

The Geography of Lynching and Economic Opportunities of Blacks: Evidence from the US South

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Abstract

This paper explores the effects of a historical crime against Black people, lynching, on their current economic opportunities. Our results suggest that historical lynching has an adverse effect on the economic opportunities of Blacks today. We exploit variation in cotton suitability as an instrumental variable to explore the causal effects of lynchings. We contend that urbanization and racial mixing after 1880 triggered lynchings, which led to interracial competition for economic, social, and political power. We provide suggestive evidence that the effect of historical lynching on current economic opportunities can be partly explained by persistent isolation, segregation, and discrimination towards Blacks since the first half of the 20th century. Our results do not hold for Whites, Hispanics, Asians, or Native Americans, and survive a large set of robustness checks.

Keywords: Lynching, Economic Opportunities, Blacks, Isolation

JEL Classification: C21, N91, J62

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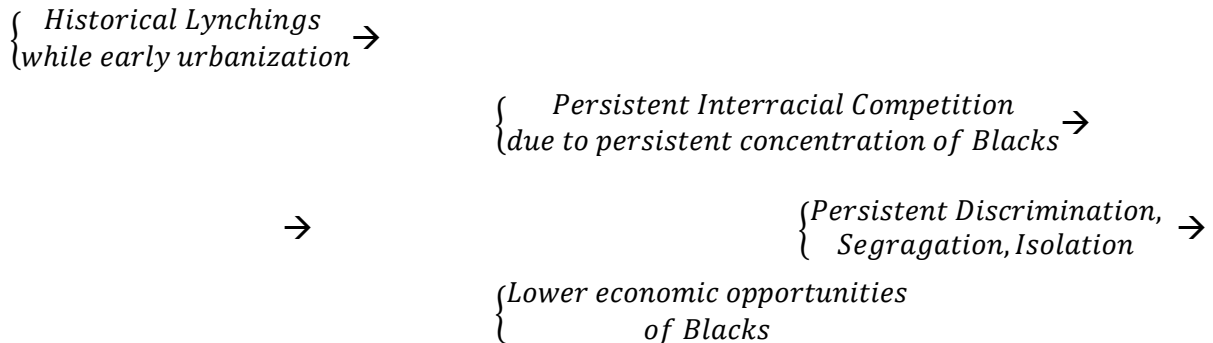
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1. Introduction

This paper examines the effect of a specific historical public crime, lynching against Blacks, on contemporary rates of economic opportunities i.e., intergenerational mobility for Blacks.³⁴ During the second half of the 19th century and the first half of the 20th century, more than 3,500 Black people were victims of lynching by White mobs in the Southern United States.

Since the victims of lynching were mainly Black people, we focus on lynching’s effects on current economic mobility rates for Blacks. We assume that, in regions with more lynchings, Black people lose economic opportunities because of persistent isolation, segregation and discrimination. We suggest that increasing urbanization and industrialization in the US South after 1880 contributed to a change of racial hierarchy at the local level, resulting in interracial economic, social, and political competition, and in turn, violence. Lynching against Blacks was an act of discrimination with differences in its intensity at the local level. This in turn lowers the rates of economic opportunities for the Black population. Figure 1 illustrates our overarching logic in this paper.

Figure 1. From Historical Lynchings to Lower Economic Opportunities of Blacks.



To conduct our study, we use Southern US counties, focusing on the 10 most active lynching States with place-identified lynching data and a significant historical proportion of Black people.⁵ We use data from Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee. Our measure of lynching activity uses the data collected by [Bailey and Tolnay \(2015\)](#), who provide all lynching cases at the

³ For brevity, we may refer to economic opportunity measure either as upward economic mobility, or economic mobility, or mobility.

⁴ The terms Blacks, Whites, Hispanics, Asians, Native Americans, and races are used in this paper following international bibliography and works, such as [Chetty et al. \(2020a\)](#).

⁵ For instance, according to [Gibson and Jung \(2002\)](#), the Black population in Alabama in 1900 was 45.2%. This is high, considering that the corresponding percentage for the whole USA in the same period was 11.6%.

county level from 1882 until 1930. Our economic opportunities measure uses county data on economic mobility computed by [Chetty et al. \(2018c\)](#). This measure shows the level of household income for Black people whose parents belonged to the 25th percentile of the national income distribution, relative to other Black people within the same cohort. Therefore, it reflects the economic opportunities that Black children from lower income families experienced.

We employ several strategies to identify the impact of historical lynching on current mobility rates for Blacks. First, we use OLS estimators to associate current levels of economic opportunities of Black individuals and historical lynchings. In all specifications, we control for a set of geographical and historical variables. We control for the coordinates of each county in our sample, as well as for pre-lynching measures related to slaves, the proportion of Blacks, segregation, and land concentration. Our results suggest that counties with more lynchings have lower levels of economic opportunities of Blacks.

Second, we use an IV strategy to shed more light on the causal effect of historical lynching on current economic opportunities for Blacks. We use cotton suitability from [Acharya et al. \(2016\)](#) at the county level as an instrument for lynchings. Among several theories, historical evidence mostly links both variables by suggesting that Black cotton workers were threatened through lynchings in case they were over-populating cotton farms i.e., forcing Blacks to migrate elsewhere ([Williams, 2022](#)). We follow several studies documented in Section 4 that use cotton suitability rates to instrument for lynching activity. The results corroborate our OLS findings. To further ameliorate concerns regarding omitted variable bias, we use [Oster's \(2019\)](#) technique, which provides estimates of the impact of historical lynchings on current economic opportunities for Blacks, assuming that all unobservables are included in our most conservative specification.

Next, consistent with our story summarized in Figure 1, we investigate the hypothesis that the localities that experienced faster urbanization and Black population concentration after 1880 also experienced higher rates of lynching activity and lower economic opportunities in the long-term. To examine this hypothesis, we construct a measure of the expansion of railways at the county level from 1876 until 1921, representing the rhythm of early urbanization and industrialization. Then, we move on in three ways. First, we estimate that lynching cases and our urbanization index per decade (1880 to 1930) have a positive association in a panel data analysis. Second, we show that the mean railways expansion rate is a valid instrument (F-stat

higher than 10) variable between lynchings and current economic opportunities of Blacks in a 2SLS analysis. Lastly, we find that our early urbanization index predicts the proportion of Blacks at the county level from the beginning of lynching era until 2010. All our results suggest that counties with faster early urbanization had more lynchings, and they have attracted a higher proportion of Black population throughout the 20th century.

The last part of our empirical strategy examines whether areas with more historical lynchings experience higher rates of persistent interracial discrimination, segregation, and isolation. We investigate this question by exploiting county level data based on a couple of databases that provide both historical and contemporary indices. The results provide evidence towards the above hypothesis. Nevertheless, we consider our results as suggestive since most available measures of racial bias, discrimination, racism etc. at the local level are rough indexes or suffer by selection bias from respondents and can only be used as imperfect proxies.⁶

Our findings contribute to several strands of literature. First, this research adds to recent studies that examine the impact of historical lynchings. Although the lynching legacy appears to have received less attention in the economics literature, this does not mean lynchings are unimportant. For instance, [Cook \(2014\)](#) finds that historical racial violent crime, including lynching, has significantly decreased innovation rates among African-Americans. Moreover, [Jones et al. \(2017\)](#) and [Williams \(2022\)](#) find that exposure to lynching activity has had negative and significant effects on voter turnout rates and voter registration rates for Blacks. [Christian \(2017\)](#) suggests that historical lynching has affected historical Black migration and labor markets in the US. Recent research by [Williams et al. \(2021a\)](#) finds a significant relationship between lynching activity and a range of current political and economic outcomes including segregation, voter participation, economic security, unemployment, poverty, etc. Our research is different from prior work since our mobility measure may not only reflect an economic outcome or public policy dysfunction, but also cultural attitudes and social norms related to Black people. Overall, the effects of historical lynching activity in the US has started to attract significant interest among economists over the last few years. This research provides a novel contribution on the intergenerational effects of lynchings.

Second, this paper is related to a recent literature related to the regional determinants of economic mobility rates. Recent research revisits the “exposure effect” to neighborhoods.

⁶ For instance, [Chetty et al. \(2020a\)](#) use IAT racial bias scores from participants who respond online voluntarily. Therefore, his rough measure suffers from selection sample bias.

According to this theory, children who grow up in neighborhoods with better economic and social characteristics experience higher mobility rates (Chetty and Hendren, 2018a; Chetty and Hendren, 2018b). Although there is a significant body of literature that examines contemporary regional parameters, this is among the few studies that examines a relationship with a historical variable.

Third, this research contributes to the literature on the economics of crime. Contemporary rates of crime have been associated with income (Bignon et al., 2017), inequality (Alesina et al. 2016; Kelly, 2000), poverty (Mehlum et al., 2005), intergenerational mobility (Sharkey and Torrats-Espinosa, 2017), etc. Historical crime, such as organised crime in Italy, has been associated with GDP per capita (Pinotti, 2015) and with institutions (Daniele and Geys, 2015). Nevertheless, to the best of our knowledge, there is no research that associates historical lynchings with current levels of economic opportunities.

The paper proceeds as follows: Section 2 provides a brief historical background regarding lynching motivation(s) in the U.S. South. Section 3 describes our data and presents the empirical strategy related to our baseline results. Section 4 reports our main results. Section 5 discusses the role of urbanization on lynching activity and the proportion of Blacks in the long term. In Sections 6 and 7, we explore the potential channels between historical lynchings and current economic opportunities for Blacks. In section 8 we perform robustness tests. Section 9 concludes.

2. What led to historical lynching?

Most of the theories that explain the forces that led to lynching activity suggest that it was a consequence of interracial economic, social, and political conflict between Blacks and Whites. Persistent immigration by Blacks after the end of Reconstruction in 1877 increased the low-wage labor supply in the cotton industry, affecting both the wages and wealth of Whites. The number of lynchings started increasing as a consequence of Whites' effort to maintain their dominance in the labor market, housing, farming etc. On the other side of the same coin, historical evidence suggests that after 1900 cotton prices increased, and therefore Blacks were in high demand by White landowners who used violence to keep the cotton economy intact (Olzak, 1990). Overall, the fluctuation in cotton prices triggered lynching activity, either to maintain the repression of the Black labor force or by threatening its surplus.

Alongside economic competition, the socio-political environment was ripe for the emergence of political parties and White supremacist hate movements, such as the Ku Klux Klan, which promoted anti-Black public tension (Glaeser, 2005). In the late 19th century, the Conservative party was fighting the Populist party, which had attracted Black voters. Rumors and stories of Black people who attacked the White community were prominent justifications for anti-Black, and therefore anti-populist, movements and announcements. For instance, Benjamin Ryan Tillman, who served as Governor of South Carolina from 1890 to 1894, in his Congressional speech declared, “*We of the South have never recognized the right of the negro to govern white man, and we never will. We have never believed him to be the equal of the white man, and we will not submit to his gratifying his lust on our wives and daughters without lynching him.*” (Ayers et al., 2009). Such imprudent and injudicious announcements from politicians had adverse effects on interracial cohesion, leading to violence.

Furthermore, in the late 19th century, legislatures in the US South passed discriminative laws between Blacks and Whites. These “Jim Crow” laws worked to establish different rules and laws based on residents’ origins. These laws affected Blacks’ access to schools, colleges, labor markets, public infrastructure, prisons, hospitals, orphanages etc., thus enhancing racial segregation and tension.

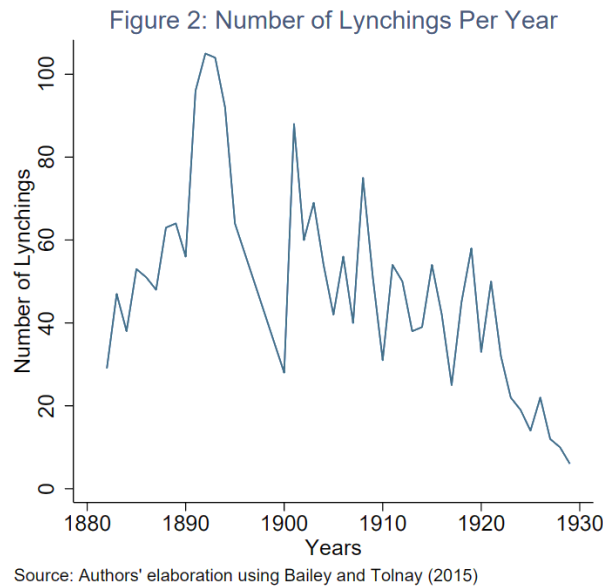
Finally, Beck & Tolnay (1990) suggest a psychological foundation for lynching. They suggest that, after the influx of Black cotton workers and farmers in rural areas, White workers found that Blacks were as financially well-off as Whites. Consequently, a plethora of Whites’ inner thoughts (jealousy etc.) could work as a “Black box”, leading to violent actions. Moreover, from the White’s elite (farm landowners) point of view, interracial tensions served their interests since potential coalitions between poor Blacks and Whites could threaten their economic power. Therefore, animosity between Blacks and Whites helped preserve entrenched power structures.

Overall, lynching can be interpreted as a violent reaction of Whites who started competing with Black people to maintain their “traditional “ superiority in economic, social, and political life in the US South.

3. Data and Empirical Analysis

3.1 The unit of analysis

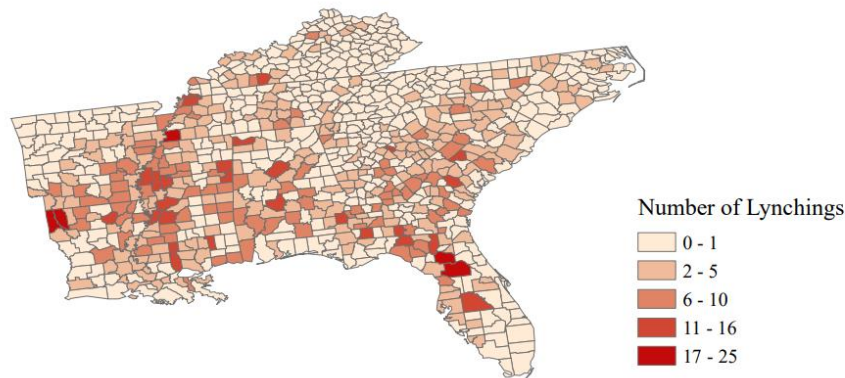
In order to investigate the effect of historical lynching on current economic opportunities, we conduct our main analysis at the county level. There are 3,243 US counties. We focus on the 875 counties in 12 Southern American States: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee. 534 of these counties experienced at least 1 (and maximum 25) lynching cases against Black people. Figure 2 shows the number of lynchings per year.



3.2 Main independent variable—Lynching activity

We collect data from the [CSDE Lynching Database \(2015\)](#), which is based on the work of [Bailey and Tolnay \(2015\)](#). This dataset provides 2,129 place-identified lynching cases related to Black people in the Southern States from 1882 until 1929. We then find the total number of lynchings in each county following several studies ([Cook et al., 2018](#); [Williams et al., 2021a](#); [Williams, 2021b](#)). Figure 3 illustrates lynching activity for South US counties.

Figure 3: Number of Lynchings in US South



The most accepted definition of lynching was outlined by the National Association for the Advancement of Colored People (NAACP) in 1940. Lynching has been (and continues to be) an extreme form of unauthorized racial public crime. For this reason, its definition should disentangle it from other violent activity. Therefore, incidents of racial violence that were characterized as lynchings require that: first, a person was killed; second, the attack was illegal; third, the victim was killed by three or more people, namely a ‘mob’; and fourth, justification for the lynching was related to values and morals, such as justice and honor.⁷

3.3 Main outcome variable—Economic Mobility

Regarding economic opportunities at the local level, we use data from [Chetty et al. \(2018c\)](#). Our preferred economic mobility variable is the mean household income rank of children of a given race who grew up in a county with parents who belonged at the 25th percentile in the national income distribution. This rank-rank approach is also called (upward) economic mobility. The estimates are provided for children who were born in the years 1978–1983 when they are between the ages of 31–37-years-old. This rank-rank approach has been followed by several studies, including [Feigenbaum \(2018\)](#) and [Markussen and Røed \(2020\)](#). We use upward economic mobility measures based on race, which can either refer to Blacks, Whites, Hispanics, or Native Americans. The measure that refers to Blacks is our main outcome since the differences in mobility values reflect the opportunities of the poor to climb the income ladder.

⁷ Other forms of collective violence include riots, gang violence, coups, rebellions, revolutions, wars, and terrorism, which cannot be characterized as lynchings.

3.4 Control variables

An important issue related to our results is the potential confounding factors that may affect our estimates. The pre-lynching era in the US was characterized by high rates of discrimination against Blacks. Black slaves were abducted and forcibly removed from Africa, thus forming a social environment where Black people were treated unequally. For this reason, historical factors other than lynching during the pre-lynching era may have affected recent economic opportunity rates for Blacks. For instance, Bertocchi and Dimico (2014) find that slavery in 1860 in the US has had persistent effects on educational inequality among races. Moreover, Acharya et al. (2015) associate slavery with Jim Crow laws, as well as access to public goods. Therefore, the rates of early slavery may work as historical confounding factors. For this reason, we collect data on slaves and slaveholders per capita in 1860, the fraction of Black households in 1880, segregation of Blacks in 1880, and the proportion of small farms in 1860.⁸ The last variable may represent the number of small farmers and historical land inequality at the county level. Moreover, it may reflect the concentration of economic and political power as well as historical negotiation power of small farmers. We expand our bundle of variables by calculating the coordinates of each county, which are standard in the economic geography literature. For instance, Spolaore and Wacziarg (2013) show that latitude has a substantial effect on log income per capita. Since childrens' and parents' incomes are the variables we use to construct our intergenerational measures, it is important that we control for geographical coordinates.

3.5 Empirical approach

To estimate whether there is a relationship between historical lynching activity and economic mobility rates for Black people, we first employ the Ordinary Least Squares (OLS) estimation, with standard errors clustered at the county level:

$$Y_i = \alpha \times \text{LynchingActivity}_i + \beta_2 \times N_i + \eta_s + \varepsilon_i \quad (1)$$

We regress our economic opportunity index for Black people (Y) for county i on the historical lynching index (Lynching Activity), incorporating a rich set of neighborhoods' (N) control variables at the county level. Our model also includes state-fixed effects (η_s) to capture unobserved state characteristics, such as state institutions. ε_i denotes the stochastic error term.

⁸ There is a significant lack of historical data at the local level. Therefore, throughout the text, we either do not present the results when we lose more than 30% of our observations, or we interpret them with caution.

The coefficient of interest, α , shows the impact of historical lynching activity at the local level on economic opportunities for Blacks.

4. Estimation Results

4.1 The effect of historical lynching on economic mobility of Blacks—OLS estimation

Table 1 shows the OLS regressions of historical lynchings on our economic opportunity measure for Blacks. In column 1, we provide the less conservative estimates, where we only control for state fixed effects. The coefficient on the lynching activity variable is negative and statistically significant at the 1% level. This result suggests that, in regions with more historical lynchings, Blacks have less economic opportunity today.

In the next two columns, we add a set of county-specific characteristics that may have influenced the economic mobility of Blacks, and whose absence may affect our estimates due to omitted variable bias. In column 2, we control for our location variables. Both latitude and longitude enter the model with non-significant coefficients. In column 3, we expand the specification with an array of pre-lynching controls. As expected, the counties with a higher fraction of Blacks before 1880 experience lower rates of economic opportunity. The rest of the historical controls are non-significant. The main results of these three columns, including column 3 where we lose a significant number of observations due to lack of data, is that the coefficient on the lynching activity remains statistically significant at the 1% level, and its magnitude is stable. Nevertheless, our results could be driven by various biases due to potential endogeneity problems. Therefore, we also investigate this question via 2SLS.

Table 1
OLS Estimates-Historical Lynching and Intergenerational Mobility

The dependent variable is Intergenerational Mobility for Blacks

	(1)	(2)	(3)
Lynching Activity	-0.0747*** (0.0214)	-0.0719*** (0.0216)	-0.0618*** (0.0232)
Latitude		-0.1637 (0.1010)	-0.2233* (0.1193)
Longitude		0.0675 (0.0781)	0.0980 (0.0867)
Slaves Per Capita 1860			-0.1102 (0.3187)
Slaveholders Per Capita 1860			0.2253 (0.5234)
Fraction of Black HH 1880			-1.3121* (0.7078)
Segregation 1880			0.6306 -14957
Proportion of small farms 1860			-0.5085 (0.6498)
State Fixed Effects	Yes	Yes	Yes
R-squared	0.080	0.086	0.085
Observations	760	760	633

Notes: The units of analysis are U.S. counties. Variables descriptions are provided in Appendix Table A1. The estimations include a constant term and a full set of State dummies, which are omitted for space considerations. Standard errors clustered at the commuting zone level are in parentheses. *, **, and *** mean that the coefficient is statistically significant at 10%, 5%, and 1%, respectively.

4.2 Causality

In our analysis we have been cautious not to give a causal interpretation to our results. Given the possibility of omitted variable bias, a potential endogeneity concern is whether lynching activity has affected one or more historical local missing variable(s) that could absorb the effect of lynching activity on current economic opportunities. For instance, evidence by Williams et al. (2021a) and others has suggested that historical lynchings have affected a rich set of political and economic variables for Black Americans that led to persistent political, economic, and social exclusion of Black people, which could have influenced mobility measures. This would imply a spurious effect of historical lynchings on contemporary economic opportunities of Blacks.

We address this concern in two ways. First, following several studies that use cotton suitability as an instrumental variable for lynchings (Christian; 2017, Williams et al.; 2021b), we perform an IV strategy that minimizes any biases due to measurement error or omitted variables. We employ the cotton suitability data from Acharya et al. (2015), who construct their measure based on Food and Agriculture Organization (FAO). Previous research suggests that cotton prices may exert a significant effect on lynching activity. More specifically, low prices of cotton could reduce the demand for cotton workers, and consequently, White workers would force Black workers out of the cotton labor market through lynching. An alternative hypothesis

that links lynchings and cotton suitability is that during periods with harsh economic conditions, the White workers could compel Black workers to abandon their land through lynchings.⁹

Table 2 presents the effects of historical lynchings on contemporary economic mobility for Blacks. The coefficients of lynching are always negative and significant at the 5% confidence level, and the coefficients on cotton suitability positive and significant at the 1% confidence level. Moreover, the first stages yield a much larger F-statistic than 10 which is the proposed threshold (as a rule-of-thumb) by (Staiger and Stock, 1997) for weak instruments. The IV estimates are larger than the corresponding OLS estimates in Table 1, suggesting a potential downward bias due to measurement error or omitted factors. However, although, for instance, the coefficient on lynching activity in column 3 is almost six times higher than the corresponding most saturated OLS coefficient, it is safely excluded from a large pool of studies that provide up to nine (or even more) times higher IV estimations (Jiang, 2017).

Second, we follow a technique by Oster (2019), which is based upon the assumption that the selection of observables is proportional to the selection of unobservables. This technique provides upper and lower bounds of the lynching coefficient, as if all unobserved variables were observables. Therefore, the upper bound given by \hat{b} is the coefficient on lynching activity when a full set of (observable) controls is included in Equation (1). Oster's (2019) method suggests estimating equation (1) after an increase of the R^2 of the most saturated model by 30% ($R_{max} = 1.3 * R^2$). If the interval between the coefficient of the most saturated model (b) and \hat{b} excludes zero, the model is robust to the omitted variables bias. Moreover, this method provides a parameter δ , thus showing the relationship between observables and unobservables. If the absolute value of δ exceeds 1, the model is highly unlikely to experience omitted variables bias. The coefficient b in column 2 in Table 3 suggests that between b and \hat{b} , the zero value is excluded. Moreover, the absolute value of the parameter δ in column 4 is much higher than 1. Therefore, Oster's (2019) technique mitigates concerns suggesting that the effect of lynching activity on economic opportunities of Blacks is not driven by omitted variables.

⁹ Christian (2017) also finds weak evidence that lynchings prevented black men and white women from engaging in romantic or sexual liaisons.

Table 2

2SLS Estimates-Historical Lynching and Intergenerational Mobility

The dependent variable is Intergenerational Mobility for Blacks

	(1)	(2)	(3)
First stage estimates:Panel A			
Cotton Suitability	6.80***	7.03***	5.44***
2SLS estimates:Panel B			
Lynching Activity	-0.3931** (0.1734)	-0.4185** (0.1660)	-0.4667** (0.2345)
Geographical Variables		✓	✓
Historical Variables			✓
State Fixed Effects	✓	✓	✓
F-Statistics	30.24	31.50	15.04
Observations	755	755	629

Notes: The units of analysis are U.S. counties. Variables descriptions are provided in Appendix Table A1. The estimations include a constant term and a full set of State dummies, which are omitted for space considerations. Standard errors clustered at the commuting zone level are in parentheses. *, **, and *** mean that the coefficient is statistically significant at 10%, 5%, and 1%, respectively.

Table 3

Historical Lynching and Intergenerational Mobility: Omitted Variable Bias

	Baseline Specification coefficient b	Identified Set (b,b(Rmax,Delta=1))	Exclude Zero	Absolute Delta (δ)
	(1)	(2)	(3)	(4)
Lynching Activity	-0.0618***	[-0.0618,-0.0551]	✓	4.5>1
Geographical Variables	✓	✓		
Historical Variables	✓	✓		
State Fixed Effects	✓	✓		
Observations	633	633		

Notes: Coefficients for the baseline specifications are obtained from OLS results illustrated in Table X. Results in columns 2 and 4 are calculated using Stata code psacalc, thus correcting baseline estimations for omitted variables bias. The estimations include a constant term, which is omitted for space considerations. Variables descriptions are provided in Appendix Table X. *, **, and *** mean that the coefficient is statistically significant at 10%, 5% and 1% respectively.

5. Early Urbanization

5.1 Early Urbanization and Lynching

Seminal work by [Olzak \(1990\)](#) shows that urbanization due to large-scale immigration and infrastructure expansion around the turn of the 19th century was a significant factor for the variation of lynching activity in the Southern US. Recent historical evidence by [Wood \(2011\)](#) validates that urbanization was a significant root of lynching activity. He claims that social mixing of people from different racial and ethnic backgrounds increased local collective crime, such as ‘mobbing’. Furthermore, he argues that in places that were “on the cusp of urbanization” the fears of social disorder led to mass lynchings. In his later work, [Wood \(2018\)](#)

confirms that lynching activity against Black individuals was a consequence of urbanization and industrialization, which took place from 1880 onwards. He explains that population changes within towns destabilized the racial hierarchy, thus stimulating turbulence, racial competition, and crime. Similarly, Pfeifer (2004) suggests that urbanization and industrialization raised questions about racial order and encouraged the formation of working-class white mobs. Lastly, recent research by Dahis et al. (2019) suggests that in urban areas racial segregation could be witnessed even within the same building across floors. As a consequence, it appears that the change of population in the Southern US from (roughly) 1880 onwards triggered social conflict, racial competition, and lynching.

In order to examine the above hypothesis, i.e., that the lynching activity was a dynamic consequence of urbanization, we first construct a historical index of urbanization and industrialization. We use the mean rate of railways expansion at the county level as an index for urbanization. By using the shapefiles provided by Sequeira et al. (2020) we find the total kilometres of railways in each county for several periods between 1876 and 1921. Then, we find the differences (in km) between each year and its previous (observed) year and divide the difference by the number of years between them. We then compute our lynching index for each single decade from 1882 until 1929 based on CSDE Lynching Database (2015). Therefore, for each decade (roughly) from 1880 until 1930 we have data for both urbanization and lynching activity for each county. Using a panel data estimation, we regress our lynching activity on railways expansion:

$$\text{LynchingActivity}_{it} = \alpha \times \text{Rail Expansion}_{it} + \beta \times \text{GeoHistContr}_i + \zeta_t + \eta_s + \theta_{st} + \varepsilon_i. \quad (2)$$

where i indexes counties, t indexes census years (1880, 1890, 1900, 1910, 1920), and s indexes the states. Geographical and historical controls remain the same for all census years. Moreover, ζ_t shows decade fixed effects, η_s State fixed effects that capture time-invariant determinants, and θ_{st} represents the State \times Year fixed effects. The last fixed effects remove all unobserved time-varying heterogeneity across states, such as differences in regional business cycles, different regional trends or aggregate shocks that could stem from institutional changes.

Table 4 presents estimates of the effect of our index of urbanization and industrialization on lynchings. Column 1 controls for Time, Year, and Time \times Year fixed effects. The coefficient of railway expansion is positive and significant at the 1% level, suggesting that the staggered influx of (Black) immigrants in counties through a continuously developing railway network

at the local level was accompanied by an increase in lynching activity. In the next two columns, we enrich our estimations by adding pre-lynching era controls. The coefficient of our main variable of interest in this specification remains positive, significant and almost unchanged. The variable *slaveholders per capita* enters the model with a significant and negative coefficient that may suggest that, in counties with more slaveholders before 1880, there was no need to employ lynching to intimidate Black workers. Moreover, we observe that in places with a higher proportion of small farms, lynching activity is less prevalent, probably due to a more equally distributed welfare.

Overall, it seems that lynching activity of Blacks was a mean for Whites to maintain their political and economic power. Therefore, places that were more affected by urbanization, concentration of more Black workers, and racial competition seem to have experienced higher turbulence and interracial violence.

Table 4
OLS Estimates-Historical Urbanization and Lynching

The dependent variable is the Lynching Activity

	(1)	(2)	(3)
Railways Expansion	0.0393*** (0.0077)	0.0385*** (0.0077)	0.0331*** (0.0084)
Latitude		-0.0388 (0.0237)	-0.0603* (0.0311)
Longitude		-0.0564*** (0.0146)	-0.0612*** (0.0164)
Slaves Per Capita 1860			0.1155 (0.0743)
Slaveholders Per Capita 1860			-0.2087* (0.1128)
Fraction of Black HH 1880			0.8096*** (0.1594)
Segregation 1880			-0.1019 (0.1998)
Proportion of small farms 1860			-0.3237** (0.1621)
State Fixed Effects	✓	✓	✓
Year Fixed Effects	✓	✓	✓
State × Year Fixed Effects	✓	✓	✓
R-squared	0.084	0.090	0.129
Observations	4375	4375	3685

Notes: The units of analysis are U.S. counties. Variables descriptions are provided in Appendix Table A1. The estimations include a constant term and a full set of State dummies, which are omitted for space considerations. Standard errors clustered at the commuting zone level are in parentheses. *, **, and *** mean that the coefficient is statistically significant at 10%, 5%, and 1%, respectively.

5.2 Early Urbanization, Lynching, and Contemporary Economic Opportunities

The argument in this section is that early urbanization affected lynching activity, which in turn has had persistent effects on economic opportunities of Blacks. We investigate this empirically

via a two-stage least squares (2SLS) analysis. In a first stage, we try to explain lynching activity on the basis of our urbanization measure:

$$\text{LynchingActivity}_i = \alpha \times \text{Rail Expansion}_i + \beta \times \text{GeoHistContr}_i + \eta_s + \varepsilon_i. (3)$$

Equation 3 could also be considered a cross-sectional form of equation 2. The main difference is that our urbanization and industrialization proxy is the sum of railway expansion rates in each period, divided by the number of periods for which we observe the railway expansion. Therefore, we get the mean railway expansion for all estimated periods from 1876 until 1921. In a second stage, our current economic opportunities index for Blacks is regressed on the predicted value of lynching activity and the set of our geo-historical controls, as well as State fixed effects, as in equation (2). The results in table 5 suggest that, in places with higher railway expansion around the turn of the 20th century, Black people experience lower economic contemporary opportunities.

Table 5
2SLS Estimates-Historical Urbanization as Channel

The dependent variable is Intergenerational Mobility for Blacks

	(1)	(2)	(3)
	First stage estimates:Panel A		
Railways Expansion	0.825***	0.793***	0.762***
	2SLS estimates:Panel B		
Lynching Activity	-0.221** (0.0938)	-0.213** (0.0979)	-0.232** (0.1135)
Geographical Variables		✓	✓
Historical Variables			✓
State Fixed Effects	✓	✓	✓
F-Statistics	32.75	30.74	27.66
Observations	760	760	633

Notes: The units of analysis are U.S. counties. Variables descriptions are provided in Appendix Table A1. The estimations include a constant term and a full set of State dummies, which are omitted for space considerations. Standard errors clustered at the commuting zone level are in parentheses. *, **, and *** mean that the coefficient is statistically significant at 10%, 5%, and 1%, respectively.

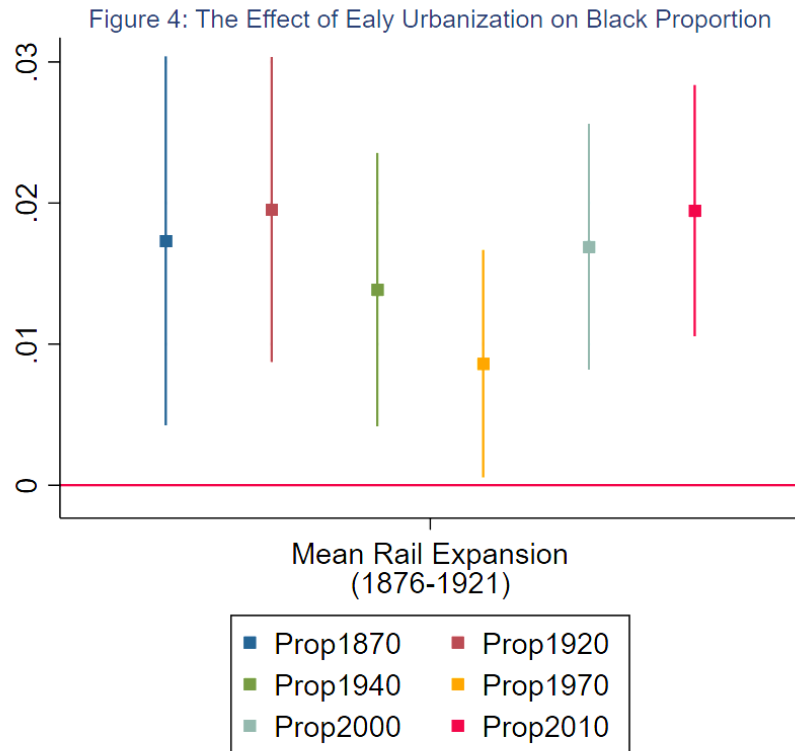
At this point, it is important to mention that the purpose of this analysis is only to determine whether historical lynching has had an adverse effect on current economic opportunities of Blacks due to urbanization and its consequences in terms of interracial interaction at the local level. However, it is not our intention to show that early urbanization at the county level is uncorrelated with any determinants of current economic opportunities of Blacks, other than historical lynchings. In other words, we acknowledge that the exclusion restriction is likely to be violated. Therefore, the evidence in this section can be thought of as correlational, but not

causal. Indeed, early urbanization and industrialization may have affected current economic opportunities of Blacks through lynchings as a form of extreme violence and discrimination. There could also be other channels such as institutions related to urban-rural areas, labour markets etc. However, this exercise supports the hypothesis that urbanization is a significant channel, among others, that future research should consider as an important parameter of unstoppable interracial competition for economic opportunities in the US South.

5.3 Early Urbanization and Black Percentage

If our argument, which suggests that urbanization triggered Black population concentration, interracial competition, and therefore violence at the local level, is valid, it also requires investigating whether the proportion of Black people since the beginning of lynching activity is predicted by the level of early urbanization. Indeed, early urbanization in the US South does not necessarily mean an increase in the concentration of Black people. However, according to [Olzak \(1990\)](#) the percentage of Blacks in urban areas rose from 12% in 1880 to 34% in 1920. Moreover, historical evidence by [Browne \(1972\)](#) suggests that Black people were a considerable force in transforming the US from an agricultural to an industrial economy after 1860. Similarly, [Arnesen \(1994\)](#) suggests that during the postbellum era, African-Americans were required labor for southern railroad building.

In anticipation of taking the issue to the data, using the Black population proportion at the county level since 1870 from [Acharya et al. \(2015\)](#), we estimate Figure 4, which provides supporting evidence of the effect of early urbanization and industrialization on the proportion of Blacks at the county level at different points in time. We observe a continuous effect of early railway expansion on the long-term proportion of Black people in the US South until 2010, a finding that enhances our hypothesis. It seems that early urban and industrial infrastructure at the local level had a permanent effect on the percentage of Black people. According to our findings, this relationship is likely to have affected early interracial crime, permanent discrimination, and long-term economic opportunities for Blacks.



6. Isolation, segregation, and economic opportunities

Although in a previous section we provide evidence linking urbanization to lynchings and persistent interracial competition, there is still an important gap related to isolation, discrimination, and segregation that could ultimately affect Blacks' economic opportunities.

To close out our syllogism, we now investigate whether areas with higher lynching activity also have higher rates of interracial isolation, discrimination, or segregation. Dessi (2008) suggests that collective memory, even at the local level, that is transmitted from generation to generation by the word of mouth, school textbooks, media, etc, exerts significant effects on economic values. Therefore, we assume that Black people who grow up in counties with higher rates of historical lynching are likely to be intensively exposed to lynching stories (as a historical trauma) that undermine their goodwill toward Whites, thus increasing interracial isolation, discrimination, segregation, and economic performance.

In order to test the above hypothesis, following [Chetty \(2020a\)](#), we exploit the racial bias scores from the Implicit Association Test (IAT) from Harvard University that range from -2 to 2. Negative values represent pro-Black/anti-White attitudes and positive values describe an anti-Black/pro-White environment. We calculate the standardized mean scores at the county

level from 2010 until 2020 weighting by Black proportion in 2010, thus reflecting current interracial attitudes.¹⁰ In Table 6 in Column 1 we regress these scores on our lynching measure as well as State fixed effects.¹¹ The coefficient of our main variable of interest is positive and significant. This suggests that counties that experienced a more intense historical trauma due to lynchings may also experience “colder” interracial relationship that leads to isolation (or social exclusion) and lower economic opportunities for Blacks.

As a second measure of isolation or segregation, we use a dummy variable that takes on the value of 1 if there is at least one historically black college and university at the county level, according to [Chetty \(2020b\)](#). If a locality hosts a university or college that mainly refers to a specific racial group, this probably means that people who attend these institutions learn to isolate and segregate from other races. Consequently, as a labour force they may experience self or social exclusion from economic opportunities. The results in Table 6 Column 3 show that, in areas where historical lynchings were more prevalent, there is at least one university or college that has a tradition of hosting mainly Black students.

Apart from indexes that associate counties with higher historical lynching and current racial isolation, we also attempt to test this relationship in a historical context. Therefore, we exploit data from [Logan and Parman \(2017\)](#), who provide a measure of isolation as a measure of exposure of Blacks to other races in 1940 i.e., in the end of the era of massive lynchings of Blacks. In Table 6 Column 5, the coefficient of our main variable of interest is positive and significant at the 99% level, thus showing a persistent effect of lynching activity on isolation and segregation of Blacks. We also use the same isolation index in 1880 which give us non-significant results.¹² This may corroborate that persistent isolation and segregation of Blacks in the US South established after the lynching era, thus affecting their long-term economic opportunities.

¹⁰ [Chetty et al. \(2020a\)](#) suggest that IAT scores can be considered as a rough proxy for average racial bias at the local level since its participants are volunteers, and therefore the estimates suffer from selection bias. However, they argue that the rate of participation is not significantly correlated with the black-white intergenerational gap, thus providing some reassurance in using the IAT measures. Due to random respondents per year, the number of counties in our sample also changes from year to year. Therefore, the mean values of our measure are calculated based on the number of years that data are available.

¹¹ We avoid using our control variables since the sample decreases significantly and the results are unreliable.

¹² In this case the Isolation variable is the dependent variable since it is measured before the lynching era.

Table 6

OLS Estimates-Historical Lynching and Racial Bias Variables						
	OLS	IV	OLS	IV	OLS	IV
The dependent variable is:						
	IAT scores	IAT scores	Hist. Univ/College	Hist. Univ/College	Isolation 1940	Isolation 1940
Lynching Activity	-0.0176*** (0.0045)	-0.1258*** (0.0284)	0.007** (0.003)	0.0252*** (0.0078)	0.0059*** (0.0014)	0.0198*** (0.0056)
State Fixed Effects	✓	✓	✓	✓	✓	✓
R-squared/F-Statistics	0.231	32.22	0.032	48.05	0.091	48.05
Observations	635	624	875	863	874	863

Notes: The units of analysis are U.S. counties. Variables descriptions are provided in Appendix Table A1. The estimations include a constant term and a full set of State dummies, which are omitted for space considerations. Standard errors clustered at the commuting zone level are in parentheses. *, **, and *** mean that the coefficient is statistically significant at 10%, 5%, and 1%, respectively.

7. Discussion

Although the above pool of variables of historical and contemporary isolation, discrimination, and segregation measures can be extended by other potential proxies, the purpose of Table 6 is only to provide suggestive evidence that, in places with a legacy of lynching, Blacks have experienced persistent isolation and segregation that may have persistently affected their economic participation in the community where they grow up, live, and work. However, future research may exploit intergenerational data to show whether individuals whose ancestors were affected by lynching activity experience self or social exclusion from economic opportunities.

Our above results are opposite to [Williams \(2022\)](#) findings, which suggests that there is no relationship between lynching activity and education or earnings of Blacks, thus rejecting the hypothesis that historical lynching has affected current discrimination rates at the local level. Nevertheless, our intension is to examine whether Blacks have the opportunities to enter and exploit the job market and other economic opportunities, rather than the level of earnings they receive when they eventually find a job. For instance, if they enter earlier the labour market due to lost opportunities in education (child non-skilled labour) or later (lose of years getting experience), then their mobility measures around their 30s would potentially be lower than their counterparts in other areas.

Other avenues whereby Black people may lose economic opportunities due to discrimination could be the financial environment where they grow up, psychological traumas etc. For example, [Celerier and Matray \(2019\)](#) find that Black households in the US have lower

bank access rates, and therefore their members may be excluded from student loans to study, or regular loans and other securities that may improve their financial status. In this vein, [Blanchflower et al. \(2003\)](#), among others, finds that black-owned small businesses are about twice as likely to be denied credit due to discrimination. Thus, Black people in areas with higher historical lynching which probably suffer from discrimination, they lose economic opportunities due to a countless list of channels.

8. Other Minorities

In this paper, we argue that early lynching activity against Blacks has affected their long-term economic opportunities due to a permanent interracial competition at the local level. If we find that our lynching measure has also affected economic opportunities of different minorities and Whites, that would raise concerns about whether our contention is valid. Therefore, we also regress our economic opportunity measures for Whites, Hispanics, Asian, and Native Americans on our lynching variable, our set of geo-historical controls, and State fixed effects. Table 7 shows that there is no significant relationship for any other race. This corroborates our argument, albeit one must exercise caution when interpreting these results given the relatively low number of mobility data, especially for Asians and Native Americans.

Table 7
OLS Estimates-Historical Lynching and Intergenerational Mobility

The dependent variable is Intergenerational Mobility for other races				
	(1)	(2)	(3)	(4)
	Whites	Hispanics	Asians	Natives
Lynching Activity	-0.0292 (0.0272)	-0.0919 (0.0597)	-0.0718 (0.1214)	0.0761 (0.1114)
Geographical Variables	✓	✓	✓	✓
Historical Variables	✓	✓	✓	✓
State Fixed Effects	✓	✓	✓	✓
R-squared	0.417	0.092	0.061	0.182
Observations	737	551	282	199

Notes: The units of analysis are U.S. counties. Variables descriptions are provided in Appendix Table A1. The estimations include a constant term and a full set of State dummies, which are omitted for space considerations. Standard errors clustered at the commuting zone level are in parentheses. *, **, and *** mean that the coefficient is statistically significant at 10%, 5%, and 1%, respectively.

9. Conclusion

In this paper, we investigate the effects of historical lynching in the Southern United States of America on economic opportunities for Blacks. Around the turn of the 20th century, the

rates of unauthorised and illegal public crime increased. This translated into numerous White mobs that attacked and killed more than 3,500 Black people. Among other mechanisms, increasing urbanization and industrialization led to interracial competition, and lynching of Black people. Moreover, we argue that persistent isolation, discrimination, and segregation of Blacks is a link between historical lynchings and their current economic opportunities.

To test our hypothesis, we break down our analysis into several parts. Our main results indicate that historical lynching activity has lowered present-day economic opportunities for Blacks. The results are supported by both an OLS analysis and an IV strategy that uses historical cotton suitability as an instrumental variable for lynchings. We also provide evidence that, while urbanization in the US South was increasing after 1880, the number of lynchings were also increasing, validating historical evidence that suggests that urbanization (due to Blacks' and other immigrants' influx) and interracial tension were simultaneously observed. We also notice that places with high rates of early urbanization have been experiencing a persistent and higher concentration of Blacks throughout the 20th century. By using a 2SLS analysis, we show that the early rhythm of urbanization at the county level predicts the long-term economic opportunities of Blacks. Finally, we examine whether places with higher historical lynching have higher rates of interracial tension. We use rough proxies of isolation, segregation, and discrimination, thus providing suggestive evidence towards our hypothesis.

Our results are a valuable contribution to the growing literature in economics that seeks to understand the long-term effects of lynching activity in the US and the role of history in shaping unequal economic opportunities among different racial groups.

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