

Understanding Black–White Wage Differentials, 1960–1990

James J. Heckman, Thomas M. Lyons, and Petra E. Todd

American Economic Review 90, no. 2 (2000): 344-349

James J. Heckman



Econ 350, Winter 2021

I. Samples Matter

TABLE 1—DECOMPOSITION OF AVERAGE LOG-WAGE GAP
UNDER ALTERNATIVE SAMPLING RULES

Sample	1960– 1970	1970– 1980	1980– 1990
SW			
Δ Log-wage gap	13.1	12.3	2.7
Within-cohort component	4.96	3.72	–1.5
Between-cohort component	8.14	8.57	3.65
CK(1), 48 states			
Δ Log-wage gap	10.3	8.49	–1.4
Within-cohort component	0.27	1.16	–5.5
Between-cohort component	9.99	7.33	4.13
CK(2), S–N migrants			
Δ Log-wage gap	5.11	4.03	–0.25
Within-cohort component	–2.0	–3.5	–6.3
Between-cohort component	7.12	7.53	6.09
HLT(1), 48 states			
Δ Log-wage gap	14.8	8.77	2.43
Within-cohort component	3.70	2.06	–1.6
Between-cohort component	11.1	6.71	4.05
HLT(2), 29-states			
Δ Log-wage gap	14.8	9.05	1.52
Within-cohort component	3.58	2.15	–2.6
Between-cohort component	11.3	6.90	4.08

II. Specification of Estimating Equations Matters

Using Census data, Smith and Welch (1989) estimate an earnings function of the following general form:

$$\ln y = \alpha + \beta S + \gamma Z + \varepsilon$$

where S is schooling, Z represents other factors (region of residence, work experience), β is a “rate of return” to schooling, and ε is a mean-zero error assumed to be orthogonal to (S, Z) .

III. Labor-Force Selection Matters

- Let t be the current year and τ a base year.
- Let $\bar{\mathbf{z}}_t^w, \bar{\mathbf{z}}_t^b, \bar{\mathbf{z}}_\tau^w, \bar{\mathbf{z}}_\tau^b$ denote the mean vectors of black and white characteristics included in the earnings model.
- Let $\boldsymbol{\gamma}_t^w, \boldsymbol{\gamma}_t^b, \boldsymbol{\gamma}_\tau^w, \boldsymbol{\gamma}_\tau^b$ denote the associated vectors of coefficients.
- The change in log black wages minus log white wages between time periods t and τ is decomposed in the following way:
- $$\begin{aligned} & [(\bar{\mathbf{z}}_t^b \boldsymbol{\gamma}_t^b - \bar{\mathbf{z}}_t^w \boldsymbol{\gamma}_t^w) - (\bar{\mathbf{z}}_\tau^b \boldsymbol{\gamma}_\tau^b - \bar{\mathbf{z}}_\tau^w \boldsymbol{\gamma}_\tau^w)] \\ &= [(\bar{\mathbf{z}}_t^b - \bar{\mathbf{z}}_t^w) - (\bar{\mathbf{z}}_\tau^b - \bar{\mathbf{z}}_\tau^w)] \boldsymbol{\gamma}_t^w \text{ (main effect)} \\ &+ (\bar{\mathbf{z}}_t^b - \bar{\mathbf{z}}_\tau^b)(\boldsymbol{\gamma}_t^b - \boldsymbol{\gamma}_\tau^w) \text{ (race interaction)} \\ &+ (\bar{\mathbf{z}}_t^b - \bar{\mathbf{z}}_t^w)(\boldsymbol{\gamma}_t^w - \boldsymbol{\gamma}_\tau^w) \text{ (year interaction)} \\ &+ \bar{\mathbf{z}}_t^b[(\boldsymbol{\gamma}_t^b - \boldsymbol{\gamma}_t^w) - (\boldsymbol{\gamma}_\tau^b - \boldsymbol{\gamma}_\tau^w)] \text{ (race-year interaction)}. \end{aligned}$$

TABLE 2—TOTAL CONTRIBUTION OF EDUCATION TO
CHANGE IN THE RELATIVE WAGE GAP UNDER ALTERNATIVE
SAMPLES, HLT MODEL, 1960–1970

Age	Effect	CK(1)	CK(2)	SW	HLT(2)	LFP- corrected ^a
31–40	Main	4.9	4.0	5.0	5.9	4.5
	Race	−3.6	−4.6	−3.9	−4.8	−4.7
	Year	−3.3	−3.0	−4.1	−4.7	−5.2
	Race–Year	7.8	8.4	5.8	13.1	5.7
	Total	5.7	4.8	2.8	9.5	0.4
	Total	8.6	6.5	11.5	12.8	12.8
	ΔLWG^b					
	Educ. ^c	66.7	73.6	24.2	74.5	2.8
41–50	Main	3.7	2.8	3.7	4.6	3.4
	Race	−6.0	−3.5	−3.6	−6.7	−9.1
	Year	−7.5	10.4	−8.5	−8.0	−6.8
	Race–Year	8.4	−8.6	5.4	13.3	14.0
	Total	−1.3	1.2	−3	3.1	1.5
	Total	5.6	0.0	10.2	10.1	10.1
	ΔLWG^b					
	Educ. ^c	−23.5	−86.61	−29.6	31.3	14.5