Religious Worker's Density and the Racial Earnings Gap

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Abstract

What is the role of religious institutions and religious workers in the racial earnings gap in the United States? In this paper we explore the relationship between childhood exposure to religious density, as measured with the number of religious workers at the state level, and the labor market outcomes of the worker thirty years later. We use data that spans over fifty years to identify changes in earnings due to early exposure to religion: our first source of identification uses changes in these two variables within states, and our second source of identification uses states' differences by following workers who moved to a different state. Our results suggest that living in a state with a an extra clergy member for each 1,000 habitants increases the earnings of black workers by 1.7 to 3.6 percentage points relative to white workers.. In addition we show that this relationship is robust to different measures of exposure to religious density, and that these estimates increase to 7.6 percentage points when the change on religious density is defined exclusively increasing an extra black religious workers for each 1,000 habitants. Finally, we estimate a series of robustness tests that suggest that these results are not due to spatial sorting across states, nor to secular time trends associated with changes in labor market outcomes for black American workers.

Keywords: Racial Earning Gap, Religious Institutions.
JEL Classification: J71

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Introduction

> *...the church is a center of social life and intercourse; acts as newspaper and intelligence bureau, is the center of amusements – indeed, is the world in which the negro moves and acts.*
>
> W.E.B. DuBois *The Philadelphia Negro: A Social Study* (1899)

As W.E.B. Dubois states in *The Philadelphia Negro*, the African American Church has served as one of the primary social institutions for black families in the United States. Yet, the relationship between religiosity and labor market outcomes among black American workers has mostly remained unexplored by economists. One exception is Freeman (1986) who suggests that church going behavior among inner-city black youth males predicts higher labor force participation, school attendance and wages. In this paper we explore the role of religious density in the labor market earnings of black men in the United States. Our main hypothesis is whether growing up in a state with a high concentration of religious workers the earnings of black men relative to the earnings of white non-Hispanic men, and whether this relationship grows stronger as the density of black religious workers increases. Our work builds in a recent literature that, for example, has shown that high religious density has been associated with improved labor market outcomes (Gruber, 2005) and that Church attendance results on more cooperative and supportive communities (Dehija et al, 2007). Differently, we include a racial dimension to these literature as the role of the African American church may play a very different role in improving the labor market outcomes of black workers in the United States.

Until now, the economics literature on religious participation, density or affiliation has used self-reported measures of religiosity which are contemporaneous to the outcome of interest (for survey see Iacconne, 1996). Empirically, this strategy presents two serious problems: the first problem is that religious affiliation and labor market outcomes are endogenously determined, and thus estimates on the effect of religiosity on labor market outcomes will yield biased estimates. Secondly, self-reported religiosity is susceptible to measurement error which would be non-classical in nature as people may tend to overstate their religiosity, and whose estimates would be biased in unpredictable ways. In contrast, in this paper we deviate from such strategies, and instead rely on identification by using a supply side mechanism: the number of clergy workers in each state. Further, to alleviate any concerns that religiosity and labor market effects are contemporaneously endogenously determined or that workers are select to live in places where their labor market opportunities are greatest, we look at the

relationship between exposure to religious workers as a child and posterior labor market outcomes as an adult. In this paper we use three cohorts of workers that span over fifty year of data, this strategy explicitly allows us to estimate the relationship between the within state changes in number of clergy workers and the within state labor market earnings thirty years after.

There are several mechanisms by which the supply of clergy would determine earnings. For example, the availability of religious workers is usually associated with provision of human capital through either parochial schools or hospitals. In addition, it may be that the availability of religious workers establishes the infrastructure of a support system or social safety net that allows workers to develop their skills and social capital. Importantly, as clergy tend to be high skilled workers who are not necessarily an occupation by monetary earnings, the positive spillovers from their presence may be particularly accrued by low-skill, marginalized individuals. Finally, it may be that this relationship is driven by the role that the African American clergy played in the historical events in the twentieth century, for example: the development of HBCUs or the Civil Rights Movement. .

Our main identification in this paper is to use the proportion of people who report their occupation to be "Clergy or Religious Workers" per state in the 1960, 1970, 1980 Decennial Census, and match these data to a cohort's panel of worker's aged 30 to 40 in 1990, 2000 and 2010 Decennial Census. We then analyze how the exposure to religious workers as a child affect worker?s earnings thirty years later. Identification of the role of religious workers on labor market outcomes comes from two sources: the difference between outcomes of those who live as adults in a different state than they were born, and the within state variation in the proportion of religious workers. Our results show that workers who were exposed to more religious workers when growing up experience higher labor earnings: in particular increasing the exposure to one extra religious worker per 1,000 people suggests an increase of earnings between 1.7 to 3.6 percentage points ? depending on the empirical specifications. This result is consistent to different specifications, and to the inclusion of very detailed labor market controls, such as occupation characteristics and state macroeconomic conditions.

To understand the possible mechanisms driving this relationship, we then perform a series of robustness tests that taken together suggest that the relationship between these measures is indeed at least partly causal. We are able to conclude that the relationship between early religious exposure and posterior earnings for black workers is stronger when the measure of Clergy is restricted exclusively to Black Clergy, and the estimates are consistent when we use other measures of religious density. In addition, we are also able to conclude that this relationship is independent of early exposure to other

highly educated workers, such as teachers, doctors, or professors. Corroborating the validity of our identification strategy, we observe no positive relationship when estimating contemporaneous religious exposure to labor market earnings.

Do we need to include the roadmap paragraph? E.g. ?This paper proceeds as follows: Section 2 describes our datasets. Part 3 explains our methodology. Etc.?s

Data

The main data sets in this paper are the IPUMS Collection of the 1960, 1970, 1980, 1990, 2000 Decennial Census and the 2008-2012 pooled sample of the American Community Survey. We focus our analysis in three different cohorts: those born between 1950 and 1960, those born between 1960 and 1970, and those born between 1970 and 1980. Our strategy consists in measuring the exposure of these cohorts to religious workers as children in 1960, 1970 and 1980 respectively and then correlating this to their labor market outcomes thirty years later. Thus our sample of workers are all men 30 to 40 years of age, born in the United States, White Non-Hispanics and Blacks in the 1990, 2000 Census and the 2008-2012 ACS. Throughout most of our analysis we restrict our sample to full-time employed workers, who are working between 20 and 65 hours, and who are not self employed.

Figure 1 explores the basic relationship in our hypothesis: the horizontal axis represents early exposure to religious workers and the vertical axis the ratio of Black over White Non-Hispanics annual earnings. Each marker represents the metrics for each state/cohort combination. These data suggests that this relationship is positive, that is: early exposure to religious workers predicts higher earnings thirty years later. Further, Figure 2 presents the change in clergy exposure between 1980 and 1960, and the change in earnings in 2010 and 1990. These data, which implicitly compares the within state relationship, also suggest that increasing early exposure to religious workers is associated with an increase in earnings.

Empirical Specification

Our empirical strategy relies on comparing changes in the density of religious workers across time and within states. In such a way that identification of the role that early childhood exposure to religious workers plays on future labor market outcomes arises from two sources of variation: within state

changes in the density of religious workers, and between state differences between migrants and state natives. To do so, we estimate different version of the following equation:

$$y_{i,s,t} = \theta_c C_{s,t-30} + \theta_b B_{i,s,t} + \theta_{c\times b} C_{s,t-30} \times B_{i,s,t} + x'_{i,s,t}\beta + v'_{s,t-30}\gamma + \upsilon_s + \sigma_t + \epsilon_{i,s,t} \quad (1)$$

where $y_{i,s,t}$ is the our main outcome variable log annual earnings, $C_{s,t-30}$ is the number of Clergy per 1,000 habitants in state s and time $t-30$, $B_{i,s,t}$ is an indicator variable for whether the respondent is black, $x_{i,s,t}$ is a vector of individual characteristics in period t which include education attainment, age, marital status, and occupation fixed effects; $v_{s,t-30}$ is a vector of state level characteristics in time $t-30$ and include poverty rate, proportion population that is black, proportion of the population that is a high school dropout, proportion of the population that is a college graduate, and unemployment rate. Similarly, we include in all equation a contemporaneous clergy variable $C_{s,t}$ and its interaction with black workers $C_{s,t} \times B_{i,s,t}$. Finally, σ_t is a year (cohort) fixed effect, and υ_s a state of residence fixed effect.

Our estimate of interest is $\theta_{c\times b}$ which represents the difference between black and white non-Hispanic workers in the relationship of early childhood exposure and adults' labor earnings. Because the response variable is in the logarithmic scale the interpretation of $\theta_{c\times b}$ is in percentage points, and this estimates what is the change in earnings for black workers with an increase in the number of religious workers per one thousand people in the state relative to White Non-Hispanic workers.

Results

The estimates of Equation (1) are presented in Table (1). The first column presents estimates of θ_c, θ_b and $\hat{\theta}_{c\times b}$ when no other explanatory variables are included. These estimates should represent formally the relationship in Figure 1. The estimates in Column 1 suggest that exposure to an extra religious worker for each 1,000 habitants as a child decreases earnings by 12 percentage points, being black also decreases earnings by 34 percentage points, but early exposure to religious workers as a child for black workers has a small positive relationship with earnings of 1.7 percentage points.. The second column presents estimates when individual demographic characteristics are added, including detailed occupation fixed effects. The estimates in this column suggest that increasing the number of clergy by 1/1000 is associated with a decrease of 3.7 percentage points, this estimate is offset for blacks whose earnings are associated with a 3.6 percentage point increase for each 1/1000 religious

workers. These estimates suggest that even though being black and being exposed to clergy as a child is related with lower income in the future, the interaction between black and clergy partially offsets the racial earnings gap. The third column includes characteristics of the state where the worker was born and in this specification $\hat{\theta}_{c\times b}$ suggest a positive relationship of 3.4 percentage points for each extra 1/1000 religious worker as a child. The fourth column presents estimates that include state of residence fixed effects, and $\hat{\theta}_{c\times b}$ suggest a 3.2 percentage point increase for each 1/1000 extra religious worker as a child. Because the specification for column (4) incudes state of birth characteristics, as well as state of residence fixed effect. this specification allows to compare within state changes in the exposure of religious workers and earnings. This is our preferred specification, and the one we used in what follows. It is worth noting that these estimates are average over the whole population, and it reflects an ?Intent to Treat? estimate which likely is smaller than the Average Treatment Effect.

One possibility is that the estimates $\hat{\theta}_{c\times b}$ are being driven exclusively by workers who chose to migrate to a different state – non-random migration. To explore the extent in which non-random migration occurs we divide the sample on migrant and non-migrant workers, and estimate equation (1) independently for each group. The estimates $\hat{\theta}_{c\times b}$ for either group are not statistically different to each other, yet both are positive and economically significant. That is, increasing the number of religious workers by 1 for each 1,000 workers in the state increases the earnings of black workers who moved into a different state by 3.6 percentage points and the earnings of those who live in the same state as they were born by 2.2 percentage points. In addition, recall that each model represented in columns (2) - column (6) includes controls for contemporaneous clergy t and contemporaneous clergy t interacted with black, and still these estimates are robust to such inclusion, and suggestive that it is not non-random spatial selection as contemporaneous religiosity in the state the workers lives what is driving this result, but rather the exposure one had to religious workers as a child.

It is possible that the relationship in Table 2 is due to a non-random distribution of where parents chose to live – that is, it is a possible that communities with high clergy density are also communities that have other desirable characteristics that may be correlated with posterior labor market success. These characteristics can either be observed (better schools, more affluent neighbors, better health services) or unobserved (community social capital, peer effects, role models). To explore these possibilities we estimate a version of equation (1) but where we add the controls for the characteristics that are associated with not random geographical selection – and its interaction with $B_{i,s,t}$. This

augmented model thus is:

$$y_{i,s,t} = \theta_c C_{s,t-30} + \theta_b B_{i,s,t} + \theta_{c\times b} C_{s,t-30} \times B_{i,s,t} + \theta_z Z_{s,t-30} + \theta_{z\times b} Z_{s,t-30} \times B_{i,s,t} + x'_{i,s,t}\beta + v'_{s,t-30}\gamma + \upsilon_s + \sigma_t + \epsilon_{i,s,t} \quad (2)$$

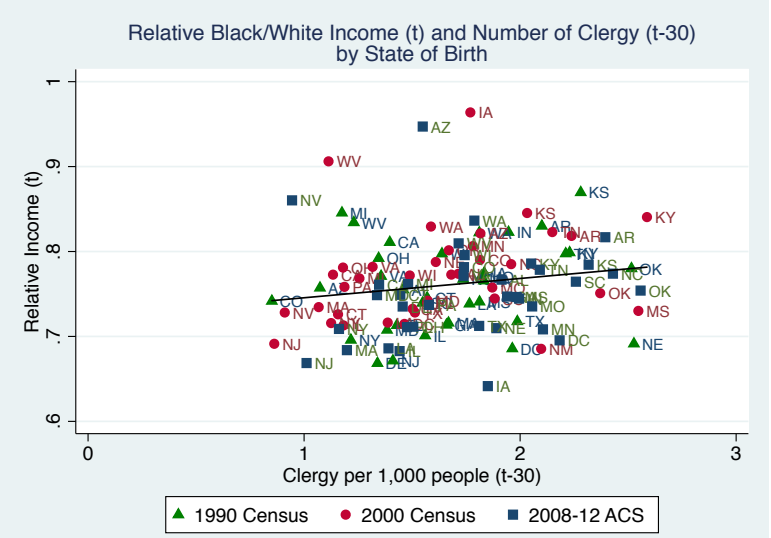
Where all variables are defined as in equation (1) and $Z_{s,t-30}$ is either the proportion college graduate in state; proportion teachers in state; proportion doctors, nurses and physicians in state; proportion college and university professors in state; and, state median household income. If what is driving the relationship between early exposure to religious workers and labor market earnings is non-random geographic selection, then adding the variables in vector $Z_{s,t-30}$ should change the magnitude of the estimate $\hat{\theta}_{c\times b}$. Estimates of equation (2) are presented in Table 2. These estimates include controls for individual characteristics in time t, state of birth characteristics in $t-30$, as well as occupation, cohort and state of residence fixed effects. The first column shows estimates when $Z_{s,t-30}$ is the state's proportion of college graduates. The estimates suggest that increasing the number of college graduates by one percentage point increases the posterior earnings of workers born in that state by 3.4 percentage points, in contrast the estimate of the interaction $Z_{s,t-30} \times B_{i,s,t}$ suggests an increase in earnings of 2.9 percentage points. Importantly, the estimate of our coefficient of interest $\theta_{c\times b}$ is still positive and statistically significant different from zero and suggests that increasing exposure to 1/1,000 religious worker increases earnings by 1.1 percentage points. suggesting that increasing the exposure of clergy to early childhood increases the future earnings for blacks by 3.2 percentage points, and this is net from any effect that the proportion of college graduates in the birth state might have in the future earnings of Blacks born in that state. The second column presents estimates where $Z_{s,t-30}$ is the proportion of teachers in the state, the third column presents estimates where $Z_{s,t-30}$ is the proportion of doctors, nurses and physicians in the state, the fourth columns presents estimates where $Z_{s,t-30}$ is the proportion of college and university professors in the state, and the fifth column presents estimates where $Z_{s,t-30}$ is the log of the state's median labor income. Just as in column (1) the estimate of the coefficient $\theta_{c\times b}$ is robust to the inclusion of these variables. The last column includes all these variables simultaneously, and even with all the variables in the model the result for exposure to clergy as a child remains economically and statistically significant. The results in Table 2 suggest that to the extent that parents non-randomly select the geographic area where they live is associated with the characteristics in vector $Z_{s,t-30}$, the role that exposure to religious workers has on posterior earnings is robust to such selection.

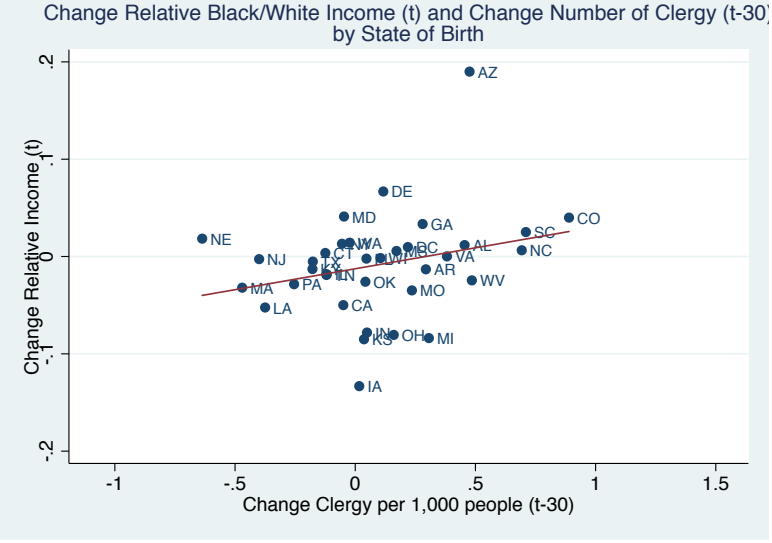
We perform a second robustness exercise to explore the role that secular time or spatial trends might have in the estimates of Equation (1)., It may be that the relationship between religious density and economic outcomes is driven by historical events in the United States, for example: the migration North, the Civil Rights movement (source, papers by Boustan and Margo), the growth of employment in the sunbelt states (Glaeser, YYYY). This exercise consists of a falsification test where for each period of time and state, we impose the same distribution of clergy into a placebo treatment group. That is, if N is the number of religious workers in state s at time $t-30$ then we randomly assign the treatment to N observations in any state during any year. If the estimates in Equation (1) are driven by any state-year unobserved secular characteristic, then it must be that even for this placebo estimate $\hat{\theta}_{c\times b}^{placebo}$ must be positive and statistically significant and different from zero. However, if the relationship is not driven by secular time trends, the estimates should only register as significant 5% of the time at the 0.05 level since the placebo treatment was assigned randomly. We find this to be true and present the estimates in Figure 3.

Conclusion

How are these results consistent with Freeman's?

Bibliography


Relative Black/White Income (t) and Number of Clergy (t-30)
by State of Birth
Relative Income (t)
.6
.7
.8
.9
1
0
1
2
3
Clergy per 1,000 people (t-30)
1990 Census
2000 Census
2008-12 ACS


Change Relative Black/White Income (t) and Change Number of Clergy (t-30)
by State of Birth
Change Relative Income (t)
-.2
-.1
0
.1
.2
-1
-.5
0
.5
1
1.5
Change Clergy per 1,000 people (t-30)

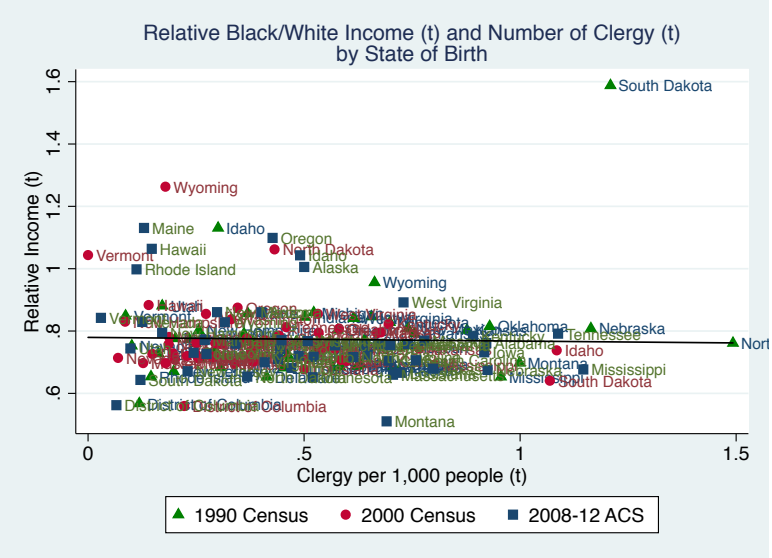

Relative Black/White Income (t) and Number of Clergy (t)
by State of Birth
Relative Income (t)
.6
.8
1
1.2
1.4
1.6
0
.5
1
1.5
Clergy per 1,000 people (t)
South Dakota
Wyoming
Maine
Idaho
Oregon
Hawaii
North Dakota
Vermont
Idaho
Rhode Island
Alaska
Wyoming
West Virginia
Oklahoma
Nebraska
Tennessee
Idaho
Montana
Mississippi
South Dakota
Montana
1990 Census
2000 Census
2008-12 ACS

Table 1: Response Variable Log Annual Earnings

	No Controls	Individual	+State t-30	+State FE	Movers	Stayers
ClergyXBlack	1.697	3.691	3.385	3.302	3.642	2.469
	0.567	0.532	0.536	0.538	0.732	0.938
Clergy	-12.324	-3.677	-2.182	-1.196	-0.662	-3.620
	0.150	0.142	0.154	0.169	0.225	0.365
Black	-0.344	-0.076	-0.080	-0.107	-0.112	-0.098
	0.009	0.008	0.008	0.008	0.014	0.010
N	1449920.000	1449920.000	1449920.000	1449920.000	539470.000	910496.000
R2	0.033	0.384	0.385	0.394	0.411	0.378

Table 2: Other Black Professionals

	College Grads	Teachers	Doctors	Professors	Med Income	Med Incom
ClergyXBlack	1.167	1.246	1.137	1.177	1.063	0.876
	0.342	0.346	0.342	0.340	0.343	0.370
Clergy	0.053	0.094	0.051	0.070	0.072	0.097
	0.045	0.045	0.044	0.044	0.045	0.045
Black	-0.080	-0.081	-0.081	-0.081	-0.039	0.013
	0.006	0.006	0.006	0.006	0.036	0.050
college	0.348	.	.	.	.	-0.191
	0.170	.	.	.	.	0.322
bXcollege	0.290	.	.	.	.	0.823
	0.179	.	.	.	.	0.630
teachers	.	-6.563	.	.	.	-6.520
	.	1.184	.	.	.	1.614
bXteachers	.	2.323	.	.	.	-2.659
	.	0.941	.	.	.	2.206
doctors	.	.	12.709	.	.	15.893
	.	.	2.057	.	.	3.443
bXdoctors	.	.	3.199	.	.	-3.436
	.	.	2.568	.	.	6.859
professors	.	.	.	-16.898	.	12.838
	.	.	.	33.970	.	36.037
bXprofessors	.	.	.	165.162	.	153.718
	.	.	.	63.591	.	87.799
medinc	.	.	.	.	0.004	-0.012
	.	.	.	.	0.004	0.005
bXmedinc	.	.	.	.	-0.004	-0.010
	.	.	.	.	0.004	0.005
R2	1449810.000	1449810.000	1449810.000	1449810.000	1449810.000	1449810.000
N	0.327	0.327	0.327	0.327	0.327	0.327