A Dreadful Childhood: The Long Shadow of American Slavery

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NBER

July 28, 2017

The past is never dead. In fact, it's not past.
William Faulkner

Motivation

- Legacy of slavery
  - Du Bois
  - Myrdal
  - Moynihan
  - Fogel and Engerman; Gutman
- Human capital
  - Education and training
    - Smith; Mincer; Schultz; and Becker
  - Health
    - Grossman
  - Cognitive ability, personality
    - INCAP studies: Chavez and Martinez; Hoddinott et. al.
    - NCDS: Case and Paxson; Schick and Steckel
    - Currie; Almond

Outline

- Consider four empirical findings
  - Sharp growth in wealth owned by southern blacks beginning in 1890s
  - Jump in literacy rates for black cohorts born immediately after the CW
  - Child mortality rates
    - Under slavery, double those of whites
    - Nearly converged to white rates by 1900
  - Slave children were exceptionally short but adults remarkably tall
    - Why the pattern of growth depression and recovery?
- These phenomena were interconnected
  - Early childhood nutrition, cognition and economic achievement
- Potential implications
  - Understanding the economics of slavery
  - Birth cohort patterns of wealth accumulation
  - The rise of Jim Crow and violence against southern blacks
  - Intergenerational health consequences

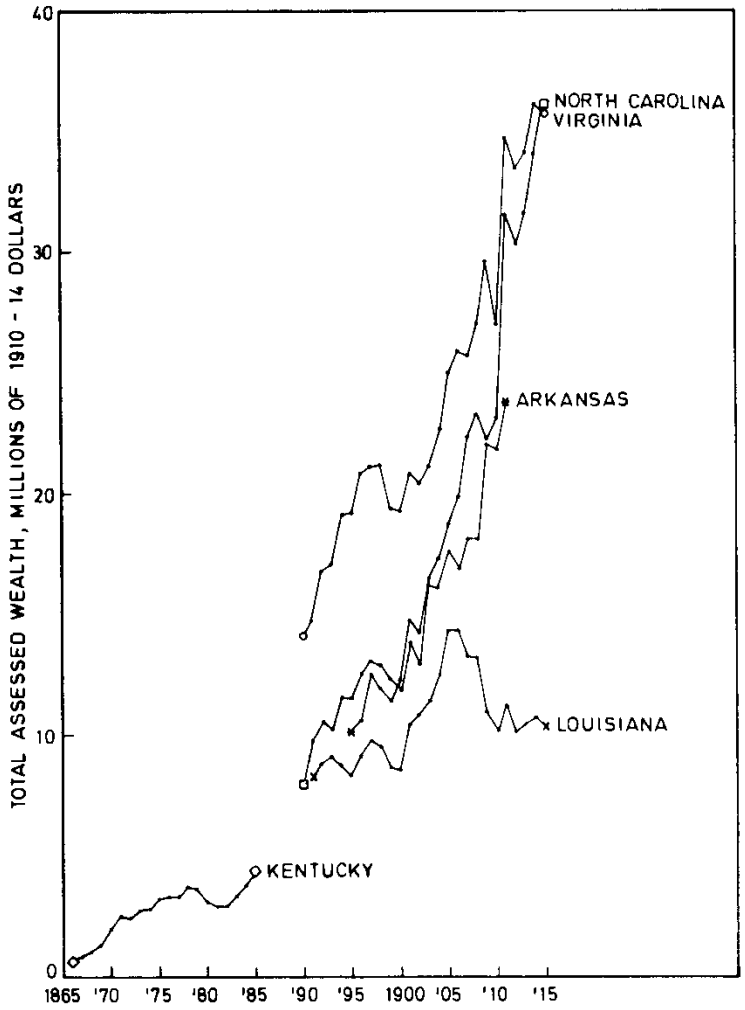


FIGURE 1. TOTAL ASSESSED VALUE OF BLACK WEALTH: NORTH CAROLINA; VIRGINIA; ARKANSAS; LOUISIANA; KENTUCKY

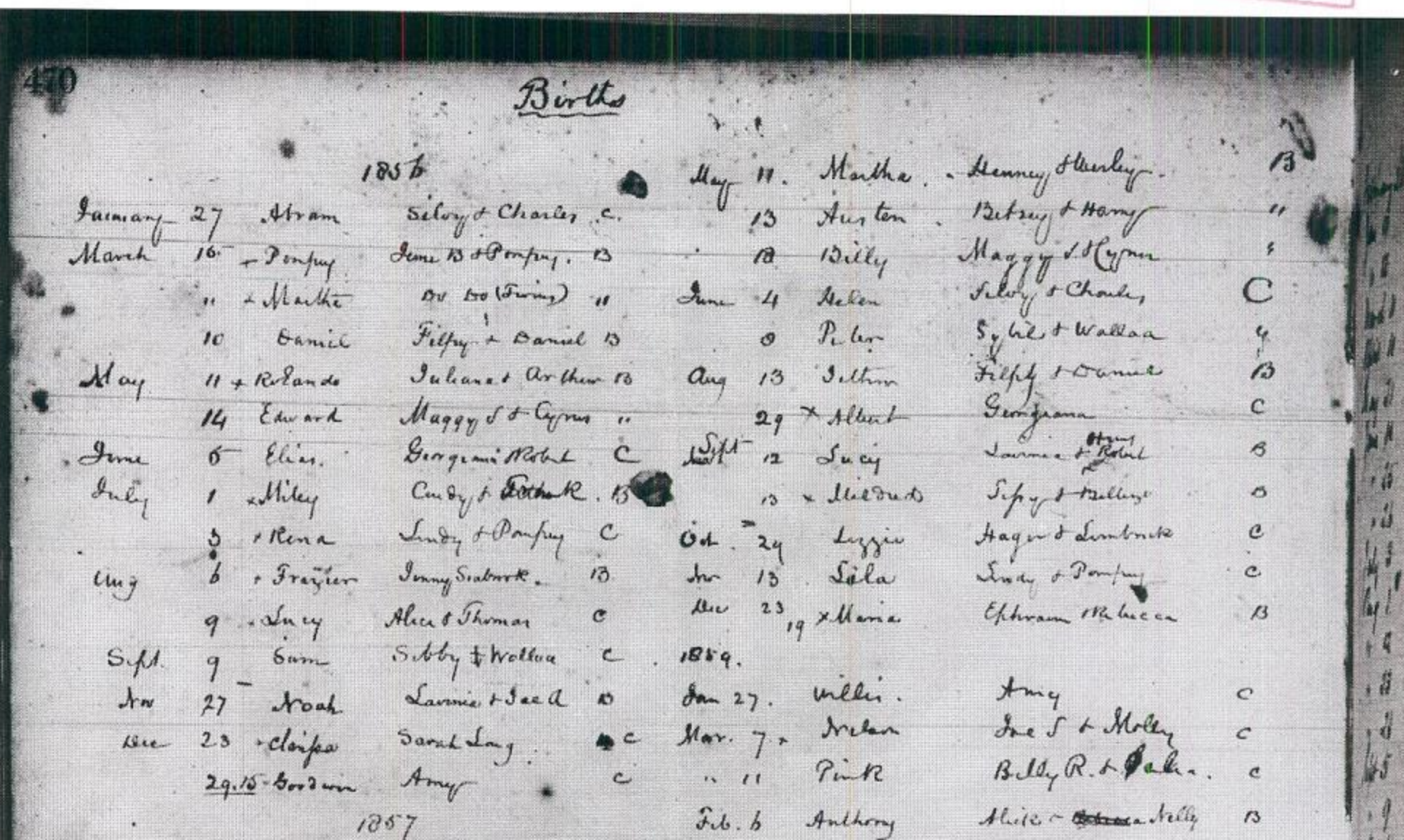
Literacy Rate of Blacks in Four Southern States, 1900*

	Men		Women		Men and Women	
Birth Cohort	%	N	%	N	%	N
1850-54	35.43	3,387	11.69	3,318	23.68	6,705
1855-59	45.46	2,554	19.81	2,806	32.03	5,360
1860-64	50.31	4,365	25.96	4,769	37.58	9,124
1865-69	54.44	4,390	37.24	4,646	45.60	9,036
1870-74	55.18	6,638	45.55	7,067	50.22	13,705
1875-79	55.42	9,153	53.30	10,055	54.31	19,208
1880-84	51.24	9,980	60.26	11,351	56.04	21,331
1885-89	38.67	11,490	50.04	11,144	44.22	22,634

* South Carolina, Georgia, Alabama and Mississippi

Source: IPUMS. N = 3,387

Plantation Demographic Records:
Births on the Hammond Plantation (SC)



470

Births

1856

January	27	Abram	Silvy & Charles	C.	
March	16	" Pompey	Jane B & Pompey	B	
	11	" Martha	Do Do (Twins)	"	
	10	Daniel	Filsy & Daniel	B	
May	11	" Rolando	Juliana & Arthur	B	
	14	Edward	Maggy S & Cyrus	"	
June	6	Elias.	Georgiana Robt	C	
July	1	" Miley	Cindy & Robt R.	B	
	5	" Rena	Lindy & Pompey	C	
Aug	6	" Frazier	Jenny Seabrook.	B	
	9	" Lucy	Alice & Thomas	C	
Sept.	9	Sam	Sibby & Wallace	C	
Nov	27	Noah	Lavinia & Isaac	B	
Dec	23	" Clarissa	Sarah Long	C	
	29.	15 - Bordwin	Amy	C	

1857

May	11.	Martha	Henney & Henley		B
	13	Austen	Betsey & Harry		"
	18	Billy	Maggy & Cyrus		"
June	4	Helen	Silvy & Charles		C
	9	Peter	Sybil & Wallace		"
Aug	13	Silvia	Filsy & Daniel		B
	29	" Albert	Georgiana		C
Sept	12	Lucy	Lavinia & Robt		B
	13	" Milford	Sipsy & Wallace		B
Oct	24	Lizzie	Hagar & Lindsey		C
Nov	13	Lila	Lindy & Pompey		C
Dec	23 19	" Maria	Ephraim & Rebecca		B

1859.

Jan	27.	Willis.	Amy	C
Mar.	7.	" Nelson	Jane S & Molly	C
	11	Pink	Billy R. & Sally	C
Feb.	6	Anthony	Alice & Nelly	B

Mortality Rates by Age

Table 1 Mortality rates per thousand for slaves and the antebellum population

Age	Slaves	Entire United States
0	350	179
1–4	201	93
5–9	54	28
10–14	37	19
15–19	35	28
20–24	40	39

Sources: Age 0, slaves, see Notes 5 and 17; slaves aged 1 and above, Steckel (1979b: 92); United States, Haines and Avery (1980: 88), average of Model West and logit tables.

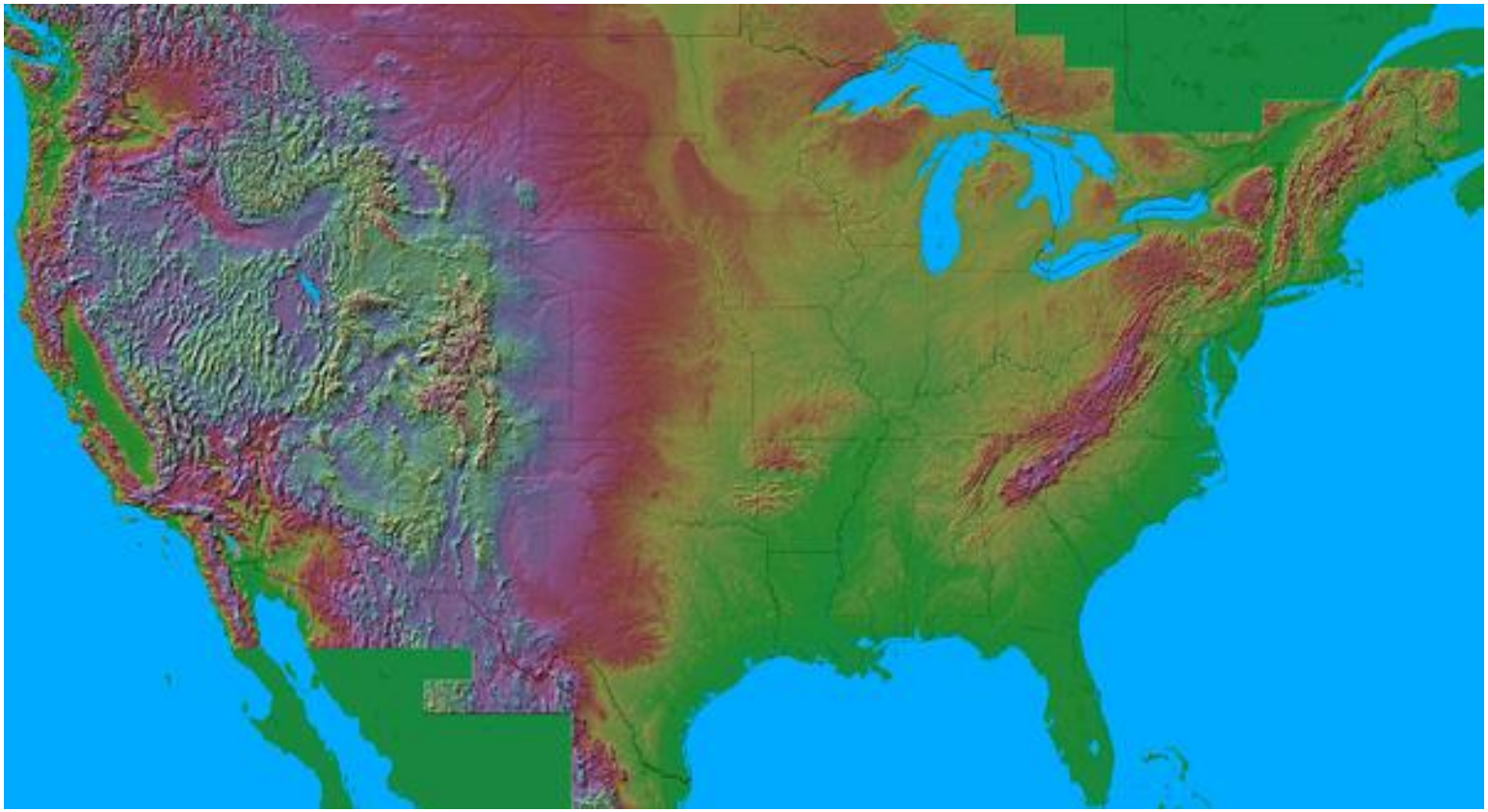
Infant Mortality in 1900

White		Black	
Rate	Group	Rate	Group
0.120	national	0.170	national

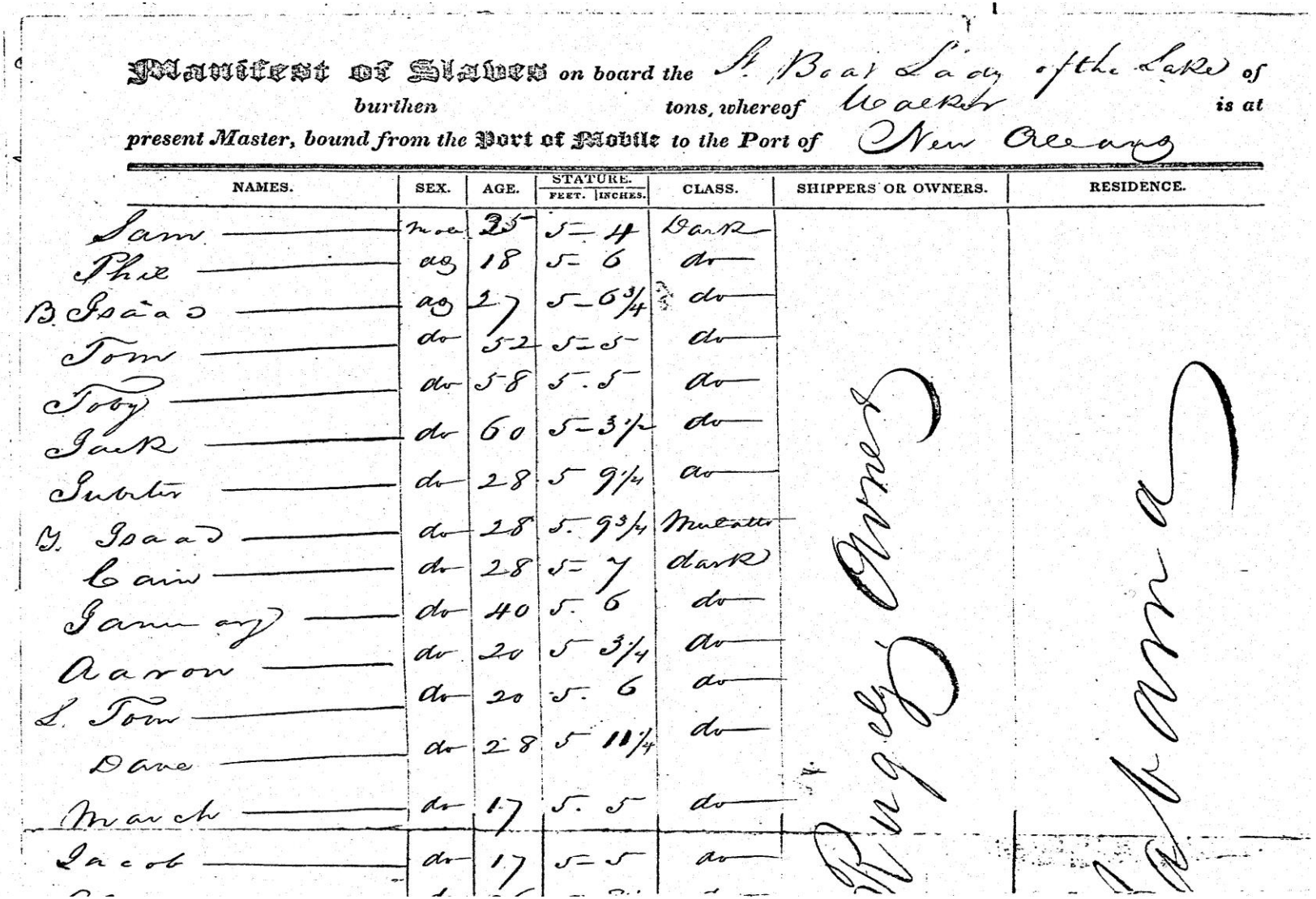
Sources: Haines (1998)

When did rates begin to converge?

U.S. Relief Map



A Slave Manifest



Manifest of Slaves on board the St. Boat Lady of the Lake of burthen tons, whereof Walker is at present Master, bound from the Port of Mobile to the Port of New Orleans

NAMES.	SEX.	AGE.	STATURE. FEET.	STATURE. INCHES.	CLASS.	SHIPPERS OR OWNERS.	RESIDENCE.
Sam	Man	25	5	4	Dark		
Phil	do	18	5	6	do		
B. Isaac	do	27	5	6 3/4	do		
Tom	do	52	5	5	do		
Toby	do	58	5	5	do		
Jack	do	60	5	3 1/2	do		
Subtin	do	28	5	9 1/4	do		
G. Isaac	do	28	5	9 3/4	Mulatto		
Cain	do	28	5	7	dark		
January	do	40	5	6	do		
Aaron	do	20	5	3 1/4	do		
L. Tom	do	20	5	6	do		
Dave	do	28	5	11 1/4	do		
March	do	17	5	5	do		
Jacob	do	17	5	5	do		

See Wesley (1942)

DISTRICT OF MOBILE—PORT OF MOBILE.

The 30 day of January, 1840

The owner of the Slaves named and particularly described in the within MANIFEST, and the master of the Lady of the Lake do solemnly, sincerely and truly swear, according to the best of our knowledge and belief, that the person above described were not imported into the United States since the first day of January, 1808—and that, under the laws of the State, are held to service and labor.

DISTRICT OF MOBILE. SO HELP ME GOD.

Jno Ruggeley

PORT OF MOBILE, the 30 day of Jan 1840

I R. J. Fox Collector of the District of Mobile, do hereby Certify, that the within is a true copy of the original Manifest or List of Slaves left on file in this office; and I do hereby further certify, that the of said Slave and the master of the Lady of the Lake have this day made oath in manner directed in the ninth section of the Act of Congress, passed the second day of March, 1807, prohibiting the importation of Slaves into the United States. I do hereby authorise the said Master to proceed with the said Slave named as within, and being 44 in number, to the Port of New Orleans

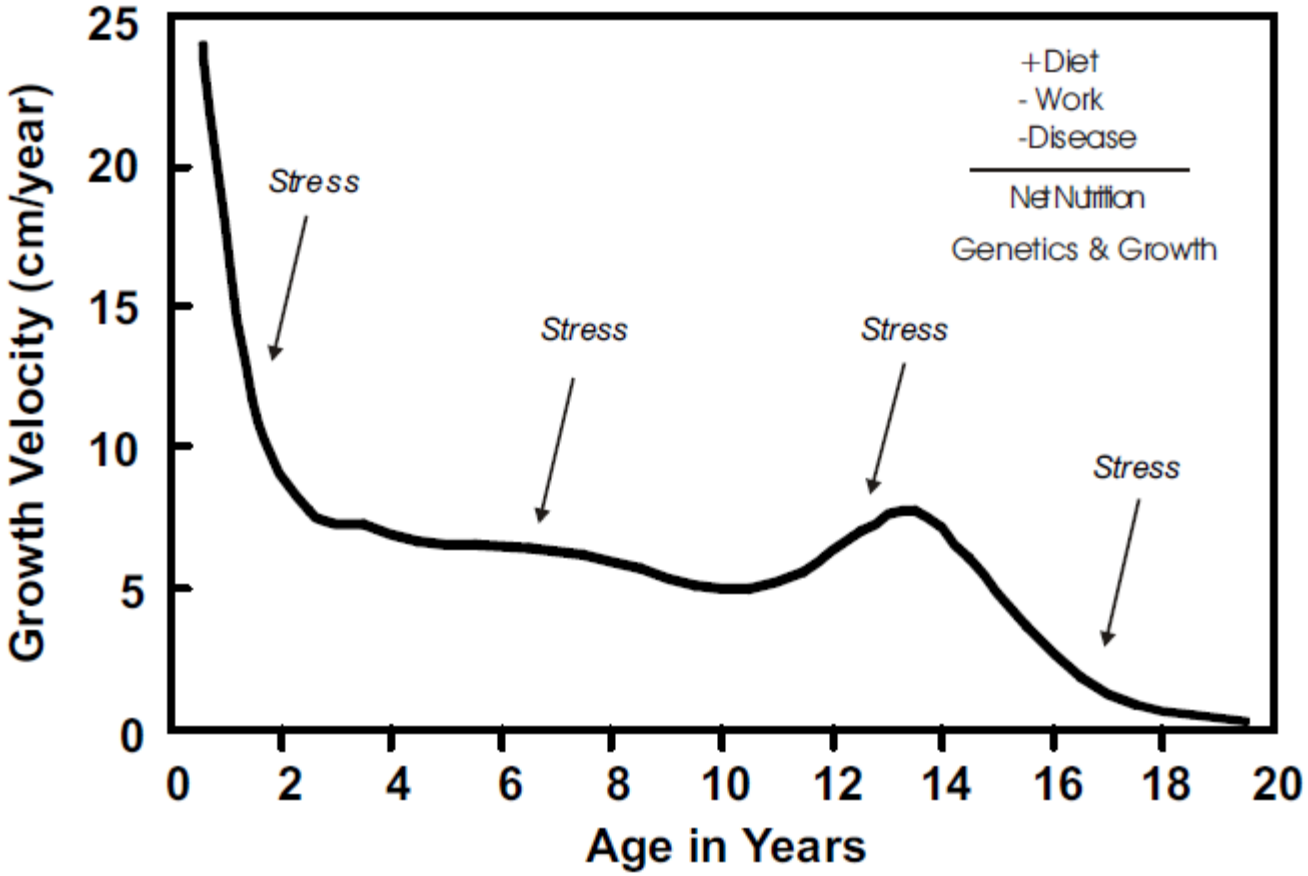
GIVEN under my hand at the Custom House, Mobile, the day above written.

Jan 30.

Manifest Shipments in the Interstate Movement

Time Period	Manifests [a]	F & E [b]	Tadman[c]	Manifests as % of F&E	Manifests as % Tadman
1810-1819	1,898	132,000	123,304	1.44	1.53
1820-1829	27,382	121,000	154,797	22.63	17.69
1830-1839	29,814	223,000	286,291	13.37	10.41
1840-1849	39,189	149,000	186,383	26.30	21.03
1850-1859	35,746	193,000	250,683	18.52	14.26
1810-1859	135,182	818,000	1,001,456	16.52	13.50

Growth under Good Conditions



HEIGHTS OF MALE SLAVES BY AGE COMPARED TO MODERN AMERICAN HEIGHT STANDARDS

	Slaves (1800-1865)			Modern Height Standards			
Age	Mean	Standard Deviation	N	Mean	Adjusted Standard Deviations	Standard Deviations Below	Slave Height as a Percentile of Modern
4	36.85	5.77	445	41.97	1.74	2.94	0.16%
5	39.04	5.52	410	44.53	1.84	2.98	0.14%
6	41.39	5.16	437	46.85	1.93	2.83	0.23%
7	44.32	5.06	432	48.98	2.03	2.30	1.07%
8	45.54	4.95	594	51.02	2.12	2.58	0.49%
9	48.61	5.15	606	53.07	2.27	1.96	2.50%
10	50.29	5.35	1068	55.24	2.47	2.00	2.28%
11	52.24	4.23	825	57.64	2.75	1.96	2.50%
12	53.71	4.38	1514	60.24	3.10	2.11	1.74%
13	55.27	4.09	1104	62.95	3.35	2.29	1.10%
14	57.25	4.05	1614	65.43	3.31	2.47	0.68%
15	59.94	4.19	1241	67.52	3.01	2.52	0.59%
16	62.39	3.45	1576	68.98	2.69	2.45	0.71%
17	64.17	3.07	1740	69.57	2.54	2.13	1.66%
18	65.19	2.84	3064	69.61	2.55	1.73	4.18%
19	66.06	3.00	2598	69.61	2.55	1.39	8.23%
20	66.39	2.76	3987	69.61	2.55	1.26	10.38%
21	67.02	2.62	2774	69.61	2.55	1.02	15.39%
22	66.97	2.72	3722	69.61	2.55	1.04	14.92%
23-49	67.10	2.74	23767	69.61	2.55	0.98	16.35%

HEIGHTS OF FEMALE SLAVES BY AGE COMPARED TO MODERN AMERICAN HEIGHT STANDARDS

	Slaves (1800-1865)			Modern Height Standards			
Age	Mean	Standard Deviation	N	Mean	Adjusted Standard Deviations	Standard Deviations Below	Slave Height as a Percentile of Modern
4	36.67	5.33	428	41.34	1.61	2.90	0.19%
5	39.32	4.66	444	43.94	1.81	2.55	0.54%
6	41.39	5.58	527	46.30	2.03	2.42	0.78%
7	43.48	4.94	499	48.62	2.26	2.27	1.16%
8	45.69	5.03	678	50.91	2.47	2.11	1.74%
9	48.24	4.78	717	53.23	2.66	1.88	3.01%
10	49.86	5.44	1034	55.71	2.75	2.13	1.66%
11	51.92	4.45	907	58.35	2.75	2.34	0.96%
12	53.58	4.32	1379	60.87	2.69	2.71	0.34%
13	55.89	3.87	1252	62.60	2.66	2.52	0.59%
14	57.90	3.77	1646	63.46	2.66	2.09	1.83%
15	60.11	3.40	1784	63.82	2.66	1.39	8.23%
16	61.39	3.18	2578	64.06	2.55	1.05	14.69%
17	62.20	2.89	2121	64.33	2.38	0.89	18.67%
18	62.52	2.98	3221	64.45	2.00	0.97	16.60%
19	62.83	3.10	1499	64.45	2.30	0.70	24.20%
20	62.71	3.08	1532	64.45	2.30	0.76	22.36%
21	62.99	3.09	808	64.45	2.30	0.63	26.43%
22	62.92	2.87	808	64.45	2.30	0.67	25.14%
23-49	63.16	3.05	14329	64.45	2.30	0.56	28.77%

Was the Catch-up Growth Genuine?: Possible Biases

- Selective mortality
- Selective purchases by slave traders
- Regional mixture of slaves with different age-height profiles
- Was it biologically possible?

Why Were Young Slave Children so Small?

1. Pronounced Seasonal Patterns of Early Infant Mortality

Table 3 The probability of death within one calendar month of birth by month of birth and data source[a]

Month of birth	Rate > .30	All plantations
January	0.116	0.179
February	0.221	0.471
March	0.692	0.488
April	0.335	0.375
May and June	0.197	0.222
July and August	0.054	0.154
September	0.464	0.310
October	0.342	0.220
November	0.380	0.351
December	0.265	0.230

Source: Calculated from Table 2.

[a] Probability per month of 30.4 days.

2. Seasonal Fevers

Table 5 Mortality and discharges for fevers in New Orleans by month in 1850

Month	Mortality[a] (Percent)	Discharges[b] (Percent)
January	6.3	9.4
February	4.0	3.8
March	4.7	0.9
April	3.0	2.1
May	3.4	3.4
June	4.3	3.8
July	8.4	6.8
August	29.6	14.5
September	19.1	17.1
October	7.2	18.4
November	4.7	13.7
December	5.2	6.0
Total	99.9	99.9
N	920	234

Source: Editor (1851: 81) and McKelvey (1851: 292).
[a] New Orleans Charity Hospital.
[b] United States Marine Hospital.

3. Cotton Picking Rates Relative to Delivery

Table 4 Daily cotton picking rates before and after birth

Time period	Rate (lbs.)[a]	Percent
9–12 weeks before	73.2	83.4
5–8 weeks before	69.2	78.8
1–4 weeks before	67.0	76.3
Week of birth and week after	31.3	35.6
2–3 weeks after	8.6	9.8
4–7 weeks after	58.9	67.1
8–11 weeks after	80.6	91.8
Other weeks	87.8	100.0

Source: Calculated from Metzer (1974: 27–28).

[a] Assumes the woman was 25 years old.

4. Growth after Infancy

- Food: often prepared in central kitchens
  - Typical daily ration for working hands:
    - 0.5 lbs. pork, 1 peck cornmeal, fruit & veg in season
    - Slave gardens, chickens
    - Children not mentioned or received "proportionally less"
- Disease
  - Declining mortality rates after age 5
  - Reduction of hookworm?
- Work
  - Children began systematic field work around age 10

Diet as an Investment

- Meat was the most expensive component of the diet
- Assume various levels of protein deficiency in childhood
- Estimate protein content of pork & cost of pork
- Value of slaves per inch of height (↑1.4%)
- Calculate rate of return

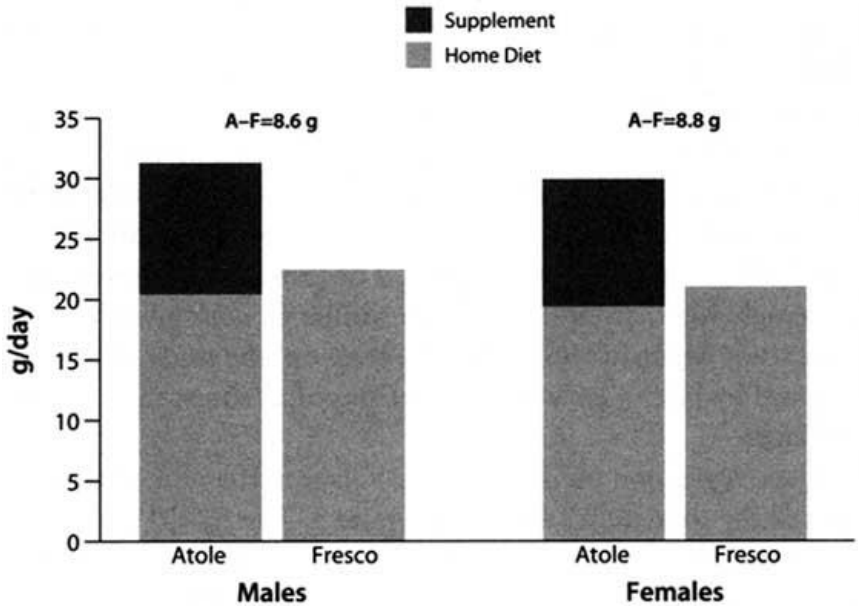
Returns Under Various Protein Deficiency Levels, Mortality Rates at 50%

	Mortality Rate	
Protein Deficiency (%)	**Plantation Records**	**West, level 4**
10	14.845	14.366
15	10.829	10.372
20	8.133	7.690
25	6.123	5.690
30	4.530	4.106
35	3.217	2.800
40	2.104	1.691
45	1.139	0.731
50	0.290	-0.114
55	-0.468	-0.869
60	-1.151	-1.549
65	-1.773	-2.168
70	-2.343	-2.735
75	-2.868	-3.258
80	-3.355	-3.743

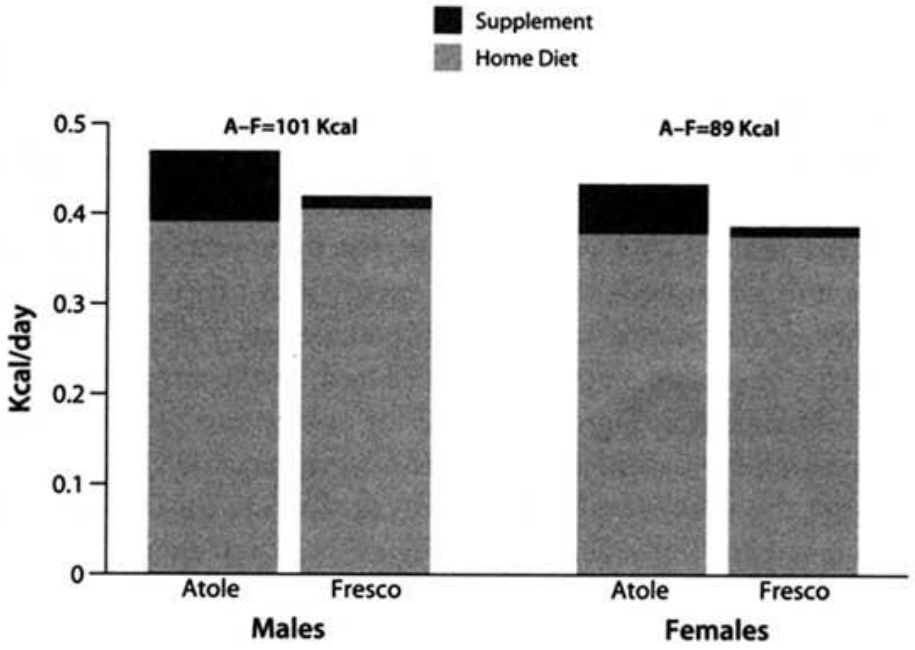
16 g, ages 1-3; 20g, ages 4-6; 25g ages 7-9

Early childhood supplements, growth and socioeconomic outcomes

- INCAP Study: protein

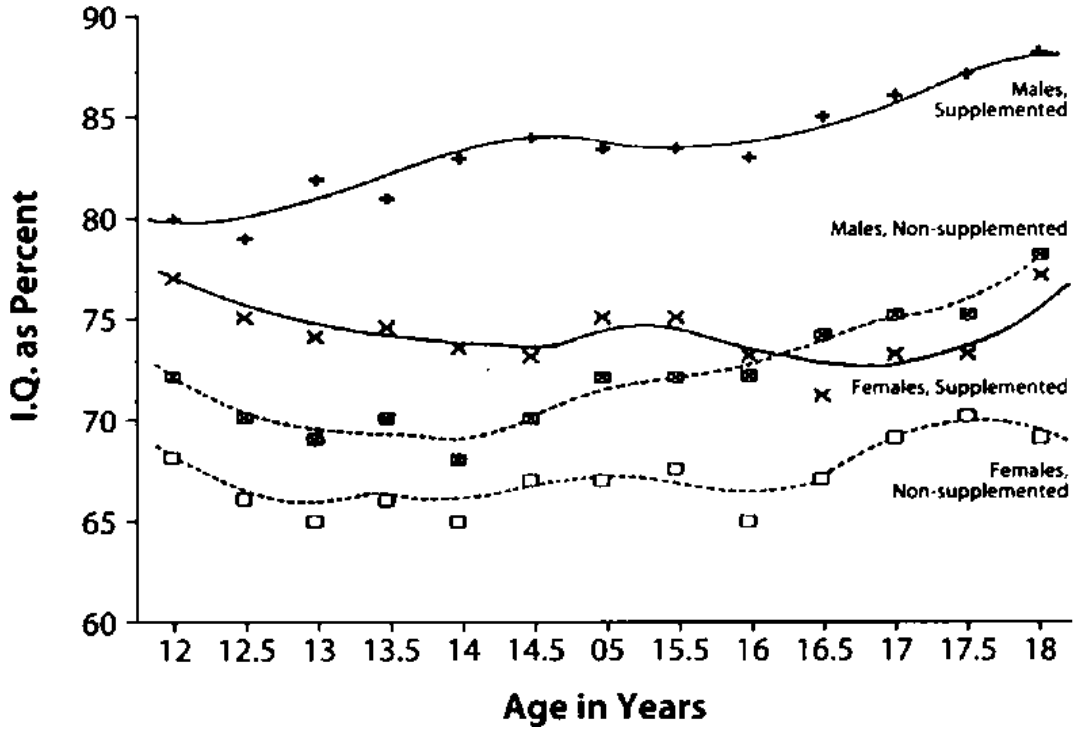


- INCAP Study: calories



INCAP Follow up

- (I.Q.) in percentage of male and female children in the maternal supplementation and complementary feeding group (-) compared with male and female children breast-fed by unsupplemented mothers, who received no complementary food from the program



A Contemporary View of Diet and Supervision Costs of Children

- *Oliver Twist,* Dickens (1838), after Oliver attacked Noah Claypole for insulting his mother.
- "Meat, ma'am, meat," replied Bumble, with stern emphasis. "You've over-fed him, ma'am. You've raised an artificial soul and spirit in him, ma'am, unbecoming a person of his condition: as the board, Mrs. Sowerberry, who are practical philosophers, will tell you. What have paupers to do with soul or spirit? It's quite enough that we let 'em have live bodies. If you had kept the boy on gruel, ma'am, this would never have happened."

Implications for Wealth Accumulation

- Growth depression and recovery was profitable
- Owners followed price signals to modify net nutrition
- If stunting was due to profit maximizing behavior, the end of slavery should have alleviated poor net nutrition of children
- Early childhood nutrition and cognitive development

Alleviation:

1. Large Decline in Hours Worked by Women

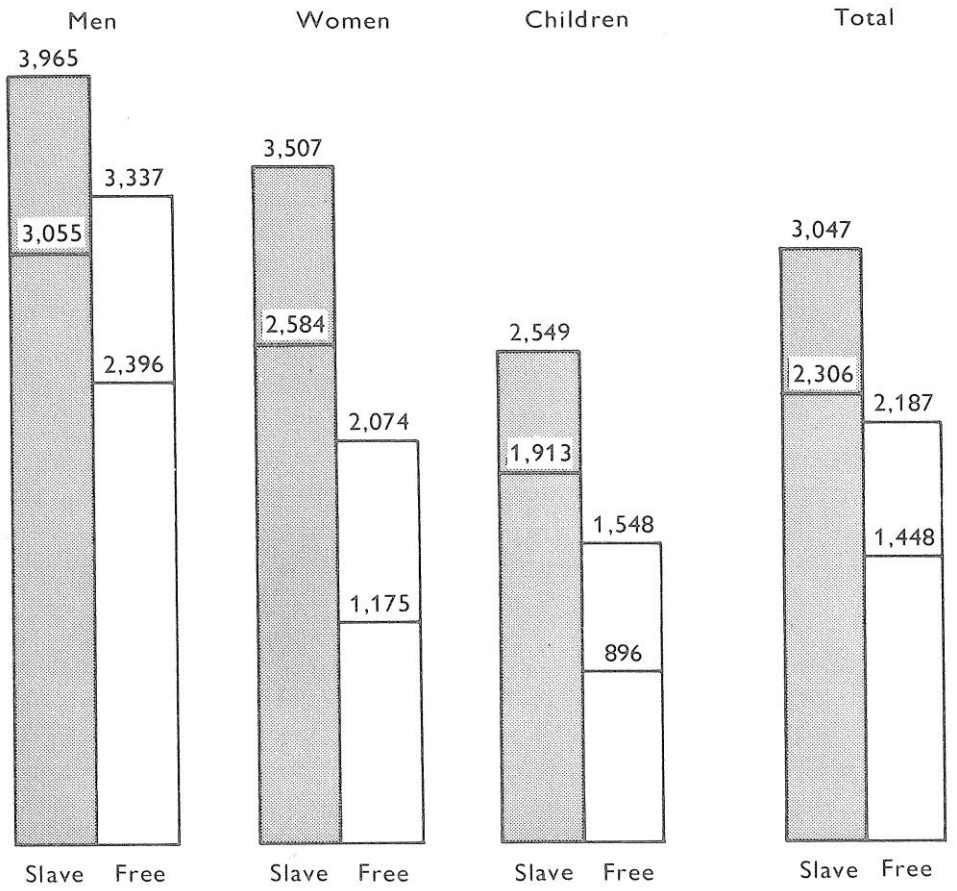
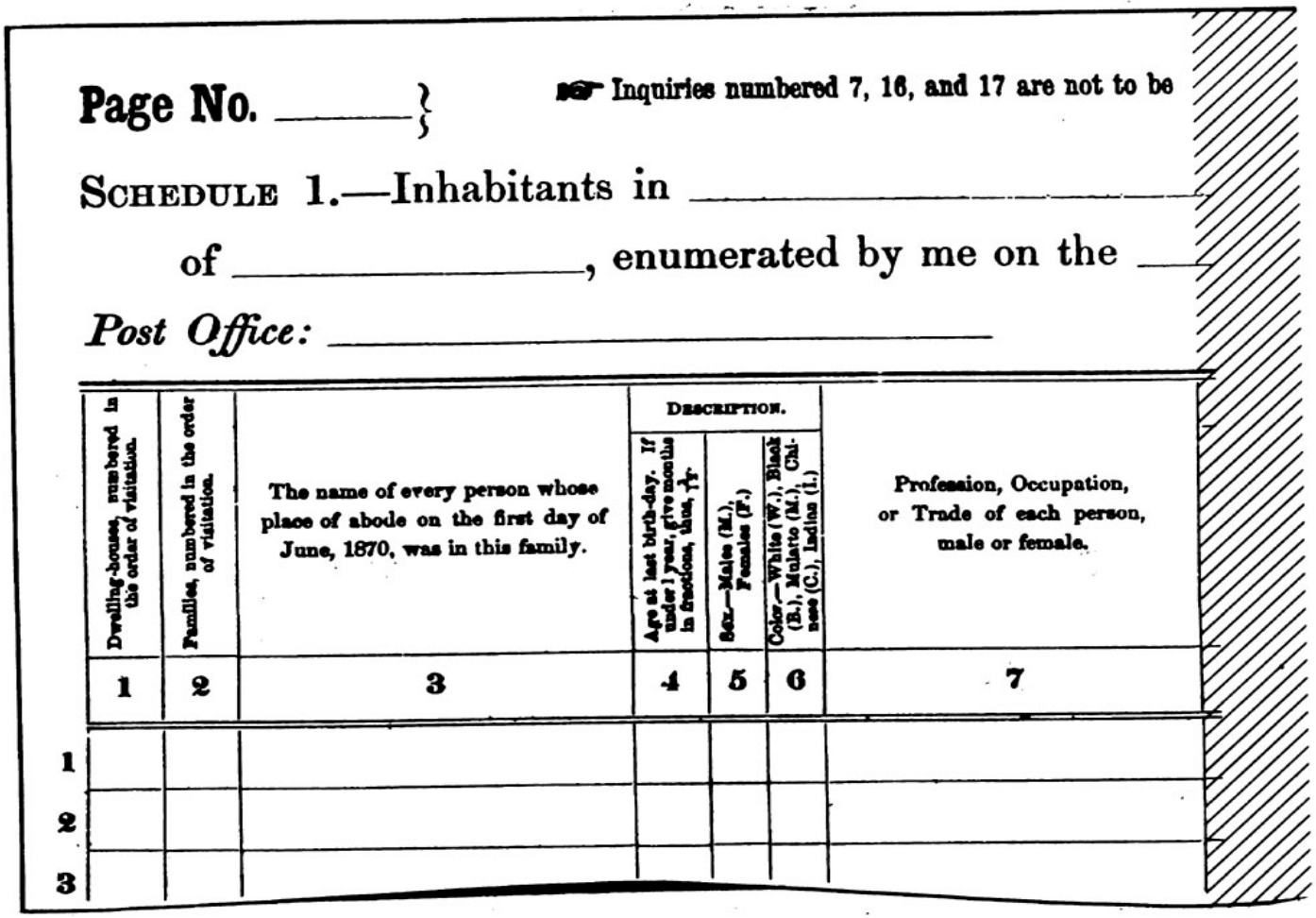


Figure 3.1 Maximum and minimum estimates of the number of hours worked per year by the black population over ten; as slaves in 1850s and freedmen in 1870s. Total presented is the male-equivalent hours supplied per person ten years old or older. (*Source:* Appendix C, Table C.1.)

Alleviation:

2. Survival Rates Children, 1870-1880



Page No. _____

☞ Inquiries numbered 7, 16, and 17 are not to be

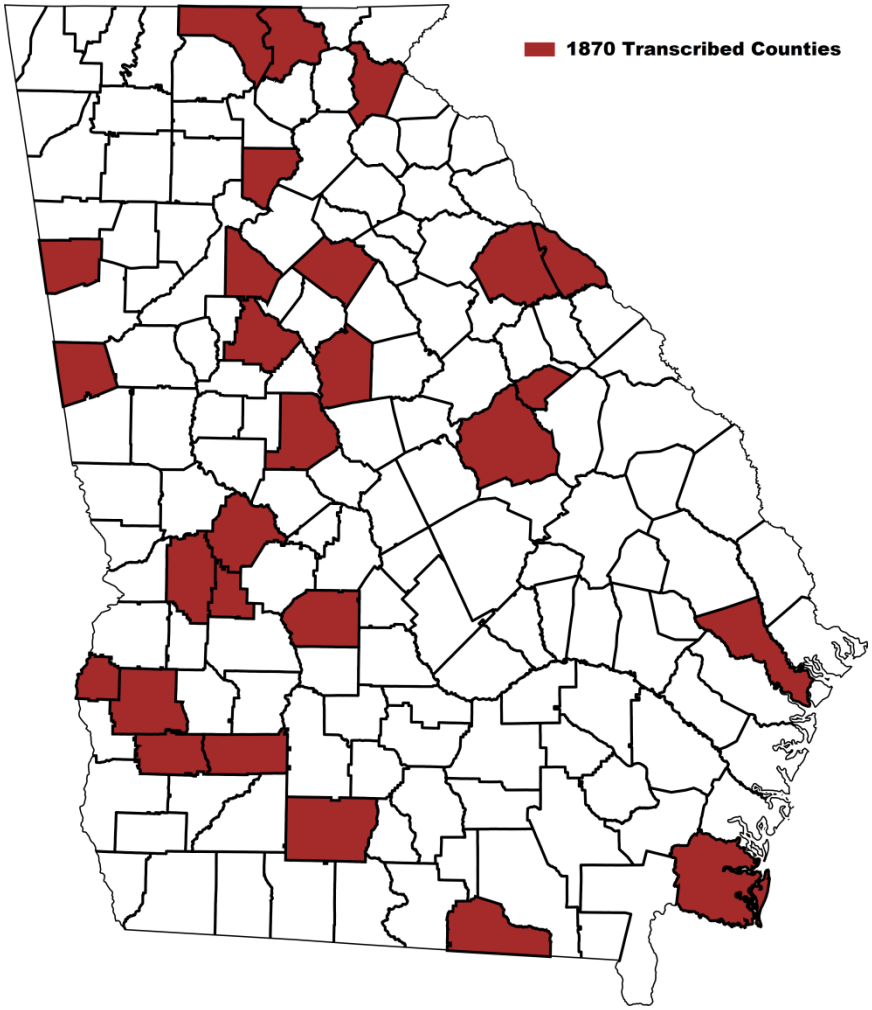
SCHEDULE 1.—Inhabitants in _____

of _____, enumerated by me on the ____

Post Office: _____

Dwelling-houses, numbered in the order of visitation.	Families, numbered in the order of visitation.	The name of every person whose place of abode on the first day of June, 1870, was in this family.	Description. Age at last birth-day. If under 1 year, give months in fractions, thus, ⅙.	Sex.—Males (M.), Females (F.)	Color.—White (W.), Black (B.), Mulatto (M.), Chinese (C.), Indian (I.)	Profession, Occupation, or Trade of each person, male or female.
1	2	3	4	5	6	7
1						
2						
3						

Transcriptions of 1870 Population Manuscripts



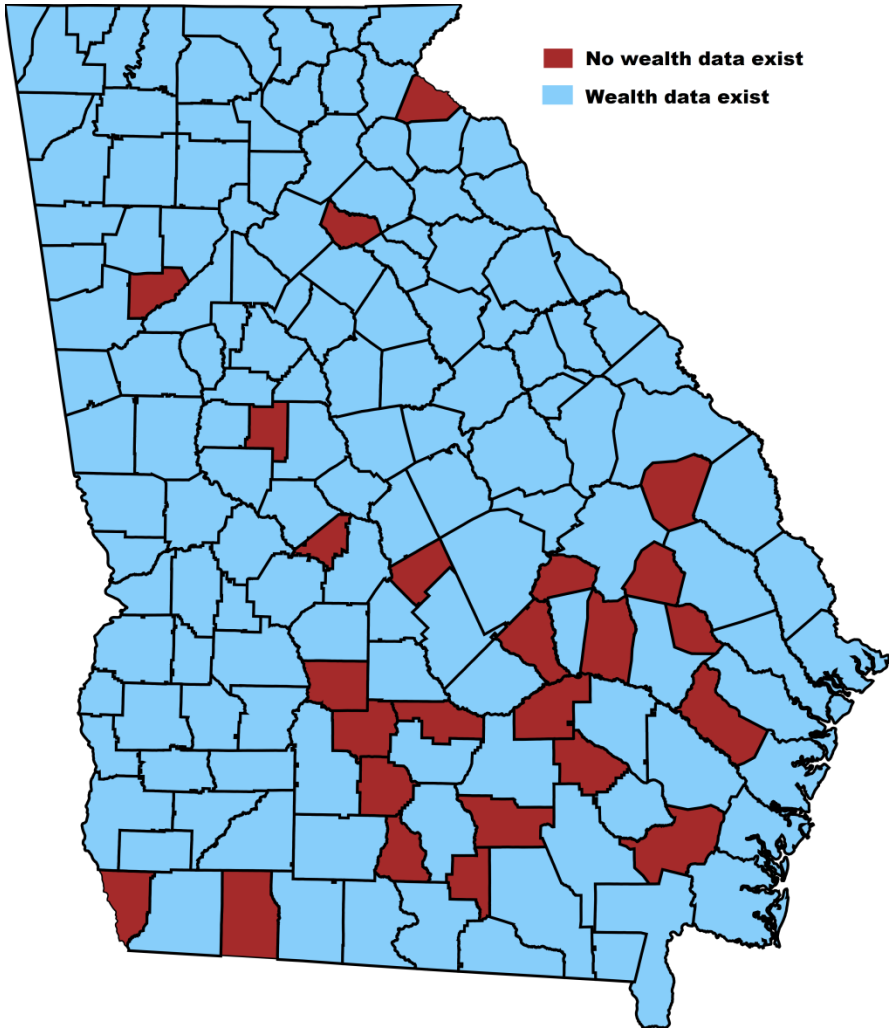
Explaining Non-Survival to 1880 of Children Aged 1-4 in 1870

	Coef.	Std. Err.	z	P>z	dy/dx
black	0.2339	0.2898	0.81	0.42	0.0233
age_1870	-0.4393	0.0854	-5.14	0	-0.0438
female	0.2957	0.1834	1.61	0.107	0.0295
wife_age_1870	-0.1395	0.0877	-1.59	0.112	-0.0139
wife_age_1870_squared	0.0025	0.0013	1.97	0.048	0.0002
husband_farmer	-0.4649	0.2209	-2.10	0.035	-0.0464
wife_cannot_write	-0.1833	0.3085	-0.59	0.552	-0.0183
husband_cannot_write	0.3060	0.3078	0.99	0.32	0.0305
num_kids	0.1159	0.0583	1.99	0.047	0.0116
Ln(hh_wealth)	-0.0671	0.0365	-1.84	0.066	-0.0067
const	0.5353	1.4029	0.38	0.703	

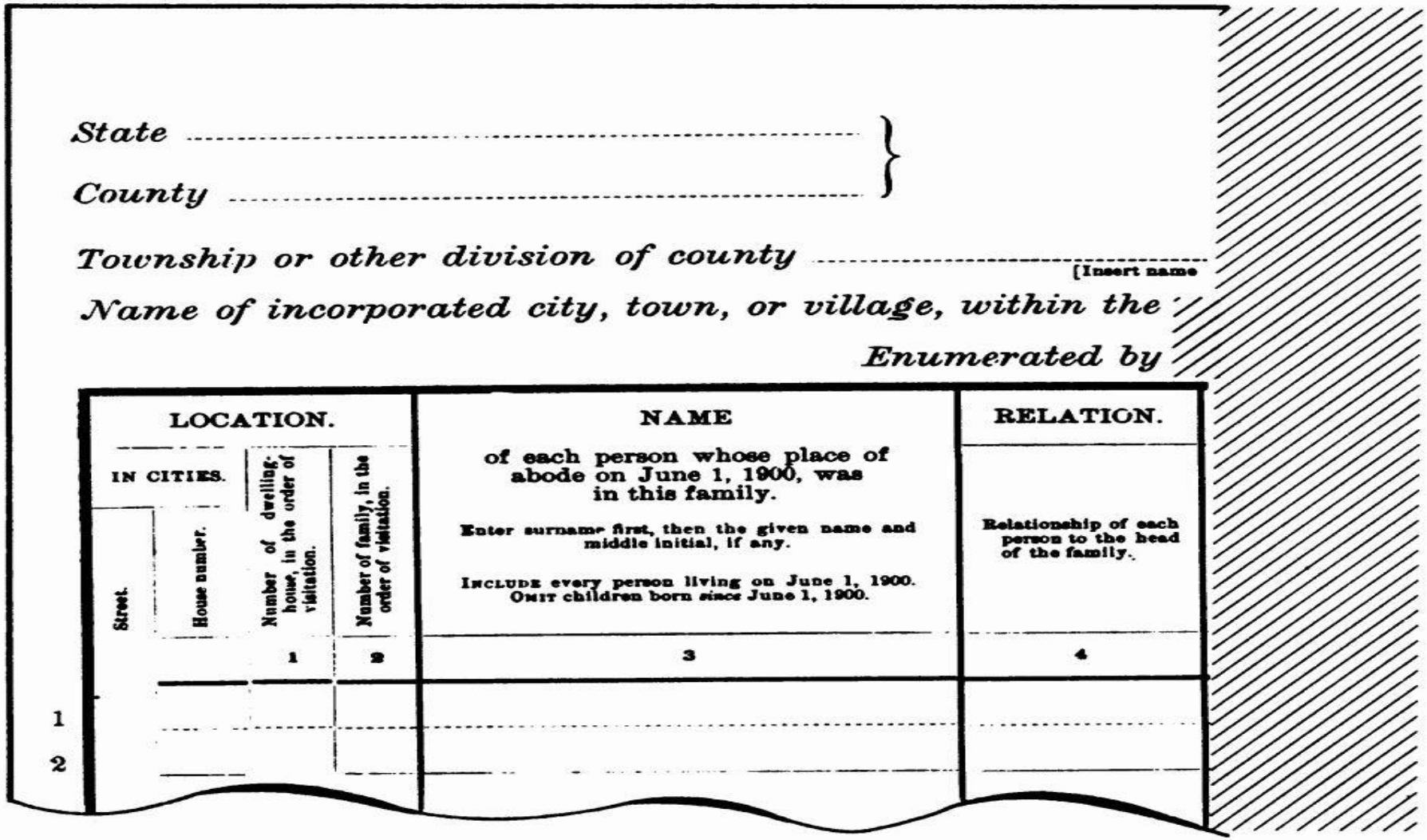
N = 1209; chi2(10) = 70.06

Testing the Cognitive Change Hypothesis:

1. Georgia Counties with Wealth Records



Census manuscript schedule, 1900



State .....

County .....

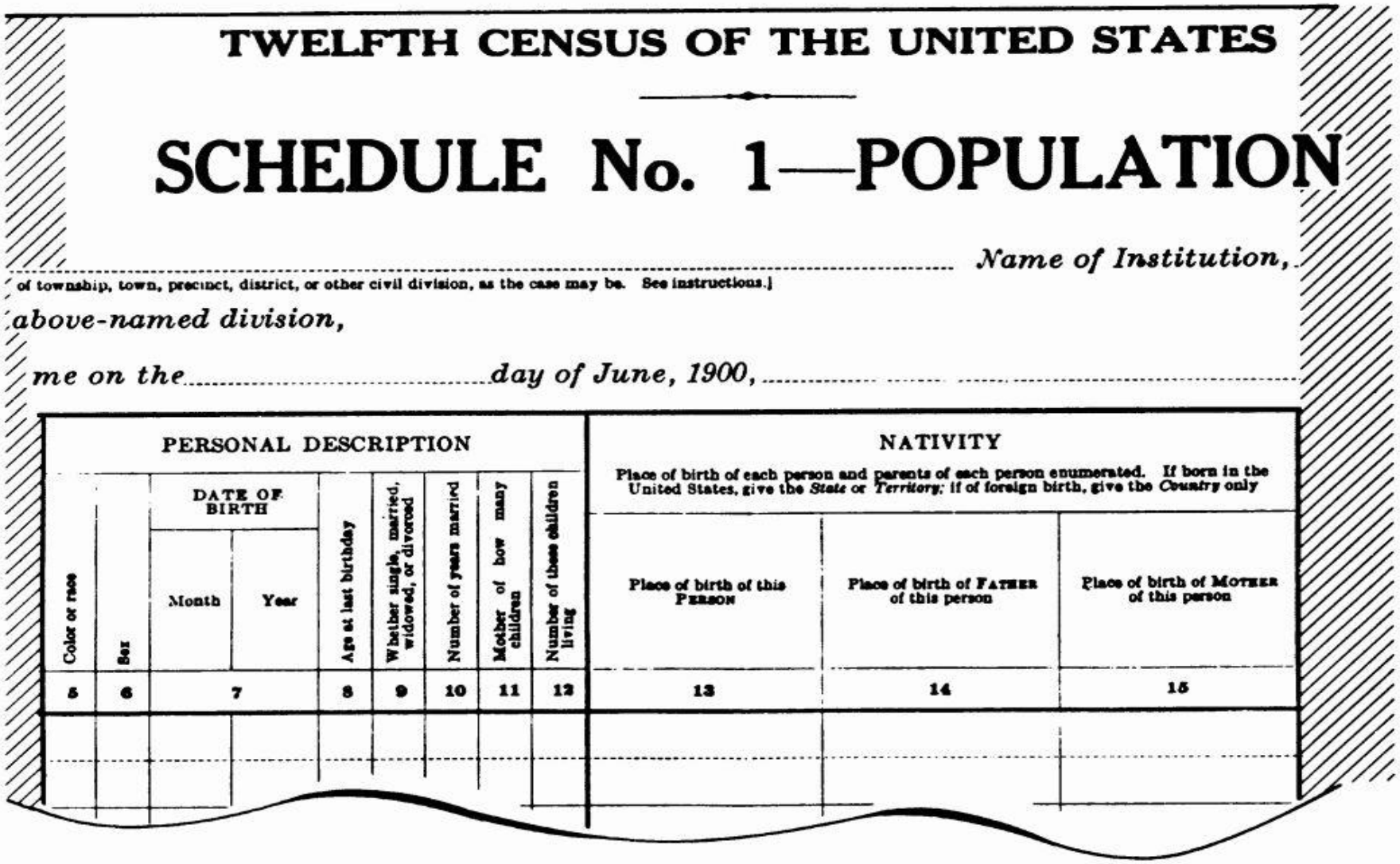
Township or other division of county ..... [Insert name

Name of incorporated city, town, or village, within the

Enumerated by

	LOCATION.				NAME	RELATION.
	IN CITIES.		Number of dwelling-house, in the order of visitation.	Number of family, in the order of visitation.	of each person whose place of abode on June 1, 1900, was in this family. Enter surname first, then the given name and middle initial, if any. INCLUDE every person living on June 1, 1900. OMIT children born *since* June 1, 1900.	Relationship of each person to the head of the family.
	Street.	House number.	1	2	3	4
1						
2						

1900 form (con't)



TWELFTH CENSUS OF THE UNITED STATES

SCHEDULE No. 1—POPULATION

Name of Institution,

of township, town, precinct, district, or other civil division, as the case may be. See instructions.]

above-named division,

me on the ..... *day of June, 1900,* .....

PERSONAL DESCRIPTION									NATIVITY		
		DATE OF BIRTH							Place of birth of each person and parents of each person enumerated. If born in the United States, give the *State* or *Territory*; if of foreign birth, give the *Country* only		
Color or race	Sex	Month	Year	Age at last birthday	Whether single, married, widowed, or divorced	Number of years married	Mother of how many children	Number of these children living	Place of birth of this PERSON	Place of birth of FATHER of this person	Place of birth of MOTHER of this person
5	6	7		8	9	10	11	12	13	14	15

Use Georgia Records

- 2,500 black, white male heads matched in 1900 and in 1910
- Match names with tax lists maintained by the county
  - Assume no taxable wealth if not found in tax records

Explaining $\ln(W_{it})$

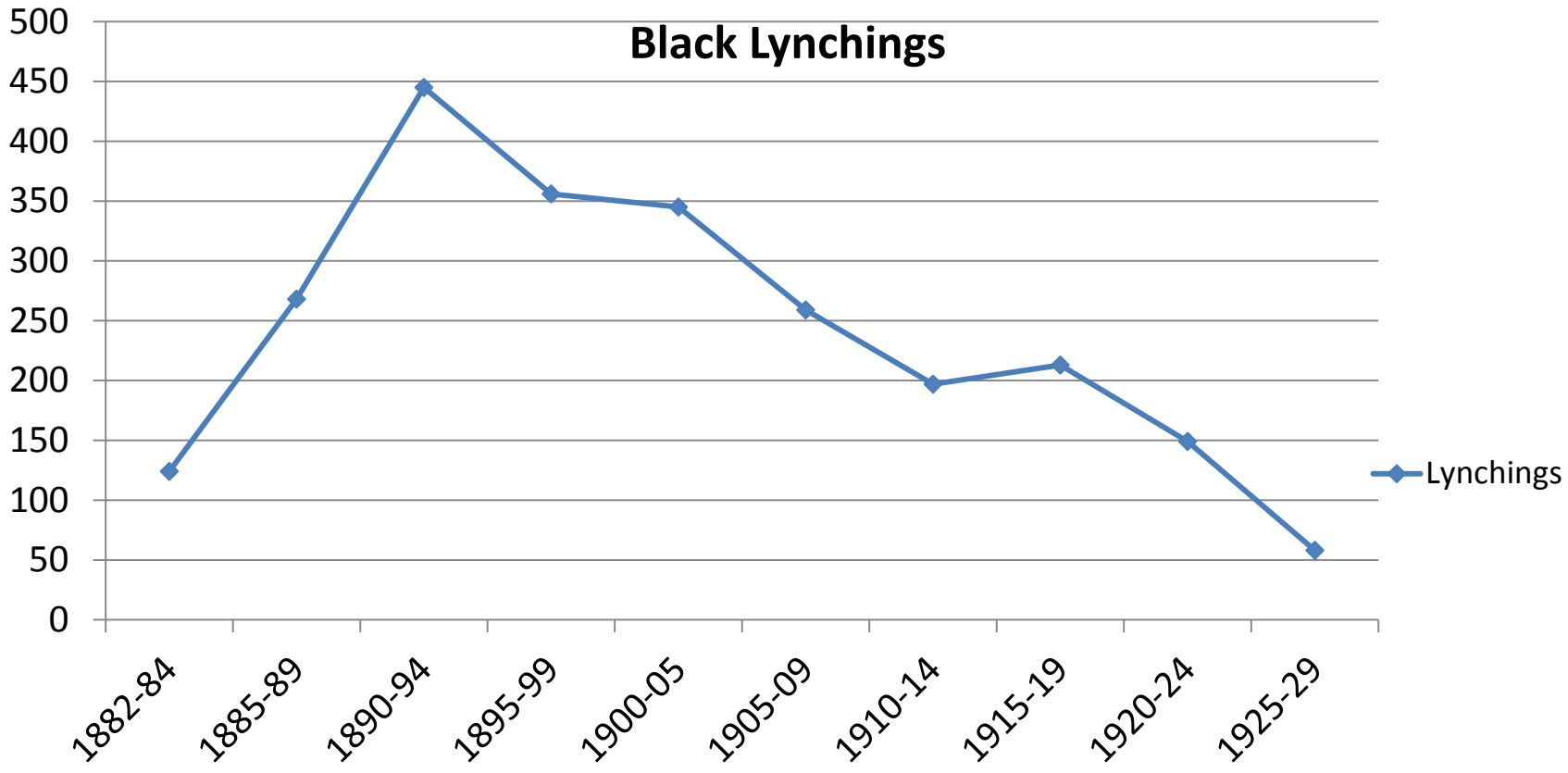
variable	B_i	Coeff	t	Mean
black_born_after_1865	1	2.44552	0.57	0.1588287
black_born_pre_1865	2	-9.599132	-2.17	0.1597161
age	3	.0799521	2.27	39.86868
age_squared	4	-.0004823	-1.27	1764.453
age_black_after	5	-.2424816	-0.88	4.713398
age_square_black_after	6	.0045017	1.02	145.1003
age_black_pre	7	.3482354	2.01	7.877551
age_square_black_pre	8	-.0033929	-2.04	403.0665
literate	9	.5216343	1.64	0.7861579
lit_black_after	10	-.1453005	-0.31	0.094055
lit_black_pre	11	-.2660073	-0.56	0.0603372

Expected Value of Black Wealth ($)

Birth cohort	Age 30	Age 35	Age 40
Pre 1865	5.87	14.17	28.19
1865+	27.63	45.27	90.68

Possible Implications

- Blacks born after the CW came of age in the late 1800s
- This generation was more capable and demanding
- Repression: response of southern whites
  - Jim Crow
  - Lynching
  - KKK activity
- Health vulnerabilities in the 20th century
  - Hypertension
  - Cardiovascular disease
  - Diabetes



Source: Project HAL (Historical American Lynching)

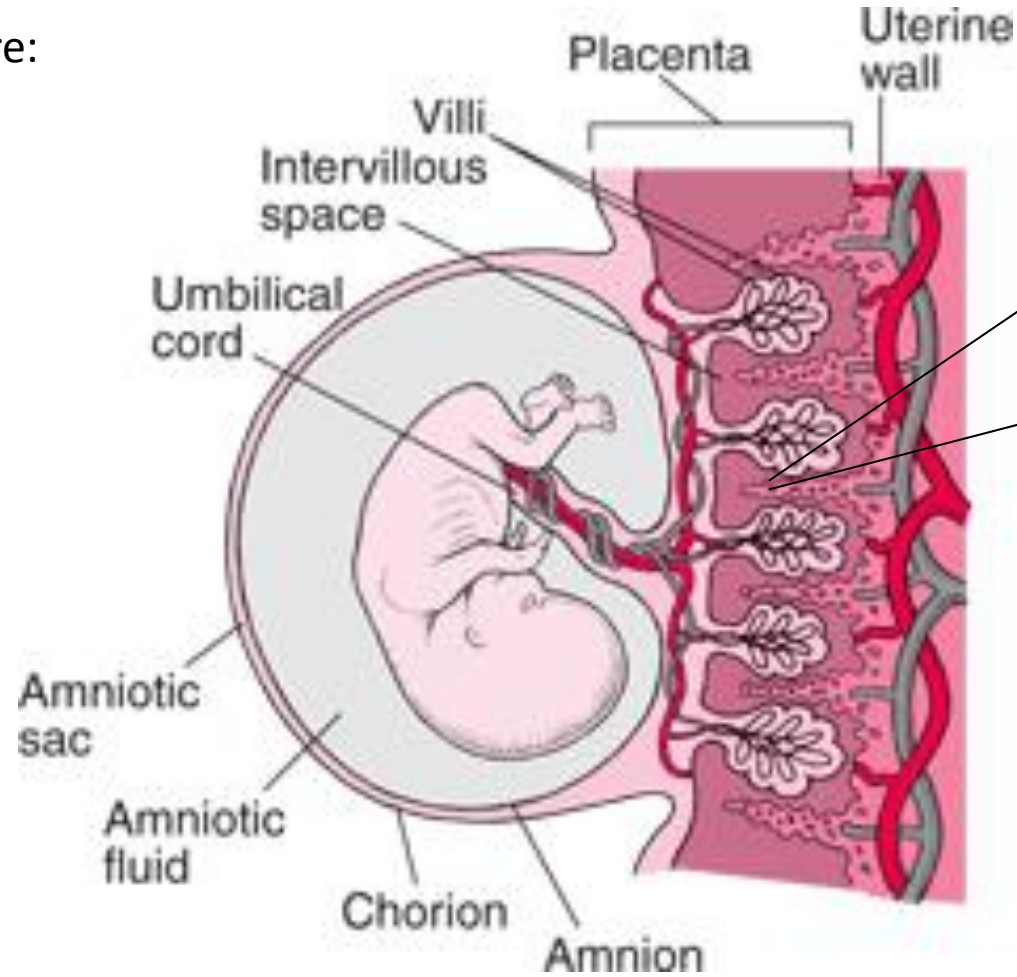
Fetal Origins Hypothesis

- Animated by contrast in pre and post-natal conditions
- Expected post-natal conditions shape organs built *in utero*
- Intergenerational poverty followed by opulence stresses
  - Cardiovascular system
  - Endocrine system
  - Kidneys

The Wee Statistician in the Placenta and early post-natal period: Composer, Conductor, and First Violin

Musical score:







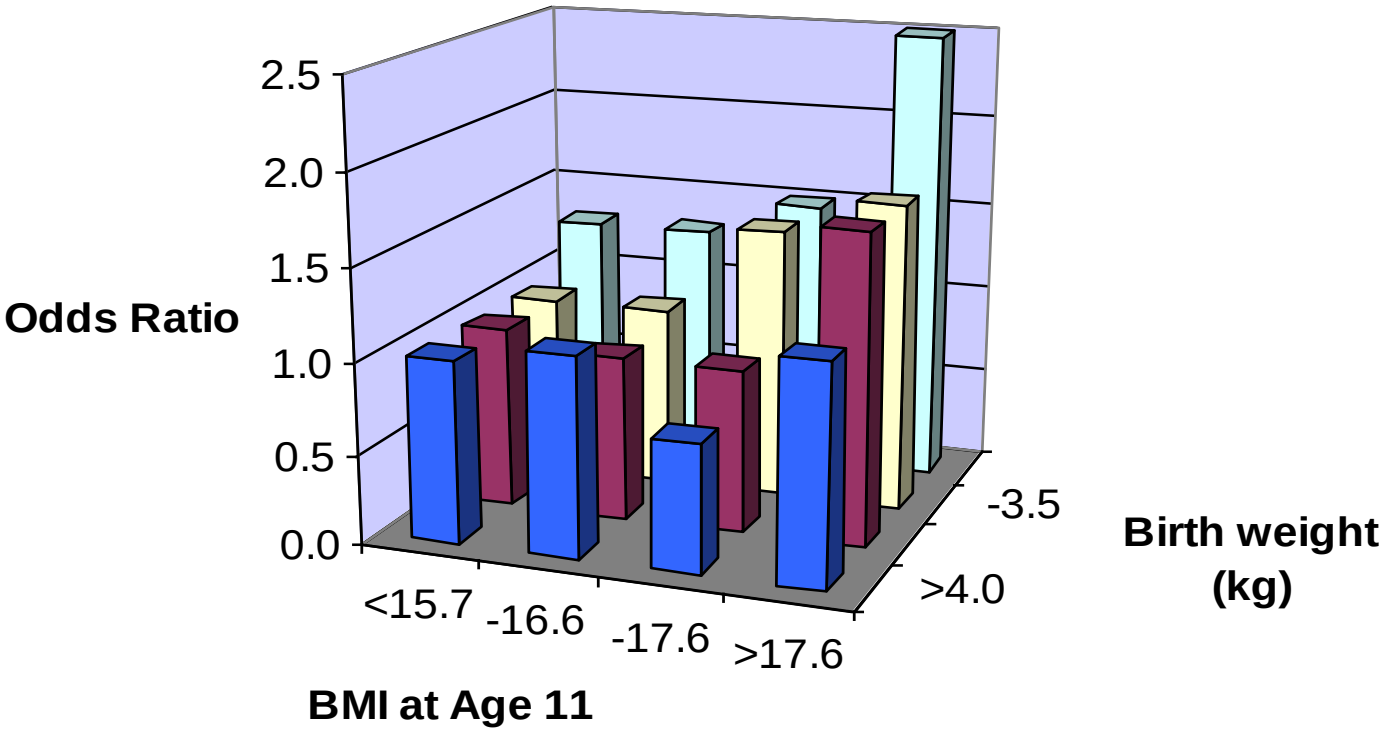
First violin: breast milk



Late 20th century

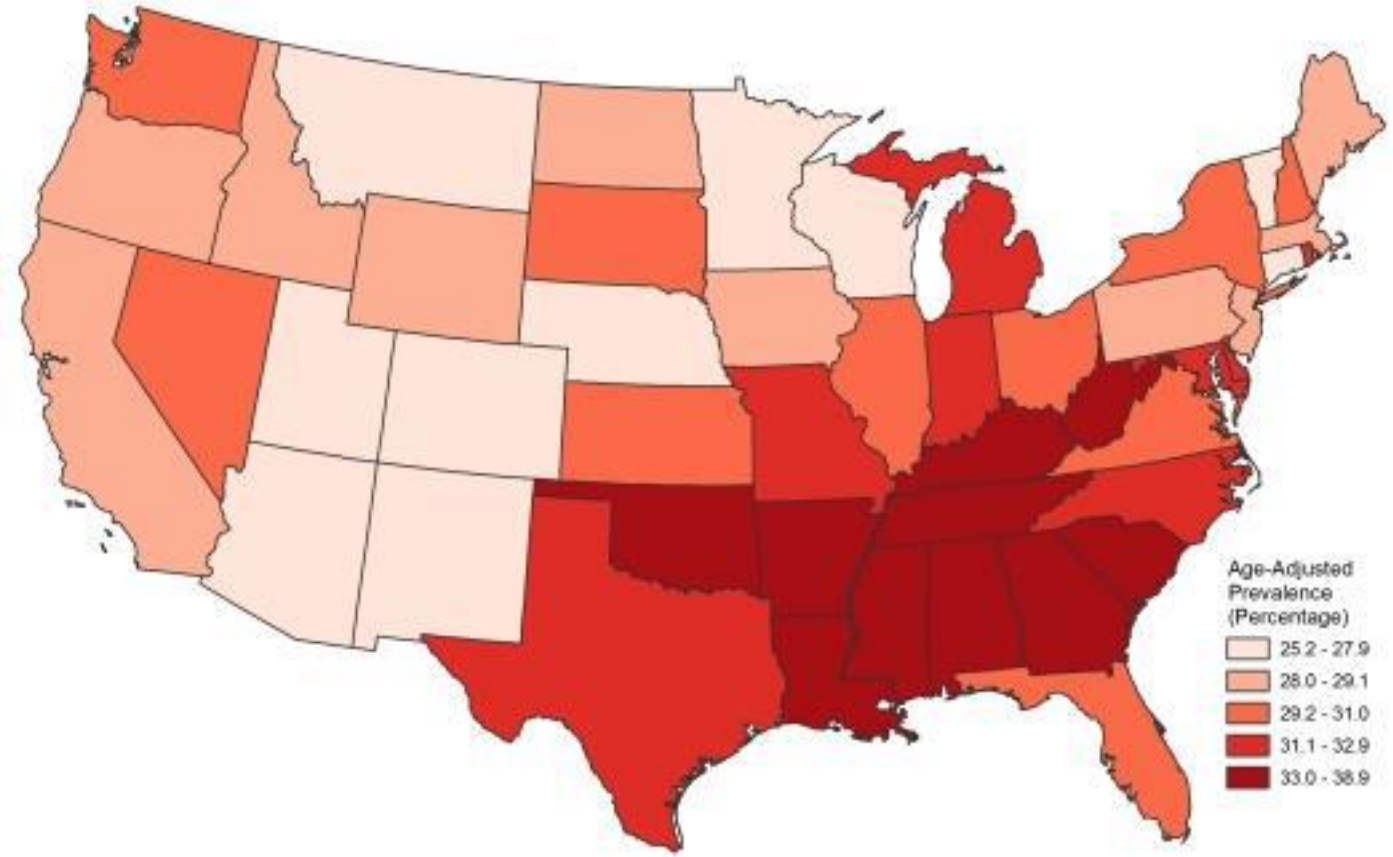
- African-Americans have elevated rates of
  - Diabetes
  - CVD
  - Hypertension

Odds Ratios of Type 2 Diabetes in Adults



Source: (Barker, Eriksson et al. 2002)

Age-adjusted prevalence of hypertension in 2011 among African American adults 20 years and older



Source: http://www.cdc.gov/dhdsp/data_statistics/fact_sheets/fs_bloodpressure.htm.

Explaining the prevalence of hypertension among African Americans by Age Cohort in 2010-2011

	Age in 2010-2011			
	65+	**55-64**	**45-54**	**35-44**
rMedian Income	5.747**	4.010**	2.877**	0.129
	(2.235)	(1.782)	(1.286)	3.006
Income 2010	-0.002	-0.004	-0.002	-0.010*
	0.002	0.003	0.004	(0.005)
HS or Less	0.224***	0.433***	0.189	0.056
	(0.052)	(0.157)	0.215	0.243
Poverty	0.655***	0.974***	0.845***	0.288*
	(0.090)	(0.293)	(0.187)	(0.166)
Smoking	0.736***	0.414***	0.117***	0.104
	(0.090)	(0.079)	(0.120)	(0.133)
Obesity	0.948***	0.128	0.240	0.110
	(0.112)	0.142	(0.181)	(0.202)
Access	-0.001	-0.002	-0.004	-0.003
	(0.002)	(0.002)	0.003	(0.0030
Constant	0.039	0.255	1.259***	0.191
	(0.162)	(0.252)	(0.314)	(0.350)
N	40	40	40	40
Adj R^2	0.776	0.806	0.737	0.402

Standard errors are in parentheses. * 0.10, ** 0.05, *** 0.01. rMedian Income is measured for African-Americans and is age-cohort dependent to align with the growth in median household income during childhood (roughly from birth to age 20) in the state. For example the year-pairs for the income ratios are: 1960/1940 for those aged 65+ in 2010-11; 1970/1950 for those aged 45-54 in 2010-11, and so forth. The start year is the nearest census year prior to the birth year for the earliest members of the age cohort. The end year is 20 years after the start year

Explaining the prevalence of hypertension across individuals using BRFSS survey data

	1	2	3	4	5
Income8050	0.041***	0.032***	0.029***	0.018*	0.021**
	(0.003)	(0.007)	(0.007)	(0.010)	(0.009)
Income2010				-0.008***	-0.009***
				(0.001)	(0.001)
Income1950				-0.006**	-0.015**
				(0.003)	(0.008)
Income1950xMedian8050					0.004**
					(0.002)
Urban8050		0.002	0.001	0.003	0.002
		(0.016)	(0.013)	(0.010)	(0.018)
HS or Less		0.172***	0.139***	0.126***	0.126***
		(0.015)	(0.018)	(0.018)	(0.018)
Poverty			0.039*	0.036*	0.036*
			(0.021)	(0.021)	(0.021)
Smoking		0.394***	0.393***	0.396***	0.396***
		(0.015)	(0.018)	(0.018)	(0.018)
Obesity		0.415***	0.400***	0.398***	0.397
		(0.015)	(0.019)	(0.019)	(0.019)
Exercise			-0.008***	-0.003	-0.003
			(0.002)	(0.002)	(0.002)
Constant	-0.073***	-0.062**	0.173***	0.456***	0.551***
	(0.016)	(0.031)	(0.049)	(0.068)	(0.097)
N	33,803	28,981	27,890	27,812	27,812
Pseudo R^2	0.0011	0.0397	0.0427	0.0412	0.0413

Note: Marginal effects from a Probit regression with standard errors clustered at the state level. Standard errors are in parentheses. * 0.10, ** 0.05, *** 0.01 All variables other than income or urban8050 are measured at the individual level.