Racial Profiling as a Public Policy Question: Efficiency, Equity, and Ambiguity

Steven N. Durlauf[1]

January 6, 2005

[1]Correspondence to: Department of Economics, University of Wisconsin, 1180 Observatory Drive, Madison, WI 53706-1393 or sdurlauf@ssc.wisc.edu. William Brock and Ethan Cohen-Cole provided helpful comments on an earlier draft.

Racial Profiling: Efficiency, Equity, and Ambiguity

Abstract

This paper considers racial profiling in traffic stops as a public policy problem. Efficiency and equity considerations are characterized. I argue that while there is a strong argument that racial profiling produces a violation of fairness, specifically in the treatment of innocent black motorists, the efficiency effects of profiling are not known. One cannot assign probabilities to the possible magnitudes of either deterrent effects or the harms of profiling to individuals. This makes the assessment of profiling an example of decisionmaking under ambiguity. I defend a notion of a "Fairness Presumption" that requires a policymaker to be able to make an affirmative case if a policy is to be implemented that induces unfairness. On this basis, I reject racial profiling as a policy.

Steven N. Durlauf
Department of Economics
University of Wisconsin
1180 Observatory Drive
Madison, WI 53706-1393
sdurlauf@ssc.wisc.edu

1. Introduction

Racial profiling continues to be a contentious issue in American society. While official policing policies have in many places banned profiling, the impact of such regulations is unknown. This paper is designed to consider some of the general issues that need to be addressed in evaluating racial profiling as a public policy question. While there is a growing body of theoretical and empirical work on profiling (John Knowles, Nicola Persico, and Petra Todd (2001), Persico (2002), Jeffrey Dominitz (2003)), with the exceptions of Mathias Risse and Richard Zeckhauser (2004) and Bernard Harcourt (2004), relatively little attention has been paid to integrating efficiency and equity considerations in an overall assessment. The issues discussed here are analyzed in greater detail in Steven Durlauf (2005).

The main theme of this discussion is that the public policy evaluation of racial profiling may be thought of as an example of decisionmaking under ambiguity in that the available evidence on profiling does not speak to the probabilities that are needed to engage in standard statistical decision theory arguments. For concreteness, I will only discuss profiling in the context of police traffic stops where the intent is to identify drug carriers. By focusing on a specific case, the force of abstract arguments may be better evaluated. I place the discussion in the context of efficiency/equity tradeoffs; these may be translated into more standard (from the perspective of philosophy) welfarist or deontological considerations; this is done in Durlauf (2005).

I consider a population with fraction *k* of blacks. Let G and I denote guilt and innocence, B and W denote black and white, and S denote a traffic stop. The overall stop rate *C* is taken to be fixed. A stop strategy is a pair of stop probabilities $\Pr(S|W)$ and $\Pr(S|B)$ consistent with *C,*

$$(1-k)\Pr(S|W)+k\Pr(S|B)=C. \tag{1}$$

By profiling, I refer to the case where $\Pr(S|B)>\Pr(S|W)$.

2. Efficiency

Efficiency in stop strategies requires specification of costs and benefits to individuals, so that expected welfare effects for the population as a whole may be calculated. As a first approximation, I equate efficiency with minimization of $\Pr(G)$, the aggregate crime rate. If the crime rate of one group only depends on its own stop rate, $\Pr(G)$ may be written

$$\Pr(G) = (1-k)\Pr\left(G\middle|W, \Pr\left(S\middle|W\right)\right) + k\Pr\left(G\middle|B, \Pr\left(S\middle|B\right)\right). \tag{2}$$

Assuming standard conditions on the first and second partial derivatives of the race-specific crime rates with respect to stop rates, a profiling strategy is efficient relative to a purely random stop strategy if

$$\frac{\partial \Pr\left(G|W,C\right)}{\partial \Pr\left(S\,|\,W\right)} > \frac{\partial \Pr\left(G|B,C\right)}{\partial \Pr\left(S\,|\,B\right)}, \tag{3}$$

a result obtained in Persico (2002) and Dominitz and Knowles (2004). Intuitively, if the marginal reduction in crime for an increase in the stop rate for blacks is higher than whites at the race neutral rate, crime minimization requires a shift of stops towards blacks.

The costs to individuals of racial profiling have two aspects. The first has to do with the harms inflicted on individuals by stops. Here, I only focus on the effects of stops on the innocent, so $\Pr\left(S\middle|I,W\right)$ and $\Pr\left(S\middle|I,B\right)$ determine the extent of these costs. Further, one can posit the existence of social costs associated with strategies where stop rates differ across races. Glenn Loury (2002) argues that the major impediment to racial equality in America is stigma rather than overt discrimination. As

I interpret Loury, stigma is the systematic tendency to ascribe the least favorable view to individuals of a group consistent with available information. If racial profiling contributes to their stigmatization, it induces costs to blacks in spheres far outside the domain of traffic stops.

3. Equity

The equity dimension of racial profiling revolves around the extent to which a profiling strategy is consistent with some conception of justice; in examining this I am deviating from welfarist arguments. One justice claim that may be reasonably applied here concerns fairness in treatment by the government. That being said, the notion of fairness requires delineation. One would not, for example, wish to argue that a policymaker should not use a technology that makes it easier to identify one group of criminals versus another. These types of problems are discussed in the literature on equality of opportunity. In that literature, exemplified by John Roemer (1998), fairness requires that individuals not be held responsible for things outside their control but may be held responsible for factors for which one holds an individual responsible. In the profiling context, this leads to the idea that fairness requires equal treatment of the innocent with respect to race,

$$\Pr\left(S\middle|I,W\right)=\Pr\left(S\middle|I,B\right) \tag{4}$$

Fairness in the treatment of the innocent is not necessarily violated by profiling. Eq. (4) constrains race-specific stop rates to obey

$$\frac{\Pr\left(S\middle|W\right)}{\Pr\left(S\middle|B\right)}=\frac{\Pr\left(I\middle|S,B\right)}{\Pr\left(I\middle|B\right)}\Bigg/\frac{\Pr\left(I\middle|S,W\right)}{\Pr\left(I\middle|W\right)} \tag{5}$$

The terms $\frac{\Pr(I|S,W)}{\Pr(I|W)}$ and $\frac{\Pr(I|S,B)}{\Pr(I|B)}$ measure the effectiveness of the police in identifying innocent blacks and whites. Profiling can be consistent with equal treatment of the innocent if the policy reflects the ability to relatively accurately identify guilty black drivers. Of course, fairness issues still arise in comparing the stop rates for innocent blacks and whites once one also conditions on those factors that produce the differential effectiveness.

4. Ambiguity

While it is straightforward to provide an algebraic representation of the efficiency and equity considerations for profiling, a public policy evaluation, of course, requires the assignment of magnitudes to the various factors I have discussed. The main theme I wish to argue is that assessments of benefits and costs are both subject to ambiguity in the sense that there is no basis for assigning probabilities to these magnitudes.

In terms of the benefits of profiling, the basic problem is that available empirical studies do not identify the effects of profiling studies on crime. The existing empirical literature is exemplified by Knowles, Persico, and Todd (2001) who find for Maryland data that under profiling

$$\Pr(I|S,W) = \Pr(I|S,B). \tag{6}$$

This condition is consistent with arrest maximization by the police. Arrest maximization does not equate to crime minimization when the crime rate of the oversampled group exhibits relatively less sensitivity to the stop rate.[2]

As for costs, there is virtually no empirical literature that allows for an assessment of magnitudes, specifically with respect to the disproportionate burden

placed on innocent blacks by profiling. With respect to private costs, Risse and Zeckhauser (2004) suggest that the harms of traffic stops are small in the sense that a stop is but one of many racial incidents experienced by blacks. Durlauf (2005) disputes this claim and argues that the marginal harm is increased by the occurrence of other racial incidents; racism is a background in which racial profiling is especially hurtful to blacks. For our purposes, what matters is that these costs cannot be quantified based on current knowledge. Similarly, we have no credible empirical evidence on profiling and stigma. One objection is that in isolation, profiling may have little effect on the overall stigma experienced by blacks. This objection is unpersuasive since it really suggests a need to think about the costs and benefits of a portfolio of profiling policies; one does not want to dismiss the harms of one discriminatory practice because the presence of many others renders the one relatively unimportant. A stronger objection is that there is little quantitative evidence on the effects of stigma on socioeconomic outcomes. Adducing such evidence is closely related to the question of identifying discrimination effects; James Heckman (1998) shows how deep identification problems plague causal claims of differential treatment by race, as occurs when stigma effects are present.

The assessment of profiling is thus an example of decisionmaking under ambiguity. As such, standard decision theory cannot be applied to problems of this type. Much of the exciting work in economics on model uncertainty and policy evaluation involves efforts to overcome this problem using criteria such as minimax (Lars Hansen and Thomas Sargent (2004)) or minimax regret (Charles Manski (2004)). This type of analysis resolves model uncertainty by choosing a particular model (or weighted average of models). For the policies described here, one similarly cannot assign probabilities to elements of the decision problem such as the effects of a profiling strategy on crime. Further, objects such as the least favorable model are not well defined given the absence of a quantitative description of preferences over equity and efficiency and the absence of a well defined support for the space of possible models. Hence, other principles need to be appealed to in order to engage in policy evaluation.

[2]Dominitz and Knowles (2004) are developing methods to identify the crime rate effects of profiling which, if successful, will address this problem.

In Durlauf (2005) I argue, for policy problems such as racial profiling, that ambiguity may be resolved by requiring that there exists a burden of proof to justify policies that, whatever our notion of fairness, diminish it by their implementation. This is formalized as a Fairness Presumption:

> A government policy that violates fairness in its treatment of individuals is presumed to be wrong and hence requires an affirmative defense. The burden of proof is on the advocate of the policy to argue that the violation meets other social goals in a way to overcome the violation.

I will not make a defense of this presumption here, except to note that it represents an effort to embody in adjudication procedures some notion of an "assumption of moral equality between persons" (Thomas Nagel (1979) p. 111). Nagel argues persuasively that this equality assumption underlies both liberal and conservative views of justice, with differences related to how to interpret it.

In the profiling context, the Fairness Presumption leads to the conclusion that profiling is not justified since there is no affirmative case to be made in terms of efficiency whereas there is an unambiguous fairness violation, i.e. differential treatment of innocent blacks and whites. The crime minimization benefits are not identified by available data and potential costs exist that cannot be assumed to be small. In contrast, it seems that current profiling policies embody a clear violation of fairness. The Persico, Knowles, and Todd (2001) results, for example, imply that the stop rates for innocent blacks must exceed whites given the oversampling of blacks unless $\Pr(I|B) > \Pr(I|W)$, which would be very surprising given the general tendency of crime rates to be higher among blacks than whites. At a minimum, I would argue that the burden of proof is on someone to show that a profiling strategy is driven by the relative ability to identify guilty blacks in a way to fulfill (5). The absence of an affirmative case for efficiency (as I have defined it) means, given the unfairness of profiling that it should be rejected in the case of traffic stops.

The Fairness Presumption is an example of a strategy to resolve ambiguity by focusing on ways to restrict the decision rules of the actors. This strategy is used by Truman Bewley (2002) who, in his analysis of Knightian uncertainty, introduces an

inertia assumption that in essence renders decisions path dependent; from an initial decision, one does not adjust unless there is a reason to do so. The Fairness Presumption similarly rejects policies that violate fairness unless there is a persuasive reason to do so. One such reason could be derived from Rawls' Difference Principle, under which a policy that increases inequality is justified if it improves the welfare of the worst person. Another possible reason can be based on utilitarianism, so that an increase in the average utility in a population is justified even if fairness is diminished. The Fairness Presumption imposes a weak type of intrinsic value to fairness by requiring that such reasons exist in order to justify its diminution.

The Fairness Presumption itself requires context-specific delineation in order to be applied. To see this, consider college admissions. Fairness might initially be defined as requiring that the probability of admission to college is independent of race once one has conditioned on past achievement. But what if a black student has attended an inferior school, something for which he is obviously not responsible? And what if stigma has affected a student's past effort, so that factors for which we usually hold individuals responsible interact with factors outside their control? The Fairness Presumption should be interpreted as a guide to how to engage in policy debate, not a substitute for the debate. As Roemer (1998) discusses, disagreements about the appropriate conditioning factors in assessing fairness are inevitable. However, traffic stops do not seem to involve additional factors in the way that, say, college admissions and affirmative action do.

One weakness with this analysis is that I have assumed that the crime rate affects blacks and white equally. Suppose that black and white criminals tend to affect members of their own racial groups, so that profiling strategies have implications for the distribution of crime victimization across groups. Put differently, a competing fairness claim may involve equality of the victimization rates V of the innocent,

$$\Pr\left(V \middle| I, W\right) = \Pr\left(V \middle| I, B\right). \tag{7}$$

(Unlike (4), which may be achieved by a random stop strategy, (7) may not be feasible, so that the fairness aspect of profiling amounts to minimizing racial differences). This

would imply a role for profiling in achieving fairness in victimization. However, in such cases, an additional burden of proof exists, namely, one must demonstrate that a tradeoff between fairness in different dimensions (crime exposure and stops) is necessary. Randall Kennedy (1997) argues that racial profiling may be replaced by other police practices that are equally efficacious.

5. Conclusions

This paper makes two claims. First, I argue that the current evidence on profiling and guilt rates does not represent the basis for a justification of current racial profiling practices. The effects of profiling on crime rate are ambiguous whereas there is a clear fairness violation involved. Second, there should exist a presumption against profiling policies which places the burden of proof on advocates to profiling to demonstrate that the efficiency effects are sufficient to overcome the fairness violation. For policy environments where probabilities cannot be sensibly assigned, qualitative arguments of this type are probably the best that one can do to resolve ambiguity. This conclusion is frustrating but reflects the complications that are inherent when one moves from academia to the policy domain.

Bibliography

Bewley, Truman. "Knightian Decision Theory, Part I." Decisions in Economics and Finance, 2002, 25(2), pp. 79-110.

Dominitz, Jeffrey. "How Do the Laws of Probability Constrain Legislative and Judicial Efforts to Stop Racial Profiling?" American Law and Economics Journal, 2003, 5(2), pp. 412-432.

Dominitz, Jeffrey and John Knowles. "Racial Profiling and Crime Minimization: What Can We Learn from Police Search Data?" Mimeo, University of Pennsylvania, 2004.

Durlauf, Steven N. "Assessing Racial Profiling." Mimeo, University of Wisconsin, 2005.

Hansen, Lars P. and Sargent, Thomas J. Robust Control and Economic Model Uncertainty. Book manuscript, Hoover Institution, Stanford University, 2004.

Harcourt, Bernard E. "Rethinking Racial Profiling: A Critique of the Economics, Civil Liberties, and Constitutional Literature, and of Criminal Profiling More Generally." University of Chicago Law Review, 2004, 71(4), pp. 1275-1381.

Heckman, James. "Detecting Dscrimination." Journal of Economic Perspectives, 1998, 12(2), pp. 101-16.

Kennedy, Randall. Race, Crime and the Law. New York: Pantheon, 1997.

Knowles, John, Persico, Nicola G. and Todd, Petra E. "Racial Bias in Motor Vehicle Searches: Theory and Evidence." Journal of Political Economy, 2001, 109(1), pp. 203-29.

Loury, Glenn C. The Anatomy of Racial Inequality. Cambridge: Harvard University Press, 2002.

Manski, Charles F. "Statistical Treatment Rules for Heterogeneous Populations." Econometrica, 2004, 72(4), pp. 1221-46.

Nagel, Thomas. "Equality" in Mortal Questions. Cambridge: Cambridge University Press, 1979.

Persico, Nicola G. "Racial Profiling, Fairness, and the Effectiveness of Policing." American Economic Review, 2002, 92(5), pp. 1472-97.

Risse, Mathias and Zeckhauser, Richard. "Racial Profiling." Philosophy and Public Affairs, 2004, 32(2), pp. 131-70.

Roemer, John. Equality of Opportunity. Harvard: Harvard University Press, 1998.