Labor Mobility and Economic Development in the Post-Bellum U.S. South.

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PRELIMINARY AND VERY INCOMPLETE

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Abstract

Across the New World, the abolition of slavery was followed by a battery of laws restricting the labor market mobility of the newly emancipated. This paper models and estimates the impact of labor mobility restricting laws on African-Americans in the post-bellum U.S. South. Laws restricting job-to-job transitions increased the fraction of African-Americans relative to whites living in the rural sector and working in agriculture across the South. Increases in the fines charged employers for recruiting employed workers increased the duration of black labor contracts in a sample of Arkansas agricultural workers. Black agricultural workers who lived longer under labor control laws had a lower return to experience. These findings are consistent with a two-sector model of on-the-job search with mobility costs.

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1 Introduction

This paper examines the effects of repressive labor market institutions on economic development in the post-Civil War U.S. South. Recent papers in the political economy of development have stressed the importance of durable legal institutions on development (Acemoglu, Johnson, and Robinson 2001, Djankov et al 2008). However, the precise bundle of institutions important for growth remains a black box, with scholars debating the relative importance of political, financial, regulatory and labor market institutions in economic development. This paper examines the post-slavery labor market institutions of the U.S. South, and finds that the uncompetitive labor markets of the 1870-1930 U.S. South induced an allocation of African-American labor inefficiently biased towards agriculture, slowing the growth of manufacturing, migration, and economic development.

A recent paper by Acemoglu and Robinson(2007) highlights repressive labor markets in the South as an instance of institutional persistence. While slavery was formally abolished, Southern planters regained control of the political institutions following Reconstruction. They then eventually implemented a suite of labor laws, described in detail below, that restricted the mobility of African Americans and secured labor for the agricultural sectors. This was not unique to the United States South. All across the New World, formal abolition of slavery was accompanied not by the rapid development of thick, competitive labor markets, but rather a battery of legal measures designed to restrict mobility and supply cheap labor to the agricultural sector. (Kloosterboer 1960, Hahn 1990, Scott 1994).

In order to better understand the particular bundle of laws regulating the mobility of labor in the South, this paper extends the on-the-job search model of Burdett and Mortensen(1998) to a two-sector economy, adding job-to-job transition costs and examining their impact on the steady-state sectoral allocation of labor. The model generates predictions about the effects of labor market restrictions on the durations of agricultural contracts and the returns to experience, both of which are consistent with the empirical evidence. The state-year variation in the passages of the various laws, together with their selective enforcement vis-a-vis blacks allows for a difference-in-difference-in-difference empirical strategy using repeated cross-sections

drawn from the census. The predictions of the model about sectoral choices and labor force participation are consistent with the signs of the estimated coefficients.

This paper sits at the intersection of a number of different literatures. Firstly, it attempts to estimate the causal impact of mobility-restricting labor market institutions on the sectoral allocation of labor, and therefore contributes to the institutions and growth literature (Acemoglu, Johnson and Robinson 2001, Djankov et al. 2003). Secondly, it extends and estimates a common model of job search and wage dispersion (Burdett and Mortensen 1998, Van Der Berg 2003, Mortensen 2003) in a new historical and agricultural setting, explaining a number of stylized facts about the Southern rural labor market. Thirdly, it offers a new interpretation of a debate in Southern economic history in the 1970s on labor mobility in the post-bellum agricultural labor market(Goldin 1976, DeCanio 1978, Higgs 1977, Cohen 1976, Mandle 1978). It also is related to a literature in development economics on dual labor markets and migration in the process of economic development(Banerjee and Newman 1998, Harris and Todaro 1971). Finally, the paper contributes to the political economy of development by offering a window into the kinds of institutions favored by elites in a captured democracy, where de jure and de facto institutions together do what neither could do alone (Acemoglu and Robinson 2007).

Section 2 of this paper gives the legal history and background of the different classes of labor mobility restriction laws in the post-bellum South. Section 3 extends the Burdett-Mortensen model to a two-sector economy with mobility costs. Section 4 presents estimates of the effect of enticement fines on agricultural contract duration from a panel of contract spells from Alston and Ferrie(2005). Section 5 presents IPUMS census regressions using repeated cross-sections and a panel of state-level legislation. Section 6 Presents wage regressions from the 1940 census, finding that the returns to experience are lower in blacks that lived longer under mobility restrictions. Section 7 provides a simple calibration of the effects of these labor market institutions on overall Southern growth. Section 8 concludes.

2 History and Background

The following discussion is based on Cohen(1986, 1993), Roback(1984), Daniel(1972), Novak(1982), and Bernstein(1998, 2003). Faced with the abolition of legal slavery with the end of the Civil War, Southern planters innovated with the "Black Codes", laws designed to limit the mobility of newly freed slaves. These were largely unimplemented and struck down as disciminatory by the Federal government, and not enforced while the South was under military Reconstruction, from 1866 to the mid-1870s. However, with the withdrawal of Union troops in the mid-1870s and renewed Democrat control came the opportunity to pass laws that would guarantee planters the steady and cheap labor supply they desired. While a few Reconstruction-era laws began to be enforced (Cohen 1993, Roback 1984), most Southern states took advantage of the lack of political rights afforded African-Americans to pass renewed statutes regulating agricultural labor. While nominally compliant with the anti-discrimination amendments to the constitution, the new labor laws were intentionally vague, designed to be enforced at the discretion of local sheriffs, and were overwhelmingly applied to blacks only. I test this identification assumption below.

2.1 Anti-Vagrancy Laws

Vagrancy laws are a historically ubiquitous device to secure coerced labor, with perhaps the first common law instance being the 1351 Statute of Labourers, passed in response to Black-Death-induced labor scarcity. In the U.S. South, anti-vagrancy laws were an integral part of the Black Codes, but many of the post-Reconstruction passages began following black disenfranchisement in the 1890s and 1910s. A typical statute would criminalize "able-bodied men who have no gainful employment or property to support him". While considered a misdemeanor, it often carried with it the threat of the local chain-gang[1]. While most states had anti-vagrancy laws on the books in 1916[2], the severity of the punishment and the selective application to African-Americans are unique to the South.

[1]Roback 1984

[2]Laws of the Various States relating to Vagrancy Lathrop 1916

The enforcement of anti-vagrancy laws tended to coincide with labor demand shocks. Since many states had convict labor statutes, there was demand by the local planters to lobby for imprisoning potential workers, as they could be had cheaper leased from the local jail. The Atlanta *Constitution* could wink to the police with "Cotton is ripening. See that the 'vags' get busy"[3].

2.2 Contract Enforcement/False Pretenses Laws

Contract enforcement laws regulated labor contracts so that employees who took wages in advance and left during the contract period could be criminally prosecuted, with the choice being "either work out his contract or go to the chain gain"[4]. They were also called "False-Pretences" laws because they often considered a clause mandating that the worker had to have intent to "defraud" the employer by leaving before finishing the labor promised. However, versions of this law that were the most severe had *prima facie* clauses, that held that the presence of a contract was *prima facie* evidence that the intent to defraud leave was there.

Measurement of these laws is unusually difficult as there was a 1911 Supreme Court case declaring them to be unconstitutional and in violation of the 1867 federal anti-peonage statute. However, Southern states responded heterogeneously to this verdict, with some states striking it down, others formally striking it down but quickly passing new versions nominally consistent with the verdict, and still other states just ignoring it.

2.3 Anti-Enticement Laws

Anti-Enticement laws made labor "poaching" illegal, and were derivative of pre-existing "Master and Servant" common law that forbade enticement. Employers who attempted to hire workers under contract with another employer were sanctioned by the state. While laws like this had existed for a long time, Cohen notes that in the rest of the country"By the mid-nineteeth century criminal prosecutions were virtually nonexistent, and civil cases were

[3]Cohen pg 50
[4]Daniel 1972

rare". However, in the New South political economy, these laws found new life as enforced criminal statutes(except Tennesee, which kept it a civil offense, see Appendix). The severity of the fines inflicted varied greatly, as shown in figure 9.3.

2.4 Emigrant Agent Laws

Emigrant agents were out-of-state recruiters who attempted to arbitrage the wage differential between the South and other states. The laws were often passed in response to fears of large-scale labor migration, such as the Kansas exodus from Louisiana, Texas, and Mississippi [5] and the Indiana exodus North Carolina, both in 1879 [6]. Fearing the loss of their labor supply, Southern states passed licensing laws that mandated a fee for labor recruiters. This could apply both to "labor brokers" that were trying to move workers inside a state, as well as those that were attempting to recruit labor to move out-of-state. The pattern of emigrant agent fines is shown in figure 9.3.

Bernstein (1998, 2003) discusses these laws in depth. The first of such laws was in Georgia in 1975. Alabama passed a partial one in 1878, strengthening it in 1879 and 1880. North and South Carolina both passed equivalent laws in 1891, but North Carolina's becomes the object of a stiff legal battle between George "Pegleg" Williams and the State. While the state finds the law unconstitutional in 1893, a new version is immediately passed (Need cite for this), and the original ruling is overturned in 1905(Berstein 1998). The legal watershed for the emigrant agent laws was the 1903 Supreme Court ruling against Williams, holding that Georgia's law was constitutional.

[5] Richardson 2007

[6] However, note that none of the states that experienced the exodus were able to pass laws; instead only Alabama did in 1879

3 Job Search in the Era of Jim Crow

I focus on a labor market with homogenous workers. For the sake of simplicity I assume that whites and blacks are in separate labor markets so this model can be seen as only applying to black workers. I test this assumption below.

In the model, we have a wage offer distribution for agriculture $F(w)$, a fixed wage $w_m > F^{-1}(1)$ in manufacturing, and identical offer arrival rates for employed λ_e and unemployed λ_u for manufacturing recruiters and agriculture. Agricultural contracts have a random duration T, where T is drawn from an exponential duration with parameter $\frac{1}{\phi}$. The mean duration of a contract is therefore ϕ. I also assume that exits from unemployment are less frequent than exits from agricultural employment, so that $\lambda_e\phi > \lambda_u$.

Wages here are meant to represent a variety of agricultural labor outcomes, including sharecropping and tenancy (i.e. the full "tenancy-ladder"). Note that we could easily replace wages with sharecropping contracts without any loss of generality, since the workers only care about the total payoff, and there are no incentive effects. In a future extension, I hope to generate equilibrium coexistence of wage contracts and share contracts.

Manufacturing jobs are supplied by emigrant agents(or recruitment firms), which charge a fixed fee f to match a randomly encountered searcher with a manufacturing job. Workers encounter emigrant agent offers at the rates λ_u and λ_e while unemployed and employed, respectively. The emigrant agent sector has to pay a licence fee C_A, and therefore per period profits are given by

$$\Pi_A(t) = (\lambda_e\phi\mu_A(t) + u(t)\lambda_u)(f - C_A) \tag{1}$$

where μ_A is the fraction of the workforce in agriculture and u is the fraction of the workforce that is unemployed.

Free entry guarantees that $\Pi^A = 0 \rightarrow f = C_A$.

We also assume that both agricultural jobs and manufacturing jobs terminate at common rate δ. "Unemployment" in this model could mean either subsistence livelihood or actual unemployment.

3.1 Worker's decision

The value of a job in agriculture paying w is:

$$rV^A(w) = w+\lambda_e\phi \int max(V^A(w)-V^A(x),0)dF^A(x)+\lambda_e\phi max(V^M-V^A(w)-f,0)+\delta(V^u-V^A(w)) \tag{2}$$

The first term is the wage. The second term is the rate of arrival of job offers, times the rate at which the current contract expires, times the expected value of leaving the current job for a random draw from the agricultural wage offer distribution. The third term is the arrival rate of job offers times the rate at which contracts expire, times the value of leaving agriculture for manufacturing minus the fixed cost of leaving. The fourth term is the rate at which jobs exogenously terminate times the value of leaving the current job for unemployment.

Jobs in manufacturing have value given by:

$$rV^M = w_M + \delta(V^u - V^M) \tag{3}$$

where w_M is the exogenous manufacturing wage. δ is the rate at which jobs terminate.
The value from unemployment is

$$rV^u = b + \lambda_u \int max(V^A(x) - V^u, 0)dF^A(x) + \lambda_u max(V^M - V^u - f, 0) \tag{4}$$

Where b is the flow utility of unemployment and λ_u is the rate at which job offers arrive to the unemployed. The second term is the value of transitioning to a randomly drawn agricultural offer and the third term is the value of transitioning into the manufacturing sector.

The solution to this problem involves reservation wages, R^A and R_M that solve:

$$\begin{aligned} V^u &= V^A(R^A) \\ V^M - f &= V^A(R_M) \end{aligned}$$

We solve this pair of equations to obtain implicit functions for the two reservation wages:

$$\begin{aligned} R^A &= \frac{r+\delta+\lambda_e\phi}{r+\delta+\lambda_u}b + (\lambda_u - \lambda_e\phi)\frac{r+\delta}{r+\delta+\lambda_u}\Big(\int_{x>R^A}\frac{1-F(x)}{r+\delta+\lambda_e\phi(1-F(x)+\mathbf{1}_{\{x\leq R^M\}})}dx + \frac{w_M}{r+\delta} - f\Big) \\ R_M &= w_M - rf + \lambda_e\phi\int_{x>R_M}\frac{1-F(x)}{\delta+r+\lambda_e\phi(2-F(w))}dx \end{aligned}$$

This gives us a system of four differential equations, characterizing the motion of agricultural employment (μ_A), manufacturing employment μ_M, unemployment u, and the distribution of wages within agriculture($E^A(w) = G^A(w)\mu^A$).

$$\begin{aligned} \dot{\mu_A} &= \lambda_u(1-F^A(w))u - \delta\mu_A - \lambda_e\phi G(R_M)\mu_A \\ \dot{\mu_M} &= \lambda_u u - \delta\mu_M + \lambda_e\phi G(R_M)\mu_A \\ \dot{u} &= \delta(\mu_M+\mu_A) - \lambda_u(1-F^A(R^A)) - \lambda_u \\ \dot{E(w)} &= -\delta E(w) + \lambda_u(F^A(w))u - \lambda_e\phi E(min(w,\overline{w})) - \lambda_e\phi(1-F^A(\phi w))E(w) \end{aligned}$$

The last equation follows from the fact that the exits from a particular percentile of the wage distribution depend on whether the percentile is above the reservation wage for entering the manufacturing sector. I assume that when an agent is indifferent between agriculture and manufacturing, she stays in agriculture.

Solving for the steady state of this system (and using the fact that employment shares sum to 1: $\mu_A + \mu_M = 1 - u$) gives us the following values:

$$u = \frac{\delta}{\delta + \lambda_u(2 - F(R_A))} \tag{5}$$

$$\mu_A = \frac{\lambda_u(1 - F(R_A))u}{\delta + \lambda_e G(R_M)} \tag{6}$$

$$\mu_M = 1 - \frac{\lambda_u(1 - F(R_A))(\delta + \lambda_e(2 - F(R_M))) - \lambda_e F(R_M)}{\delta + \lambda_u(2 - F(R_A))} - \frac{\delta}{\delta + \lambda_u(2 - F(R_A))} \tag{7}$$

$$G(w) = \frac{\lambda_u F(w)}{\delta + \lambda_e(2 - F(w))} \times \frac{u}{\mu_A} \text{ if } w \leq R_M \tag{8}$$

$$G(w) = \frac{\lambda_u F(w) - \lambda_e G(R^M)\mu_A}{\delta + \lambda_e(1 - F(w))} \times \frac{u}{\mu_A} \text{ if } w > R_M \tag{9}$$

$$\tag{10}$$

Solving for μ_A we get:

$$\mu_A = \frac{\lambda_u(1 - F(R_A)) - \frac{\lambda_u \lambda_e F(R_M)}{\delta + \lambda_e(2 - F(R_M))}}{\delta + \lambda_u(2 - F(R_A))} \tag{11}$$

Note that if we assume the offer distribution to be exogenous, we obtain the following comparative statics:

$$\frac{d\mu_A}{dC_e} = \frac{d\mu_A}{d\lambda_e}\frac{d\lambda_e}{dC_e} < 0 \tag{12}$$

$$\frac{d\mu_A}{d\phi} < 0 \tag{13}$$

$$\frac{d\mu_A}{db} < 0 \tag{14}$$

$$\frac{d\mu_A}{dC_A} > 0 \tag{15}$$

$$\tag{16}$$

It now remains to check whether these comparative statics continue to obtain when F and λ_e are endogenously characterized as the Nash equilibrium of a wage-and-vacancy posting game among employers.

3.2 Equilibrium Search

To close the model, I now turn to endogenizing the agricultural offer distribution $F(w)$ with a continuum of employers of measure 1, as in Burdett and Mortensen(1999). Employers now can choose the wage, taking the distribution of offers from other employers as given. We seek a Nash equilibrium among employers, so that each employer is playing a best-response to the distribution of offers.

The probability of gaining a recruit while paying w is $h(w)$ with:

$$h(w) = \lambda_u u + \lambda_e \mu_A G(w) \tag{17}$$

The rate of losing an employee is $Q(w)$, where

$$Q(w) = \lambda_e \phi (1 - F(w) + \mathbf{1}_{\{w \leq R^M\}}) \tag{18}$$

Therefore, the value of a job to a firm is given by:

$$\begin{aligned} rJ(w) &= p - w - (\delta + Q(w))J(w) \rightarrow \\ J(w) &= \frac{p - w}{r + \delta + Q(w)} \end{aligned}$$

I also allow firms to choose a degree of on-the-job recruitment effort ("enticement"), v. The contact rate for employed workers, λ_e will be determined by the equilibrium choice of v, while the contact rate for unemployed workers will remain exogenous at λ_u.

Firm profits are given by:

$$\pi(w) = \max_{w,v} h(w)J(w)v - C_e v^2 = \max_v (\max_w \frac{h(w)(p-w)}{r + \delta + Q(w)} v - C_e v^2) \tag{19}$$

I also denote by $l(w) \equiv \frac{h(w)}{r+\delta+Q(w)} = \frac{\lambda_u u + \lambda_e \phi G(w)}{r+\delta+\lambda_e \phi (1-F(w)+\mathbf{1}_{\{w \leq R^M\}})}$ the labor-supply function facing the employer.

Proposition: The equilibrium wage offer distribution is continous and connected, except

at $w = R_M$.

Proof: In appendix.

We can now solve for $F(w)$ by noting that for all w, firms must make the same profit, so we have $\pi(w) = \pi(b) = \overline{\pi}$. First note that $F(w) = 0$ for all $w < R_A$, since no agricultural firm would be able to recruit any workers if they offered wages below the reservation wage of workers. Since F must be right-continous, this implies that $F(R_A) = 0$.

$$\overline{\pi} = (p - w)\frac{(\lambda_u u + \lambda_e \phi \mu_A \frac{\lambda_u F(w) - \mathbf{1}_{\{w \leq R^M\}} \lambda_e \phi G(R_M)}{\delta + \lambda_e \phi (1 - F(w) + \mathbf{1}_{\{w \leq R^M\}})})}{r + \delta + \lambda_e \phi (1 - F(w) + \mathbf{1}_{\{w \leq R^M\}})} \tag{20}$$

In the appendix, I characterize $F(w)$. In particular, we have

$$F(R^M) = H(\lambda_e \phi, \lambda_u, \delta, w_M, R_A) \tag{21}$$

Finally, we can allow the contact rate to be equal to the total amount of on-the-job recruitment effort per worker. Since the number of firms is equal to the number of workers, the contact rate for workers is given by: $\lambda_e = v^* = \overline{\pi}/C_e$. Solving this for the positive root gives:

$$\lambda_e = \frac{1}{2}\sqrt{(r + \delta)^2 + \frac{4(p - b)\lambda_u \delta}{C_e(\delta + \lambda_u(2 - F(R_A))}} - (r + \delta)) \tag{22}$$

Note that $\frac{d\lambda_e}{dC_e} < 0$.

3.3 Comparative Statics

Using 21, the fact that $F(R_A) = 0$, and equation 11 we get:

$$\mu_A = \frac{\lambda_u(1 - \frac{\lambda_e F(R_M)}{\delta + \lambda_e(2 - F(R_M))})}{\delta + 2\lambda_u} \tag{23}$$

From equations 23 and 22 we have the following comparative statics.

$$\begin{aligned}
\frac{d\mu_A}{dC_e} = \frac{d\mu_A}{d\lambda_e}\frac{d\lambda_e}{dC_e} &< 0 \\
\frac{d\mu_A}{d\phi} &< 0 \\
\frac{d\mu_A}{db} &= 0 \\
\frac{d\mu_A}{dC_A} &> 0
\end{aligned}$$

Thus, the share of employment in agriculture increases, as the arrival rate of alternate offers on the job decreases, with increases in the agricultural contract duration, and with the licence fee for labor recruiters. Decreasing the utility from unemployment increases the amount of labor employed in agriculture. We can interpret the different laws as changing different parameters, where ϕ is reduced by contract-enforcement laws that increase the amount of time spent in an agricultural contract, b is reduced by anti-vagrancy laws that increase the probability of being imprisoned while unemployed, C_A is increased by emigrant-agent laws that raises costs to labor recruiters that are passed on to workers, and C_e is increased by anti-enticement laws that increase the costs for employers to recruit already employed workers.

4 Duration Evidence from Arkansas Anti-Enticement Fines

The duration of contracts, T in the model has an exponential distribution with parameter $-\delta - \lambda_e\phi(1 - F(w))$. This implies that we can write the hazard of contract termination as:

$$\theta = \delta + \lambda_e\phi(1 - F(w) + \mathbf{1}_{\{w \leq R_M\}}) \tag{24}$$

Assuming a reduced form proportional hazard model we write:[7]

$$\theta(t|X(t)) = \theta_0(t)e^{X(t)\beta} \tag{25}$$

where $X(t)$ is a set of (potentially) time-varying covariates that explain the rate at which workers leave contracts. I first write down the integrated hazard version of the equation:

$$\log \int_0^t \theta_0(s)ds = -X(t)\beta + \nu \tag{26}$$

where ν is a type I extreme value distribution.

Note that if we assume the baseline hazard θ_0 is constant and ν to be normally (rather than type I extreme value) distributed, we obtain an accelerated failure time model, estimable with OLS:

$$\log t = -X(t)\beta' + \nu \tag{27}$$

From our previous results, it is easy to see that we have:

$$\frac{dE[\log t]}{dC_e} = \frac{dE[\log t]}{d\lambda_e}\frac{d\lambda_e}{dC_e} > 0$$
$$\frac{d\theta}{dC_e} = \frac{d\theta}{d\lambda_e}\frac{d\lambda_e}{dC_e} < 0$$

Alsten and Ferrie(2005) collected data from a Works Progress Administration retrospective survey of Jefferson County, Arkansas farmers from 1938, asking questions on work history back to 1890. Arkansas also happens to have an anti-enticement law from 1875 onwards, but the fines charged changed from 200 to 100 dollars in 1903 and from 100 to 500 dollars in 1923, as can be seen in figure 9.3. We can use the change in the enticement fines as a measure of C_e to test the prediction given by 28.

Table 9.3 shows the Alston and Ferrie data. We have 220 individuals in the sample, with 33 whites and 187 blacks, with 1061 contract spells among them. There is one censored spell for each individual. For a large subsample, we also observe the contract type. I also use the

[7]Van Der Berg(2003) notes the difficulty of obtaining structural proportional hazard equations from economic theory

Arkansas agricultural wage as a control. $maxfine$ is the maximum Arkansas enticement fine, calculated from Holmes (2007). I use the average of the enticement fine over the contract duration. As a robustness check, I run specifications restricted to the sample of durations that do not experience a change in the enticement fine over the contract period.

Figure 3 shows Kaplan-Meier survival curves for blacks in the sample, stratified by the enticement fine and restricted to those spells where there were no changes in the enticement fine over the spell. The longest survival times are found in the contracts that occur during the 500$ enticement fine, followed by those under the 200$ enticement fine, followed by those under the 100$ enticement fine.

To specify the regression equation, let i index individuals and j index contract-spells. The expected sign from a regression of $\log t$ on $\log(maxfine)$ is positive: stiffer enticement fines should increase the amount of time spent in a given agricultural contract, as it slows the rate of on-the-job offer arrivals. I take account of time-varying $maxfine$ by averaging the maximum fine over the contract spell[8]. The OLS Accelerated Failure Time model from 27 is given by:

$$\log t_{ij} = \beta_0 + \beta_1 \times \log(maxfine) + \beta_2 \times \delta_r \times \log(maxfine) + X'_{ij}\beta + d_i + \epsilon \qquad (28)$$

All standard errors are clustered at the individual level (results are identical when clustered by contract starting year). Results are in table 9.3. The coefficient on β_2 is negative and significant in all specifications, implying that a 10% increase in the average maximum enticement fine is correlated with between a 4% and 8% increase in the duration of the employment contract. When I restrict the sample to only blacks, I find that the elasticity of durations with respective to the enticement fine is .1, with no effect on the whites-only sample. While not shown, results are qualitatively identical (although less significant) when a tobit model is estimated to take account of the censored spells.

[8]There are important issues in the literature on duration models around how to properly include time-varying covariates. I take the simplest approach owing to the retrospective and sparse nature of the data

I also fit a variety of proportional hazard models, estimating 25. I allow $\lambda_0(t)$ to be exponential, Weibull, or nonparametrically estimated (Cox model). I control for individual fixed effects, age, mean agricultural wage. The parameter of interest is the coefficient β_2, which the model predicts as being negative in the proportional hazard model (the dependent variable being the hazard rate of exit from a contract spell).

Results are in table 9.3. The coefficient of interest is always negative and significant in most specifications. When I split the sample by race, I find that the laws generally only had an impact on blacks, although this is most likely due to the small sample of whites. The only model where this is not true is the Cox proportional hazard model, and this is likely due to the problem of non-parametrically estimating the hazard function jointly with a large number of parameters with only a small number of data points.

5 Evidence on Structural Change

In this section, I use state-year-race variation and the differential timing of legal changes among southern states to test the predictions of the model.

5.1 Data

All males age 16-65 born in the U.S. South from IPUMS U.S. Census individual level data from 1870 to 1930, excluding 1890, where the individual records were destroyed in a commerce building fire. I construct two samples. One, the "stayers" sample, looks only at men born in the U.S. south who stayed. An observation is labelled as treated by a particular law if he is African-American and currently living in a state where the law is in effect. This sample is vulnerable to selection bias, as a response to the law may have been an increase or a decrease in migration. I return to this below. This selection should bias the coefficients away from 0.

I also create a "With Migrants" sample that looks at all the men born in the U.S. South, regardless of whether or not they stayed. I define the treated group here as African-Americans

who were born in a state that passed a law by the year of sampling. This sample is vulnerable to measurement error, because I do not know whether or not the person migrated before or after the law went into effect, so the independent variable of interest is mismeasured. This should bias the coefficients towards 0. Thus, the true estimate should be smaller than the coefficient obtained on the "Stayers" sample and larger than the coefficient obtained on the "With Migrants" sample. The formal statement of this is found in the Appendix.

I also create an additional sample including all 16-65 men from border states(i.e. those that share a border with a Southern state). All results are hold in this sample.

5.2 Measuring The Laws

I have three sources for measuring the various labor control laws. Roback(1984) provides a chronology of the various laws based on her readings of state legal codes. However, she only selects the first instance that she considers binding of each law, from 1866 to 1930. Table 9.3 shows the Roback data.

Cohen(1993) provides an alternate chronology of the labor control laws, but does not provide legal sources that can be followed up on for verification, and he includes laws that were unenforced or rapidly struck down. In addition, his series begins in 1866 and ends in 1915, while laws are still being enacted into the late 1920s. Cohen's data includes the passage of laws that were not enforced under Reconstruction, as well as events that were amendments to previous laws. It is reassuring that all the laws in Roback appear in Cohen's tables, and are explicitly referenced as important instances in the text. Figure 3 shows the Cohen data, cumulated over the post-redemption period(i.e. excluding laws passed under Reconstruction). Results using the Cohen data have the same signs as results from the Roback data although much weaker statistical significance.

Holmes' (2007) Ph.D. dissertation is a compilation of all labor laws in all states from 1880 to 1924, compiled from BLS volumes on labor law in the states. In some cases the initial date of passage is noted, but not whether the law was struck down or amended in the interim

period. Included are anti-enticement and emigrant-agent laws, as well as the maximum fines for penalties incurred. Figures 9.3 and 9.3 show the time pattern of fines as found in Holmes' data. However, sometimes the Holmes dates of law passage differ from the Roback ones.

In the case of Tennessee, Holmes records the anti-enticement law as "damages". I assign the maximum fine as a half-year's wages.

For the Anti-Enticement and Emigrant-Agent laws, Holmes provides the maximum fine chargeable under the law for much of the 1890-1930 period, and I run the earliest recorded fine backwards to the date of the law passage in the cases where Roback records an earlier law than 1890. I construct an index variable that simply counts the number of laws that have been passed up to that year. I also count the number of laws that restrict the extent of job-to-job transitions (i.e. all except for anti-vagrancy).

5.3 Outcome Variables and Predictions

There are 4 different kinds of laws, enumerated above. I also construct an "aggregate index", which is equal to the sum of all the different labor control laws in the state.

I have three primary measurements of sectoral allocation. *agind* is a dummy indicating that the industry code is agriculture. $farm$ is a census variable indicating that the person works/lives on a farm[9] and *urban* indicates if the person lives in a city.

I examine a number of additional outcome variables. I also observe labor force participation, $labfor$. From 1870 to 1930, this variable is defined as "no gainful employment". There may be an incentive to misreport this variable, given the anti-vagrancy laws in effect. I also have two variables provided by the census on "occupational status". One is *occscore*, the other is *sei*. The latter two variables are defined using the 1950 relative occupational incomes

[9] *agind* and $farm$ are highly correlated. The difference arises due to missing observations, as well as anomalies in the 1870 survey

and socio-economic status, and thus may not be good measures for the earlier period, particularly in the U.S. South. I also construct a measure of occupation "whiteness" defined as the fraction of the Southern male population in that occupation that is white in that census year. Despite being partially endogenous, this may be a good proxy for the quality of an occupation in the South over this period.

For the "With Migrants" sample, I define two additional outcome variables. One is an indicator for whether or not the agent moved outside of their state of birth. The second is an indicator for whether or not the agent moved outside of the South.

Summary statistics are in Table 3.

5.4 Specifications

Individual-Level: i indexes individuals, r indexes race, s state, t time. Treatment is defined as presence of law interacted with a race dummy. African-Americas were overwhelmingly the targets of these institutions. Note, however, that if whites were affected by the law, then this should bias β_1 towards 0.

$$T_{rst} = Law_{st} \times Black_r \tag{29}$$

All standard errors are clustered at the state level. Since there may be a problem with a small number of clusters, I use the bootstrapping procedure described in Cameron, Gelbach and Muller(2008).

$$y_{irst} = \beta_0 + \beta_1 T_{rst} + \beta X_i + \delta_{sr} + \delta_{st} + \delta_{tr} + \epsilon_{irst} \tag{30}$$

I also run the following specification as a robustness check, controlling for a race-specific time trend.

$$y_{irst} = \beta_0 + \beta_1 \times T_{str} + \beta_2 \times \delta_r \times t + \beta X_i + \delta_{sr} + \delta_{tr} + \epsilon_{irst} \tag{31}$$

5.5 Robustness

I perform a variety of robustness tests. I include geographic fixed-effects at the State-Economic-Area level and the county level(for the Stayers sample). I also include year of birth(cohort) fixed effects. I also restrict my sample to pre-1920 census years(1870,1880, 1900,1910), to check that results are not being driven by either World War I or hookworm eradication programs (Bleakley 2006). While not shown, results on sectoral allocation are all of the same sign, but not consistently significant, using the Cohen sample of laws.

5.6 Results

Results are presented in Tables 9-13. Each entry represents the coefficient on β_1 from a different regression/sample on a different outcome variable.

6 Effect on Wages

The average agricultural wage can be written as $\overline{w} = \int_{z \geq R_A} 1 - G(z)dz$ by an integration by parts.

6.1 Wage-Age Profiles

Search theory attributes part of the returns to experience as the result of finding better jobs. If the model above is correct, then the returns to experience for African-Americans working in agriculture should be lower relative to whites, the longer they have lived under anti-enticement and contract-enforcement laws. Assuming that the recruitment rate out of unemployment λ_u and the rate of job termination δ is the same for both whites and blacks, then the lower λ_e and ϕ faced by blacks should result in a lower relative return to experience. In addition, migration out of the agricultural sector should be lower, conditional on age and other covariates, the longer one has lived under laws that restrict mobility.

To incorporate this into the model, I assume that cohorts enter the labor market at the reservation wage, R_A. This implies that $w(t) = \int_{z \geq R_A} 1 - G(z|t)dz$ so that

$$\frac{dw(t)}{dt} = -\int_{z \geq R_A} \frac{dG(z|t)}{dt} dz > 0 \tag{32}$$

and

$$\frac{d^2w(t)}{dtd\lambda_e} = -\int_{z \geq R_A} \frac{d^2G(z|t)}{dtd\lambda_e} dz > 0 \tag{33}$$

This implies that living longer under higher enticement fines (with a lower λ_e) should lower the returns to experience.

The first year the census collected migration and wage data was 1940. I look at the cross-sectional returns to age for blacks interacted with the fraction of years they lived under each of the various laws. I estimate the following cross-sectional wage regression:

$$\log(w_i) = \beta_0 + \beta_1 \times T_i \times \delta_r \times age + \beta_2 T_i \sum_s (\beta_{s1}\delta_s \times age + \beta_{s2}\delta_s \times age^2) + \beta_{r1}\delta_r \times age + \beta_{r2}\delta_r \times age^2 + \delta_{r \times educ} + \delta_{rs} + \epsilon_i$$

where

$$T_i = min(\frac{1940 - \text{year law enacted}}{age}, 1) \tag{34}$$

measures the fraction of years (up to their entire life) spent under a given law.

This specification controls for race-specific education level dummies, as well as race-specific quadratic polynomials in experience, and state-race fixed effects. All standard errors are clustered at the state level.

I estimate the equation on a number of different samples of males 18-64. I construct samples of all Americans, Southerners, and the Southern-born that were working on a farm in 1935.

In order to look at inter-sectoral mobility, I also estimate the following regression on the samples that were working on a farm in 1935, where $Farm_i^{1940}$ is a dummy variable indicating that the person is currently working on a farm.

$$Farm_i^{1940} = \gamma_0 + \gamma_1 \times T_i \times \delta_r \times age + \gamma_2 T_i \sum_s (\gamma_{s1}\delta_s \times age + \gamma_{s2}\delta_s \times age^2) + \gamma_{r1}\delta_r \times age + \gamma_{r2}\delta_r \times age^2 + \delta_{r\times educ} + \delta_{rs} + \epsilon_i$$

The sign predictions are that $\beta_1 < 0$ from equation 34 and that $\gamma_1 > 0$; this is implied by the prediction that the returns to age for African Americans in agriculture are lower in states with labor mobility restrictions. Similarly, the probability of leaving agriculture is lower for African Americans living under labor control laws.

Results for β_1 are presented in table 13.

7 Growth Calibration

Aggregate income per capita in the model is given by:

$$y(t) = p_M \mu_M(t) + p_A \mu_A(t) + bu(t) \tag{35}$$

To be finished....

8 Conclusion

This paper estimates the impact of labor mobility restrictions in the post-bellum U.S. South. In a frictional labor market, mobility restrictions are interpretable as costs imposed on job-to-job and sector-to-sector transitions. I model this in the Burdett-Mortensen(1998) framework, deriving distinct predictions about the effects of different kinds of mobility restrictions on the sectoral allocation of labor. I test these predictions using repeated cross-sections from

the IPUMS census samples from 1870 to 1930. I find that the emigrant-agent and anti-enticement laws had the largest impact on increasing the probability that African-Americans would be rural and working in agriculture. Turning to a panel of farmers from Jefferson county, Arkansas collected by Schuler(1938), I find that changes in the fines facing employers for enticement are associated with longer stays in agricultural contracts. Finally, consistent with the model, I also find that the returns to experience for African-Americans working in agriculture in 1935 are lower with higher exposure to anti-enticement fines.

Economic development has long been concerned with dual labor markets (Lewis 1954) where there is inefficiently excess labor in agriculture. However, in many countries the "duality" was maintained by institutions and laws. South Africa is perhaps the starkest example, with an extensive system of pass laws and migration controls designed to supply cheap labor to the white owned mines starting in the early 20th century (Feinstein 2005). The use of restrictive labor laws to lower agricultural wages and solve recruitment problems is virtually ubiquitous in the post-emancipation New World, and the United States South is no exception. Figure 9.3 shows that a higher degree of slavery in 1750 is correlated with delayed formal abolition of "forced labor"[10]. Figure 9.3, while only suggestive, indicates that one of the legacies of slavery in the New World may be continuing repressive labor markets, consonant with the experience of the U.S. South. Numerous papers have found a persistent effect of slavery on present-day income and attributed it to institutional persistence (Nunn 2007, Engerman and Sokoloff 2001) ; none have attempted to disentangle the relative contributions of particular post-slavery institutions. In fact, Nunn(2007) finds that the persistent effect of slavery on income does not operate through the persistence of plantation agriculture or economic inequality. This paper suggests a novel channel: a continuing legacy of legal labor restrictions applied to the newly emancipated.

Finally, this paper suggests that the pre-World War II United States South should be added to the list of countries studied by scholars interested in comparative development.

[10]ILO Convention 29 states in Article 4: "Where such forced or compulsory labour for the benefit of private individuals, companies or associations exists at the date on which a Member's ratification of this Convention is registered by the Director-General of the International Labour Office, the Member shall completely suppress such forced or compulsory labour from the date on which this Convention comes into force for that Member."

For example, Bleakley(2006) studies hookworm eradication in the South to shed light on contemporary tropical disease eradication programs. The Klu Klux Klan's ballot terrorism in 1874 and 1876 brings to mind the strategic use of violence during elections in many developing countries today. Reconstruction can be interpreted as the first attempt of the US government to engage in nation-building via military occupation. The New Deal and World War II may be examples of structural adjustment and economic integration that tip the regional economy into a high-growth equilibrium and convergence to the national growth trend (Wright 1986). And, of course, the racial inequality and conflict so characteristic of the South is endemic to developing countries, particularly others in the Western hemisphere. For scholars living in the US, the ex-Confederacy may be the development experience closest to home.

9 Appendix

9.1 Alternate Steady-State Agricultural Employment Share

First note that if $G(R^M)$ is the solution to equation XX instead of XX, then

$$G(R^M) = \frac{\lambda_u F(R^M) u}{\mu_A(\delta + \lambda_e \phi(1 - F(R^M)) + \lambda_e \phi u)}$$

Plugging this into the equation for steady state μ_A and solving we get

$$\mu_A = \frac{\lambda_u(1 - F(R_A) - \frac{\lambda_e \phi \lambda_u F(R^M)}{\delta + \lambda_e \phi(1 - F(R^M) + u)}}{\delta + \lambda_u(2 - F(R_A)}$$

Since u is not a function of λ_e or ϕ the key comparative statics remain the same.

9.2 Proof of Proposition 1

Suppose there was a discontinuity in $F(w)$, say at $w' \neq R_M$. Then there would also be a discontinuity in $h(w)$ and $Q(w)$, and therefore $l(w)$, which is clearly continous and monotonically increasing in $F(w)$. Since F is a cdf, it is right continous, and therefore it must be that $l(w') < \lim_{w \to w'_+} l(w)$. Thus, for all ϵ, we have $l(w' + \epsilon) > l(w')$ and therefore there must

exist sufficiently small ϵ so that $\pi(w' + \epsilon) = (p - w' - \epsilon)l(w' + \epsilon) > p - w'l(w') = \pi(w')$. This implies that firms could do better by increasing their wages by ϵ, which means that firms at $F(w')$ could not have been playing a best-response.

Suppose now that there is a gap in the support of the distribution, so that there exist w' and w'' such that $F(w') = F(w'')$ and $w' < w''$. Then firms paying w'' recruit the same number of workers as those paying w' while making less profit per worker. Therefore they could do better by paying any wage w such that $w' < w < w''$.■

9.3 Signing the selection bias

Let S_i be a dummy variable that takes on the value of 1 when the agent stays, and the value 0 when the agent leaves.

$$S_{irst} = \gamma_0 + \gamma_1 \times T_{str} + \gamma X_i + \delta_{sr} + \delta_{tr} + \mu_{irst} \tag{36}$$

Write the OLS regression equation conditional on covariates and fixed-effects:

$$E[y|X, \delta_{rs}, \delta_{st}, \delta_{rt}] = \beta_0 + \beta_1 E[T|X, \delta_{rs}, \delta_{st}, \delta_{rt}] + E[\epsilon|X, \delta_{rs}, \delta_{st}, \delta_{rt}] \tag{37}$$

Using $*$ to denote the conditional expectations, we have:

$$y^* = \beta_0 + \beta_1 T^* + \epsilon^* \tag{38}$$

and similarly

$$S^* = \gamma_0 + \gamma_1 T^* + \mu^* \tag{39}$$

Under the identification assumptions that $E[\epsilon^*|T^*] = 0$ and $E[\mu^*|T^*] = 0$, the OLS estimate of β_1 is given by:

$$\hat{\beta_1} = \beta_1 + \frac{E[S^* \mu^* \epsilon^*]}{E[S^* T^{*2}]} \tag{40}$$

Assumption: $sgn(Cov(\mu^*, \epsilon^*)) = sgn(\beta_1)$

This assumption implies that the same unobservables that increase the probability of being in agriculture increase the probability of staying in the South. Similarly, the unobservables that increase the probability of leaving for the urban sector increase the probability of leaving the South. We can imagine a latent index, say the net benefits of migration, that is affected by the treatment variable T, is positively associated with leaving the agricultural sector, and positively associated with leaving the sample. Under this assumption, it is clear that $|\hat{\beta}_1| > |\beta_1|$

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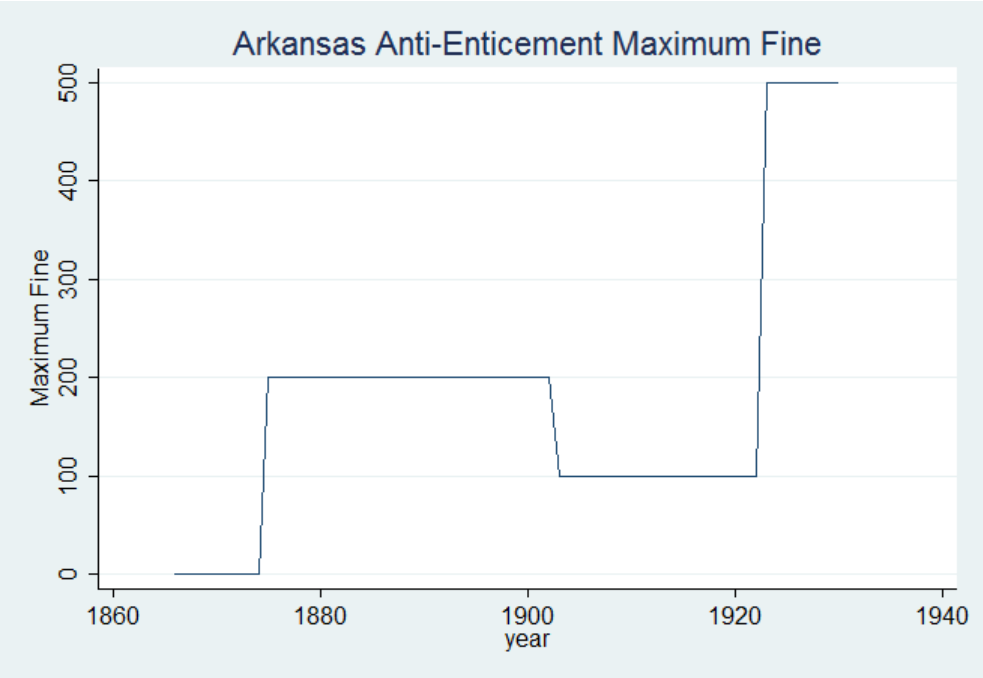


Figure 1: Arkansas Maximum Enticement Fine. Note: extrapolated back to 1875 initial passage (Cohen 1993 shows there were no other changes to the law before 1905) and forward through 1930.

Table 1: Dates of Passage of Labor Control Laws from Roback(1984)

State	Contract	Vagrancy	Enticement	Agent
Alabama	1885	1903	1866	1879
Arkansas	1907	1905	1875	
Florida	1891	1905	1865	1903
Georgia		1895	1901	1876
Kentucky				
Louisiana		1908	1890	
Mississippi	1906	1904	1890	1912
North Carolina	1889	1905	1905	1891
South Carolina	1908	1893	1880	1891
Tennessee		1875	1875	1917
Texas		1909		1929
Virginia		1904		1924

Table 13: Alston and Ferrie Summary Statistics

	per subject				
Category	total	mean	min	median	max
no. of subjects	195				
no. of records	855	4.38	1	3	45
(first) entry time		6.82	0	5	32
(final) exit time		25.47	2	23	59
time at risk	3634	18.64	1	16	46
failures	855	4.38	1	3	45

Summary Statistics	number	mean	std. dev	min	max
log duration	855	1.00	0.90	0.00	3.56
black	855	0.96	0.19	0.00	1.00
log maxfine	855	5.46	0.70	4.61	6.21
age	855	32.31	11.63	15.00	73.00
log mean wage	835	2.82	0.37	1.42	3.29
tenant	349	0.14	0.34	0.00	1.00
sharecropper	349	0.29	0.45	0.00	1.00
wage worker	349	0.57	0.50	0.00	1.00
begin in depression	855	0.16	0.36	0.00	1.00
end in depression	855	0.30	0.46	0.00	1.00

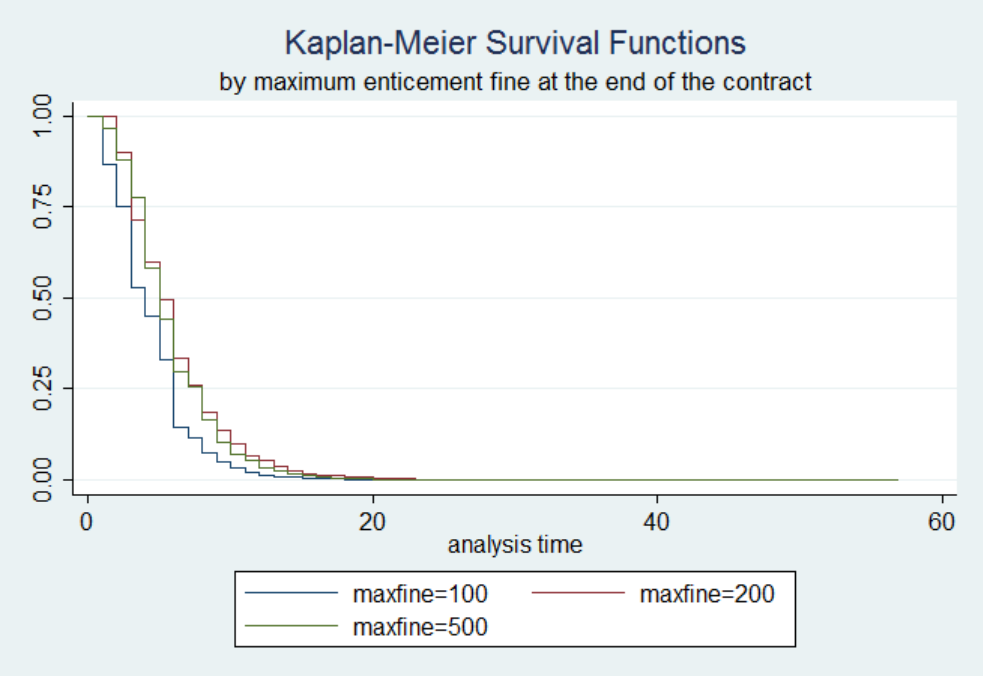


Figure 3: Kaplan-Meier Survival Curves from the Alston-Ferrie data. Stratified by enticement fine and restricted to black contracts that did not experience any change in the enticement fine over the contract period.

Table 2: 1870-1930 census sample summary

Variable	Observations	Mean	Std. Dev.
black	469878	0.32	0.47
age	469878	33.16	13.26
literacy	469878	3.47	1.12
south migrant	469947	0.14	0.35
state migrant	469947	0.33	0.47
urban	469878	0.27	0.44
farm	469878	0.48	0.50
agriculture	469878	0.48	0.50
occscore	460203	17.56	11.56
socio-economic index(sei)	469878	17.99	18.49
labforce	469878	1.85	0.44

AFT model	no controls	age	age wage	Depr. FE	nochanges	w/o Depr	contract FE	year FE	blacks	whites
log maxfine	-0.934	-0.756	-0.653	-0.823	-0.798	-0.363	-0.624	0.699	0.115	0.339
	(2.30)*	(2.05)*	(1.86)*	(5.14)**	(17.31)**	(2.05)*	(0.92)	(2.93)**	(1.88)*	(1.05)
black x log maxfine	0.933	0.878	0.818	0.811	0.785	0.485	0.659	0.433		
	(2.28)*	(2.37)**	(2.35)**	(5.53)**	(14.15)**	(2.76)**	(0.97)	(1.98)*		
age		-0.013	-0.019	-0.024	-0.005	-0.007	-0.013	-0.06	-0.013	-0.096
		(3.32)**	(3.45)**	(3.50)**	(1.37)	(1.27)	(2.22)*	(4.84)**	(3.17)**	(4.53)**
log wage			0.145	0.114		-0.007	0.077	0.116		
			(1.68)*	(1.17)		(0.07)	(0.68)	(0.65)		
Depr. Begin				-0.65						
				(6.16)**						
Depr. End				0.854						
				(8.45)**						
Constant	1.205	0.955	0.486	1.566	1.165	0.81	1.298	-4.172	0.759	2.789
	(4.18)**	(3.43)**	(1.08)	(3.83)**	(3.93)**	(1.84)*	(2.40)**	(4.29)**	(2.73)**	(2.18)*
Individuals	197	197	196	196	184	149	57	196	174	23
Observations	855	855	835	835	691	700	335	835	823	32

OLS regressions with log duration as the dependent variable.

All models include individual fixed effects. Robust z-statistics in parentheses, clustered at the individual level.

* significant at 5% level; ** significant at 1% level

Cox Model	no controls	age	age wage	Depr. FE	nochanges	w/o Depr	contract FE	year FE	blacks	whites
log maxfine	0.578	0.799	0.55	0.658	1.588	0.189	0.112	-1.249	-0.247	-3.36
	-1.41	-1.51	-1.17	(2.32)*	(7.68)**	-0.7	-0.16	(3.00)**	(2.93)**	-1.03
black x log maxfine	-0.924	-1.064	-0.985	-0.881	-1.577	-0.565	-0.671	-0.678		
	(2.25)*	(2.01)*	(2.14)*	(3.63)**	(7.87)**	(2.18)*	-0.97	(1.73)*		
age		-0.047	-0.043	-0.042	-0.165	-0.058	-0.03	-0.148	-0.041	-0.128
		(3.18)**	(2.78)**	(2.43)**	(6.54)**	(3.24)**	-1.55	(7.04)**	(2.78)**	-0.96
log wage			-0.503	-0.68		-0.382	-0.285	-0.802		
			(3.81)**	(3.36)**		(2.72)**	(1.69)*	(2.70)**		
Exponential Model										
log maxfine	0.85	0.636	0.436	0.555	0.803	0.19	0.433	-0.697	-0.181	-0.356
	(1.83)*	-1.56	-1.24	(3.02)**	(14.25)**	-1.21	-0.68	(2.95)**	(2.52)**	-1.09
black x log maxfine	-0.867	-0.824	-0.728	-0.642	-0.793	-0.416	-0.533	-0.426		
	(1.85)*	(2.03)*	(2.12)*	(4.06)**	(13.76)**	(2.78)**	-0.84	(2.02)*		
age		0.018	0.029	0.037	0.004	0.016	0.018	0.007	0.018	0.097
		(3.16)**	(3.92)**	(3.77)**	-1.04	(2.19)*	(2.21)*	-1.24	(3.04)**	(4.64)**
log wage			-0.325	-0.346		-0.176	-0.235	-0.288		
			(3.46)**	(2.92)**		(1.78)*	(1.90)*	-1.55		
Constant	-1.008	-0.895	-0.263	-1.646	-6.165	-0.332	-0.954	7.972	-0.9	-0.638
	(3.55)**	(3.48)**	-0.79	(5.42)**	(22.34)**	-0.99	(2.39)**	(9.03)**	(3.48)**	-0.37
Weibull Model										
log maxfine	0.55	0.742	0.534	0.741	0.944	0.194	0.622	-0.965	-0.174	-0.944
	-1.17	-1.33	-1.06	(1.83)*	(10.98)**	-1.33	-0.8	(2.36)**	(1.73)*	-0.46
black x log maxfine	-0.862	-0.925	-0.841	-0.817	-0.777	-0.435	-0.574	-0.52		
	(1.84)*	(1.66)*	(1.68)*	(2.19)*	(7.94)**	(3.65)**	-0.74	-1.43		
age		-0.029	-0.02	-0.013	-0.08	-0.044	-0.019	-0.099	-0.026	-0.103
		(2.34)**	-1.44	-0.74	(5.43)**	(2.63)**	-0.88	(5.70)**	(2.14)*	-0.53
log wage			-0.346	-0.46		-0.18	-0.249	-0.553		
			(2.72)**	(2.42)**		-1.16	-1.51	(1.91)*		
Constant	-2.13	-2.816	-2.274	-4.261	-8.279	-2.428	-3.367	9.721	-2.649	-12.867
	(5.93)**	(5.08)**	(3.59)**	(7.25)**	(15.31)**	(3.59)**	(2.80)**	(6.07)**	(4.96)**	-1.06
Individuals	197	197	196	196	184	149	57	196	174	23
Observations	855	855	835	835	691	700	335	835	823	32

All models include individual fixed effects. Robust z-statistics in parentheses, clustered at the individual level.

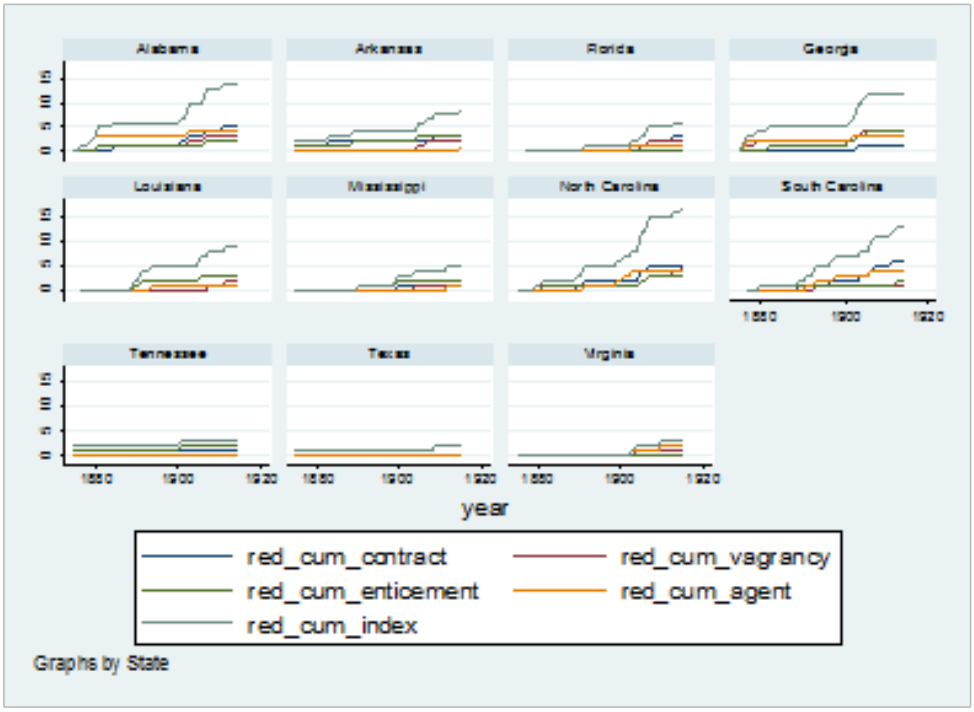


Figure 4: Cumulative number of laws passed by type and state from Cohen(1993). Does not include laws passed during Reconstruction.

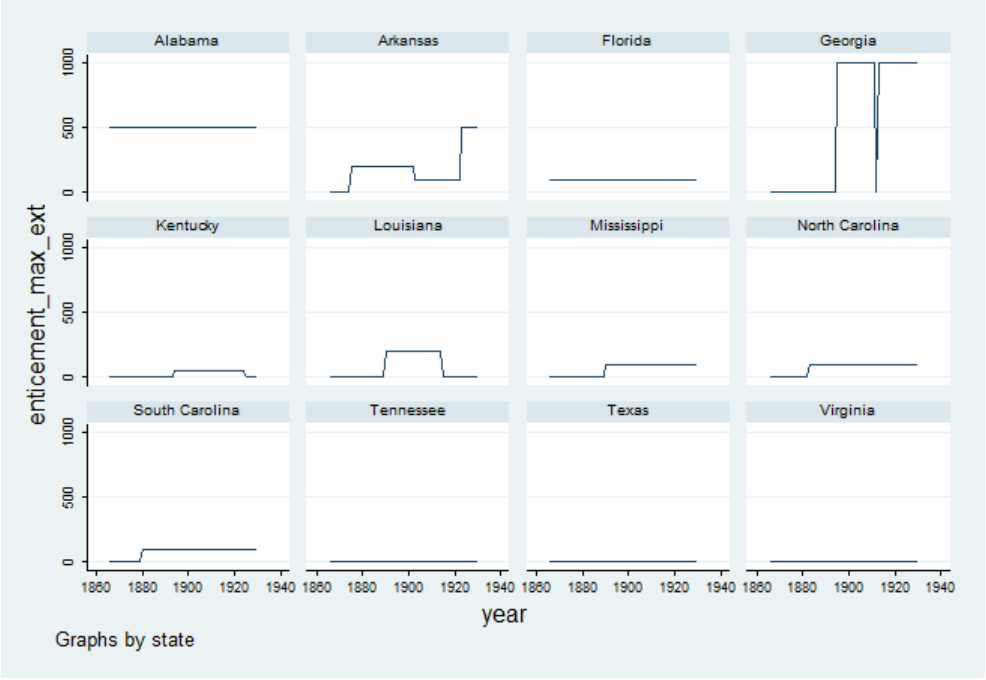


Figure 5: Maximum Enticement Fines from Holmes(2007). Extrapolated back to year of initial passage of law from Roback(1984).

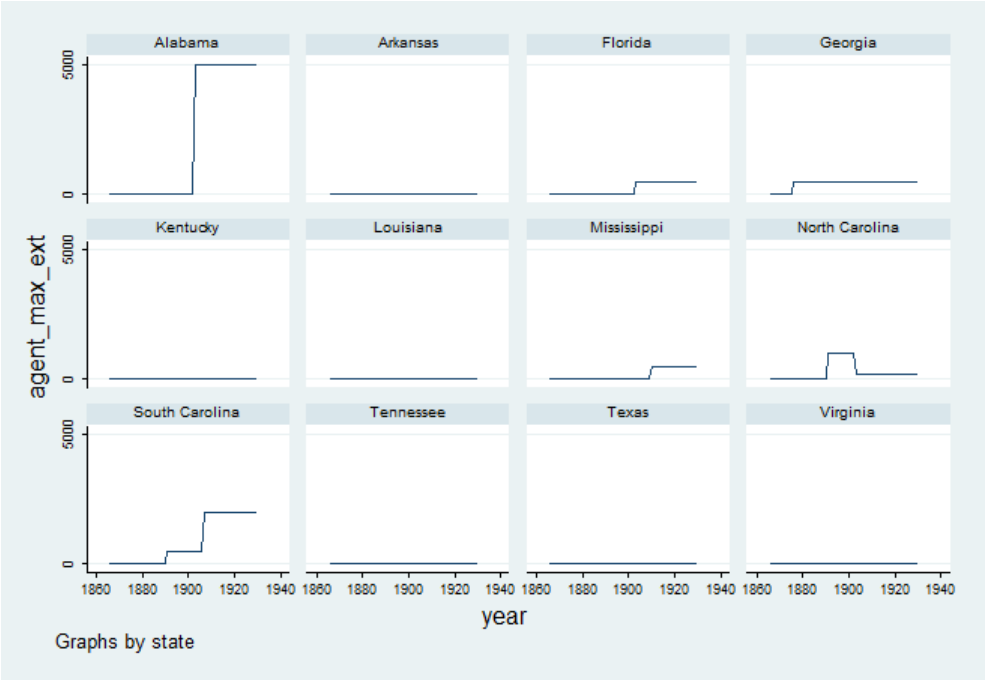


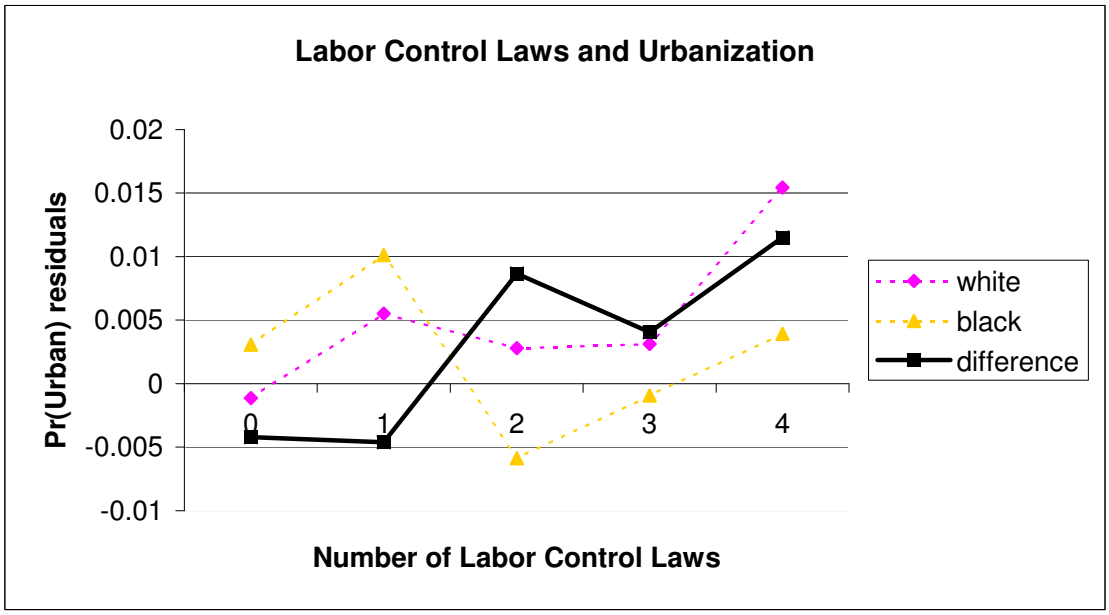
Figure 6: Maximum Emigrant Agent Licence Fees from Holmes(2007. Extrapolated back to year of initial passage of law from Roback(1984).

Contract Enforcement												
Dependent Variable	Stayers						Incl. Migrants					
	Baseline	Trends	SEA FE	YoB FE	Pre-1920	County FE	Baseline	Trends	SEA FE	YoB FE	Pre-1920	
South Migrant							-0.070	-0.021	0.000	-0.071	-0.067	
							0.049	0.023	0.000	0.048	0.051	
State Migrant							0.008	0.020	0.035	0.006	-0.003	
							0.034	0.041	0.025	0.033	0.038	
Urban	-0.025	0.003	-0.015	-0.025	-0.017	-0.005	-0.009	0.008	0.001	-0.009	-0.012	
	0.016	0.018	0.012	0.016	0.016	0.013	0.016	0.019	0.013	0.016	0.015	
Agriculture	0.021	-0.024	0.014	0.022	0.010	0.011	0.013	-0.022	0.005	0.014	0.012	
	0.021	0.015	0.017	0.021	0.023	0.017	0.015	0.020	0.017	0.015	0.020	
Farm	0.057 **	0.001	0.052 **	0.057 **	0.057 *	0.049 *	0.043 *	-0.012	0.036 *	0.043 *	0.045	
	0.027	0.030	0.024	0.027	0.031	0.025	0.023	0.032	0.019	0.023	0.028	
Occupational Score	-0.258	-0.430	-0.255	-0.242	-0.374	-0.226	-0.067	-0.199	-0.014	-0.038	-0.214	
	0.286	0.640	0.263	0.281	0.451	0.283	0.180	0.499	0.183	0.178	0.370	
Socio-Ec Index	0.241	-0.278	0.328	0.243	0.072	0.378	0.217	-0.224	0.247	0.224	0.075	
	0.395	0.410	0.364	0.392	0.354	0.379	0.327	0.342	0.303	0.327	0.301	
Occ. Whiteness	-0.032 **	-0.022	-0.029 **	-0.033 **	-0.026 *	-0.025 *	-0.025 **	-0.017	-0.026 **	-0.025 **	-0.019	
	0.015	0.017	0.014	0.016	0.015	0.014	0.012	0.015	0.012	0.012	0.013	
Labor Force	-0.012	-0.018	-0.013	-0.006	-0.015 ***	-0.013	-0.005	-0.008	-0.006	0.001	-0.007	
	0.008	0.013	0.008	0.008	0.005	0.008	0.005	0.013	0.005	0.005	0.004	
Anti-Vagrancy												
South Migrant							-0.035 **	-0.026	0.000	-0.034 **	-0.038 ***	
							0.017	0.016	0.000	0.017	0.013	
State Migrant							-0.003	-0.005	0.019	-0.002	0.006	
							0.021	0.025	0.016	0.020	0.018	
Urban	-0.032	0.003	-0.022	-0.032	-0.023	-0.025	-0.034 **	-0.012	-0.013	-0.034 **	-0.025	
	0.021	0.013	0.019	0.021	0.019	0.018	0.013	0.017	0.013	0.013	0.016	
Agriculture	0.034	0.019	0.030	0.035	0.044 *	0.032	0.031 *	0.024	0.018	0.032 **	0.041 **	
	0.022	0.015	0.021	0.022	0.025	0.020	0.016	0.016	0.018	0.016	0.020	
Farm	0.033	-0.026	0.027	0.033	0.035	0.028	0.036	-0.011	0.022	0.037	0.039	
	0.039	0.020	0.038	0.039	0.041	0.037	0.027	0.020	0.029	0.027	0.032	
Occupational Score	0.110	0.646 *	0.157	0.098	0.339	0.118	0.087	0.399	0.242	0.080	0.142	
	0.318	0.343	0.315	0.302	0.505	0.305	0.246	0.319	0.256	0.233	0.416	
Socio-Ec Index	0.130	0.580 *	0.318	0.116	0.113	0.282	0.366	0.709 **	0.539 *	0.357	0.238	
	0.375	0.321	0.335	0.370	0.342	0.338	0.359	0.229	0.313	0.358	0.278	
Occ. Whiteness	0.004	0.003	0.001	0.004	0.004	-0.002	0.006	0.005	0.001	0.006	0.006	
	0.015	0.010	0.014	0.015	0.006	0.013	0.012	0.009	0.012	0.012	0.005	
Labor Force	0.020 **	0.026 **	0.019 **	0.021 **	0.026 **	0.019 **	0.014 *	0.016	0.015 *	0.018 **	0.017 **	
	0.010	0.012	0.009	0.008	0.009	0.009	0.008	0.010	0.008	0.007	0.008	

Anti-Enticement Dependent Variable	Stayers										Incl. Migrants									
	Baseline		Trends		SEA FE		YoB FE		Pre-1920		County FE		Baseline		Trends		SEA FE		YoB FE		Pre-1920	
South Migrant													-0.061		-0.017		0.000		-0.062		-0.069	
													0.056		0.021		0.000		0.056		0.056	
State Migrant													0.007		-0.027		0.027		0.006		-0.005	
													0.029		0.028		0.031		0.028		0.032	
Urban	-0.033	**	-0.031	**	-0.014		-0.032	**	-0.038	**	-0.013		-0.016		-0.039	**	0.001		-0.017		-0.040	**
	0.016		0.015		0.015		0.016		0.016		0.015		0.013		0.020		0.015		0.013		0.015	
Agriculture	0.063	**	0.064	***	0.044	**	0.063	**	0.078	***	0.044	**	0.060	***	0.080	***	0.042	**	0.060	***	0.085	***
	0.023		0.018		0.021		0.023		0.022		0.021		0.019		0.020		0.020		0.019		0.018	
Farm	0.093	***	0.081	***	0.074	**	0.093	***	0.097	**	0.073	**	0.085	***	0.081	**	0.066	**	0.085	***	0.096	***
	0.029		0.028		0.030		0.029		0.036		0.029		0.025		0.030		0.025		0.025		0.033	
Occupational Score	-0.335		-0.896	*	-0.170		-0.334		-0.641		-0.172		-0.522	**	-1.093	**	-0.355	*	-0.522	**	-0.907	**
	0.227		0.489		0.242		0.219		0.481		0.240		0.196		0.383		0.206		0.203		0.368	
Socio-Ec Index	0.478		-0.377		0.627	*	0.487		0.301		0.604		-0.006		-0.549		0.040		-0.008		-0.142	
	0.378		0.412		0.352		0.368		0.356		0.373		0.389		0.387		0.341		0.391		0.294	
Occ. Whiteness	-0.005		0.004		0.001		-0.005		0.007		0.003		-0.008		0.004		-0.004		-0.008		0.007	
	0.013		0.009		0.012		0.013		0.014		0.012		0.010		0.009		0.010		0.010		0.011	
Labor Force	0.018		0.013		0.017		0.014		0.018		0.018	*	0.012		0.006		0.012		0.009		0.013	
	0.011		0.013		0.011		0.009		0.012		0.011		0.009		0.011		0.009		0.009		0.010	
Emigrant Agent																				
South Migrant													-0.030		-0.037	*	0.000		-0.030		-0.077	
													0.021		0.022		0.000		0.020		0.060	
State Migrant													0.001		-0.009		0.014		-0.001		0.013	
													0.017		0.021		0.013		0.017		0.039	
Urban	-0.042	***	-0.033	***	-0.027	***	-0.042	***	-0.030		-0.016		-0.037	***	-0.040	***	-0.018	**	-0.037	***	-0.024	
	0.013		0.011		0.009		0.013		0.020		0.011		0.012		0.013		0.008		0.012		0.020	
Agriculture	0.040	**	0.029	**	0.028	**	0.040	**	0.034		0.023		0.036	**	0.029	*	0.019		0.036	**	0.020	
	0.015		0.013		0.013		0.015		0.036		0.014		0.014		0.017		0.012		0.014		0.033	
Farm	0.047	**	0.037		0.035		0.047	**	0.072		0.029		0.043	**	0.039		0.027	*	0.043	**	0.059	
	0.023		0.028		0.021		0.023		0.049		0.022		0.019		0.025		0.016		0.019		0.044	
Occupational Score	-0.299		-0.112		-0.174		-0.298		0.257		-0.115		-0.254		-0.165		-0.056		-0.237		0.233	
	0.357		0.383		0.345		0.379		0.393		0.353		0.266		0.305		0.256		0.279		0.354	
Socio-Ec Index	-0.272		0.045		-0.133		-0.287		0.546		-0.033		-0.240		-0.045		-0.103		-0.244		0.336	
	0.360		0.209		0.322		0.365		0.365		0.322		0.307		0.245		0.294		0.300		0.290	
Occ. Whiteness	-0.019		0.003		-0.014		-0.019		0.004		-0.015		-0.012		0.004		-0.011		-0.013		-0.001	
	0.015		0.010		0.014		0.015		0.016		0.014		0.013		0.009		0.012		0.013		0.015	
Labor Force	0.011		0.014		0.011		0.011		0.019		0.010		0.011	*	0.012		0.010	*	0.012	**	0.018	
	0.008		0.010		0.008		0.007		0.019		0.008		0.006		0.007		0.006		0.006		0.014	

Cumulative Index

Dependent Variable	Stayers						Incl. Migrants				
	Baseline	Trends	SEA FE	YoB FE	Pre-1920	County FE	Baseline	Trends	SEA FE	YoB FE	Pre-1920
South Migrant							-0.036 *	-0.029 *	0.000	-0.036 *	-0.044
							0.020	0.017	0.000	0.019	0.027
State Migrant							0.002	-0.008	0.017	0.002	0.001
							0.011	0.014	0.011	0.011	0.016
Urban	-0.026 ***	-0.020 **	-0.016 **	-0.026 ***	-0.020 **	-0.011	-0.019 ***	-0.027 **	-0.006	-0.019 ***	-0.018 ***
	0.007	0.008	0.007	0.007	0.008	0.008	0.006	0.010	0.006	0.006	0.006
Agriculture	0.031 ***	0.027 ***	0.022 **	0.031 ***	0.031 **	0.021 **	0.026 ***	0.031 ***	0.016 **	0.027 ***	0.029 ***
	0.008	0.008	0.008	0.008	0.012	0.009	0.005	0.010	0.007	0.005	0.008
Farm	0.044 ***	0.027 **	0.036 ***	0.044 ***	0.049 ***	0.034 **	0.039 ***	0.029 **	0.028 ***	0.038 ***	0.043 ***
	0.012	0.014	0.012	0.012	0.017	0.013	0.008	0.013	0.008	0.008	0.013
Occupational Score	-0.169	-0.147	-0.098	-0.167	-0.109	-0.084	-0.155 **	-0.229 *	-0.045	-0.147 *	-0.164
	0.119	0.178	0.120	0.125	0.178	0.128	0.075	0.132	0.075	0.078	0.128
Socio-Ec Index	0.083	0.040	0.190	0.079	0.180	0.215	0.031	0.006	0.104	0.030	0.076
	0.139	0.094	0.134	0.137	0.180	0.148	0.135	0.084	0.112	0.134	0.131
Occ. Whiteness	-0.011 **	-0.001	-0.008 *	-0.011 **	-0.002	-0.008 *	-0.008 *	0.001	-0.008 **	-0.008 **	-0.001
	0.005	0.006	0.005	0.005	0.005	0.005	0.004	0.006	0.004	0.004	0.005
Labor Force	0.007	0.012 *	0.006	0.008 *	0.008	0.006	0.006	0.009 *	0.006	0.007 **	0.007
	0.005	0.007	0.005	0.004	0.006	0.005	0.004	0.005	0.004	0.003	0.005


Labor Control Laws and Urbanization
Pr(Urban) residuals
0.02
0.015
0.01
0.005
0
-0.005
-0.01
0
1
2
3
4
Number of Labor Control Laws
white
black
difference

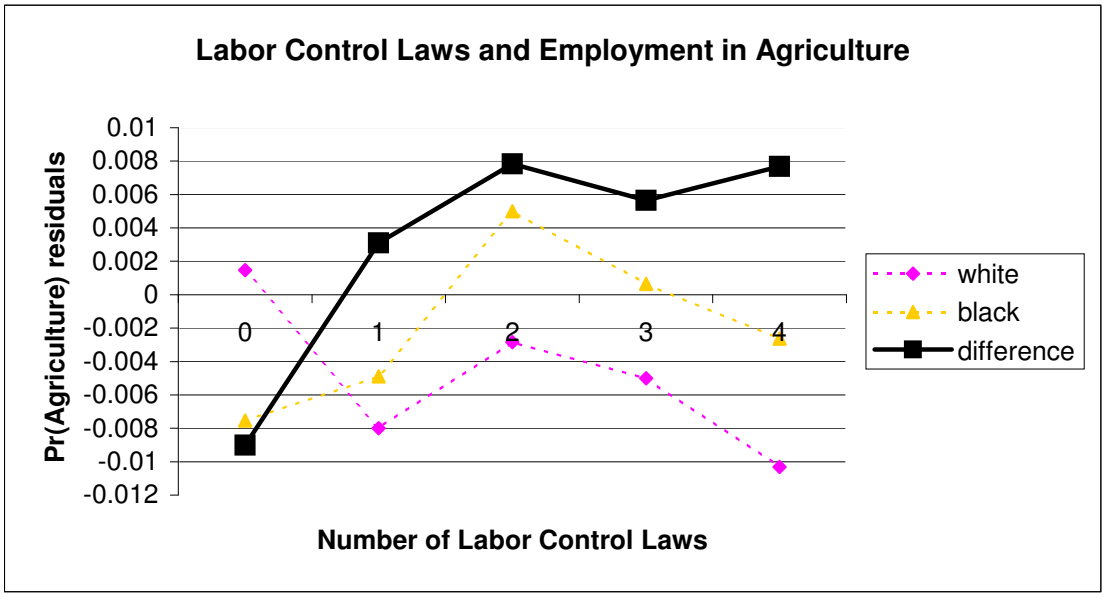

Labor Control Laws and Employment in Agriculture
Pr(Agriculture) residuals
0.01
0.008
0.006
0.004
0.002
0
-0.002
-0.004
-0.006
-0.008
-0.01
-0.012
0
1
2
3
4
Number of Labor Control Laws
white
black
difference

Table 16: Labor control law effects on the age-wage profile

DV: 1940 log wage											
						Fraction of years under law					
	log Entice Fine		log Agent Fee		Enticement		Emigrant Agent		Contract Enforcement		Anti-vagrancy	
	1935 Farm sample											
All US	-0.0015	**	0.0000		-0.0107	**	-0.0051		0.0032		-0.0156	*
	0.0007		0.0005		0.0052		0.0038		0.0041		0.0086	
South Born	-0.0010	*	0.0005		-0.0073		-0.0020		0.0084	**	-0.0041	
	0.0006		0.0005		0.0054		0.0034		0.0041		0.0086	
South only	-0.0014	***	0.0003		-0.0107	**	-0.0033		0.0054		-0.0113	
	0.0005		0.0005		0.0050		0.0036		0.0043		0.0074	
DV: 1940 farm dummy												
	1935 Farm sample											
All US	0.0003	**	0.0002		0.0022	**	-0.0001		0.0009		0.0012	
	0.0001		0.0001		0.0008		0.0009		0.0011		0.0028	
South Born	0.0002		0.0001		0.0019	**	-0.0005		0.0003		-0.0022	
	0.0002		0.0001		0.0009		0.0010		0.0013		0.0031	
South only	0.0002		0.0001		0.0019	**	-0.0004		0.0002		-0.0030	
	0.0002		0.0001		0.0009		0.0009		0.0012		0.0028	

Notes: Standard errors clustered at the state level. Sample restricted to men aged 18-64 in the 1940 census working on a farm in 1935.
Regressions include cubic polynomial in age, race and state specific linear and quadratic polynomials in age, race-education and race-state dummies.

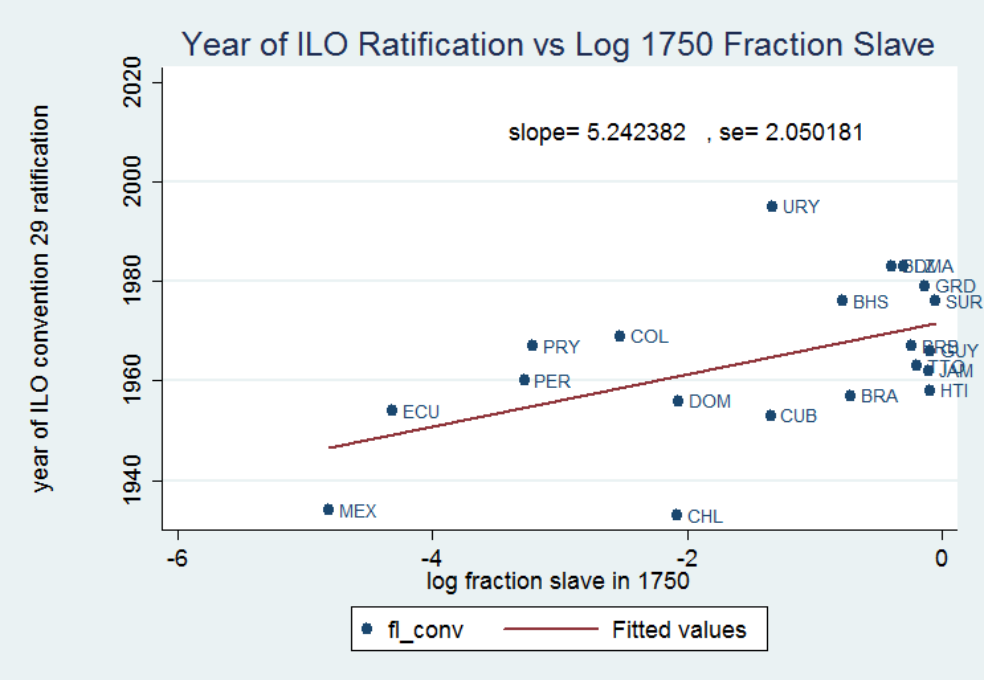


Figure 8: Forced Labor Abolition vs 1750 slavery