

**THE ECONOMIC BREEDING-OUT OF SURPLUS BLACKS?
THE POLITICAL ECONOMY OF
EUGENIC STERILIZATION AND GENOCIDE IN NORTH CAROLINA**

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Abstract

Evidence exists that the State of North Carolina's eugenic sterilization program was genocidal insofar as it specifically targeted blacks. In this paper, we consider the extent to which this race-specific phenomena was consistent with a policy whereby state-sanctioned eugenic sterilization subsidized the effort monitoring of business firms to maximize worker effort and minimize wages and public assistance expenditures on a population outside of the employed labor force. To explore this practice we utilize data on eugenic sterilizations in the state of North Carolina between 1958 - 1968. Count data parameter estimates from a specification that conditions county-level eugenic sterilizations on measures of race-specific components of the surplus population reveals that the frequency of state-sanctioned sterilization increased with a county's surplus black population. Our results are consistent with an obscene political economy and social policy whereby eugenic sterilizations emerged as a principal-agent equilibrium and were genocidal in a particular way—they were aimed at the economic breeding-out of an undesirable surplus black population.

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I. Introduction

At least since Marx (1977) economics and political economy has recognized that capitalist market-based societies generate a population that will not be absorbed fully into the employed work force. To the extent that social policymakers view the surplus population as having an optimal size, historically different proposals have emerged about policy interventions that would produce that optimal size. For example, Malthusians, in the spirit of Malthus (1798) generally advocated a Laissez-Faire approach, allowing mother nature's positive and preventive checks to regulate population. At another extreme were the eugenicists, inspired by Irving Fisher (1912) who advocated state-sanctioned eugenic sterilization for that part of the surplus population deemed genetically unfit. In general, the era of the triumph of classical political economy and its heir, neo-classical or marginalist economics, after Karl Marx's identification of the surplus population, marked a period in which state intervention, for example imprisonment (Chiricos and Delone, 1992; Sheldon and Brown, 2000) and labor market policies to exclude the so-called unfit (Bernstein and Leonard, 2009) has been mobilized to regulate the size of the surplus population.

In the case of state-sanctioned eugenic sterilization, Price and Darity (2010) found that in North Carolina, blacks were apparently special targets, as relative to non-black population shares, only the county's black population share significantly explained the number of sterilizations during the interval 1958-1968. This finding raises the possibility that, at least in North Carolina, eugenic sterilization was a policy intervention to eliminate an undesirable black surplus population—an issue we explore in this paper. Indeed at the dawn of the 20th century, it was posited that blacks constituted a subset of the surplus population that left to their own devices, would become extinct (Darity, 1983; 1994). This belief that Darity (1994) labeled the “Black Disappearance Hypothesis” presumed that blacks, being ill-suited for industrial society as a result of having inferior and maladaptive genetic traits that predisposed them to high mortality disease, would ultimately die out. Such a characterization is clearly consistent with blacks being viewed as an undesirable surplus population, and given the evidence suggesting that blacks were the special target of eugenic policies in North Carolina, it is conceivable that state-sanctioned eugenic sterilization policies were designed explicitly to “economically breed-out” (Fisher, 1921; Cot, 2005) an unfit and undesirable surplus black population.

In Marx's original formulation of the processes generating the surplus population one of the key factors was technological change in market societies that increases labor productivity across time. This would create manpower redundancies that would continuously engender a fraction of them unemployable. This effect would occur regardless of the racial composition of the labor force. The projection of stigmatized inferiority on blacks, presumably, would make them more subject to designation for the surplus population. Furthermore, if there are widely held beliefs that the so-called black underclass is less responsive to policies ostensibly intended to increase social mobility, their value to the profitable functioning of the labor market is reduced, and they become viewed as a dysfunctional segment of the population. They then become being objects of population control—particularly eradication (Darity, 1983).¹

Why eliminate blacks? If black disengagement from the labor force is viewed as a form of shirking, then genocide could help solve a principal-agent problem. Lskavyan (2007) showed that Joseph Stalin's "Great Terror" of 1939 -1937—in which at least 720,000 individuals were executed—was consistent with a solution to a principal-agent problem. The state as principal desired to minimize shirking and maximize work effort among its agent, the rural peasantry. Thus a particular horrific population control intervention—state-sanctioned executions—emerged in Stalin's USSR as an optimal policy to extract effort from otherwise recalcitrant effort-withholding subjects.²

In this paper, we reconsider the analysis we advanced earlier (Price and Darity 2010) and examine whether eugenic sterilizations in North Carolina were tailored to eliminate an undesirable surplus black population. Surplus population is viewed as labor force surplus, an excess above the numbers governed by the carrying capacity of a political jurisdiction. County-level population carrying capacity, at least from the perspective of eugenic policy officials, would be determined by the poverty rate, as poverty triggers demands for public expenditures for persons outside of the employed labor force. In this context, the state desires to minimize such public assistance. In addition to eugenic sterilization emerging as a worker discipline device,

¹In contrast to Darity (1983) Willhelm (1986) argues that all blacks are potential candidates for genocide, and characterizes existing black-white inequality as conditional genocide(Sartre and Sartre; 1968)e—a situation in which any black resistance or revolt increases the risk of black extermination.

²The analysis of Crampton and Farrant (2006) suggests that a state with calculative efficacy may be also be willing to forgo the labor that could be extracted from a surplus population altogether and eliminate them through genocidal measures if it serves additional political ends.

it also minimizes poverty expenditures that are perceived as reducing worker effort. If the state is trying to assist firms in maximizing unobservable worker effort, eugenic sterilization is a solution that solves this principal-agent problem.

Our inquiry makes several contributions. First, it extends our previous analysis (Price and Darity; 2010), where we found that eugenic sterilizations in North Carolina were racially biased, and exclusively targeted blacks. This paper considers the extent to which eugenic sterilizations in North Carolina can be understood within a principal-agent framework whereby genocidal sterilizations are in the best interest of both private firms and the state within a corporatist frame of policymaking. Finally our inquiry contributes to the emerging subfield of *Stratification Economics* (Darity, 2005), as we examine a process involving the political economy of the provision of public tax-supported goods/services that generates inequalities between racial groups similar to analyses conducted in Alesina, Glaeser and Sacerdote (2001), Andrews (1999), Darity and Myers (1998), Jaynes (1989), Logan(2009), Loubert (2005), and Price (2008). As we consider how race may have conditioned a stigma of biological and genetic inferiority, our results provide additional empirical evidence regarding the historical consequences of racial stigma (Loury, 2002; Price, Darity and Headen, 2008). Our examination of how race may have conditioned state-sanctioned forced sterilizations adds to the literature on how American eugenics policies were influenced by demographics (Ramsden, 2008), including group level characteristics such as gender (Schoen, 2001; Sanger, 2007;) and race (Cot, 2005; Darity, 1994; Dimand, 2005; Leonard, 2003; Peart and Levy, 2004; Price and Darity, 2010).

The remainder of the paper is organized as follows: In the second section, we provide a theoretical framework for state-sanctioned eugenic sterilization, in which firms are assisted by the state in solving a principal-agent problem—extracting effort from workers. Given three possible worker states, one which includes being out of the labor force [I think being out of work, whether in the labor force or not, renders a person vulnerable to being located in the surplus population.]—or surplus labor force—state-sanctioned eugenic sterilization emerges as a solution to the principal-agent problem, and sterilization is correlated with the surplus labor force. The third section discusses the data and reports parameter estimates from a specification of county-level eugenic sterilizations. As our sterilization data are discrete counts, we estimate the parameters of count data specifications of the number of sterilizations to estimate how the probability of

forced sterilizations changed with respect to changes in a county's various racial surplus population shares. The last section concludes.

II. Eugenic Sterilization As a Principal-Agent Equilibrium

Following Iskayan (2007) an economic rationalization of eugenic sterilization can emerge if one considers a firm facing a principal-agent problem of eliciting unobserved effort from workers. Lsakyvan (2007) shows that random executions optimized effort—and hence solved a principal-agent problem for the Soviet state during the period in which Stalin ordered mass executions of individuals during 1937 - 1939. This instance of state-sanctioned punishment that optimized worker effort is a plausible political economy framework for rationalizing state-sanctioned eugenic sterilizations in North Carolina. Indeed, Bernstein and Leonards (2009) examination of Progressive Era labor market policy suggests that it was designed to exclude defective groups from the labor market Bernstein and Leonard (2009) suggest that the ideology of excluding and punishing unfit workers dominated government policy—at least through the Great Depression. Thus it is plausible that during 1958 - 1968, the period for which we have North Carolina sterilization data, the obscene social policy of the Progressive Era still motivated state labor market policies in North Carolina, given a path dependent inertia in policy making.³

We extend the principal-agent model in a manner that permits eugenic sterilizations, like unemployment, to emerge as a worker discipline device in equilibrium.⁴ We assume there are N identical individuals with a separable utility function $U = w - e$, where w is the wage, and e is effort on the job. An individual is employed or not, and conditional on not being employed, there is a probability of τ of withdrawing from the labor force. As such, an individual can be in one of three states: 1.) Employed and in the labor force, 2.) Unemployed and in the labor force, or 3). out of the labor force. If the individual is in the second state

³Collier and Collier (1991) provide a useful framework for considering how policy choices are subject to path dependence (David, 1985). In general initial historical conditions can define, legitimize and delimit policy choices. As such, policy agents make choices contingent on initial objectives, setting a specific trajectory of policy actions that may prove difficult to reverse in the future. For a critique of path dependency in policy choices see Kay (2005).

⁴See also Alexopoulos (2002), Foster and Wan (1984), and Orphanides (1993).

he is part of the *labor force surplus*, whereas if he is in the third state, he is part of the *population surplus*, which we also deem the *surplus population*. If employed, there is a probability b of job separation (e.g. relocation), and if he shirks on the job, there is a probability q that he or she will be detected and dismissed. If unemployed, an individual receives unemployment benefits of \bar{w} , and has the probability of acquiring a new job is a . If an individual is out of work or out of the labor force, he or she also faces a probability s of being eugenically sterilized.

Individual workers choose an effort level to maximize a discounted utility stream that compares the utility from not shirking against the utility of shirking. Defining the V_E^S and V_E^N as the expected lifetime utility of an employed shirker and nonshirker respectively, following Shapiro and Stiglitz (1984) the relevant asset equations are:

$$rV_E^S = w + (b + q)/(V_u - V_E^S) \quad (1)$$

$$rV_E^N = w - e + b(V_u - V_E^N) \quad (2)$$

where r is the interest rate and V_u is the utility of being unemployed. As being unemployed, and conditional on being unemployed being out of the labor force is a source of utility, the relevant asset equation for being unemployed is:

$$rV_u = \bar{w} + a(V_E - V_u) + \tau[V_o - a(V_E - V_u)] + \tau(s | \tau)[V_o^k - \tau(V_o - a(V_E - V_u))] \quad (3)$$

where V_o is the utility of being out of the labor force, and V_o^k is the utility of being out of the labor force and eugenically sterilized.

A worker chooses not to shirk if it is in his best interest to do so. In particular no shirking occurs if $V_E^N > V_E^S$. Thus, conditional upon w, b, q, τ, s, V_o , and V_o^k , the individual chooses the amount of work effort such that $V_E^N > V_E^S$. As the payment of w by the firm as principal is made to the worker as agent in exchange for his effort e , a worker's choice of e and firm's choice of $w > 0$ is incentive compatible if utility-maximizing effort choices are non-zero and optimal. As we consider the possibility that the state may sterilize individuals in the *labor force surplus*, incentive compatibility is also conditioned by the state's

choice of s . As such the optimal effort of an individual satisfies the following:

Proposition (Eugenic Sterilization and Optimal Worker Effort). *In a Principal-Agent Equilibrium worker effort is increasing in the probability of eugenic sterilization if it is dreadful, and the number of eugenic sterilizations is positively correlated with the size of the labor force surplus.*

A proof of this proposition follows from a consideration of a typical worker's optimal effort level, and the expected value of sterilization conditional upon an individual being a member of the *labor force surplus*. For $V_E^N > V_E^S$, solving (1), (2), and (3) for individual optimal effort yields:

$$e^* = \frac{q}{C} \times [w - rK - r\tau(s | \tau)(V_o^k - \tau(V_o - a(V_E - V_u)))]$$

where $C = (r + b + q)$ and $K = [\bar{w} + a(V_E - V_u) + \tau(V_o - a(V_E - V_u))]$ If an individual "dreads" being sterilized in the sense that $V_o^k < \tau(V_o - a(V_E - V_u))$, then $\partial e^* / \partial (s | \tau) > 0$, and optimal effort is increasing in the probability of eugenic sterilization. As for the correlation between sterilization and the *surplus labor force*, we can consider the expected value of eugenic sterilizations conditional on an individual being in the *surplus labor force*. Let G be the number of eugenic sterilizations, and O be the number of individuals in the *surplus labor force*, where $G = g_1 \cdots g_n$, and $O = o_1 \cdots o_m$. For a single event $P(G | O) = [\tau(s | \tau)] / \tau$. The mean of $E(G | O = o_j)$ over the entire distribution of O is:

$$\sum_j \tau_j E(G | O = o_j) = \sum_i \sum_j \tau_{ij} (s_{ij} | \tau_{ij}) g_i = E(G)$$

where E is the expected value operator. As s and τ are the same for all individuals, $\sum_j = M$ (the number of individuals in the *surplus labor force*) then $\partial E(G) / \partial M > 0$, and the number of eugenic sterilizations is positively correlated with the size of the *surplus labor force*.

An implication of our theory is that eugenic sterilizations are correlated with the size of the *labor force surplus*, we explore this below with cross-county data from the State of North Carolina between 1958 - 1968. To the extent that state-sanctioned eugenic sterilizations helped firms solve a principal-agent prob-

lem regarding the eliciting and costly monitoring of worker effort, our theoretical framework provides a political economy framework—albeit obscene—for rationalizing eugenic sterilization as a punishment in the best interest of the firm. In particular, state-sanctioned eugenic sterilization could have emerged and persisted as a worker discipline device. Of course, to the extent that members of the *surplus labor force* were deemed as unfit, and if membership in the *surplus labor force* signaled that one was indeed unfit, then our theoretical framework can also rationalize Progressive Era policies that targeted the unfit for removal from the population in general.

Our principal-agent approach to eugenic sterilization underscores its value relative to say the outright and explicit extermination of so-called undesirables. Indeed, Lsakyvan (2007) shows that Stalins mass executions was consistent with optimizing effort. Nonetheless, legal norms constraining the willful killing of individuals are less binding during revolutionary times, as it is difficult to hold accountable those who engineered it. Over the period time under consideration in our sample and in general, any attempt to exterminate wholesale an undesirable population explicitly (e.g through graphic public killings) seems likely to face serious ethical and legal constraints. In this context, eugenic sterilization can provide a subtle and less visible way to exterminate undesirables, as it does so efficiently, and asymptotically. Only future and yet unborn generations will see the result, and cannot hold personally accountable the generation that implemented the genocide.

III. Data and Results

We use the data from Price and Darity (2010), which are based on the 1958 - 1968 Biennial Reports of the North Carolina Eugenics Board.⁵ These data report the number of performed sterilizations at the county level, and allow three classifications of the type of sterilization performed: 1.) Total Sterilizations, 2.) Total institutional sterilizations, and 3.) Total non-institutional sterilizations. Tables 1 - 2 report by North Carolina county the total number of institutional and non-institutional sterilizations respectively, between 1958 - 1968.⁶ For institutional sterilizations, there were 15 counties for which there were none, but this was

⁵For a historical account of the Eugenic sterilization program in North Carolina, see Darity and Price (2010).

⁶Eugenic sterilizations in North Carolina consisted of *vasectomy* (clamping of vas deferens) and *castration* (the removal of

the case for only 4 counties with respect to non-institutional sterilizations. Across both types of performed sterilizations only one county—Clay—reported no sterilizations at all. Including both institutional and non-institutional sterilizations, over the 1958 - 1968 time period, a total of 2,163 sterilizations authorized by the Eugenics Board were performed in North Carolina.

Our empirical strategy is motivated by the theoretical proposition above that the expected value of the number of eugenic sterilizations increases with the size of the *labor force surplus*. As our data do not include any measure of the number of individuals at the county-level who are out of the labor force, we estimate it on the basis of the carrying capacity specification of a county's population. Carrying-capacity is the maximum population that can be sustained in a given political jurisdiction given resources required by the population. In particular we posit that for a given county, the surplus population is that in excess of that determined by carrying capacity. The difference between a county's actual population and sustainable population—that determined by carrying capacity—is the county's *surplus population*.

What determines carrying capacity and a sustainable population? In general, as suggested by the literature on human population ecology (Hopfenberg, 2003; Odum, 1953; Sayre, 2008), it is those resources required for human populations to at least subsist. We posit that county population carrying capacity, at least from the perspective of North Carolina eugenic policy officials, was determined by the poverty rate.⁷ Thus, in addition to eugenic sterilization emerging as a worker discipline device, it also minimizes poverty expenditures that would otherwise minimize worker effort. Our specification of the sustainable population in a county is that population that is predicted by the poverty rate and its square. The *surplus population* of a county is then estimated as the actual population minus the sustainable population.⁸

one or both testicles) for males; and *salpingectomy* (the removal of one or both fallopian tubes) and *ovariectomy* (the removal of one or both ovaries) for women.

⁷As Price and Darity (2010) note, relative to sterilization laws in other states, the North Carolina law was unique in that it allowed local welfare officials to submit sterilization petitions for their clients. As such, the scope of North Carolina's eugenic sterilization law extended directly to recipients of public welfare. The analysis of Schoen (2001, 2005) and Railey (2002) also reveal the extent to which local welfare expenditures motivated sterilization. This suggests that indeed, at least one motivation behind state-sanctioned sterilizations in North Carolina was to minimize welfare expenditures triggered by poverty.

⁸Of course, the possibility of migration between counties renders our notion of carry-capacity less deterministic than a Malthusian food-based measure of carrying capacity.

Our econometric specification of eugenic sterilizations follows Price and Darity (2010) by assuming that the North Carolina Eugenics Commission tailored and implemented what it viewed as optimal sterilization policies. In particular we assume that for each racial group i in the population, there exists an ideal *surplus population* share $0 < \Theta_i \leq 1$ for a given political jurisdiction. There exists a sterilization target S_i^* , that is consistent with these ideal *surplus population* shares Θ_i' . These *surplus population* shares represent what the state views as a solution to the principal-agent problem of maximizing worker effort, and minimizing public expenditures on poverty. Formally, we assume that an optimal eugenic sterilization policy is a solution to: $\text{argmax}(S_i \mid \Theta_i = \Theta_i')$ for $i = 1, 2, \dots, N$ racial groups. A solution yields a reduced form aggregate sterilization function $\mathbf{S} = \sum S_i^*(\Theta_i)$ which is a function of the respective racial group *surplus population* shares. Given prior eugenicist beliefs about the ideal population shares of particular racial groups, any prior belief that dysgenic traits are disproportionately located in a particular racial group, and/ or not existent at all in a particular racial group, corner solutions for racial groups are feasible. In particular, if it is believed that particular racial groups do not harbor any dysgenic individuals, their existing *surplus population* share is ideal and not subject to eugenic sterilization or $S_i = S_i^* = 0$ if $\Theta_i = \Theta_i'$, where S_i^* is the optimal number of eugenic sterilizations for racial group i .

As the dependent variable of interest is integer-valued , we assume that the number of eugenic sterilizations for a county are realizations from either a Negative Binomial or if there is no heterogeneity, a Poisson count distribution. We specify and estimate the parameters of a Negative Binomial regression specification, where the estimated parameters measure the effects of exogenous variables on λ —the expected number of

eugenic sterilizations.⁹ We specify and estimate a λ as a function of the *surplus population* for each distinct racial group identified in the sample. As in Price and Darity (2010), a fixed effect parameter estimator is used that conditions any unobservables that may affect sterilization costs on population density and the number of poor individuals in a county respectively.¹⁰

⁹If a random variable S_i conditional on the mean value λ_i of S_i is a Negative Binomial random variable then:

$$Prob(S_i = s_i | \lambda_i) = \left(\frac{r}{r + \lambda_i} \right)^r \frac{\Gamma(r + s_i)}{\Gamma(s_i + 1)\Gamma(r)} \left(\frac{\lambda_i}{r + \lambda_i} \right)^{s_i}$$

for $s_i = 0, 1, 2 \dots n$, where r is a dispersion parameter, and Γ is the gamma function. A Negative Binomial regression model (Cameron and Trivedi, 1998) is formulated by specifying for some integer-valued measure of sterilizations S_i for county i , the mean level λ_i , as a function of a vector of exogenous variables (θ):

$$\ln \lambda_i = \beta' \theta + \epsilon_i$$

where β is a coefficient vector, θ is a vector of exogenous variables that determine the expected value of the number of sterilizations S_i for the i th county, and ϵ_i reflects unobserved heterogeneity causing the mean and variance of λ to differ. The log-likelihood function $L(\beta)$ has a gradient and Hessian given by:

$$\frac{\partial L(\beta)}{\partial \beta} = \sum [\theta' (S_i - e^{\beta' \theta + \epsilon_i})] = 0$$

$$\frac{\partial^2 L(\beta)}{\partial \beta \partial \beta'} = \sum [-(S_i' S_i) e^{\beta' \theta + \epsilon_i}] < 0$$

Equating the gradient to zero solves for β , and the negativity of the Hessian ensures a global maximum of the log-likelihood estimator of the coefficients in β .

¹⁰This captures the idea that the transaction and information costs of sterilization decline with increases in population density, and with respect to increases in the number of poor individuals in a county—as it would minimize welfare expenditures (Schoen, 2001; 2005; Railey, 2002). Our fixed effect estimator is in the spirit of Hausman, Hall and Griliches (1984) which estimates the parameters of the Negative Binomial regression with the following restrictions:

$$E(\lambda_i) = D_i + \beta' \theta + \epsilon_i$$

$$Var(\lambda_i) = (1 + e^{D_i}) E(\lambda_i)$$

where e is a natural logarithm, and the D_i are county dummies correlated but fixed with some unobserved effect.

If eugenic sterilization policy officials were also optimizing sterilizations directly on other unobservable and presumably heritable economic and/or health outcomes, even the fixed effect parameter estimates could suffer from omitted variable bias. To evaluate our parameter estimates for robustness with respect to this potential omitted variable bias, we report fixed effect parameter estimates that add four control variables: 1.) The percent of individuals in a county who were at or below poverty in 1969, 2.) County per capita income in 1969, 3.) The number of individuals in a county served in a state psychiatric hospital in 1980, and 4.) The number of individuals in a county served in state mental retardation centers in 1980.¹¹ All parameter estimates are reported as the marginal effects of incident rate ratios, where marginal effects are based on sample averages of the regressors. This permits an assessment of how large the effects are when a parameter has significance. Because we are interested in how race-specific surplus shares condition sterilization probabilities, the marginal effects tell us how large sterilization probabilities are for a particular racial group relative to all other racial groups. The explanatory adequacy of all parameter estimates are assessed with a Wald chi-square distributed test for the null hypothesis that the exogenous explanatory variables have parameters that are jointly insignificant. For all specifications, Pseudo-R² (McFadden, 1974) is reported as a goodness-of-fit measure.

Table 3 reports on the, mean, median and standard deviation of the covariates in our eugenic sterilization specifications. We consider parameter estimates of a model with three measures of sterilization (institutional, non-institutional, and total) as the dependent variable, and for each racial group in a county—an estimate of the size of their population surplus. Our estimate of a racial group’s surplus population is based on the difference between a racial group’s actual population, and its population predicted by a Negative Binomial regression of its population as a function of the county poverty rate and its square.¹² The basic

¹¹These four controls allow for alternative objectives of eugenic sterilization policy officials such as 1.) Minimizing the incidence of poverty and maximizing the incidence of wealth—which according to classic eugenics theory presumably driven by heritable biogenetic traits and for and 2.) This would reduce the population share of individuals determined biologically unfit due to heritable deficient mental ability characteristics – the so-called “feeble-minded”. It is possible that our 1980 proxies for the number of individuals in a county with so-called mental defects are poor measures of their contemporaneous measures, and they should not be used. However, Wickens (1972) demonstrates that the parameter bias from omitting poor proxies is greater than the parameter bias with including them.

¹²For the sake of brevity, we do not report on these Negative Binomial regressions.

idea is that, at least in the mind of eugenic sterilization policy officials, there is some optimal population and poverty rate that minimizes public assistance expenditures. Our predicted racial group populations as a function of poverty thus approximates the sustainable population at the county level for each racial group. Any population in excess of this is viewed as undesirable, and given our theory, incentivizes the sterilization for individuals outside of the labor force who are actual or potential public assistance recipients.

Table 4 reports our first set of Fixed Effect Negative Binomial parameter estimates for our three sterilization measures as a function of county racial group surplus population.¹³ The specifications consider in sequence, institutional, non-institutional, and total sterilizations as the regressand. The first three columns condition the unobserved effects on county population density, and the last three columns condition the unobserved effects on the number of individuals in the county below poverty.¹⁴ With the exception of the parameter estimates for institution sterilizations in column (1) and total sterilizations in column (2), the expected number of sterilizations increases significantly only with the size of a county's black surplus population. That a positive and significant effect for a county's surplus black population is predominant across the specifications—approximately 67 percent of the specifications—suggests that eugenic sterilization policies in North Carolina were racially biased, and aimed at eradicating—“economically breeding out” in the vernacular of Irving Fisher (Cot, 2005; Fisher, 1921)—an undesirable population of surplus blacks. As for magnitude of the risks faced by blacks, the incidence ratios can be converted to the incidence of sterilization per 100,000 blacks. Thus, the parameter estimates reported in Table 4 suggest that on average (e.g. based on approximately 83 percent of the specifications). in North Carolina between 1958 - 1968, the sterilization rate for blacks was between 2 and 4 per 100,000 blacks, and zero for all other racial groups.

It is conceivable that the objectives of eugenic sterilization policy officials included minimizing the incidence of poverty and maximizing the incidence of wealth—both according to classic eugenics theory

¹³We do not estimate and report simple Poisson specifications, nor test the simple Poisson for mean-variance equality—which if rejected justifies a Negative Binomial specification. As a Negative Binomial specification accounts for unobserved heterogeneity, and a simple Poisson specification does not, a Negative Binomial specification is consistent with estimating the parameters of a population sterilization function given uncertainty about the true model.

¹⁴In particular, we panel the data not by time, but by population density and poverty population z-scores. For an example of this type of panel structure and fixed effect parameter estimation see Geronimus and Korenman (1992). For both conditioning variables county groups are based on standardized z-scores with endpoints of -3 and + 3.

presumably driven by heritable biogenetic traits. To the extent that the specifications in Table 4 omit variables that capture these objectives, and they are unobserved and not correlated with population density and the number of poor individuals in a county, the parameter estimates reported in Table 4 could suffer from bias. To evaluate our parameter estimates for robustness with respect to these potential omitted variables, we add additional controls directly into our eugenic sterilization specification, and report the parameter estimates in Table 5. Following Darity and Price (2010) we account for the possibility that sterilization policies in North Carolina were motivated by reducing the population share of individuals determined biologically unfit due to some heritable deficient mental health characteristic—the so-called “feeble-minded”. We also include population per square mile in 1960 to render the specifications comparable to the specifications in Tables 4.

Even after controlling for other objectives besides eliminating undesirable racial that eugenic sterilization policy officials may have had, the parameter estimates reported in Table 5 conform to those in Table 4. Eugenic sterilizations increased significantly with the size of a county’s surplus black population in a majority of the specifications. Moreover, a county’s white surplus population share is never significant. For Native Americans, increases in their surplus population are positive and significant in two instances for institutional sterilizations. Interestingly, for other racial groups, increases in their population share has a negative and significant effect on the number of institutional sterilizations. Nonetheless, the surplus black population is solely positive and significant in approximately 67 percent of the specifications, suggesting that in North Carolina, between 1959 - 1968 eugenic sterilization policies were aimed at eradicating an undesirable surplus black population. As for magnitude, the parameter estimates reported in Table 5 suggest that between 1958 - 1968, the sterilization rate for blacks was between and 5 per 100,000 blacks and zero for all other racial groups.

In general, the parameter estimates in Table 4 - 5 are consistent with our theory—the number of eugenic sterilizations is positively correlated with the size of the labor force surplus. Of course, our results suggest it is specifically the black labor force surplus that is correlated with the number of eugenic sterilizations. This suggests that in North Carolina, an obscene racialized social policy of sterilization emerged in which the State of North Carolina subsidized the wages of North Carolina firms by severely punishing blacks in the labor force surplus by sterilizing them. Indeed, it is quite conceivable that in North Carolina between

1958 - 1968, punishing blacks alone constituted a principal-agent equilibrium as it was commonly believed that blacks would not provide any reasonable work effort at all in the absence of compulsion (Bernstein and Leonard, 2009; Commons, 1907). Thus, targeting surplus blacks with the brutal punishment of eugenic sterilization maximizes worker effort and minimize wages for the firm—it was a worker discipline device—and it also minimized public expenditures on the indigent for the state.

Similar to the findings of Darity and Price (2010) the parameter estimates in Tables 4 - 5 in Tables 4 - 5 are consistent with genocide. Our results show that while non-black racial groups accounted for the majority of sterilizations over the time period under consideration, their surplus population shares do not significantly influence the probability of sterilizations. This suggests that non-blacks were sterilized for reasons other than racial group membership. In contrast, county level sterilization probabilities increased with respect to a county's black surplus population, Thus racial group membership mattered implying for blacks that eugenic sterilizations were authorized and administered with the aim reducing their numbers in the population—genocide by any other name.¹⁵

IV. Conclusion

This paper assessed the extent to which eugenic sterilizations in North Carolina between 1958 - 1968 were consistent with a principal-agent equilibrium in which unobserved worker effort was maximized by the threat of sterilization. As a consequence of such a principal-agent equilibrium the number of eugenic sterilizations is correlated with the number of individuals outside of the labor force—or *labor force surplus*, we estimated the parameters of count data specifications where county-level sterilizations were a function of measures of surplus population for racial groups. Our results revealed that in North Carolina between

¹⁵Ratified in January of 1951, the United Nations Convention of the prevention and punishment of the crime of genocide, defines genocide as any of the following acts committed with intent to destroy, in whole or in part, a national, ethnic, racial or religious group: (1) Killing members of the group, (2) Causing serious bodily or mental harm to members of the group, (3) Deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part, (4) Imposing measures intended to prevent births within the group, and (5) Forcibly transferring children of the group to another group. Our results are consistent with (4).

1958 - 1968, the probability of eugenic sterilization increased, by and large, with a county's surplus black population. Our results suggest that eugenic sterilization policies in North Carolina were tailored not just to control the size of a presumably dysgenic black population as in Darity and Price (2010), but to eliminate an undesirable surplus black population. Indeed, since other racial groups were sterilized without the magnitude of their surplus populations affecting their sterilization rates, it suggests eugenic sterilization in North Carolina was effectively a strategy to eliminate the state's surplus black population—a campaign of black genocide.

While our empirical results are consistent with sterilization being a worker-discipline device, the significant correlation between the expected value of eugenic sterilizations and a county's surplus black population suggests that only blacks were penalized in this manner for shirking, and finding themselves in the surplus population subject to the risk of being sterilized. If such outcomes were anticipated by blacks, work effort could have been higher to offset the likelihood—James' (1994) “John Henryism”. If true, this would induce even higher effort from black workers, and a higher effort return to firms from the sterilization of blacks. Alternatively, if black workers were subject to lower effort as a result of “Stereotype Threat” (Steele and Aronson; 1995), black effort relative to non-black effort would have been lower, which would increase sterilization probabilities for blacks relative to non-blacks. As such, our model can rationalize the empirics of actual eugenic sterilization in North Carolina, as both “John Henryism” and “Stereotype Threat” could result in high black relative to non-black eugenic sterilizations when it is used as a worker discipline device.¹⁶

Our results also require that workers in firms were aware of the prospects of being sterilized. Begos (2002) indicates that Joseph Hanes, the magnate of Hanes Hosiery based in Winston Salem North Carolina, help found the Human Betterment League of North Carolina in 1947.¹⁷ It was through this effort that Hanes financed a slick marketing campaign to sell the idea of eugenic sterilization of the unfit to private citizens and business interests in the State of North Carolina, and it appears to have coincided with his 22 years as a

¹⁶“John Henryism” and “Stereotype Threat” can be viewed as effort strategies for blacks relative to non-blacks when they put forth higher and lower efforts respectively.

¹⁷Begos (2002) notes that in 1948, the Human Betterment League of North Carolina had a mailing list of approximately 40,000 public and private individuals to which it sent literature regarding eugenic sterilization.

member of the Forsyth County (Winston-Salem) board of Commissioners. This suggests that indeed, in the state of North Carolina, both workers and firms were aware of the sterilization prospects that so-called unfit individuals outside of the labor force faced.

Our findings echo the speculations of Darity (1983) and retrospective findings of Bernstein and Leonard (2009). The historic presumption of blacks constituting an innately inferior parasitic population has motivated and justified a wide variety of public and private policies. Our results suggest that in North Carolina between 1958 - 1968, an obscene Political Economy of genocide informed a eugenic sterilization policy aimed at an undesirable black population. Since the correlation between sterilization and an undesirable surplus black population is consistent with our theory of eugenic sterilization serving as a worker discipline device, our results also suggest that racial inequality can be in the best interest of optimizing firms. In this context, our findings cohere with Coleman (2004) and Williams (1987), who find that racial inequality is compatible with the objectives of optimizing firms in a market characterized by competition. For profit maximizing firms in North Carolina, our results suggest that a state-supported genocidal sterilization policy that targeted blacks enabled a principal-agent equilibrium in which wages were minimized, and worker effort maximized.

Table 1
Total Institutional Sterilizations Performed
By North Carolina County of Residence: July 1958 - June 1968

| <i>County of Residence</i> | <i>Total Sterilizations</i> | <i>County of Residence</i> | <i>Total Sterilizations</i> |
|----------------------------|-----------------------------|----------------------------|-----------------------------|
| Alamance | 4 | Alexander | 1 |
| Alleghany | 0 | Anson | 2 |
| Ashe | 2 | Avery | 5 |
| Beaufort | 4 | Bertie | 4 |
| Bladen | 1 | Brunswick | 1 |
| Buncombe | 7 | Burke | 8 |
| Cabarrus | 6 | Caldwell | 5 |
| Camden | 0 | Carteret | 3 |
| Caswell | 2 | Catawba | 7 |
| Chatham | 1 | Cherokee | 1 |
| Chowan | 0 | Clay | 0 |
| Cleveland | 4 | Columbus | 4 |
| Craven | 5 | Cumberland | 6 |
| Currituck | 1 | Dare | 1 |
| Davidson | 7 | Davie | 0 |
| Duplin | 3 | Durham | 5 |
| Edgecombe | 4 | Forsyth | 13 |
| Franklin | 4 | Gaston | 19 |
| Gates | 2 | Graham | 1 |
| Granville | 0 | Greene | 3 |
| Guilford | 11 | Halifax | 5 |
| Harnett | 0 | Haywood | 2 |
| Henderson | 2 | Hereford | 2 |
| Hoke | 0 | Hyde | 5 |
| Iredell | 8 | Jackson | 1 |
| Jones | 2 | Lee | 1 |
| Lenoir | 7 | Lincoln | 3 |
| Macon | 1 | Madison | 0 |
| Martin | 3 | McDowell | 4 |
| Mecklenburg | 26 | Mitchell | 4 |
| Montgomery | 0 | Moore | 1 |
| Nash | 9 | New Hanover | 4 |
| Northhampton | 2 | Onslow | 2 |
| Orange | 4 | Pamlico | 1 |
| Pasquotank | 1 | Pender | 1 |
| Perquimans | 0 | Person | 3 |
| Pitt | 3 | Polk | 1 |
| Randolph | 4 | Richmond | 4 |
| Robeson | 8 | Rockingham | 7 |
| Rowan | 9 | Rutherford | 5 |
| Sampson | 2 | Scotland | 3 |
| Stanly | 0 | Stokes | 0 |
| Surry | 2 | Swain | 0 |
| Transylvania | 4 | Tyrell | 1 |
| Union | 2 | Vance | 5 |
| Wake | 13 | Warren | 1 |
| Washington | 0 | Watauga | 1 |
| Wayne | 8 | Wilkes | 4 |
| Wilson | 6 | Yadkin | 2 |
| Yancey | 0 | Johnston | 2 |

Source: Brown (1935,1964, 1966), Craig (1968), and Winston (1960, 1962).

Table 2
Total Non-Institutional Sterilizations Performed
By North Carolina County of Residence: July 1958 - June 1968

| <i>County of Residence</i> | <i>Total Sterilizations</i> | <i>County of Residence</i> | <i>Total Sterilizations</i> |
|----------------------------|-----------------------------|----------------------------|-----------------------------|
| Alamance | 36 | Alexander | 0 |
| Alleghany | 1 | Anson | 1 |
| Ashe | 6 | Avery | 0 |
| Beaufort | 8 | Bertie | 22 |
| Bladen | 31 | Brunswick | 14 |
| Buncombe | 22 | Burke | 1 |
| Cabarrus | 30 | Caldwell | 10 |
| Camden | 13 | Carteret | 7 |
| Caswell | 5 | Catawba | 12 |
| Chatham | 8 | Cherokee | 0 |
| Chowan | 19 | Clay | 0 |
| Cleveland | 21 | Columbus | 24 |
| Craven | 10 | Cumberland | 31 |
| Currituck | 2 | Dare | 1 |
| Davidson | 5 | Davie | 4 |
| Duplin | 30 | Durham | 28 |
| Edgecombe | 14 | Forsyth | 33 |
| Franklin | 20 | Gaston | 39 |
| Gates | 17 | Graham | 0 |
| Granville | 1 | Greene | 7 |
| Guilford | 64 | Halifax | 13 |
| Harnett | 15 | Haywood | 7 |
| Henderson | 8 | Hereford | 62 |
| Hoke | 6 | Hyde | 1 |
| Iredell | 29 | Jackson | 5 |
| Jones | 5 | Lee | 34 |
| Lenoir | 16 | Lincoln | 7 |
| Macon | 5 | Madison | 14 |
| Martin | 15 | McDowell | 3 |
| Mecklenburg | 241 | Mitchell | 1 |
| Montgomery | 8 | Moore | 23 |
| Nash | 33 | New Hanover | 32 |
| Northhampton | 13 | Onslow | 13 |
| Orange | 9 | Pamlico | 15 |
| Pasquotank | 19 | Pender | 15 |
| Perquimans | 19 | Person | 33 |
| Pitt | 54 | Polk | 0 |
| Randolph | 17 | Richmond | 12 |
| Robeson | 33 | Rockingham | 5 |
| Rowan | 39 | Rutherford | 6 |
| Sampson | 16 | Scotland | 84 |
| Stanly | 6 | Stokes | 2 |
| Surry | 20 | Swain | 5 |
| Transylvania | 1 | Tyrell | 2 |
| Union | 2 | Vance | 11 |
| Wake | 33 | Warren | 9 |
| Washington | 1 | Watauga | 3 |
| Wayne | 50 | Wilkes | 34 |
| Wilson | 22 | Yadkin | 4 |
| Yancey | 1 | Johnston | 17 |

Source: Brown (1935,1964, 1966), Craig (1968), and Winston (1960, 1962).

Table 3
Covariate Summary

| Variable | Mean | Median | Standard Deviation |
|--|-------------|---------------|---------------------------|
| Total sterilizations: July 1958 - June 1968 | 21.63 | 15 | 30.24 |
| Total institutional sterilizations: July 1958 - June 1968 | 3.58 | 2.5 | 3.99 |
| Total non-institutional sterilizations: July 1958 - June 1968 | 18.05 | 12.5 | 27.42 |
| County White Surplus Population in 1960 | 184.12 | -4326.43 | 28740.17 |
| County Black Surplus Population in 1960 | -21.93 | -2304.97 | 11872.25 |
| County Asian Surplus Population in 1960 | 1.08 | -6.66 | 62.45 |
| County Native American Surplus Population in 1960 | -145.26 | -73.17 | 2858.91 |
| County Filipino Surplus Population in 1960 | .728 | -.771 | 12.09 |
| County Other Race Surplus Population in 1960 | .114 | -2.80 | 14.99 |
| County Population per Square Mile in 1960 | 94.29 | 63 | 92.40 |
| Percent of County Individuals Below Poverty in 1969 | .253 | .258 | .092 |
| County Per Capita Income in 1969 | 2141.42 | 2093.5 | 419.29 |
| Number of Individuals In County served in state psychiatric hospitals in 1980 | 179.97 | 105.5 | 9203.84 |
| Number of Individuals In County served in state mental retardation centers in 1980 | 33.38 | 24 | 33.71 |

NOTES: Racial-group population data are based on race and sex group county-level census data for 1960 from the University of Virginia Library Historical Census Browser at <http://fisher.lib.virginia.edu/collections/stats/histcensus/php/county.php> . Population per square mile, Percent of County Individuals Below Poverty, and Per Capita Income (in 1996 dollars), Number of Individuals served in state psychiatric hospital, and Number of Individuals In County served in state mental retardation centers, are based on census data from the North Carolina Department of Management & Budget at <http://data.osbm.state.nc.us/pls/linc> .

Table 4
Fixed Effect Negative Binomial Parameter Estimates
(Unobserved Sterilization Costs Conditioned on Population Density and Number of County Poor)

| Specification: | (1) | (2) | (3) | (4) | (5) | (6) |
|---|-------------------------------------|---|-----------------------------------|-------------------------------------|---|---------------------------------|
| <i>Regressand</i> | <i>Institutional Sterilizations</i> | <i>Non-institutional Sterilizations</i> | <i>Total Sterilizations</i> | <i>Institutional Sterilizations</i> | <i>Non-institutional Sterilizations</i> | <i>Total Sterilizations</i> |
| <i>Regressors:</i> | | | | | | |
| County White Surplus Population in 1960 | .00001 (.000005) ^b | .000007 (.000005) | .000008 (.000004) ^b | .000006 (.000004) | .000005 (.000004) | .000005 (.00004) |
| County Black Surplus Population in 1960 | .00001 (.00001) | .00004 (.00001) ^a | .00004 (.00001) ^a | .00002 (.00001) ^b | .00004 (.00001) ^a | .00004 (.00001) ^a |
| County Asian Surplus Population in 1960 | .00003 (.003) | -.002 (.003) | -.002 (.003) | -.001 (.002) | -.003 (.003) | -.002 (.002) |
| County Native American Surplus Population in 1960 | .00004 (.00002) ^b | .000009 (.00002) | .00001 (.00002) | .00003 (.00002) | .00002 (.00002) | .00002 (.00002) |
| County Filipino Surplus Population in 1960 | -.006 (.017) | .012 (.014) | .009 (.012) | .012 (.013) | .014 (.014) | .013 (.011) |
| County Other Race Surplus Population in 1960 | -.013 (.011) | -.009 (.008) | -.011 (.008) | -.008 (.008) | -.005 (.008) | -.007 (.007) |
| N | 100 | 100 | 100 | 99 | 99 | 99 |
| <i>Pseudo-R</i> ² | .234 | .151 | .156 | .209 | .146 | .147 |
| χ^2_{k-1} : (H ₀ : β ₁ =...β _k =0) | 27.80 ^a | 46.95 ^a | 49.62 ^a | 67.36 ^a | 108.51 ^a | 123.20 ^a |

Standard errors in parentheses.

^a Significant at the .01 level

^b Significant at the .05 level

^c Significant at the .10 level

NOTES: All parameter estimates are reported as the marginal effects of incident rate ratios, where marginal effects are based on sample averages of the regressors. Racial-group population data are based on race and sex group county-level census data for 1960 from the University of Virginia Library Historical Census Browser at <http://fisher.lib.virginia.edu/collections/stats/histcensus/php/county.php>. The parameter estimates condition the unobserved sterilization costs on county population per square mile measured as county population per square mile in 1960 and percent of county individuals below poverty reported in census data from the North Carolina Department of Management & Budget at <http://data.osbm.state.nc.us/pls/linc>.

Table 5
Augmented Fixed Effect Negative Binomial Parameter Estimates
(Unobserved Sterilization Costs Conditioned on Population Density and Number of County Poor)

| Specification: | (1) | (2) | (3) | (4) | (5) | (6) |
|--|-------------------------------------|---|---------------------------------|-------------------------------------|---|---------------------------------|
| <i>Regressand</i> | <i>Institutional Sterilizations</i> | <i>Non-institutional Sterilizations</i> | <i>Total Sterilizations</i> | <i>Institutional Sterilizations</i> | <i>Non-institutional Sterilizations</i> | <i>Total Sterilizations</i> |
| <i>Regressors:</i> | | | | | | |
| Number of Individuals In County served in state psychiatric hospitals in 1980 | .001 (.00004) ^b | -.0002 (.0004) | .0002 (.0004) | .0008 (.0004) | -.00012 (.0005) | .00005 (.0004) |
| Number of Individuals In County served in state mental retardation centers in 1980 | .004 (.006) | .002 (.007) | .001 (.006) | -.009 (.007) | -.002 (.008) | -.004 (.007) |
| County population per square mile in 1960 | .009 (.003) ^a | .003 (.003) | .006 (.003) ^b | .002 (.001) ^b | .001 (.002) | .002 (.001) |
| County per capita income in 1969 | .0002 (.0003) | .00009 (.0003) | -.0001 (.0003) | .0004 (.0006) | .0003 (.0005) | .0004 (.0005) |
| County White Surplus Population in 1960 | .000007 (.00001) | .000006 (.00001) | .000006 (.00001) | .000009 (.00001) | .000004 (.00001) | .000006 (.00001) |
| County Black Surplus Population in 1960 | -.000002 (.00001) | .00004 (.00001) ^a | .00003 (.00001) ^a | .000001 (.00001) | .00005 (.00001) ^a | .00003 (.00001) ^a |
| County Asian Surplus Population in 1960 | .002 (.003) | -.002 (.003) | -.0007 (.002) | -.0006 (.003) | -.002 (.002) | -.002 (.002) |
| County Native American Surplus Population in 1960 | .00003 (.000017) ^c | .000004 (.00002) | .000009 (.00002) | .00005 (.00002) ^b | .00002 (.00002) | .00002 (.00002) |
| County Filipino Surplus Population in 1960 | -.007 (.015) | .008 (.014) | .002 (.013) | .015 (.013) | .013 (.012) | .013 (.011) |
| County Other Race Surplus Population in 1960 | -.013 (.007) ^c | -.005 (.009) | -.009 (.007) | -.019 (.010) ^c | -.005 (.009) | -.009 (.009) |
| N | 100 | 100 | 100 | 99 | 99 | 99 |
| <i>Pseudo-R</i> ² | .284 | .156 | .166 | .222 | .143 | .149 |
| χ^2_{k-1} : (H ₀ : $\beta_1 = \dots = \beta_k = 0$) | 61.69 ^a | 76.91 ^a | 138.80 ^a | 75.86 ^a | 128.84 ^a | 148.96 ^a |

Standard errors in parentheses.

^a Significant at the .01 level

^b Significant at the .05 level

^c Significant at the .10 level

NOTES: All parameter estimates are reported as the marginal effects of incident rate ratios, where marginal effects are based on sample averages of the regressors. Racial-group population data are based on race and sex group county-level census data for 1960 from the University of Virginia Library Historical Census Browser at <http://fisher.lib.virginia.edu/collections/stats/histcensus/php/county.php>. The parameter estimates condition the unobserved sterilization costs on county population per square mile measured as county population per square mile in 1960 and percent of county individuals below poverty reported in census data from the North Carolina Department of Management & Budget at <http://data.osbm.state.nc.us/pls/linc>.

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