FREE TO PUNISH? THE AMERICAN DREAM AND THE HARSH TREATMENT
OF CRIMINALS

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ABSTRACT

We describe the evolution of selective aspects of punishment in the US over the period 1980-2004. We note that imprisonment increased around 1980, a period that coincides with the "Reagan revolution" in economic matters. We build an economic model where beliefs about economic opportunities and beliefs about punishment are correlated. We present three pieces of evidence (across countries, within the US and an experimental exercise) that are consistent with the model.

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1. INTRODUCTION

Several pieces of data suggest that contemporary policies concerning criminal punishment in America are harsh, both relative to other rich countries and relative to the country's own history. For example, the incarceration rate in the United States in the early 1970s was around 100 per 100,000 of total population, whereas it is now over 700 per 100,000. Figure 1 illustrates. It is also the highest in the world. In comparison, the average incarceration rate for European countries is somewhat over 100 (see, e.g., Walmsley 2007). Other aspects of America's penal policy also appear harsh when compared with other countries at similar levels of development, such as the use of the death penalty.[1] An important question, and one we take up in this paper, concerns the causes of harsh punishment in America.

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[1] According to Amnesty International, in 2008, the United States was one of only eight countries with more than 500 prisoners on death row. With 3,263, it was second behind Pakistan. The other six countries included China, Thailand, Kenya, Bangladesh, Nigeria, and Uganda. Many countries have designed reforms based on what they see as best practices in the United States 1`(see, e.g., the contributions in Di Tella, Edwards, and Schargrodsky 2010).

FIGURE 1
Combined U.S. Incarceration Rate (Federal and State Jurisdiction)
1925–2009
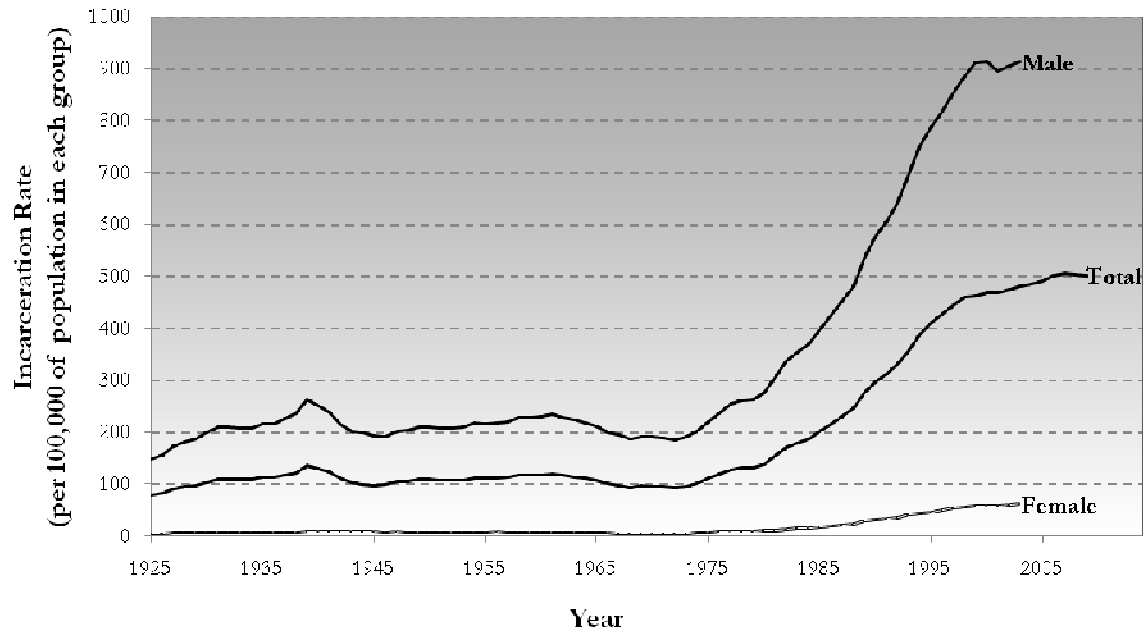
SOURCE: Bureau of Justice Statistics and University of Albany, *Sourcebook of Criminal Justice Statistics, 2003*.

The answer proposed in this paper is that beliefs concerning economic opportunities cause desired punishment levels in society. Although the explanation we present is relatively narrow, it is connected to the more ambitious notion that Americans punish criminals at this unprecedented scale because it is considered legitimate to do so. This stands in contrast to commonly discussed alternatives such as deterrence or the political economy of the "prison-industrial complex." To emphasize (and at the risk of exaggerating), we are claiming that even if there was a well estimated deterrent effect of imprisonment widely accepted by criminologists, this would not explain the observed increase in U.S. imprisonment because somebody would need to produce evidence that voters agree that this is a good idea.[2] Part of the difficulty is to include explanations for policies that are in all likelihood counterproductive from a recidivism standpoint (such as

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[2] Experimental evidence by Carlsmith et al. (2002) suggests that individuals are motivated by retribution concerns (over deterrence) when choosing punishment. They study individuals who are given a short vignette describing a theft and are asked for a sentence recommendation. They show that when the probability of catching the thief in the vignette changes, the sentencing recommendation does not change, contrary to what deterrence suggests. On the other hand, sentences were harsher when the thief's motivation changes (in one case he wanted money to redistribute to the poor and in another he needed it for cancelling betting debts).

charging inmates telephone rates that are significantly higher than those for the general population; see, e.g., Dannenberg 2011). And, of course, it would be hard to write down a deterrence model that fits the magnitude of the incarceration changes without dramatic (and implausible) changes in the other variables of the model.[3] A similar difficulty affects many explanations based on the political economy of the prison-industrial complex. If the expansion is driven by corruption or lobbying by interest groups, why do so many Americans support these policies? To qualify as an answer to the question of why such harsh punishment in America, we think, there has to be an explanation for why so many Americans are happy to support harshness levels that in other countries would be considered completely out of all proportion.

We organize our paper around a model and several pieces of evidence that are consistent with this hypothesis. In the model, we focus on agents that differ in the expected rewards for work and hence in their preferred economic system (as in Piketty 1995). Differences in the power of incentive schemes used (or in tax rates) induce further differences in effort and, a posteriori, differences in the propensity to commit crime. Inferences about the characteristics of criminals (for example, those formed by judges) differ across economic systems. This provides an economic explanation for why some ideological beliefs go together. Specifically, we show that people whose values and beliefs simultaneously include the harsh treatment of criminals and the virtues of free markets (and support low taxes) hold a coherent model of how the world works. Put differently, criminals are "meaner" in systems where there are more economic opportunities, so the belief that there are more economic opportunities (for example, in America relative to Europe, or within the United States after 1980 and the Reagan presidency) is the driver of the demand for harsh punishment.[4] Our explanation is thus connected to work on the expressive content of the law, where policymakers "send a

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[3] For example, it would require a large increase in the income of the lowest decile (the legal alternative for many criminals) in the United States relative to France.
[4] Merton (1938) argued that high crime rates in America were a result of the psychological stress created by the gap between a reality of limited opportunities and a generalized belief in the "American dream." See also Messner and Rosenfeld (2001) and Cullen and Agnew (2003). They do not explain, however, why such harsh punishment might be associated with these beliefs, particularly if such mitigating circumstances are present. Closer in spirit to our approach is the fascinating comparative historical study by Whitman (2003). He argues that American rejection of status-oriented European societies based on a strong state led to the adoption of egalitarian harsh punishment.

message" about society's values by setting harsh sentences (see Sunstein 1996 and Benabou and Tirole 2011).

We provide different pieces of evidence that are consistent with the idea that economic beliefs cause punishment. First, we compare the United States to other countries and show that the desire to punish criminals and certain economic beliefs (such as that effort, rather than luck, matters in the determination of income) are relatively more widespread in the United States. We also note that there is a positive correlation between these two variables in a small cross section of countries. This section reveals two key limitations of our paper. The first is causality: obviously this correlation does not establish a causal link, and even if it did (later in the paper we have some causal evidence), it does not show that the link originates in the particular mechanisms outlined in our model. The second is measurement error: any study dealing with people's beliefs and with punitiveness (either people's desire to punish or as expressed in the classifications of the legal system) has to deal with imprecise measures, particularly when it involves people living in different time periods or geographical jurisdictions. This makes it difficult to design convincing tests to distinguish between alternative hypotheses.

Our second piece of evidence reveals that, within the United States, beliefs about the economic system have moved toward the right end of the ideological spectrum over time, particularly for African Americans. We also show that the proportion of people who support the death penalty and the average belief in "effort pays" are positively correlated across U.S. states. The data also show that there is a correlation between beliefs and punitiveness at the individual level: people who believe effort pays also support the death penalty.

Finally, we conduct an experiment to provide at least suggestive evidence on one aspect of the causal link between beliefs and punitiveness. Students are randomly exposed to hypothetical situations involving criminals from neighborhoods with different economic opportunities. Students who were exposed to a criminal who grew up in a neighborhood with good educational prospects that were associated with economic progress supported tougher punishment (for the same crime) than those exposed to a

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criminal who did not have those opportunities. Although the causal link we develop in the model is more complex and there is obviously a question of the external validity of this empirical exercise, the evidence suggests that beliefs in economic opportunities cause punitiveness.

Our paper is related to a large literature on the structure of ideology. Several authors have studied the nature of political beliefs, many of them observing the fact that ideological beliefs often come in bundles (see, e.g., de Tocqueville 1955, Lipset 1979, *inter alia*; see also the discussions in Rokeach 1973, Feldman 1988, Inglehart 1990, and Zaller 1991).[5] Two important questions are why beliefs about one issue differ across people within the same society who presumably observe the same reality, and why beliefs about different processes (e.g., whether firms pollute too much and whether effort pays) are often correlated. One interesting approach puts emphasis on explaining the structure of beliefs as a coherent outcome when individuals organize information using metaphors (see, e.g., Lakoff 1996). An alternative approach is taken by psychologists who study belief bundling as originating in personality traits and goes back to the work on fascism and authoritarian personality by Adorno et al. (1950). Views about motivated social cognition emphasize that belief systems are adopted largely to satisfy some psychological need (see Jost et al. 2003 for a recent example and discussion of the relevant literature).[6]

An alternative approach, which we emphasize, focuses on how the economic structure might connect beliefs across issues through political and economic choices (see, e.g., Hall and Soskice 2001). A classic example in economics is Piketty (1995), who shows that people who believe effort pays are more likely to believe that low taxes are best — a connection that might be reinforced when people choose compensation schemes. In this paper we take this approach by emphasizing that people who believe effort pays will vote for (and choose privately) high-powered incentive schemes, which

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[5] Some of this work emphasizes how left/right political choices reflect the basic cleavages in society (see, e.g., Lipset and Rokkan 1967, who emphasize the importance of religion and class). For descriptions of American's beliefs and attitudes, see Hochschild (1981), Inglehart (1990), and Ladd and Bowman (1998).

[6] The specific connection between meritocratic beliefs (sometimes approximated as "free will") and punitiveness has also been explored in experimental settings. On the one hand, subjects manipulated to believe less intensely in free will have been shown to be more likely to lie, cheat, steal, and become aggressive (Vohs and Schooler 2008, Baumeister et al. 2008). On the other hand, when people can place blame for an offense on someone, even if undeservedly, they become more punitive (Sanfey et al. 2003). Shariff et al. (2011) show that an eroded belief in free will can soften retributive impulses toward violent criminals.

will have a consequence on desired sentences because the type of people committing crimes in such settings will differ from those choosing to be criminals in places with low-powered incentives.

In Section 2 we present a simple model to illustrate how beliefs may cause differences in the way societies organize their economic systems, the types of criminals, and in the desired punishments. In Section 3 we present our three pieces of evidence: some cross-country evidence, evidence for the United States, and finally evidence from our experimental exercise. Section 4 concludes.

2. A MODEL WHERE BELIEFS ABOUT THE ECONOMIC SYSTEM CAUSE PUNISHMENT

In this section we present a variation of the model in Di Tella and Dubra (2008) that incorporates several improvements. First, in order to analyze the increase in punitiveness and in the belief that effort pays in the United States in the past 30 years, we have incorporated income changes in order to study the role of GDP growth, an element that seems important in a model where beliefs matter.[7] Second, we provide a better (more precise) approach to modeling whether exerting effort is profitable. Finally, the model is more flexible because the source of variation across individuals is a "type," which can now be interpreted in several ways. For example, as "laziness" (in accordance with the World Values Survey question concerning whether poverty is due to laziness or because of bad luck) or more generally as any other innate or "environmental" factor that makes effort by the individual more costly (for example, if the individual has erroneous perceptions about the "profitability" of exerting effort or if the individual's education was not conducive to good work habits). This allows naturally for discussions of several topics that others have argued are important in the decision to commit crime (like segregation in particularly "bad" neighborhoods, or identity).[8]

The basic model has three agents: firms, workers, and the government who must simultaneously choose their actions. Firms must choose whether they want a market
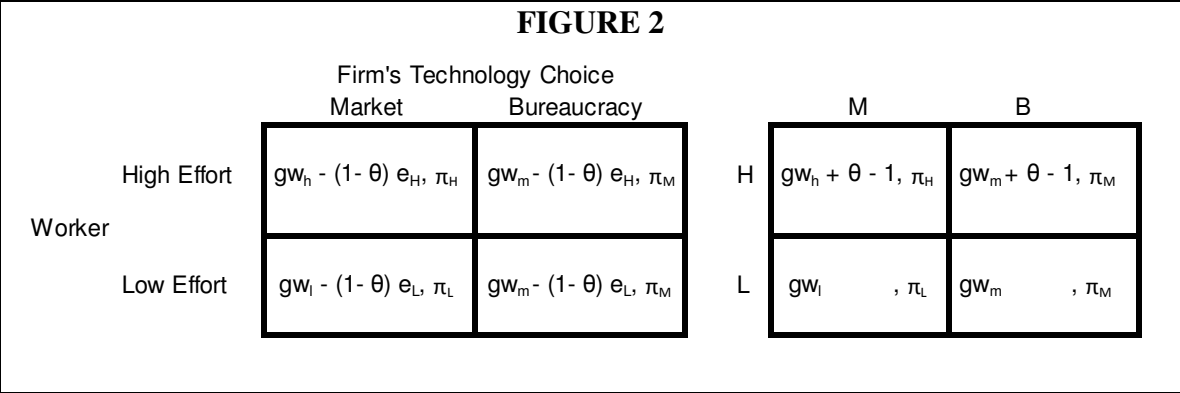
technology, M, where effort and training by workers matters, or a bureaucracy, B, where output is independent of effort. Workers must choose whether they will be criminals, or they will work with low effort $e_L = 0$, or work with high effort $e_H = 1$. The government must choose a punishment level, time in jail, t for criminals.

For a parameter g representing technological progress, the wealth level $gw(s, e)$ of the individual when facing a technology $s = M, B$ and exerting effort $e = e_H, e_L$ is given by $w_h = w(M, e_H)$, $w_l = w(M, e_L)$, and $w_m = w(B, e_H) = w(B, e_L)$. In this paper, w is exogenous, but it can easily be made the endogenous result of a competitive model.

Workers are of one of two types: low θ_L or high θ_H, and let ρ denote the probability of a type θ_H. For a wealth level gw and effort e, an individual of type θ has a utility $u(gw, e; \theta) = gw - (1 - \theta)e$ if he chooses to work. As will be clear shortly, low types will be more likely to become criminals.

From the form of the utility function, at least three interpretations arise: First, one can interpret θ_H as a hardworking type, since the cost of effort is lower than for the "lazy" type θ_L: for the hardworking individual the cost of effort is $1 - \theta_H$ while for the lazy one it is $1 - \theta_L$. A second interpretation is that a type θ_L was raised in an environment with "low-quality" work habits, so that a greater effort level is required to obtain the same results as somebody who was raised in an environment conducive to "high-quality" work habits. In this case, the effort level e is not measured in "hours" but rather in effective units of effort. Finally, a somewhat related interpretation is that a type θ_L is one who believes that effort is not very useful (say, has a low productivity) and so a lot of hours of effort would be needed to obtain a certain objective; meanwhile a type θ_H thinks that effort is highly productive and that a small number of hours would suffice to obtain the given objective. In this interpretation, for example, e_H could be "obtain a university degree," while e_L could be "be a high school graduate." Types θ_H may then think that obtaining a degree would involve 20 hours of study per week, while types θ_L could believe that it would require 40 hours.

The payoffs for the worker and the per-worker profit of the firm are presented in the matrices shown in Figure 2, where the matrix on the right has simplified using $e_H = 1$ and $e_L = 0$.

FIGURE 2

Firm's Technology Choice

Worker	Market	Bureaucracy		M	B
High Effort	$gw_h - (1-\theta)\, e_H,\ \pi_H$	$gw_m - (1-\theta)\, e_H,\ \pi_M$	H	$gw_h + \theta - 1,\ \pi_H$	$gw_m + \theta - 1,\ \pi_M$
Low Effort	$gw_l - (1-\theta)\, e_L,\ \pi_L$	$gw_m - (1-\theta)\, e_L,\ \pi_M$	L	$gw_l\ \ ,\ \pi_L$	$gw_m\ \ ,\ \pi_M$

As we explain below, this economic structure gives rise to two different equilibria: the "American equilibrium" and what can be called the "French equilibrium." In the American equilibrium most workers choose a high level of effort (or training) because they believe that effort pays; in this equilibrium, given that workers are exerting effort, it is profitable for firms to choose a market technology, and this "confirms" that workers' beliefs that effort pays are correct in equilibrium. In the French equilibrium, workers anticipate that effort does not pay and choose low effort; firms correctly forecast this behavior and choose a bureaucracy, ensuring that workers' beliefs that effort doesn't pay are correct in equilibrium.[9]

If the individual decides to participate in the labor market, he collects his lifetime wealth and pays his effort cost. If he opts for crime, his payoff is $c + \mu$, where c is the expected utility of crime and μ is a taste shock for criminal activity. In order to link the punishment rate with the utility of the individuals, we assume that the direct utility from crime is a continuous function $c(t)$ where the variable t is time in jail. Of course, other dimensions (like the probability of apprehension) matter, but in order to simplify our analysis we take them as given. We also assume that c is decreasing in t. The taste shock μ is the meanness of the individual (a large μ is an unkind individual), which is drawn from a density f that is positive in its support $[\mu_{\min}, \mu_{\max}]$ and has a cumulative distribution function F. In Di Tella and Dubra (2008) we discuss alternative interpretations of μ.

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[9] For a model where stigma and self-fulfilling expectations of criminality lead to multiple equilibria, see Rasmusen (1996).

Given a pair of presumed strategies (s, t) for the firm and the government, the individual decides whether to enter the crime market by comparing his utility $gw - (1 - \theta)e$ with $c + \mu$. He commits a crime if and only if $gw - (1 - \theta)e < c + \mu$.

The government must choose the time in jail for a criminal, which in turn determines c. In other words, once the government has proved that the individual has committed a crime, it must decide the time t he must spend in jail. We assume that for some increasing function q, the government has a utility $-(q(\mu) - t)^2$ of punishing with t years a type μ; if the government knew that the individual was of a certain meanness μ, it would choose a punishment level $t = q(\mu)$. Since q is increasing, it means that the government wants to punish "worse" individuals more. More generally, and denoted by E_h the expected value with respect to a belief h about μ, the government must choose t to maximize $v(t, \mu) = -E_h[(q(\mu) - t)^2]$. This yields a desired punishment of $t = E_h[q(\mu)]$.

To see why we obtain our basic results (higher punishment in America than in "France" and higher punishment in America today than 30 years ago), note that the government's beliefs about the types of apprehended criminals, h in the formulation above, depends on the economic system. For example, if criminals in a certain environment are "meaner" on average than in another because economic opportunities are better (and hence only really mean individuals commit crimes), then the government will choose a harsher punishment.

2.1 Two worked-out examples

We now present two worked-out examples in order to illustrate how the model operates.

Set $w_h = 2$, $w_m = \frac{3}{2}$, $w_l = \frac{5}{4}$, and $g = 1$. Let $\theta_H = \frac{3}{4}$ and $\theta_L = 0$, and let $\rho = \frac{3}{4}$ be the probability of type θ_H. Let $\pi_H = 4$, $\pi_M = 2$, and $\pi_L = 1$. Let us also assume that $c(t) = \frac{3}{2} - t$, that μ is uniformly distributed in $[-2, 2]$, and finally that $q(\mu) = (104\mu - 99) \div 92$.

With these parameters, two equilibria arise:

- The "American Dream equilibrium," where the firm chooses a market technology, high-effort types exert effort while low-effort types don't (a portion of each type commits crimes), and the government chooses a high punishment level.

- The "French equilibrium," where the firm chooses a bureaucracy technology, all types exert low effort (and again, some individuals of each type commit crimes), and the government chooses a low punishment level.

It is easy to check that these are the unique equilibria in pure strategies. We first analyze the "French equilibrium," which is easier. Since workers are choosing low effort, it is a best response for the firm to choose a bureaucracy. Assume now that the desired punishment by the government is $t^F = \frac{1}{8}$, and we will then check that this is indeed optimal. Given a bureaucracy, neither θ_H nor θ_L would choose to exert high effort, so the only choice is between low effort, which yields $w_m = \frac{3}{2}$, or crime that gives $c(t^F) + \mu = \frac{3}{2} - t^F + \mu = \frac{11}{8} + \mu$. Individuals in this equilibrium commit crimes if and only if $\frac{11}{8} + \mu > \frac{3}{2}$, or $\mu > \frac{1}{8}$. Hence, the expected value of μ if a crime has been committed (in a bureaucracy) is the midpoint between 2 and $\frac{1}{8}$: $E[\mu|C,B] = \frac{17}{16}$. Then, the optimal strategy of the government is to choose $t^F = E[q(\mu)] = (104E[\mu] - 99) \div 92 = \frac{1}{8}$, as was to be shown.

The "American equilibrium" is somewhat more involved, since different θs behave differently.[10] In order to analyze the equilibrium, assume that the desired punishment by the government in this case is $t^A = \frac{1}{4}$, and we will then check that this is indeed the optimal thing to do. A type θ_H with meanness μ has to choose among: high effort, which yields $gw_h - (1-\theta)e = 2 - \frac{1}{4} = \frac{7}{4}$; low effort, which gives utility $\frac{5}{4}$; and crime, which nets him $c(t^A) + \mu = \frac{3}{2} - t^A + \mu = \frac{5}{4} + \mu$. Therefore, he commits a crime if and only if $\mu > \frac{1}{2}$. Similarly, low types θ_L commit crimes if and only if $\mu > 0$. Since all types μ greater than $\frac{1}{2}$ commit crimes and only θ_L individuals with types $0 < \mu < \frac{1}{2}$ become

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[10] Specifically, in the French equilibrium both θ_H and θ_L are associated with the same cutoff in μ for which meaner types commit crimes, whereas in the American equilibrium they have different cutoffs, with the one associated with θ_H higher than the one for θ_L.

criminals, the probability that an individual becomes a criminal (in a market technology) is

$$P(C; M) = P\left(\frac{1}{2} < \mu < 2\right) + P(\theta_L) \times P\left(0 < \mu < \frac{1}{2}\right) = \frac{2 - \frac{1}{2}}{4} + \frac{1}{2} \times \frac{\frac{1}{2} - 0}{4} = \frac{13}{32}$$

.

Therefore, the posterior belief that a criminal has a type $0 < \mu < \frac{1}{2}$ is the probability of a type in that range, times the probability that it is a θ_L, divided by the probability of a crime being committed:

$$P\left(0 < \mu < \frac{1}{2} \middle| C, M\right) = \frac{P(\theta_L)P(0 < \mu < \frac{1}{2})}{P(C; M)} = \frac{1}{4} \times \frac{\frac{1}{2} - 0}{4} \times \frac{32}{13} = \frac{1}{13}$$

Hence the expected value of μ in the American equilibrium is: the probability that μ is in $[0, \frac{1}{2}]$ multiplied by the expected value conditional on μ in that interval (which is just the midpoint of the interval), plus the probability that μ is greater than $\frac{1}{2}$, multiplied by the expected value conditional on that interval (again, the midpoint between $\frac{1}{2}$ and 2). That is,

$$E(\mu; C, M) = \frac{1}{13} \times \frac{1}{4} + \frac{12}{13} \times \frac{5}{4} = \frac{61}{52}$$

Then, the optimal strategy of the government is $t^A = E[q(\mu)] = (104E[\mu] - 99) \div 92 = \frac{1}{4}$, as was to be shown. Given the strategies of workers, where most exert high effort (a proportion larger than $\rho = \frac{3}{4}$), it is optimal for firms to choose a market technology. This completes the analysis of the first example, where punishment in the American equilibrium is larger than in the French equilibrium.

The above example concerns a "cross section of punitiveness levels." Our second worked-out example concerns the analysis of a "time series" of what happens when the economy grows. In order to analyze this case, we leave all parameter values as before, but increase g from 1 to $g = \frac{6}{5}$. This has the effect of raising wages in both the French and American equilibria. Following the same steps as before, it is easy to check that

$t^F = \frac{103}{720}$ while t^A is approximately $\frac{16}{25}$. The desired punishment increased by 15 percent in the French equilibrium, while it increased by 160 percent in the American equilibrium. If we interpret growth in *g* as the increase in incomes during the 1980s and 1990s, this example illustrates two stylized facts from the imprisonment literature: a small increase in severity in the "French equilibrium" (and more generally around the world, see Walmsley 2007) and an even larger increase in the desired punishment in the "American equilibrium."

The appendix discusses possible ways to extend the model, connecting it to issues that others have claimed to be relevant to the crime-punishment discussion (such as biased sampling in segregated neighborhoods).

3. THREE PIECES OF EVIDENCE

We now focus on three pieces of evidence connecting beliefs and punitiveness. As emphasized above, the evidence is only suggestive of the relationship outlined in the model, as establishing tight causal links is beyond the scope of the paper. Note also that there are many peculiarities of the U.S. penal system (and several of them contribute to increases in punitiveness, such as "truth-in-sentencing" laws), but we do not review them here (see, e.g., Austin et al. 2000).[11] Instead, we selectively include pieces of evidence that we see as relevant to a theory connecting imprisonment to beliefs.

Before presenting the evidence, we note some selected observations related to the evolution of the U.S. data. First and most basic is that punitiveness in the United States is higher now than it was historically. See Figure 1 above. Several legal initiatives gradually loosened restrictions on the activities of law enforcement officials in the 1970s. Later on, the Comprehensive Crime Control and Sentencing Reform Acts of 1984 introduced stricter sentencing (mandatory minimums for many categories of drug- and gun-related offenses) and new search and seizure powers. Over time, truth-in-sentencing laws have been introduced federally and in several states. These require prisoners to serve 85

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[11] The case of Maricopa County Jail offers several such peculiarities, with poor conditions including "chain gangs for men and women," inmates that are "forced to wear old-fashioned prison stripes and pink underwear," and that "prohibited items include cigarettes, adult magazines, hot lunches and television." See *CNN.com*, "Arizona Criminals Find Jail Too — in Tents," July 27, 1999.

percent of their sentence before being eligible for parole. In 1994, a popular ballot initiative brought in California's controversial "Three Strikes Law," with lengthy and mandatory prison terms for repeat offenders. Simultaneously, it is possible to observe reductions in prison alternatives (electronic monitoring) and re-entry programs (including parole, probation, psychiatric care, and rehabilitation). The increase in imprisonment was not steady, with a clear break around 1980 — a time when ideological changes associated with the Reagan revolution took place (some are documented in Section 3.2. below). The rate of incarceration in the United States hovered around 100 per 100,000 population from the 1920s (when we first have readily available data) to 1980, when it began an upward trend. During the early 2000s it stabilized somewhat. Indeed, formal estimates (as in Perron 2005) indicate structural breaks in 1978 and 2001.

A substantial part of this increase has taken place in minimum security prisons.[12] Between 1979 and 2005, the percentage of inmates held in maximum security was halved, from 40 percent to 20 percent; the percentage of inmates in minimum security nearly doubled, from 18 percent to 34 percent.[13] In 1979, state prisons held less than one minimum security prisoner for every maximum security prisoner; in 2005, state prisons held nearly three minimum security prisoners for every one maximum security prisoner. It appears that a lot of the changes in incarceration rates involve offenders who are judged to be less dangerous.

As is well known, some minorities are imprisoned at disproportionate rates. For example, the black incarceration rate (relative to the black population) is substantially higher than the white incarceration rate, in some states by a factor of almost 10 (see, e.g.,

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[12] One factor is longer sentences for less severe crimes. The "war on drugs" has played a role, as there has been a substantial increase in those incarcerated for drug offenses. Austin et al. (2000) write:

> [I]n 1980 the number of prisoners convicted for a drug offense was six percent of the state prison population, which numbered less than 300,000. By 1998 the numbers had increased by 237,000, or 21 percent of the state prison population. Furthermore, the average sentence for drug offenses had increased from 13 months in 1985 to 30 months by 1994.

At the federal level the increase was 10-fold. Mauer (2008) reports that burglars in the United States serve an average of 16 months in prison, whereas in Canada they serve five months on average (and seven months in England).

[13] The estimates in this paragraph use population estimates from the U.S. Census Bureau (various years) and inmate statistics from the U.S. Department of Justice, Bureau of Justice Statistics, *Census of State and Federal Adult Correctional Facilities*, 1979, 1984, 1990, 1995, 2000, and 2005.

Mauer and Ryan 2007). Convincing evidence of racism is provided by Alesina and La Ferrara (2011) who study all death penalty appeals that became final between 1973 and 1995 and show that the probability of judicial error is up to 9 percentage points higher for minority defendants who killed white victims than for those who killed minority victims.[14] There is a large body of work on racism and the mass incarceration of so many black (and Hispanic) young men, which we do not review here (for a recent example, see Alexander 2010). Even though these accounts make many valid points, they fail to account for the simple fact that few people who support punishment see themselves as racist. Interestingly, a first look at the evidence suggests that the increase in the overall incarceration rate has approximately preserved the 1980 differences in incarceration rates by race. Given that there was large difference in 1980, the increase in imprisonment has affected blacks disproportionately. As a percent of the total population in each group, the incarceration rates of blacks was over six times that of whites both in 1980 and in 2009.[15]

TABLE 1
Racial Disparity in Incarceration Rates

Year	Percentage of White Population Incarcerated	Percentage of Black Population Incarcerated	Ratio of Black Percentage to White Percentage
1980	0.18%	1.11%	6.3
1990	0.36%	2.36%	6.6
2000	0.41%	3.41%	8.3
2009	0.43%	2.99%	6.9

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[14] Other work in criminology has studied bias in the legal system using the assumption that racial differences in arrests indicate differences in criminal involvement. One study concluded that close to 76 percent of the racial bias in imprisonment can be attributed to differences in criminal involvement of racial groups (see Blumstein 1993; in 1978 this proportion was 80 percent). Although the assumption of unbiased arrest rates seems contrary to anecdotal evidence (we were unable to find convincing studies that could be generalized), Hindelang (1978) found that the racial differences in arrests mirrored racial identities of offenders as reported by the victims in the National Crime Victimization Survey, although this evidence refers to the period prior to the escalation in imprisonment.

[15] Calculations based on "Correctional Populations in the United States and National Prisoner Statistics," U.S. Department of Justice. Population figures taken from U.S. Census estimates.

It is interesting to compare the United States with other countries. In 2007, the incarceration rate in the United States was 756 per 100,000 population, whereas it was significantly lower for Europe (average of 125). Although in some countries there certainly was an increase in imprisonment, the dynamics are nowhere as extreme as in the United States. Canada, which in many ways is a good counterfactual, is characterized by its stability: since the 1950s it has imprisoned approximately 100 per 100,000 population (Webster and Doob 2007).[16]

Crime rates in the United States are not generally much higher than those prevailing in Europe. See Table 2 for data for a U.S.-Europe comparison across crime categories during the late 1990s. Homicide is the one possible exception: Figure 3 provides a graph of incarceration rates and a measure of homicides (from the World Health Organization). Incarceration and homicide rates have a mildly positive correlation (see Bushway and Paternoster 2009 and Durlauf and Nagin 2010 for clear discussions, including the difficulties in making causal interpretations given the possible presence of deterrent and political economy effects, as well as references to previous work). The United States is still an outlier, with extremely high levels of incarceration. This is the same conclusion emerging from the study by Raphael and Stoll (2009), who decompose the changes in incarceration and find that only a small proportion of the increase is attributable to increases in criminal behavior (at most 17 percent of total growth). These authors attribute the bulk of the increase to longer time served and to an increase in the likelihood of being sent to prison (conditional on committing a crime).[17]

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[16] Unfortunately, it is not possible to see if Quebec has different punitiveness than the rest of Canada looking at imprisonment rates due to several features of the Canadian legal system (for example, there is a lot of shifting of prisoners across provinces). See Doob and Webster (2006). Furthermore, the Canadian federal system (which holds those sentenced to more than two years) is quite substantial and it is not easy to obtain data on the province in which they were sentenced. For 1995 and 2003, the three largest provinces (British Columbia, Ontario, and Quebec) are quite similar in their *overall* imprisonment rates. We are extremely grateful to Anthony Doob for providing us with these data. Kensey and Tournier (1999) describe prison inflation in France in detail. Walmsley (2007) writes that prison populations have risen in 69 percent of European countries.

[17] These authors note that average time served in the aggregate has not increased even though we now have longer sentences (conditional on type of crime.). The reason is that prison admissions have shifted toward less serious offenses, consistent with the increase in minimum security prisons we document.

	Incarceration Rate	Victim Rate	Crime				
			Total	Car	Property	Sex	Person
United States	645	24.2	5,375	19.6	10.8	2.5	5.7
Europe	88	25.2	7,984	19	9.6	2.9	4
Austria	85	18.8	6,285	11.7	6.6	3.8	2.1
Canada	115	25.2	9,979	17.3	13.1	2.7	4
England & Wales	125	30.9	n/a	24.7	12.8	2	5.9
Finland	55	18.9	7,650	12.9	5	2.5	4.1
France	90	25.3	6,765	20.7	9.5	0.9	3.9
Netherlands	85	31.5	7,422	25.9	13.3	3.6	4
Sweden	60	24	12,670	20	7.5	2.9	4.5
Switzerland	90	26.7	5,116	18.6	9	4.6	3.1

TABLE 2

Crime and Punishment in the United States and Europe, Late 1990s

NOTES: The figures for Europe correspond to the unweighted average across the European countries in the table. Data on incarceration rates comes from the first edition of the World Prison Population List. *Incarceration Rates* are prison populations per 100,000 of national population. The incarceration rates are from 1997, except for England and Wales and France, where the data are from 1998. *Crime* is the total recorded crime per 100,000 population from the United Nations Surveys on Crime Trends and the *Operations of Criminal Justice Systems*. All data are from 1994 except for the Netherlands, which are for 1986. *Victim Rate* is the victimization rate (the proportion of the population victimized in one year), for 1995 (the latest year available) in Mayhew, P. and J.J.M. van. Dijk *Criminal Victimization in 11 Industrialized Countries: Key Findings from the 1996 International Crime Victims Survey*, The Hague: Ministry of Justice, WODC, 1997. *Car* is victimization rates for car theft, theft from car, car damage, motorcycle theft, and bicycle theft from the same surveys. *Property* is victimization for burglary, attempt at burglary, robbery, and theft of personal property from the same surveys. *Sex* is sexual offenses victimization from the same surveys. *Person* is assault and threat victimization from the same surveys.

FIGURE 3
Prison Population and Homicides on OECD Countries
2004
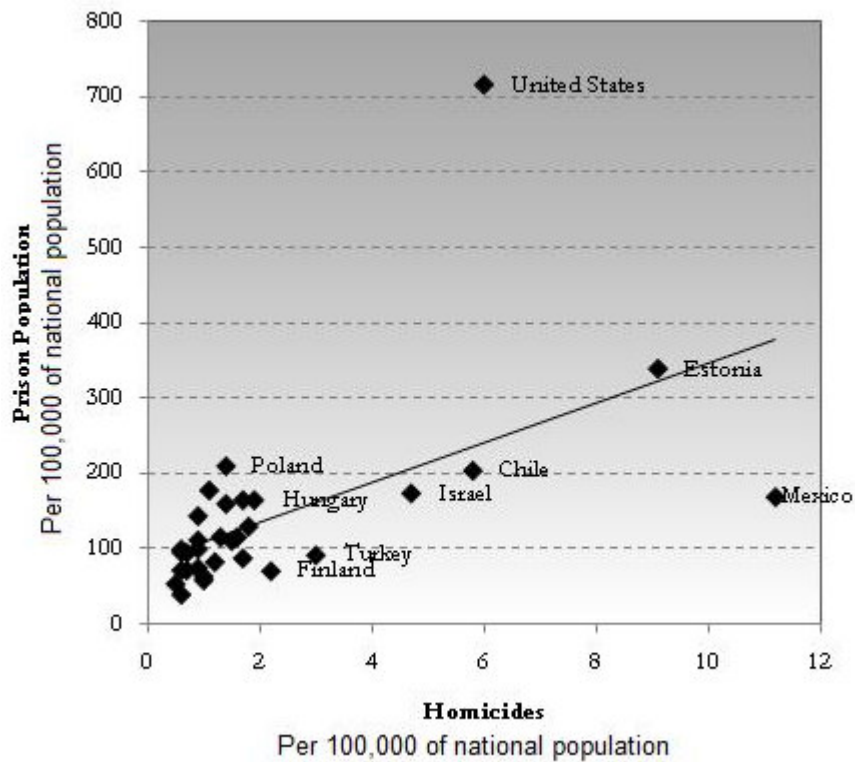
NOTES: The variable on the y-axis (*Prison Population*) is the number of prisoners in the country's national prison system (including pretrial detainees/remand prisoners) per 100,000 of the country's national population. The source is the *World Prison Brief*, International Centre for Prison Studies, 2003. The variable on the x-axis (*Homicides*) is the number of homicides (defined as unlawful death purposefully inflicted on a person by another person) per 100,000 of the country's national population in 2004. The data were obtained from the United Nations Office on Drugs and Crime's homicide statistics, which are based on public health sources. The sample covers 31 OECD countries.

3.1 Punishment and Economic Beliefs in the United States and Other Developed Countries

Given the difficulties in interpreting data involving legal definitions across countries, and that incarceration confounds the amount of crime, enforcement efforts, and other factors with desired punitiveness, it is useful to study alternative measures. We derive a measure of desired punishment from the 2004–2005 International Crime Victim Survey (ICVS). This is a comprehensive survey developed to monitor crime, perception of crime,

and attitudes toward the criminal justice system in a comparative international perspective, financed largely by the United Nations and the European Union.[18] The main question for our purposes is:

> People have different ideas about the sentences which should be given to offenders. Take for instance the case of a man of 20 years old who is found guilty of burglary for the second time. This time, he has stolen a colour TV. Which of the following sentences do you consider the most appropriate for such a case: (1) Fine, (2) Prison, (3) Community service, (4) Suspended sentence, (5) Any other sentence.

A simple way to summarize the data is through the percentage of respondents opting for imprisonment as punishment for the recidivist burglar. The percentage of the public opting for imprisonment as punishment for a recidivist burglar in the United States was 47, while the average for 22 European countries included in the sample was 25.4 (s.e. 2.4).

Data on beliefs about the economic system come from the fifth wave of the World Values Survey (2005–2008). The first belief that we use is based on the standard question on self-placement the ideological spectrum:

> In political matters, people talk of "the left" and "the right." How would you place your views on this scale, generally speaking?

The response takes values from 1 to 10, where 1 is Left and 10 is Right.

The second belief is constructed based on the following question:

> Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can chose any number in between.
>
> Agreement: Hard work brings success.

We inverted the scale so that 1 means "Hard work doesn´t generally bring success — it´s more a matter of luck and connections," and 10 means "In the long run, hard work usually brings a better life."

---

[18] Standardized questionnaires and other aspects of data collection provide some reassurance regarding data quality. The biggest apparent drawback is that it is telephone-based, although it appears that experimental work in the Netherlands comparing answers to the ICVS survey using telephone (CATI) interviews with face-to-face interviews produce similar results (see Scherpenzeel 2001, cited in van Dijk et al. 2008).

The last belief is constructed based on the following question:

> Many things may be desirable, but not all of them are essential characteristics of democracy. Please tell me for each of the following things how essential you think it is as a characteristic of democracy:

> Governments tax the rich and subsidize the poor.

We inverted the scale so 1 means "It definitely is an essential characteristic of democracy," and 10 means "Not at all an essential characteristic of democracy." Note that these beliefs are coded so that higher numbers indicate the respondent is closer to what is typically interpreted as the right end of the ideological spectrum. As revealed by several prior papers (see, e.g., Alesina et al. 2001), beliefs in the United States are more toward the right end of the ideological spectrum than in Europe.

More interestingly, Figure 4 reveals that there is a positive relationship between right-wing answers (using the three measures of beliefs) and the percentage of people recommending prison in the ICVS question. In Di Tella and Dubra (2008) similar results are presented using somewhat different samples.

FIGURE 4

Beliefs and Demand for Punishment across Countries

C.
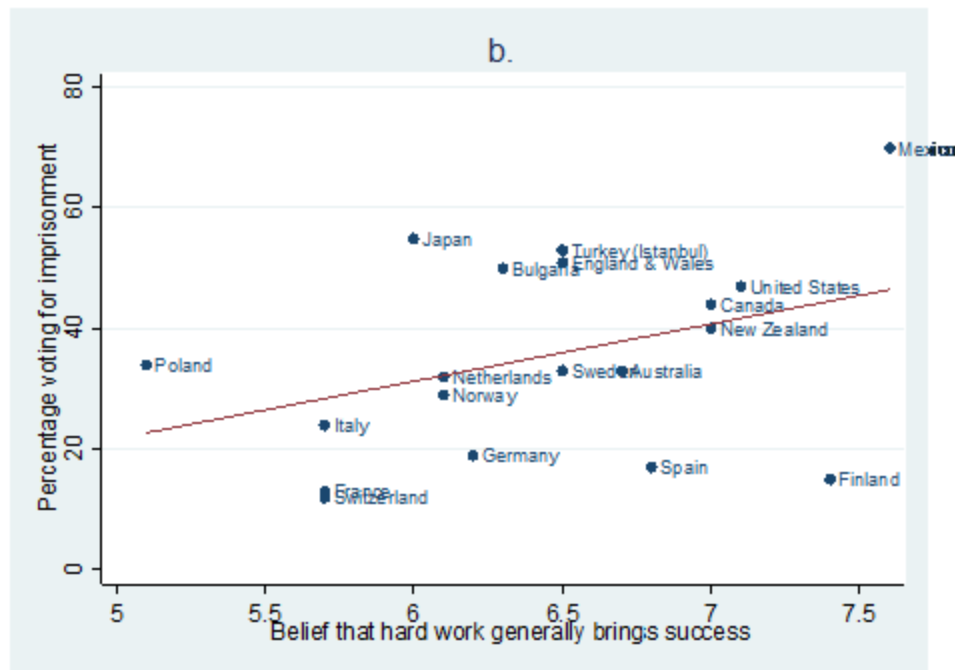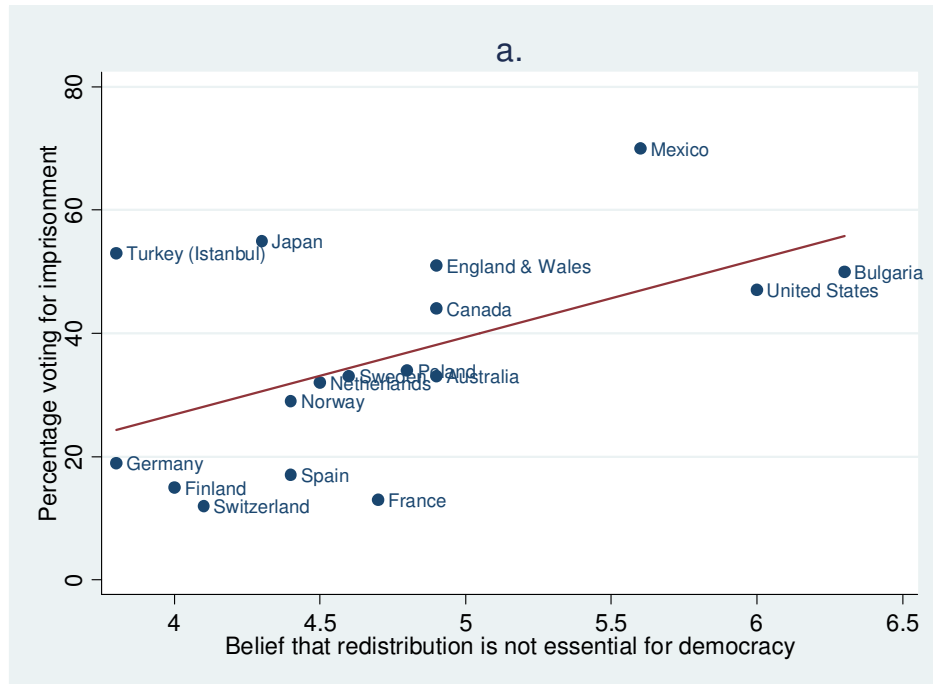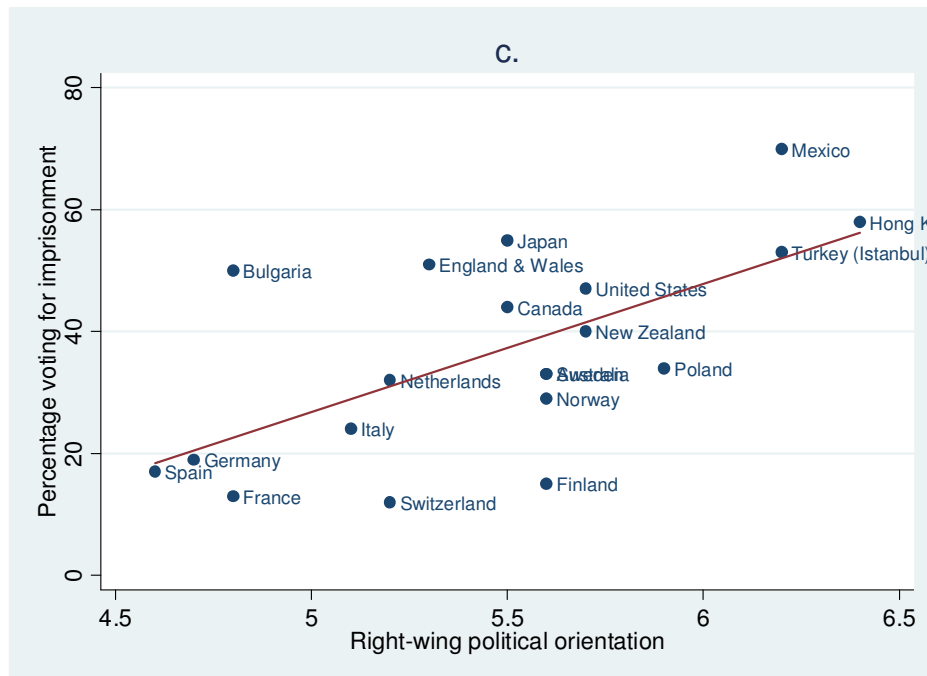
NOTES: The variable on the y-axis is derived from the question: *"People have different ideas about the sentences which should be given to offenders. Take for instance the case of a man of 20 years old who is found guilty of burglary for the second time. This time, he has stolen a colour TV. Which of the following sentences do you consider the most appropriate for such a case: (1) Fine, (2) Prison, (3) Community service, (4) Suspended sentence, (5) Any other sentence."* (ICVS, 2004–2005) The y-axis variable is the percentage of the public opting for imprisonment as punishment for the recidivist burglar. The x-axes use data on beliefs about the economic system from the fifth wave of the World Values Survey (2005–2008). In panel (a) the belief comes from the question: *"Many things may be desirable, but not all of them are essential characteristics of democracy. Please tell me for each of the following things how essential you think it is as a characteristic of democracy: Governments tax the rich and subsidize the poor."* We inverted the scale so 1 means *"It definitely is an essential characteristic of democracy,"* and 10 means *"Not at all an essential characteristic of democracy".* In panel (b) the question used is: *"Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can chose any number in between. Agreement: Hard work brings success."* We inverted the scale such that 1 means *"Hard work doesn´t generally bring success — it´s more a matter of luck and connections,"* and 10 means *"In the long run, hard work usually brings a better life".* Panel (c) uses self-placement: *"In political matters, people talk of "the left" and "the right." How would you place your views on this scale, generally speaking?"* The response takes values from 1 to 10, where 1 is Left and 10 is Right.

3.2 The Punishment–Economic Beliefs Correlation in the United States

We now turn to evidence within the United States. We divide the evidence into movements in the aggregate data in the United States and correlations across states; we then turn to individual-level correlations.

Data on beliefs come from the U. S. General Social Survey (GSS), a repeated cross-section of randomly sampled Americans (for a description see Davis and Smith 2005). Each survey is an independently drawn sample of English-speaking persons 18 years of age or over, living in the United States. One of the basic purposes of the GSS is to gather data on contemporary American society in order to monitor and explain trends and constants in attitudes, behaviors, and attributes. We focus on two concerning the role of effort (vs. luck) in the income-generating process, which might loosely be called "self-reliance."

The first question in the GSS that can serve such purpose is:

> Some people say that people get ahead by their own hard work; others say that lucky breaks or help from other people are more important. Which do you think is most important?"

The options were "Hard work most important," "Hard work, luck equally important," and "Luck most important." We created the variable *Effort Pays*, which takes the value 1 if the individual responded *"Luck most important*," 2 if the individual responded "*Hard work, luck equally important*," and 3 if the individual responded "*Hard work most important*." (We treat "*Don't Know*" as a missing value.) Thus, higher values of *Effort Pays* can be interpreted as an individual that is more likely to believe that effort pays.

The second alternative measure of self-reliance can be created exploiting the answers to the following question:

> Some people think that the government in Washington should do everything possible to improve the standard of living of all poor Americans; they are at Point 1. Other people think it is not the government's responsibility, and that each person should take care of himself; they are at Point 5. Where would you place yourself on this scale, or haven't you made up your mind on this?

We created the variable *Not-Washington*, which is simply the answer to the question, so that higher values mean that the respondent is more "individualist" in the sense that he believes that each person should take care of him. (We treat "*Don't Know*" as a missing value.)

The questions discussed above are not present in all of the years in the GSS, although they are present in most years after 1983. As a consequence, we will use 1984–2008 as

our sample frame.[19] Data definitions appear in Table 3, and descriptive statistics in Table 4.

TABLE 3
Data Definitions

Desire to Punish	
Death Penalty	"Do you favor or oppose the death penalty for persons convicted of murder?" 1 if the individual answered "Favor" and 0 if the individual answered either "Oppose" or "Don't Know."
Courts	"In general, do you think the courts in this area deal too harshly or not harshly enough with criminals?" (1) Too harsh; (2) About right; (3) Not harsh enough.
Beliefs about Self Reliance	
Effort Pays	"Some people say that people get ahead by their own hard work; others say that lucky breaks or help from other people are more important. Which do you think is most important? Hard work most important (3); Hard work, luck equally important (2); or Luck most important (1)."
Not-Washington	"Some people think that the government in Washington should do everything possible to improve the standard of living of all poor Americans; they are at Point 1. Other people think it is not the government's responsibility and that each person should take care of himself; they are at Point 5. Where would you place yourself on this scale, or haven't you have up your mind on this?" Scale is inverted.

NOTE: Data from the General Social Survey. See Table 4 for descriptive statistics.

TABLE 4					
Descriptive Statistics					
	Observations	Mean	Standard Deviation	Minimum	Maximum
Death Penalty	27,915	0.7	0.46	0	1
Courts	31,056	2.75	0.55	1	3
Effort Pays	19,092	2.54	0.7	1	3
Not-Washington	18,667	2.91	1.16	1	5

NOTES: Data from the General Social Survey over the years 1984–2008. See Table 3 for data definitions.

3.2.1 Aggregate Data

Figure 5 shows the co-evolution of imprisonment rates and two measures of self-reliance beliefs (*Effort Pays* and *Not-Washington*) over the sample period.[20] The

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[19] In that period the sample is reasonably continuous over time; none of the variables is missing for two consecutive years, and all the holes except *Not-Washington* in 1985 and *Effort Pays* in 1986 correspond to the years for which there are no GSS data at all: 1992, 1995, 1997, 1999, 2001, 2003 and 2005.

incarceration rate increased sharply during the period 1984–1998 and has stabilized since then. Both *Effort Pays* and *Not-Washington* increased during the same period 1984–1998 and they have decreased somewhat since then. Figure 6 splits the GSS sample into white respondents and those self-identifying as black. The black sub-sample is considerably smaller, so Figure 6 is only suggestive of any real differences across whites and blacks. Still, it is interesting to note that

- blacks tend to believe less in the prevalence of the "American Dream": values for both *Effort Pays* and *Not-Washington* are lower for blacks than for whites; and
- there seems to be some increase in the percentage of blacks reporting the typical right-wing answers.

Even though the data are far too noisy for definite conclusions, this last observation points to the intriguing possibility that what enables harsher punishment in America is the increases in the belief in economic opportunity among blacks, which is the group most affected by the policy. In other words, the legitimacy of punishment also appears to have increased during this period.

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[20] We measure punishment as the number of prisoners in state correctional facilities per 100,000 of state population (also includes prisoners sentenced in federal courts, but serving in state prisons) compiled by the U.S. Federal Bureau of Investigation using data from the U.S. Census Bureau.

FIGURE 5

Self-reliance Beliefs and Incarceration Rates over Time in the United States
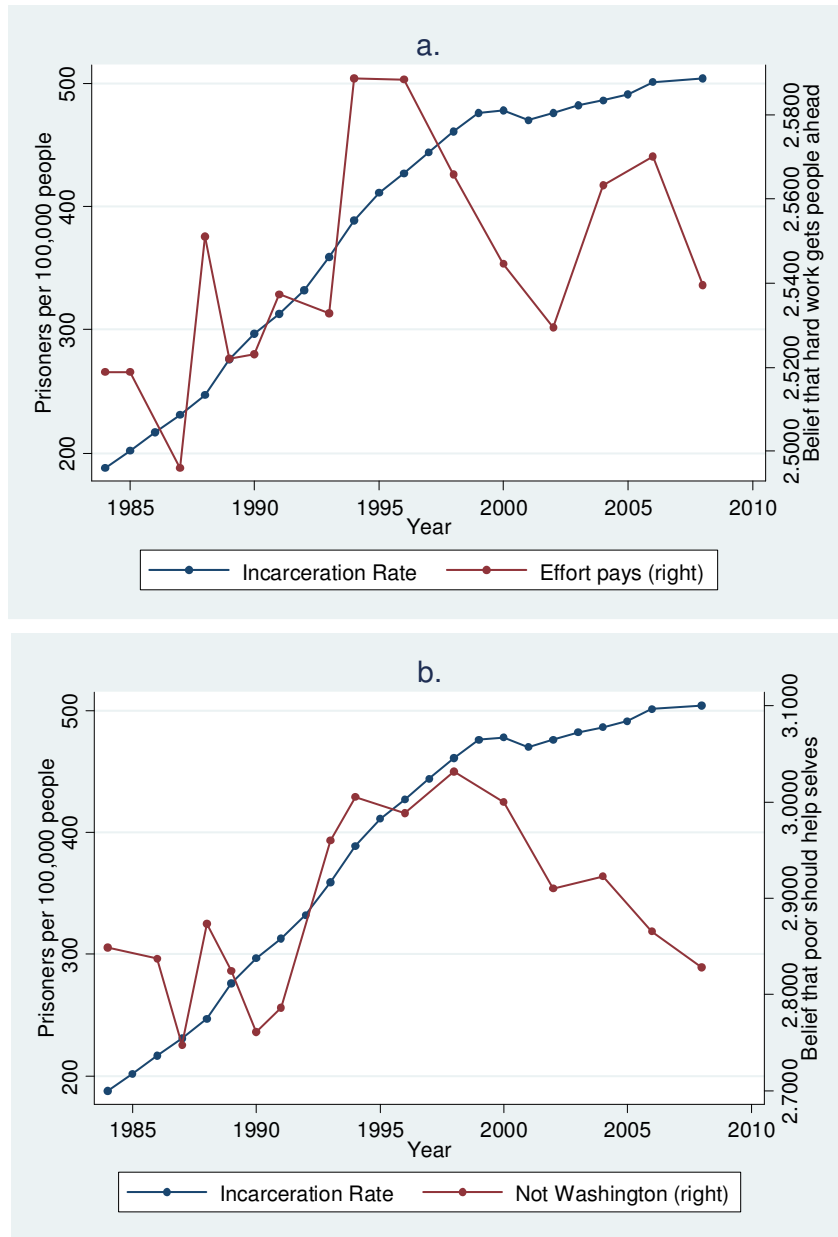
NOTES: Data on beliefs are year averages from the General Social Survey. See *Not-Washington* and *Effort Pays* in Table 3 for the data definitions. The incarceration rate is the number of sentenced inmates incarcerated under state and federal jurisdiction per 100,000 population.

SOURCE: U.S. Federal Bureau of Investigation

FIGURE 6

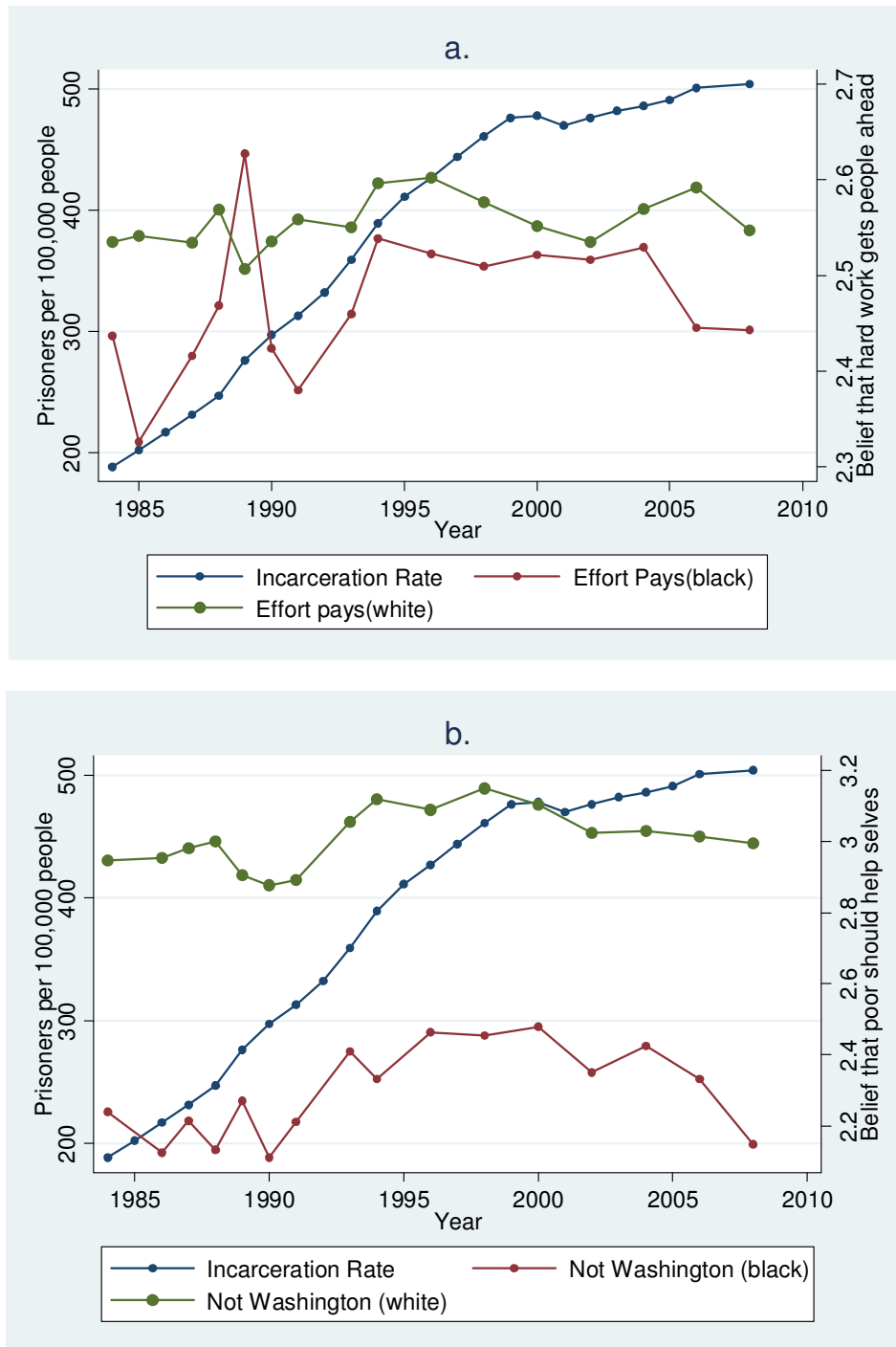## Self-reliance Beliefs and Incarceration Rates over Time in the United States

NOTES: Data on beliefs are within-race year averages from the General Social Survey.
See *Not-Washingon* and *Effort Pays* in Table 3 for the data definitions. The incarceration

rate is the number of sentenced inmates incarcerated under state and federal jurisdiction per 100,000 population.

The GSS also reports data that can be interpreted as "desired punishment": the answers to the question: *"Do you favor or oppose the death penalty for persons convicted of murder?"* We create the variable *Death Penalty*, which takes the value 1 if the individual answered "Favor" and 0 if the individual answered either "Oppose" or "Don't Know."[21] Note that *Death Penalty* measures a particularly extreme form of punishment, which may differ from desires to punish using jails and prisons. Our model does not distinguish between these two forms of punishment, but in richer psychological models these two desires may differ. For example, a person that is religious may cherish all forms of life and refuse to kill convicted criminals, but may certainly favor long sentences for criminals. Another question available from the GSS on desired punishment is *Courts*, namely "*In general, do you think the courts in this area deal too harshly or not harshly enough with criminals?*" and gives very similar results.

These data (on punitiveness from the GSS) are useful for many reasons. First, while the incarceration rate gives a measure of actual punishment, *Death Penalty* is a measure of desired punishment. The relationship between individual beliefs and incarceration rates is indirect and involves a time lag: beliefs affect political choices, which in turn may affect aspects of the economic system (such as tax rates), and then there would be an effect on future incarceration rates. On the contrary, the relationship between individual beliefs and *Death Penalty* is both direct and contemporaneous. Second, the data on *Death Penalty* vary at the individual level, while the data on incarceration rates vary at the state level only. Third, the GSS data are only representative at the national level, not at the state level. This implies a noisy relationship between GSS state-average beliefs and state-average incarceration rates. This can be avoided by using all data from the GSS (e.g., *Death Penalty* or *Courts* to capture punitiveness).

Figure 7 looks at the raw correlation of beliefs on self-reliance and desired punishment for the cross-section of U.S. states, with *both* measures originating in the GSS sample (so the lack of representative sample is not as serious). The data correspond to the state averages for the period 1984–2008. States where individuals have more self-

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[21] The share of individuals answering "Don't Know" is very stable over time and close to 5 percent. All the results are practically the same if we treat those observations as missing values instead.

reliance beliefs display a higher share of the population in favor of the death penalty. This is consistent with the cross-country evidence presented before.

FIGURE 7
Self-reliance Beliefs and Desired Punishment across U.S. States
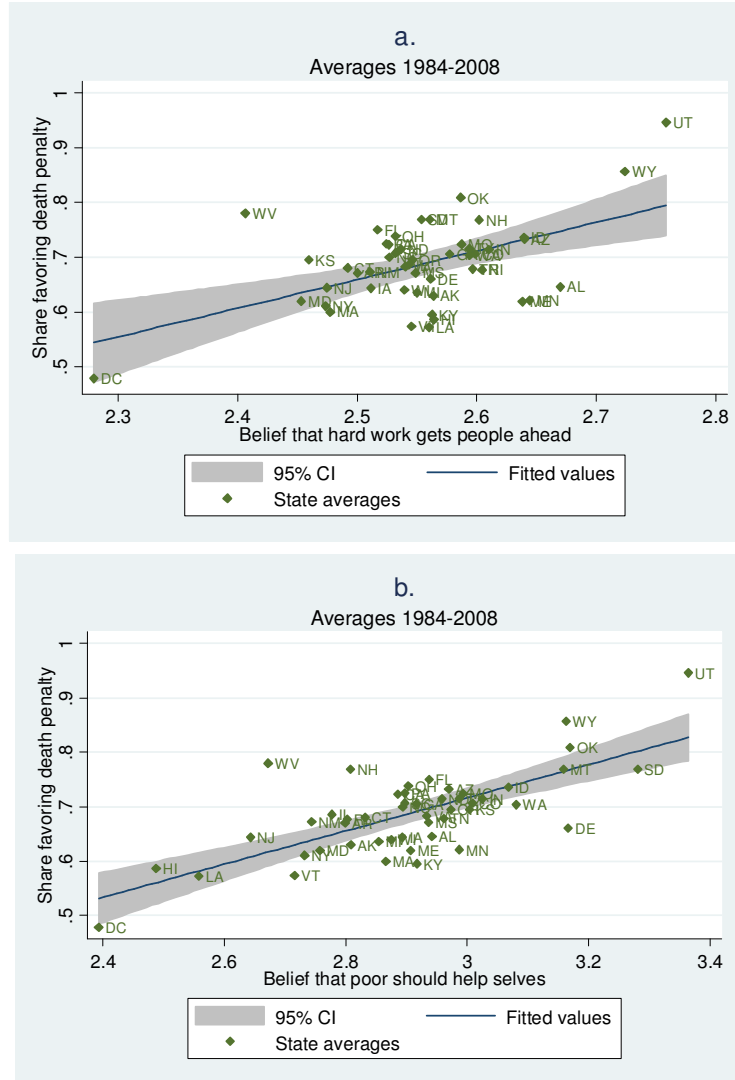
NOTES: Data on beliefs are state averages from the General Social Survey. See *Not-Washington*, *Effort Pays*, and *Death Penalty* in Table 3 for the data definitions.

3.2.2 Individual Data

The GSS data allow us to study further the aggregate correlation between self-reliance and punishment in more detail, for example conditioning on other observable information (e.g., individual controls, state income inequality, state crime rates, etc.). Table 5 studies the individual-level relationship between self-reliance and punishment

using a regression framework. The variable on the left-hand side of the estimating equation is *Death Penalty* (columns 1–4) and *Courts* (columns 5–8). As right-hand side variable we use *Effort Pays* (and in separate regressions, *Not-Washington*).[22] The regressions are OLS and the results are qualitatively the same if, instead, we use a logit/probit model. All regressions use heteroskedasticity-robust standard errors clustered at the state level. All regressions include time effects and state fixed effects. The individual-level control variables are: age of respondent, gender, a dummy for African-American race, a dummy for whites, a set of three dummies for marital status, income, a set of five dummies for employment status, education, number of adults, and number of children in household. The state-level control variables are: crime rate for homicides, property crime rate, current real GDP per capita, GDP growth, income inequality (Gini coefficient), share of African-American population, and the share of white population.[23] In order to control semi-parametrically for other macro variables, we also include a set of state-specific time trends.

---

[22] In Table 12 of their paper, Alesina et al. (2001) present a regression that connects *Death Penalty* with *Not-Washington* with a different set of controls (and also obtain a strong correlation) and provide a broader discussion of the possible reasons for the differences in welfare policy across Europe and America.

[23] There is a large literature on inequality and incarceration (see, e.g., Western 2002, 2006).

TABLE 5
Punitive Regression Results

Dependent Variable:	Death Penalty				Courts			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Effort Pays	0.022***	0.016***			0.044***	0.037***		
	-0.004	-0.004			-0.005	-0.005		
Not-Washington			0.057***	0.039***			0.046***	0.037***
			-0.003	-0.003			-0.004	-0.004
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	No	Yes	No	Yes	No	Yes	No	Yes
State Controls	No	Yes	No	Yes	No	Yes	No	Yes
State-specific time trends	No	Yes	No	Yes	No	Yes	No	Yes
Observations	22,309	22,093	21,843	21,620	21,074	20,871	20,580	20,378
R-squared	0.01	0.08	0.03	0.09	0.04	0.07	0.05	0.08
Number of States	49	49	49	49	49	49	49	49

NOTES: Heteroskedastic-robust standard errors clustered at the state level in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. Left-hand side variable: columns (1) to (4) is *Death Penalty*; Columns (5) to (8) is *Courts*. The individual-level control variables are: age of respondent, gender, a dummy for African-American race, a dummy for white, a dummy for American citizen, a set of three dummies for marital status, income, a set of five dummies for employment status, education, number of adults, and number of children in household. The state-level control variables are: crime rate for homicides, property crime rate, current real GDP per capita, GDP growth, income inequality (Gini coefficient), share of African-American population, and the share of white population.

SOURCES: Data from the General Social Survey (GSS) for years: 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1993, 1994, 1996, 1998, 2000, 2002, 2004, 2006 and 2008. See Table A for data definitions, and Table 3 for descriptive statistics.

As seen in Table 5, the correlation between *Effort Pays* and *Death Penalty* is positive and statistically significant, even after accounting for many parametric and semi-parametric controls. That is to say, self-reliance beliefs are associated with harsher desired punishment. Nevertheless, the magnitude of the coefficient does decrease when including individual controls. The same findings are true for the correlation between *Not-Washington* and *Death Penalty*, or when we use *Courts* (columns 5–8) as left-hand side variable.

The coefficient on *Effort Pays* is significant from an economic point of view. For example, in a causal interpretation a one-standard-deviation increase in *Effort Pays* (0.7) would increase *Death Penalty* by almost 8 percentage points (0.7 × 0.11). The coefficient on *Not-Washington* is also economically significant: a standard-deviation increase in *Not-Washington* (1.16) would increase *Death Penalty* by almost 4.5 percentage points (1.16 × 0.038). Similar conclusions are obtained when *Courts* is used.

3.3. An Experiment Where Some Students Face Criminals Who Had Opportunities Growing Up

The experiment took place at a large business school of an Ivy League university in April 2011. The participants were potentially a highly selected sample. All 180 students from a second-year class on macroeconomics were sent invitations to participate in the online survey. The name of the survey was "Survey of Attitudes," and students had to prepare a class on Jamaica and were given material on the macroeconomic performance of Jamaica and the country's relationship with the International Monetary Fund. They were told that the survey was anonymous and that it would only take five minutes to complete it. Most students were second-year MBA students, although there were a handful of exceptions (e.g., Ph.D. students). Students were not offered any money or course credit for participating in the survey. However, the professor in charge of the class sent the invitation with the link to the online survey from his own email address; this probably contributed to the high response rate: 128 out of 180 students logged in and completed the entire survey. The survey was posted on a Monday morning and students

were given until Tuesday midnight to participate. Some 115 out of the 128 respondents (90 percent) completed the survey on Monday.

The online survey consisted of four consecutive screens. The first screen was exactly the same for all respondents and included a series of nine demographic questions about the respondent (e.g., gender, age, relative income). Once they finished answering those questions, respondents were shown a second screen with some brief information about education and crime in Jamaica.

Participants were randomized into two groups. The *Cherry Gardens* group saw the following description:

> Jamaica's development has been extremely uneven. In some regions of the country, economic growth was significant and there was substantial progress in areas like health and education. For example, in the neighborhoods around Cherry Gardens in Kingston, public schools (which are free, government run) had very attractive teacher/pupil ratios (on average 24:1), with a large proportion of students graduating high school (on average 81%), and most of them obtaining jobs, many of them very well paid. The statistics reveal that crime is a serious problem, both in rich and in poor neighborhoods.
>
> Recently, there has been an intense debate regarding the sentences that should be given to offenders. We would like to know your opinion about this issue. Take for instance the case of a 21 year old man from the Cherry Gardens area who was found guilty of burglary for the second time. This time, he has stolen a TV.

The *Jones Town* group saw the following description:

> Jamaica's development has been extremely uneven. In some regions of the country, economic growth was non-existent and there was no progress in areas like health or education. For example, in the neighborhoods around Jones Town in Kingston, public schools (which are free, government run) had very unattractive teacher/pupil ratios (on average 41:1), with a low proportion of students graduating high school (on average 31%), and only a minority of them obtaining jobs, few of which were well paid. The statistics reveal that crime is a serious problem, both in rich and in poor neighborhoods.
>
> Recently, there has been an intense debate regarding the sentences that should be given to offenders. We would like to know your opinion about this issue. Take for instance the case of a 21 year old man from the Jones Town area who was found guilty of burglary for the second time. This time, he has stolen a TV.

Relative to the *Jones Town* treatment, the *Cherry Gardens* treatment depicts a more positive image of Jamaica, where most people can get a job if they put their minds to it.

Right after the randomized treatment, respondents were asked their opinion about what the government should do with the individual in the example:

> Which of the following sentences do you consider the most appropriate for such a case? A. Fine; B. Prison; C. Community service; D. Suspended sentence.

This question closely resembles the question in the ICVS discussed in Section 3.1.

After answering this question, the respondent was presented with another question about the example:

> The judge decided to send him to prison. For how long do you think he should go to prison? A. 1 month or less; B. 2–6 months; C. 6 months–12 months; D. 1 year; E. 2 years; …; N. Life Sentence.

This is another question included in the ICVS.

After answering that question, the respondent was asked a final question about the example:

> The government is considering a proposal whereby prisoners would be offered reductions in their sentences if they complete their education (primary and secondary courses would be expanded and made available in all Jamaican prisons). Do you agree with this proposal? A. Strongly Disagree; B. Disagree; C. Neither Agree Nor Disagree; D. Agree; E. Strongly Agree.

The third and fourth screens had all the information about the treatment introduced in the second screen, in case the respondent needed a refresher.

The data definitions of the variables used appear in Table 6, and their corresponding descriptive statistics appear in Table 7. A total of 65 respondents were in the *Cherry Gardens* group and 63 in the *Jones Town* group. As a routine check that the treatment was balanced, Table 8 shows the differences by treatment group in responses to pre-treatment questions.

	TABLE 6	
	Data Definitions	
Cherry Gardens	Dummy variable that takes the value 1 if the individual in the example belonged to the *Cherry Gardens* group, and 0 if belonged to the *Jones Town* group.	
Respondents were then given the following text: "Take for instance the case of a 21-year-old man from the [Cherry Gardens/Jones Town] area who was found guilty of burglary for the second time. This time, he has stolen a TV."		
Post-Treatment Questions		
Punitiveness	Which of the following sentences do you consider the most appropriate for such a case? (1) Fine; (2) Prison; (3) Community service; (4) Suspended sentence.	
Prison	Dummy variable that takes the value 1 if the individual chose the option "Prison" for the above question.	
Months of incarceration	"The judge decided to send him to prison. For how long do you think he should go to prison?" The options were given in bins, as in the original ICVS question. To construct months of incarceration, we compute the mean (in months) of each bin (noted in parenthesis): 1 month or less (0.5); 2–6 months (4); 6 months–12 months (8.5); 1 year (18); 2 years (30). Since there were no responses above 2 years, we will not care about those cases.	
Rehabilitation	The government is considering a proposal whereby prisoners would be offered reductions in their sentences if they complete their education (primary and secondary courses would be expanded and made available in all Jamaican prisons). Do you agree with this proposal? (1) Strongly Disagree; (2) Disagree; (3) Neither Agree Nor Disagree; (4) Agree; (5) Strongly Agree.	
Pre-Treatment		
Female	Dummy variable that takes the value 1 if the individual is female.	
Age	Age of respondent in years.	
American	Dummy variable that takes the value 1 if the individual grew up in the United States.	

Never Married	Dummy variable that takes the value 1 if the individual has never been married.
Number of Children	Number of children that the respondent has.
Relative Income	Compared to your classmates…, would you say that your family income while you were growing up was below average, about average, or above average? (1) Well below average; (2) Somewhat below average; (3) About average; (4) Somewhat above average; (5) Well above average.
Stay in America	Are you planning on staying in the United States after graduation, for at least 5 years? (1) No, unlikely; (2) Undecided; (3) Yes, likely.
Monday	Dummy variable that takes the value 1 if the individual answered the survey on Monday, and 0 if answered on the next day.
SOURCE: Data from the online experiment survey.	

TABLE 7
Descriptive Statistics

	Observations	Mean	Standard Deviation	Minimum	Maximum
Cherry Gardens	128	0.51	0.5	0	1
Punitiveness	127	2.57	0.7	1	4
Prison	127	0.39	0.49	0	1
Months of incarceration	127	6.32	6.31	0.5	30
Rehabilitation	128	4.13	0.9	1	5
Female	128	0.34	0.47	0	1
Age	128	27.24	1.6	24	33
American	128	0.46	0.5	0	1
Never Married	128	0.83	0.38	0	1
Number of Children	128	0.05	0.32	0	3
Relative Income	128	2.52	1.16	1	5
Stay in America	128	2.2	0.92	1	3
Monday	128	0.9	0.3	0	1

SOURCE: Data from the online experiment survey.

TABLE 8
Mean Difference Tests for Pre-treatment Variables

	Cherry Gardens	Jones Town	Difference[1]	$|t|$[2]
Female	0.385	0.286	0.099	1.182
Age	27.015	27.476	-0.461	1.644
American	0.4	0.524	-0.124	1.405
Never Married	0.846	0.81	0.037	0.546
Number of Children	0.046	0.063	-0.017	0.31
Relative Income	2.569	2.476	0.093	0.454
Stay in America	1.923	1.683	0.241	1.482
Monday	0.923	0.873	0.05	0.933
Observations	65	63		

NOTES: The first two columns display the mean of the variables within each group. [1]Cherry Gardens – Jones Town. [2]The t-statistic from the mean-difference test whose null hypothesis is that the means are equal between the Cherry Gardens and Jones Town groups.

SOURCE: Data from the online experiment survey.

The hypothesis is that respondents in the *Cherry Gardens* group will want to punish criminal behavior more severely because they perceive that the individual in the example

had better opportunities not to become a criminal. As expected, the three measures of desired punishment suggest that people in the *Cherry Gardens* group desired more severe punishments compared to the *Jones Town* group. The first measure of punishment is the type of sentence. Figure 6 shows the distribution of responses for both groups. There are no major differences in the proportion of people choosing fine and suspended sentence, but there are major differences in the percentage of people choosing prison and community service. The simplest way to compare the answers is to look at what percentage of respondents chose prison, the most severe option. Some 45 percent of respondents in the Cherry Gardens group chose prison, compared to 32 percent in the Jones Town group. The p-value of the two-sided mean difference test is 0.155 (one-sided yields 0.078). Although the difference is (marginally) not significant at the 10 percent level, it is statistically significant once we include a set of control variables in order to improve precision, as shown later.

FIGURE 8
Differences in Desired Sentences by Treatment Groups

NOTES: Number of observations: 127. See *Punitiveness* in Table 6 for data definition.
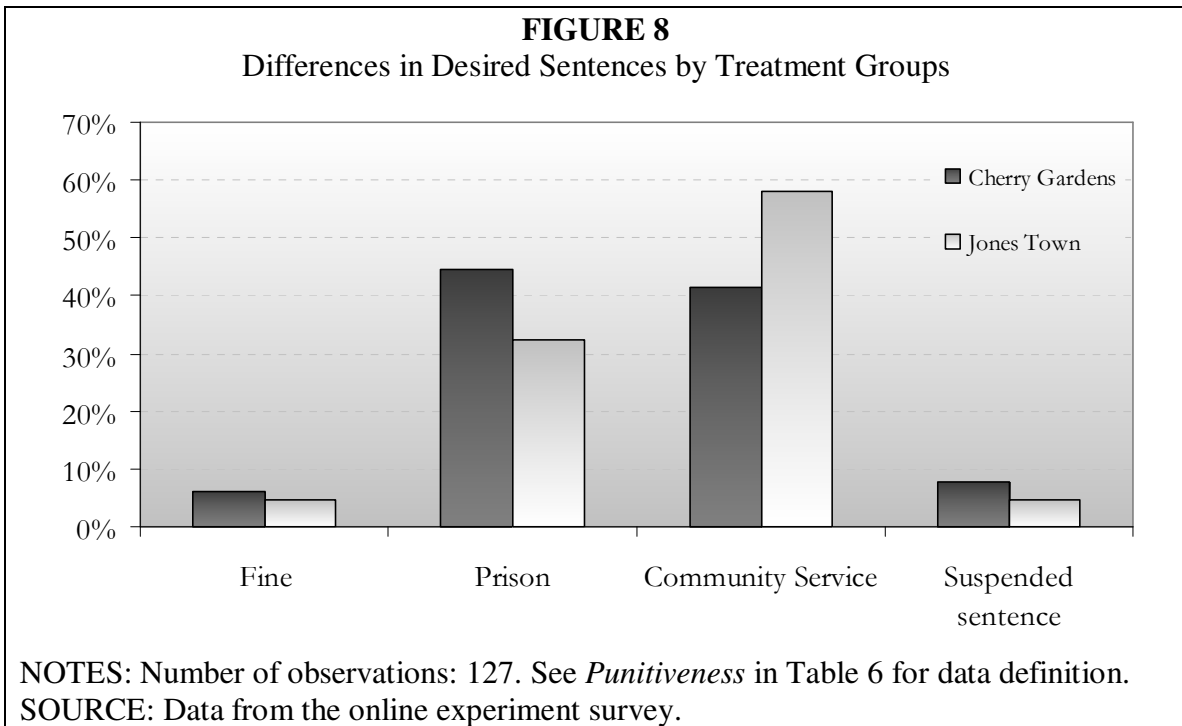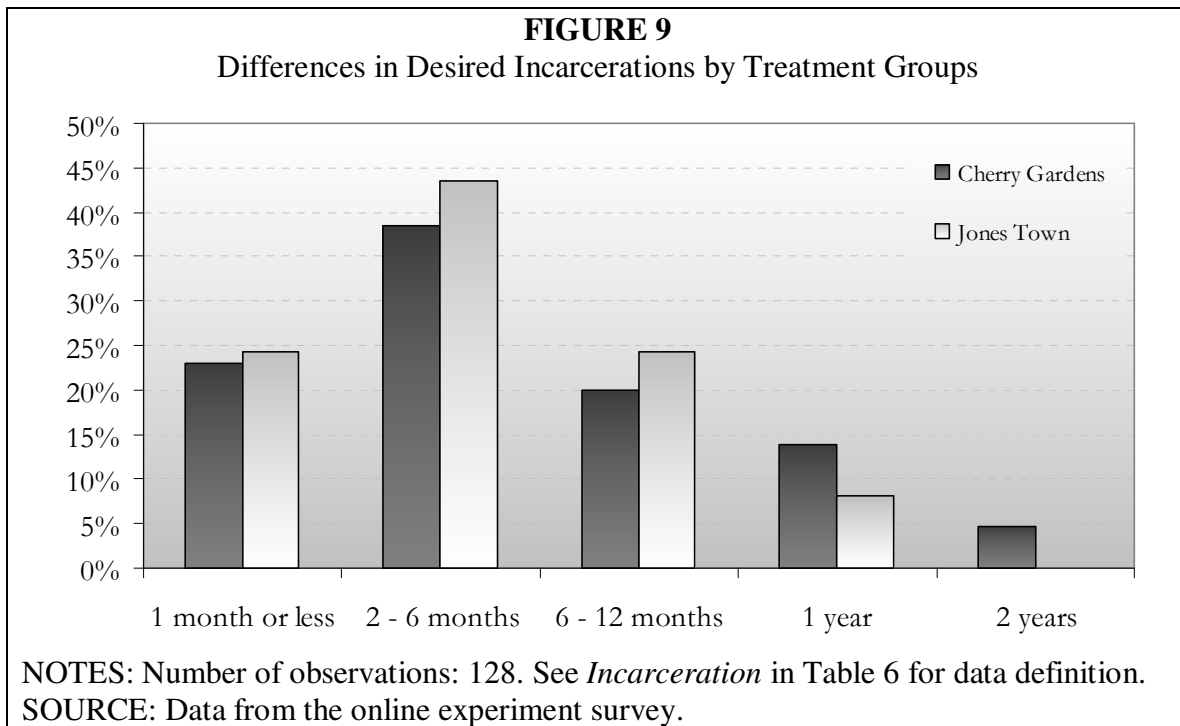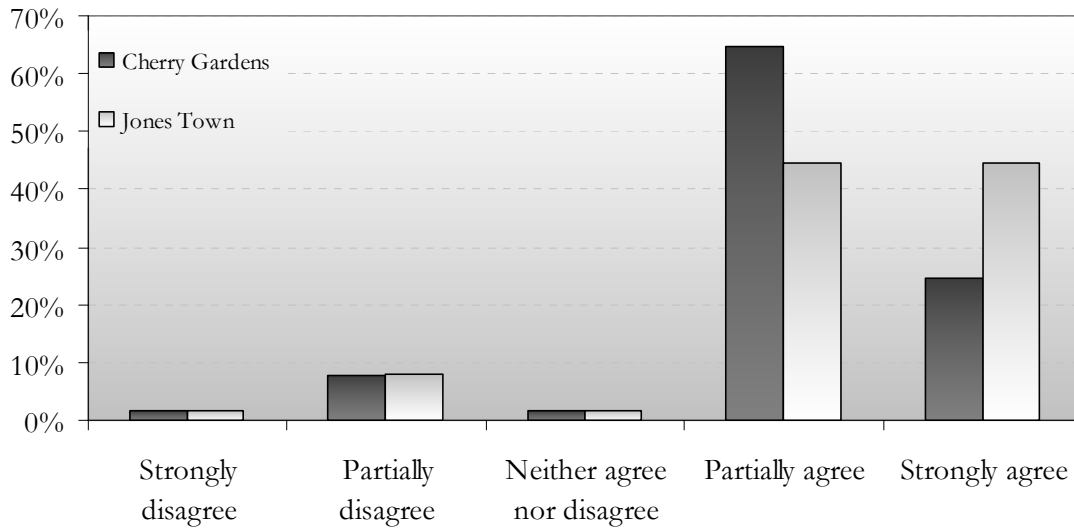SOURCE: Data from the online experiment survey.

Figure 9 shows the distribution of responses to the second post-treatment question by treatment group. Relative to the *Jones Town* group, people in the *Cherry Gardens* group are less likely to choose prison sentences between 2 and 12 months and more likely to

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choose prison sentences between 1 and 2 years. In order to be able to compare the responses cardinally, we constructed the variable *Months of Incarceration*, which takes the value of the mean number of months in the corresponding option (e.g., 4.5 months for the category "3–6 months"). The difference between the *Cherry Gardens* and *Jones Town* groups is statistically significant at conventional levels: the p-value of the two-sided test of mean difference is 0.097.

FIGURE 9
Differences in Desired Incarcerations by Treatment Groups

NOTES: Number of observations: 128. See *Incarceration* in Table 6 for data definition.
SOURCE: Data from the online experiment survey.

Finally, Figure 10 presents the distribution of answers for the question on the support for the rehabilitation program. In both *Cherry Gardens* and *Jones Town* groups, most people responded either "Partially Agree" or "Strongly Agree" (89 percent of respondents). However, relative to the *Jones Town* group, respondents in the *Cherry Gardens* group were much more likely to agree partially rather than strongly. The difference is not statistically significant at conventional levels: the p-value of the two-sided difference test is 0.228 (the p-value of the two-sample Wilcoxon rank-sum test is 0.056). Nevertheless, the results are statistically significant when introducing control variables as a mean of increasing precision, as shown below.

FIGURE 10

Differences in Support for Rehabilitation Programs by Treatment Groups

NOTES: Number of observations: 128. See *Rehabilitation* in Table 6 for data definition.
SOURCE: Data from the online experiment survey.

In order to increase the precision of the estimates, we will perform the same mean-difference test, but in a regression fashion. The dependent variables are going to be three different measures of desired punitiveness. The first is *Prison*, a dummy variable that takes the value 1 if the individual recommended a prison sentence instead of a fine, community service, or suspended sentence. The second dependent variable is the recommended prison sentence in months, *Months of Incarceration*. The third dependent variable is *Rehabilitation*, a categorical value that represents how much the individual agrees or disagrees with the proposal of a rehabilitation program for prisoners. The first set of control variables includes just gender, age, and a dummy for growing up in America. The extended set of controls includes all the rest of pre-treatment questions available in the online survey, including a dummy for completion of the survey on the same day it was released (perhaps those who were more conscientious might also be more conservative in their attitudes toward crime; but see Table 8 for mean difference tests across pre-treatment variables). For the dependent variable *Prison*, we estimate a logit model and then report the marginal effects at the mean of the control variables. For *Months of Incarceration* we report OLS coefficients. For *Rehabilitation* we use the ordered logit model and we present the marginal effect on the probability of the highest

outcome ("Strongly Agree") at the mean of control variables. We always report heteroskedasticity-robust standard errors.

The regression results are presented in Table 9. The treatment had an economically and statistically significant effect on all the dependent variables: relative to *Jones Town*, being in the group *Cherry Gardens* increases the probability of recommending a prison sentence by more than 15 percentage points, it increases the desired incarceration rate by approximately two months, and it decreases the probability of strongly agreeing with the implementation of the rehabilitation program by 15 percentage points.

	TABLE 9								
	Regression Results								
	Prison			Months of Incarceration			Rehabilitation		
Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cherry Gardens	0.124	0.154*	0.190**	1.860*	1.940*	2.135*	-0.128*	-0.154**	-0.157**
	-0.086	-0.087	-0.092	-1.101	-1.111	-1.16	-0.075	-0.075	-0.076
Basic Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Extended Controls	No	No	Yes	No	No	Yes	No	No	Yes
Observations	127	127	127	127	127	127	128	128	128

NOTES: Heteroskedastic-robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. The coefficients for *Prison* are the marginal effects at the mean of the independent variables for a logit model. The coefficients for *Months of Incarceration* are OLS coefficients. The coefficients for *Rehabilitation* are the marginal effects on the probability of reporting the highest category, "Strongly agree," at the mean of the independent variables using an ordered logit model. The basic set of controls includes gender, age and a dummy for growing up in America. The extended set of controls includes *Never Married*, *Number of Children*, *Relative Income*, *Stay in America*, and *Monday*. See Table 6 for data definitions and Table 7 for descriptive statistics.

SOURCE: Data from the online experiment survey.

We interpret this experimental evidence as supportive of the hypothesis that beliefs cause punishment. We should note that it has limited value, however, as a means to identify the particular channels highlighted in our model, as these are much more specific. And, of course, strong causal inferences are not feasible with such a small-scale exercise (for example, although the two scenarios involve burglars with similar criminal history who are caught stealing the same thing — a TV — a longer survey might be able to develop a better control for income).

4. CONCLUSIONS

Incarceration in the United States is the highest it has ever been and it is the highest in the world. What is the reason for this? Given that incarceration affects minorities disproportionately, it is easy to see racism as the basic cause (see, for example, Bonczar and Beck 1997). One problem with racism as a cause is that few people who support increases in punitiveness consider themselves racist. Thus, one restriction that we impose on candidate answers is that people accept their own theories (explaining their support for increases in punitiveness). Our answer is based on beliefs: we argue that the increase in punitiveness is associated with widespread belief in economic opportunities for those willing to put in the effort. Our explanation connects incarceration and differences in pay (and inequality), as argued by Western (2006), although in our model both are caused by beliefs about economic opportunities. In brief, we argue that harsh punishment is caused by the American dream.

The paper describes selective facts related to the evolution of punishment in the United States over the period 1980–2004. We note that imprisonment started increasing around 1980, a period that coincides with the "Reagan revolution." A large part of the increase involves expansion of the use of minimum-security prisons. While minorities are imprisoned at a disproportionate rate, the ratio of the incarceration rates for blacks versus whites has not changed even as these rates increased substantially. The contrast with the European experience, where imprisonment rates are much lower, suggests that differences in beliefs and ideologies could play a big role, as suggested by Tonry (1998).

We then build an economic model where beliefs about economic opportunities and beliefs about punishment are correlated. There is a "French equilibrium," where workers believe effort does not pay, firms set up bureaucratic systems (low-powered incentive schemes), and where criminals on average are "kinder." There is an "American

equilibrium" where workers believe effort pays (and exert effort), firms set up a market technology (high-powered incentive schemes), and the proportion of mean types who become criminals is larger than in the French equilibrium. With increases in income, one can observe that there is a demand for harsher punishment. We present three pieces of evidence (across countries, across states in the United States, and an experimental exercise) that are consistent with the model.

5. APPENDIX: EXTENSIONS OF THE MODEL

In this section we present an extension of the model of Section 2. The idea is to sketch how several interesting questions concerning crime can be incorporated into the model and therefore illustrate what the beliefs–punitiveness connection has to say about those questions.

The first simple extension of the model we consider is incorporating "opportunities available to criminals" in the utility function of the government. In this modification, the government's utility of a strategy $s = M, B$ by the firm and t by the government, when beliefs about μ are given by h, is for a parameter x,

$$v(s, t, \mu) = -E_h[(q(\mu) + xO(s) - t)^2]$$

In the above equation $O(s)$ represents the opportunities available to individuals when the firm chooses s. A natural definition of opportunities is $O(M) = g(w_h - w_l)$, the difference in income between choosing high and low effort. Similarly, $O(B) = 0$.

In order to understand why incorporating opportunities in the utility function of the government is interesting, consider the following situation: The firm had chosen a market technology, a criminal was caught, and we know both his type μ, and that he is a θ_L who chose e_L. It seems natural that individuals (or the government) would want to set a harsher punishment if they knew that w_h was high so that, by exerting effort, he could have avoided becoming a criminal. One possible reason for this harsher desired punishment is "identity": people want to believe that they are not the kind of people who can be "fooled" or "taken advantage of"; they are probably willing to forgive a theft from somebody who had no opportunities, but they wouldn't forgive a thief who could have

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made an honest living but is taking advantage of their forgiveness. The formulation above captures the idea that when there are more opportunities — a larger $O(s)$ — the government chooses a harsher punishment: the desired punishment is given by $t = E_h[q(m) + xO(s)]$.

In the above formulation, we have postulated that $O(s)$ is calculated from the model. But one can also interpret $O(s)$ as the "ideology" of the government, make it an exogenous parameter, and calibrate it from external data (say, opinion polls of officials) and note that increases in $O(s)$ lead to increases in punishment.

A second addition one can make to the model is:

- making returns to effort depend on the individual's type;
- include a choice of one of two neighborhoods; at the time of choosing effort, the individual picks a rule that specifies a choice of neighborhood conditional on realized income.

In this variation, the types would be irrelevant regarding the cost of effort (say, setting $\theta_L = \theta_H$) but making the return to each effort random and dependent on the type. Also, and just to simplify, the choice of neighborhood would be made so as to minimize the distance between one's expected income and the neighborhood's average income.

This extension can be used to address the important issue of the criminal behavior of African Americans and the harsh punishment they face. At least two different explanations for the harsh punishment arise in this model. The first (which does not use the neighborhood choice feature) is that the government holds a belief that criminals (regardless of their race) face very good opportunities in the legal market and therefore should be punished harshly.[24]

A second explanation is rooted on the intriguing observation that acquiring skills (e.g., obtaining a university degree) may be *more* profitable for poor African Americans than for whites, but that they are less prone to doing so than their white counterparts. That is, some data suggest that although African Americans earn less than whites in either category, the wage increase of obtaining a degree is larger for African Americans. In this model, the government punishes harshly because opportunities are in fact large. And one

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[24] This prediction runs in the opposite direction of models based on deterrence: the better the opportunities in the legal market, the less one has to punish criminals to deter them.

could obtain the result that African Americans are less prone to acquiring a degree and therefore more likely to engage in criminal behavior, through one of two methods.

In one variation of the model, individuals have a belief about the return to each effort level and choose an effort level and a neighborhood rule (what neighborhood to choose, depending on the income); the beliefs about the return to each effort level must be consistent with the distribution of effort levels and incomes in the neighborhood he settles on. The story told by this version of the model is that individuals living in poor neighborhoods incorrectly estimate the returns to schooling because they only get to meet the lower tail of college-graduate wage earners (those who returned to the poor neighborhood).

In order to sketch the second variation, imagine that the distribution of wages for college graduates is either $1 for sure, or $1 with probability 95 percent and $100 with probability 5 percent. The prior belief of the individual is that each distribution has the same probability. In order to estimate the returns to schooling, the individual samples a few people, but since sampling a graduate who earns $1 is so likely, the individual is likely to finish his sampling with a (downwardly) biased estimate of the returns to schooling. In fact, if the individual samples only once, with a probability of 97.5 percent, he will estimate that the distribution "degenerate at $1" is the most likely. One can incorporate this idea (developed in Benoît and Dubra 2011) into this model (without the need of biased sampling or neighborhood choices) to obtain the same predictions as in the previous paragraph.

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