals			
	White	Black <sup>a</sup>	(1)	(2)	(3)	(4)
<b>Pct. receiving welfare</b>						
Age 15–17.5	1.3	5.1	5.4	4.1	4.1	4.2
18–21.5	4.7	16.8	15.1	12.5	14.0	14.3
22–25.5	7.1	26.5	20.9	17.9	22.8	23.3
26–29.5	7.1	29.7	21.4	19.6	26.4	26.1
<b>Pct. in school</b>						
Age 15–17.5	85.3	84.4	80.7	87.7	84.2	85.2
18–21.5	29.8	29.6	25.0	30.6	29.8	33.1
22–25.5	8.3	8.1	6.0	9.0	8.1	9.0
26–29.5	3.4	3.5	2.6	3.7	3.5	3.9
<b>Pct. working</b>						
Age 15–17.5	28.3	16.9	15.5	31.0	17.0	16.3
18–21.5	63.8	51.9	42.4	68.5	52.8	53.0
22–25.5	70.3	57.4	44.7	71.2	59.1	61.6
26–29.5	69.8	55.7	42.3	70.2	57.3	60.5
<b>Pct. pregnant</b>						
Age 15–17.5	1.9	3.0	3.2	2.6	2.9	2.8
18–21.5	4.8	6.7	7.0	5.9	6.6	6.5
22–25.5	5.1	7.4	7.6	6.7	7.3	7.3
26–29.5	4.9	6.8	6.9	6.3	6.7	6.5

**Table 5A: Accounting for Difference in Outcomes Between White and Black Women, Cont'd**

	Baseline		Counterfactuals			
	White	Black <sup>a</sup>	(1)	(2)	(3)	(4)
<b>Pct. married</b>						
Age 15–17.5	5.0	1.1	3.6	1.7	1.1	1.0
18–21.5	28.2	9.6	24.6	12.7	10.0	8.7
22–25.5	52.3	21.7	45.1	27.3	22.5	20.6
26–29.5	65.4	28.5	55.7	36.5	29.4	27.6
<b>Pct. out-of-wedlock pregnancy</b>						
Age 15–17.5	1.8	3.0	3.0	2.5	2.9	2.8
18–21.5	3.1	5.9	4.9	5.0	5.8	5.7
22–25.5	2.4	5.8	4.2	4.9	5.7	5.7
26–29.5	1.6	4.9	3.1	4.0	4.7	4.7
<b>Pct. living with parents</b>						
Age 15–17.5	93.6	97.6	95.0	96.9	97.6	97.6
18–21.5	56.2	71.5	60.0	68.8	71.3	72.4
22–25.5	19.6	33.2	22.4	30.5	32.9	34.1
26–29.5	10.5	23.2	13.9	20.4	22.9	23.8
<b>Children ever born before</b>						
Age 20	.31	.47	.51	.41	.47	.45
24	.72	1.04	1.09	.91	1.02	1.00
28	1.14	1.65	1.71	1.47	1.63	1.59
<b>Highest grade completed by</b>						
Age 24	13.08	12.97	12.62	13.17	12.99	13.22

**Table 5B: Accounting for Difference in Outcomes Between White and Hispanic Women**

	Baseline		Counterfactuals			
	White <sup>a</sup>	Hispanic <sup>b</sup>	(1)	(2)	(3)	(4)
<b>Pct. receiving welfare</b>						
Age 15–17.5	1.0	4.1	4.1	3.1	4.5	2.0
18–21.5	3.6	10.6	10.6	9.0	11.5	6.1
22–25.5	5.7	14.7	15.0	11.6	16.0	9.5
26–29.5	5.6	15.7	15.6	11.9	16.9	10.1
<b>Pct. in school</b>						
Age 15–17.5	85.5	80.2	79.6	82.7	80.1	84.1
18–21.5	31.1	22.5	21.8	23.4	22.4	30.6
22–25.5	8.7	6.4	6.0	7.0	6.4	8.3
26–29.5	3.7	2.9	2.6	2.9	2.9	3.8
<b>Pct. working</b>						
Age 15–17.5	30.2	25.5	25.7	33.6	25.5	24.7
18–21.5	69.0	58.8	57.5	66.1	58.4	63.0
22–25.5	76.1	58.9	56.5	66.5	58.1	69.8
26–29.5	75.8	56.5	53.1	65.0	55.9	68.8
<b>Pct. pregnant</b>						
Age 15–17.5	1.6	3.1	3.1	2.9	3.1	2.5
18–21.5	4.1	6.4	6.5	6.1	6.4	5.8
22–25.5	4.5	7.0	6.9	6.6	7.0	6.3
26–29.5	4.3	6.6	6.5	6.4	6.6	5.9

**Table 5B: Accounting for Difference in Outcomes Between White and Hispanic Women, Cont'd**

	Baseline		Counterfactuals			
	White <sup>a</sup>	Hispanic <sup>b</sup>	(1)	(2)	(3)	(4)
<b>Pct. married</b>						
Age 15–17.5	4.1	3.1	3.2	3.7	3.1	2.8
18–21.5	23.8	22.4	22.9	23.9	22.4	19.0
22–25.5	47.8	42.6	43.6	44.6	42.4	40.7
26–29.5	61.6	53.9	55.9	56.6	53.4	52.9
<b>Pct. out-of-wedlock pregnancy</b>						
Age 15–17.5	1.5	3.0	3.0	2.8	3.0	2.4
18–21.5	2.9	4.8	4.8	4.5	4.8	4.4
22–25.5	2.4	4.0	3.9	3.7	4.0	3.7
26–29.5	1.6	3.0	2.9	2.7	3.0	2.7
<b>Pct. living with parents</b>						
Age 15–17.5	94.5	95.6	95.5	95.0	95.6	95.7
18–21.5	60.1	60.9	60.0	59.4	60.9	64.1
22–25.5	21.8	23.3	22.9	22.5	23.4	24.9
26–29.5	11.9	14.5	13.9	13.4	14.8	15.1
<b>Children ever born before age</b>						
Age 20	.27	.47	.47	.44	.47	.39
24	.62	1.01	1.01	.95	1.01	.89
28	.99	1.59	1.59	1.51	1.60	1.41
<b>Highest grade completed by</b>						
Age 24	13.18	12.48	12.41	12.61	12.46	13.10

- Tables 6a, 6b, and 6c report the counterfactual experiments for black, Hispanic, and white women, respectively.
- Baseline outcomes under the welfare rules actually in effect for the sample are shown in column 1.
- About 65%, 40%, and 25% of the (type 6) black, Hispanic, and white woman, respectively, receive welfare between the ages of 22 and 30.
- Only about a fifth of black and Hispanic women and a third of white women are working at those ages.
- At ages 26–29.5, the marriage rate for white women is 58%, but for Hispanics it is 45.5% and for blacks only 21.8%.

**Table 6A: Accounting for Difference in Outcomes Between White and Hispanic Women**

Outcome	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Pct. receiving welfare</b>							
Age 15–17.5	13.2	0.0	13.0	13.2	9.6	8.0	10.9
18–21.5	39.6	0.0	36.4	39.9	30.6	27.2	35.3
22–25.5	61.2	0.0	35.6	60.5	52.2	45.2	57.2
26–29.5	68.1	0.0	16.5	66.5	61.8	55.1	66.5
<b>Pct. in school</b>							
Age 15–17.5	70.1	72.8	70.2	70.1	71.1	70.9	79.2
18–21.5	8.9	10.9	8.9	8.8	9.5	9.1	13.1
22–25.5	3.7	5.2	4.5	4.0	4.3	3.9	5.1
26–29.5	1.1	1.6	1.5	1.3	1.4	1.3	1.7
<b>Pct. working</b>							
Age 15–17.5	9.5	10.4	9.6	9.6	9.7	11.9	11.3
18–21.5	26.9	36.5	27.2	26.7	29.1	42.6	36.8
22–25.5	20.8	42.7	25.9	21.4	24.7	54.1	29.7
26–29.5	15.1	43.4	31.2	18.1	18.9	62.2	23.8
<b>Pct. pregnant</b>							
Age 15–17.5	5.0	4.5	5.2	5.2	4.9	4.9	4.4
18–21.5	9.5	8.8	9.5	9.6	9.4	9.3	8.9
22–25.5	10.1	9.7	10.3	10.3	10.1	10.1	9.8
26–29.5	9.2	8.8	9.4	9.3	9.1	9.1	8.7
<b>Pct. living with parents</b>							
Age 15–17.5	98.2	98.0	98.2	98.1	98.1	98.1	98.2
18–21.5	73.1	70.7	73.0	73.1	72.5	71.9	73.9
22–25.5	34.4	31.1	33.6	34.3	33.7	33.4	35.2
26–29.5	26.3	21.0	23.6	26.0	25.6	25.4	27.2



**Table 6A: Accounting for Difference in Outcomes Between White and Hispanic Women, Cont'd**

Outcome	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pct. married							
Age 15–17.5	0.4	0.5	0.4	0.4	0.4	0.4	0.3
18–21.5	7.8	10.6	8.0	7.8	8.6	9.0	6.9
22–25.5	16.5	25.3	19.0	16.8	18.3	18.9	14.7
26–29.5	21.8	36.6	28.9	22.6	23.9	25.0	14.2
Pct. out-of-wedlock pregnancy							
Age 15–17.5	5.0	4.5	5.2	5.2	4.9	4.9	4.4
18–21.5	8.5	7.6	8.6	8.6	8.3	8.3	8.1
22–25.5	8.5	7.1	8.2	8.6	8.3	8.2	8.9
26–29.5	7.3	5.4	6.6	7.3	7.0	6.9	7.1
Children ever born before							
Age 20	0.76	0.68	0.78	0.78	0.75	0.74	0.67
24	1.50	1.38	1.52	1.53	1.48	1.47	1.38
28	2.40	2.24	2.43	2.44	2.37	2.37	2.25
Highest grade completed by Age 24	11.4	11.6	11.5	11.4	11.5	11.5	11.9
Pct. high school dropouts	45.4	36.2	44.0	45.2	42.2	43.7	27.0
Welfare benefits (÷ 1000)							
Age 15–17.5	0.16	0.00	0.15	0.16	0.08	0.09	0.13
18–21.5	0.63	0.00	0.57	0.62	0.38	0.40	0.56
22–25.5	1.42	0.00	0.76	1.20	0.98	0.89	1.31
26–29.5	1.88	0.00	0.39	1.36	1.35	1.25	1.78
Earnings (÷ 1000)							
Age 15–17.5	0.15	0.16	0.15	0.15	0.15	0.18	0.19
18–21.5	0.63	0.86	0.64	0.62	0.69	0.90	0.96
22–25.5	0.70	1.43	0.84	0.75	0.84	1.40	1.11
26–29.5	0.61	1.77	1.13	0.69	0.77	1.77	1.04

**Table 6A: Accounting for Difference in Outcomes Between White and Hispanic Women, Cont'd**

Outcome	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total income ( $\div$ 1000)							
Age 15–17.5	7.13	6.98	7.13	7.14	7.06	7.10	7.15
18–21.5	6.03	5.56	5.98	6.02	5.82	6.03	6.31
22–25.5	4.33	3.68	3.83	4.13	4.03	4.50	4.63
26–29.5	4.35	3.86	3.50	3.92	4.00	4.91	4.65
PDV utility ( $\div$ 1000)							
From age 14	58.2	56.1	58.1	58.2	57.7	57.9	5.98
18	62.1	60.9	61.6	61.8	61.8	61.9	66.5
22	55.5	56.1	54.7	54.9	55.4	56.0	62.2
25	52.8	55.2	52.2	52.2	53.1	54.2	60.0

NOTE: (1) Baseline, (2) no welfare, (3) 5-year time limit – no benefits thereafter, (4) 3-year time limit – 1/3 reduction in benefits, (5) welfare benefit reduction of 20%, (6) 25 hours/week work requirement after six months on welfare, (7) wage offers 5% higher.

**Table 6B: The Effect of Welfare and Wages On Outcomes: Hispanic Women (Type 6)**

Outcome	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pct. receiving welfare							
Age 15–17.5	12.1	0.0	11.8	12.0	6.4	6.2	9.3
18–21.5	28.8	0.0	26.4	28.9	18.7	18.1	25.4
22–25.5	39.6	0.0	26.4	38.8	30.5	27.4	36.2
26–29.5	40.3	0.0	15.3	38.3	31.1	29.1	35.3
Pct. in school							
Age 15–17.5	65.4	68.8	65.5	65.4	66.5	66.2	75.2
18–21.5	6.7	8.5	6.7	6.7	7.3	7.0	10.9
22–25.5	2.9	4.3	3.5	3.0	3.3	3.0	4.4
26–29.5	0.9	0.8	1.0	0.9	1.0	0.9	1.1
Pct. working							
Age 15–17.5	13.2	14.9	13.4	13.2	14.4	15.7	17.7
18–21.5	34.5	44.4	35.1	34.5	37.8	45.3	46.5
22–25.5	25.4	42.8	29.7	26.4	30.1	45.4	37.7
26–29.5	19.4	38.1	28.4	21.4	24.0	45.2	32.1
Pct. pregnant							
Age 15–17.5	4.9	4.7	5.0	5.0	4.8	4.9	4.5
18–21.5	8.9	8.4	8.9	8.9	8.8	8.8	8.4
22–25.5	9.8	9.3	10.0	10.0	9.8	9.7	9.2
26–29.5	8.7	8.6	8.9	8.9	8.7	8.7	8.5
Pct. living with parents							
Age 15–17.5	97.3	97.0	97.4	97.4	97.2	97.3	97.6
18–21.5	63.1	59.7	62.9	63.0	61.4	60.8	65.3
22–25.5	25.9	22.5	25.5	25.8	24.4	24.8	27.0
26–29.5	17.7	12.4	15.4	17.2	15.6	15.9	18.5

**Table 6B: The Effect of Welfare and Wages On Outcomes: Hispanic Women (Type 6), Cont'd**

Outcome	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Pct. married</b>							
Age 15–17.5	1.2	1.5	1.2	1.2	1.4	1.3	1.0
18–21.5	19.7	23.0	19.9	19.7	21.3	21.5	16.7
22–25.5	35.3	45.0	37.0	35.7	38.3	38.2	31.6
26–29.5	45.5	58.8	51.5	46.7	49.2	49.8	43.0
<b>Pct. out-of-wedlock pregnancy</b>							
Age 15–17.5	4.8	4.5	4.9	5.0	4.8	4.8	4.4
18–21.5	7.0	6.5	7.0	7.1	6.8	6.8	7.0
22–25.5	6.2	5.2	6.2	6.3	5.9	5.9	6.2
26–29.5	4.8	3.4	4.3	4.8	4.4	4.4	4.7

**Table 6B: The Effect of Welfare and Wages On Outcomes: Hispanic Women (Type 6), Cont'd**

Outcome	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Children ever born before							
Age 20	0.74	0.68	0.75	0.76	0.73	0.72	0.66
24	1.42	1.33	1.43	1.44	1.40	1.39	1.31
28	2.29	2.18	2.31	2.32	2.27	2.26	2.14
Highest grade completed by							
Age 24	11.1	11.4	11.2	11.1	11.2	11.2	11.7
Pct. high school dropouts	51.9	45.0	51.4	51.8	49.0	51.1	35.4
Welfare benefits ( $\div$ 1000)							
Age 15–17.5	0.15	0.00	0.15	0.15	0.05	0.07	0.11
18–21.5	0.50	0.00	0.45	0.48	0.27	0.32	0.44
22–25.5	1.03	0.00	0.67	0.90	0.65	0.62	0.94
26- w-29.5	1.24	0.00	0.44	0.94	0.79	0.76	1.08
Earnings ( $\div$ 1000)							
Age 15–17.5	0.25	0.28	0.25	0.25	0.27	0.28	0.34
18–21.5	0.98	1.26	0.99	0.97	1.07	1.18	0.43
22–25.5	1.03	1.70	1.17	1.05	1.23	1.51	1.67
26–29.5	0.96	1.87	1.28	1.02	1.20	1.71	1.71
Total income ( $\div$ 1000)							
Age 15–17.5	8.15	8.02	8.16	8.16	8.06	8.11	8.22
18–21.5	6.67	6.32	6.63	6.66	6.46	6.60	7.13
22–25.5	4.85	4.56	4.65	4.74	4.67	4.93	5.34
26–29.5	4.97	4.83	4.61	4.75	4.79	5.29	5.52
PDV utility ( $\div$ 1000)							
From age 14	69.5	68.1	69.4	69.5	69.1	69.2	71.4
18	76.8	76.4	76.5	76.5	76.8	76.9	81.7
22	72.5	74.4	72.0	72.0	73.1	73.7	79.5
25	69.9	73.7	69.8	70.3	70.8	71.5	78.1

**Table 6C: The Effect of Welfare And Wages on Outcomes: White Women (Type 6)**

Outcome	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Pct. receiving welfare</b>							
Age 15–17.5	4.6	0.0	4.4	4.4	2.1	2.9	3.4
18–21.5	15.2	0.0	14.3	15.0	9.5	10.5	12.4
22–25.5	25.0	0.0	19.6	24.6	18.2	18.2	20.7
26–29.5	24.6	0.0	12.6	23.5	18.2	18.4	20.4
<b>Pct. in school</b>							
Age 15–17.5	69.5	72.3	69.7	69.6	70.3	70.4	79.0
18–21.5	9.4	10.5	9.4	9.3	9.6	9.4	12.9
22–25.5	4.6	4.9	4.7	4.4	4.8	4.5	5.7
26–29.5	1.2	1.2	1.2	1.1	1.3	1.1	1.6
<b>Pct. working</b>							
Age 15–17.5	15.4	15.9	15.5	15.6	15.7	16.0	19.4
18–21.5	40.8	48.3	41.2	43.6	43.2	47.1	54.4
22–25.5	35.5	47.7	37.5	44.5	38.8	48.6	50.6
26–29.5	31.6	44.8	36.0	44.0	35.1	46.5	49.1
<b>Pct. pregnant</b>							
Age 15–17.5	3.6	3.1	3.6	3.6	3.5	3.5	2.9
18–21.5	7.7	7.2	7.8	7.8	7.6	7.6	7.1
22–25.5	8.0	7.5	8.1	8.0	7.9	8.0	7.6
26–29.5	7.3	6.9	7.4	7.4	7.2	7.3	6.8

**Table 6C: The Effect of Welfare And Wages on Outcomes: White Women (Type 6), Cont'd**

Outcome	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Pct. living with parents</b>							
Age 15–17.5	95.3	95.2	95.4	95.4	95.3	95.3	95.7
18–21.5	57.7	56.4	57.8	57.8	57.0	57.0	60.0
22–25.5	21.8	20.0	21.6	21.8	21.1	21.3	23.4
26–29.5	12.4	9.4	11.2	12.2	11.3	11.4	13.5
<b>Pct. married</b>							
Age 15–17.5	3.2	3.4	3.1	3.2	3.3	3.2	3.4
18–21.5	25.4	27.3	25.3	25.3	26.1	26.1	25.7
22–25.5	45.8	52.7	46.8	46.0	47.9	47.7	47.1
26–29.5	58.0	66.2	61.2	58.7	60.7	60.3	59.8
<b>Pct. out-of-wedlock pregnancy</b>							
Age 15–17.5	3.4	2.9	3.5	3.5	3.4	3.3	2.8
18–21.5	5.3	4.7	5.4	5.4	5.2	5.1	5.1
22–25.5	4.5	3.6	4.4	4.5	4.3	4.3	4.5
26–29.5	2.9	2.1	2.7	2.9	2.6	2.7	2.8
<b>Children ever born before</b>							
Age 20	0.55	0.49	0.56	0.56	0.54	0.54	0.48
24	1.18	1.08	1.19	1.19	1.16	1.16	1.07
28	1.86	1.72	1.88	1.88	1.83	1.88	1.70
<b>Highest grade completed by</b>							
Age 24	11.5	11.7	11.5	11.5	11.5	11.5	12.0
Pct. high school dropouts	42.2	36.8	41.6	42.1	40.3	41.2	23.7



**Table 6C: The Effect of Welfare And Wages on Outcomes: White Women (Type 6), Cont'd**

Outcome	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Welfare benefits ( $\div$ 1000)							
Age 15–17.5	0.04	0.00	0.04	0.04	0.01	0.02	0.03
18–21.5	0.25	0.00	0.23	0.24	0.14	0.17	0.20
22–25.5	0.57	0.00	0.43	0.52	0.35	0.35	0.46
26–29.5	0.63	0.00	0.30	0.50	0.39	0.39	0.50
Earnings ( $\div$ 1000)							
Age 15–17.5	0.30	0.31	0.30	0.30	0.30	0.31	0.39
18–21.5	1.22	1.46	1.23	1.22	1.29	1.35	1.79
22–25.5	1.52	2.06	1.60	1.53	1.67	1.87	2.39
26–29.5	1.58	2.36	1.79	1.61	1.76	2.07	2.73
Total income ( $\div$ 1000)							
Age 15–17.5	10.5	10.4	10.5	10.5	10.4	10.5	10.6
18–21.5	8.09	8.01	8.08	8.08	8.00	8.09	8.69
22–25.5	5.72	5.79	5.69	5.69	5.66	5.87	6.42
26–29.5	5.83	6.07	5.75	5.75	5.79	6.09	6.65
PDV utility ( $\div$ 1000)							
From Age 14	84.6	83.4	84.5	84.6	84.3	84.4	86.9
18	94.2	94.1	94.0	94.1	94.1	94.2	99.6
22	92.8	94.7	92.6	92.6	93.2	93.5	100.8
25	92.3	96.3	92.3	92.1	93.1	93.5	101.4



- As seen in Table 7, pregnancy rates increase significantly, even at the earliest ages.
- By age 28, the EITC induces black women to have 0.33 additional children, Hispanic women 0.24 additional children, and white women 0.30 additional children.
- Along with increased fertility, it is optimal to reduce work and increase welfare participation.
- As seen in Table 8, women age 18–21 in the 1997 cohort had much lower welfare participation than women at the same ages in the 1979 cohort.
- The reduction was greatest for black women, 9.7 percentage points, followed by Hispanics, 4.9 percentage points, and whites, 3.4 percentage points.

## Table 7: The Effect Of Eitc on Outcomes: Type 6

Outcome	Black Women			Hispanic Women			White Women		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
<b>Pct. receiving welfare</b>									
Age 15–17.5	13.2	12.8	15.8	12.1	11.8	14.3	4.6	4.6	5.9
18–21.5	39.6	39.3	43.2	28.8	28.0	31.1	15.2	14.8	16.9
22–25.5	61.2	61.0	62.9	39.6	39.3	41.0	25.0	24.7	26.9
26–29.5	68.1	68.2	69.3	40.3	40.5	41.6	24.6	24.9	27.4
<b>Pct. in school</b>									
Age 15–17.5	70.1	68.7	67.0	65.4	63.4	61.3	69.5	68.0	66.3
18–21.5	8.9	8.3	7.4	6.7	6.1	5.0	9.4	8.7	7.9
22–25.5	3.7	3.2	2.8	2.9	2.4	2.1	4.6	4.0	3.7
26–29.5	1.1	1.0	0.9	0.9	0.7	0.7	1.2	1.1	1.0
<b>Pct. working</b>									
Age 15–17.5	9.5	9.4	9.1	13.2	12.9	12.5	15.4	15.5	14.9
18–21.5	26.9	27.2	23.4	34.5	34.2	28.8	40.8	41.0	36.6
22–25.5	20.8	22.0	18.1	25.4	26.7	20.8	35.5	36.3	31.0
26–29.5	15.1	16.5	13.3	19.4	21.6	17.0	31.6	32.3	27.2
<b>Pct. pregnant</b>									
Age 15–17.5	5.0	6.1	6.0	4.9	6.2	6.0	3.6	4.5	4.4
18–21.5	9.5	10.8	10.6	8.9	10.7	10.5	7.7	9.0	8.9
22–25.5	10.1	11.5	11.5	9.8	10.4	10.5	8.0	9.2	9.2
26–29.5	9.2	10.0	10.3	8.7	9.6	9.9	7.3	8.1	8.2

**Table 8: Actual and Predicted Changes in Welfare Participation and Employment Between Nlsy79 And Nlsy97 Cohorts At Ages 18–21**

NLSY79-NLSY97 Change in	White Women			Black Women			Hispanic Women		
	Actual	Predicted		Actual	Predicted		Actual	Predicted	
		EITC	No EITC		EITC	No EITC		EITC	No EITC
Pct. receiving welfare	-3.4	-3.3	-3.4	-9.7	-10.1	-10.8	-4.9	-7.3	-7.8
Pct. working	-2.3	+1.0	+3.8	+13.3	+3.9	+6.6	+3.6	+1.8	+5.7

## 5. Conclusions