Rule of Law against the Odds:  
Overcoming Poverty and the High Cost of Compliance in the Developing World  

SUSAN L. OSTERMANN

The sociolegal compliance literature, which suggests that compliance is motivated by fear, duty, or social license pressure, relies on assumptions that are often specific to the developed world. Are developing world conditions, including low state capacity, not conducive to regulatory compliance? Along the open India–Nepal border, I examine variation in compliance with wood-taking regulations in contiguous conservation areas located in different countries. I find that widespread poverty, which makes the cost of compliance for large swaths of the population extraordinarily high, significantly reduces compliance rates. I go on to show that there are policies that even cash-strapped, weakly-institutionalized states can adopt that make compliance more affordable. These policies, and the resulting programs, are associated with much higher levels of compliance.

I. INTRODUCTION

The sociolegal compliance literature’s standard deterrence model suggests that people are largely motivated to comply with laws and regulations by fear of legal sanctions, fear of social sanctions, or by a felt sense of duty to comply with the law and/or its underlying social norms. This literature, however, is built on research and on a set of assumptions that are largely specific to the developed world, where, in general, state enforcement capacity is substantial and remains largely undiminished by corruption. This allows governments to, at a bare minimum, use fear to generate compliance.

Such a situation stands in stark contrast to that of the developing world, and it is not thought to be a coincidence that we find rule of law to be quite weak in developing areas. But does this mean that developing world conditions are simply not conducive to regulatory compliance, particularly when the regulations in question require behavior that differs from that dictated by social norms? This article addresses that question by drawing on an empirical study along the India–Nepal border; it finds that policies that lower the cost of compliance for a significant proportion of the population can make widespread...
regulatory compliance possible, even in developing world conditions and in the absence of a strong state and the institutions typically associated with one.

THE EMPIRICAL PUZZLE

In the *Terai* region in the South of Nepal and in the North Indian state of Bihar, there are two conservation areas located directly across the border from one another—Chitwan National Park and Valmiki National Park and Tiger Reserve. These conservation areas are ostensibly managed for the same purposes: to protect endangered big-game species and, because these species require certain habitat for their survival, to protect the environment in which they reside. As a result, collecting timber is prohibited by law in both parks. This is so in spite of the fact that individuals living in this area have been collecting wood—from what is now park area—for centuries, if not millennia, and refraining from doing so means that they have great difficulty keeping warm and cooking. Moreover, the states on either side of the border have little to offer in terms of traditional, deterrence-based enforcement capacity (i.e., policing) in this context: thousands of square kilometers of jungle augmented with only minimal infrastructure. In such a scenario, the standard deterrence model of compliance suggests that we should expect similar rates of compliance with wood-taking restrictions on both sides of the border—which is to say, similarly low. This is particularly true because the human populations that live near these parks are nearly identical, both culturally and demographically, and have been permitted to pass at will, unimpeded by legal restrictions, across the India–Nepal border for as long as this border has existed.

Yet, instead of comparable compliance (or noncompliance), my data—both qualitative and survey based—indicate that compliance is more widespread on the Nepali side of the border than on the Indian side. Even observationally, compliance appears starkly different in locations that are just kilometers apart. In Valmiki, in India, one can hear timber being cut throughout the park, and one can observe a steady stream of individuals carrying fallen wood (what locals call “firewood”) out of the park. In Chitwan, in Nepal, one sees little more than a few poorly-clothed children collecting fallen wood and the occasional group of older ladies carrying firewood out of the park with their friends, as they have done their whole lives. As local norms and self-interest dictate behavior that is different from that required by law on both sides of the border, one wonders, why are those living on the Nepali side of the border, some of whom are originally from India, complying? Why have they shifted from following local norms to following a legal norm dictated by a seemingly distant government?

While compliance is quite different on both sides of the border in the region around Chitwan and Valmiki National Parks, it is important to note here that when I say compliance, I mean behaving in a manner consistent with a complete prohibition on collecting wood in these parks. I do not measure or analyze forest loss, deforestation, or any other possible result of widespread noncompliant behavior. While deforestation is certainly a problem in both India and Nepal, and illegal logging, which seems to be carried out by criminal gangs, does threaten the large stands of lucrative teak trees that are indigenous to these parks, it is not clear to me that the noncompliant wood collection of ordinary individuals living just outside of these parks contributes to this problem. Indeed, there are few indications of deforestation in these parks. This is perhaps because the roads in these parks on which one could transport illegally-logged trees are so limited and because tropical jungles like these seem to regenerate at an incredible rate during the monsoon season. Forest loss and deforestation in other areas of both India and Nepal varies quite dramatically. In the high Himalaya, where trees only end up growing
to the height of shrubs, but where people nonetheless need firewood, forest loss is substantial. In the plains of India, many of the forests have been converted to farmland to support a large and still growing population. This variation is one of the reasons I chose to focus on a location along the border in which little varies, save for the state or government and its practices.

EXPLAINING VARIATION IN COMPLIANCE ALONG THE INDIA–NEPAL BORDER

The natural experiment made possible by the open India–Nepal border allows me to examine variation in compliance with wood-taking restrictions in the areas surrounding Chitwan and Valmiki National Parks. These areas are contiguous but located in two different countries and, thus, may be subject to different policies and state actions despite being governed by the same basic conservation regulations. Within this broad methodological framework, I spent a year and a half in this region collecting quantitative survey responses from over 1,300 respondents. In addition, in order to better understand my quantitative data, I conducted thirty-five in-depth interviews and one focus group session involving forty-three people.

Analysis of this survey and qualitative data reveals that poverty explains a significant amount of the noncompliance occurring on both sides of the border. Interestingly, while the Indian and Nepali states have managed to create a generalized sense of fear and duty in their respective target populations, fear and duty do not seem to prevent significant percentages of my respondents from illegally collecting firewood. Indeed, it appears as if poverty limits the effectiveness of the standard deterrence model factors—fear and duty—when the cost of compliance is high enough that individuals believe their material existence is threatened. Put differently, fear and duty only work when compliance costs have been lowered to a point at which individuals are no longer choosing between complying with applicable regulations and feeding themselves and keeping themselves warm—something that is true for far more of my Nepali than Indian respondents. Indeed, many of my Nepali respondents have access to a resource that my Indian respondents were unable to avail themselves of: Community Forests.

In Nepal, the numerous Community Forests located just outside of Chitwan National Park allow those who live near them to meet their firewood needs without breaking the law. These Community Forests, once government-owned and managed forest land, were handed over to local management after groups of individuals who reside in the region successfully petitioned the Department of Forests with sustainable management plans. Wood collection is permitted in Community Forests, so long as it conforms to an approved sustainable management plan, which typically mandates stable forest cover. As a result, Community Forests represent an excellent source of firewood for those living near Chitwan National Park, and in many (though not all) cases, locals can meet their firewood needs, both cheaply and easily, within them.

Nepal’s Community Forests explain a significant amount of the observed cross-border variation in compliance. Among those respondents who report having access to a Community Forest, the majority also report collecting wood there instead of within Chitwan National Park. Bamberg and Schmidt (1999) report similar behavior when observing reactions to new transport options—students in a university town in Germany responded positively to policy interventions aimed at reducing car use when these interventions either lowered the cost of public transport use or made public transport more convenient. In India, at least outside of Valmiki, collecting wood in a Community Forest is not an option. Though the Indian state does engage in Joint Forest Management in other parts of the country, no such policy is in place near Valmiki. Thus, in India, the many locals...
who cannot afford to cook with gas have no meaningful option, other than the Valmiki National Park, for getting the fuel necessary to cook and keep warm during the winter. As a result, many are forced into noncompliance despite being otherwise motivated to protect the forests, obey the law, and avoid legal penalties. In sum, policies that lower the prohibitively high cost of compliance faced by the poor, like the one that authorizes Community Forests in Nepal, help explain the unexpected success the Nepali state has had in shifting local populations from compliance with local norms to compliance with legal norms.

Taking a step back, my research suggests that developing world conditions are not conducive to regulatory compliance and that this is not just because regulatory regimes in such areas are often weakly institutionalized. Indeed, it is also because regulatory regimes in the developing world must contend with poor target populations—for whom compliance is often prohibitively costly—that make up much larger percentages of the population than they would in a developed country. In other words, the states that can least afford to mount extensive campaigns to bring about compliance are the same ones that seemingly must bear this cost if they hope to use the law to achieve their goals. Against this bleak backdrop, my research also points to a potential solution. I show that in some cases there are low-cost policies that states can adopt, which lower the cost of compliance for the poor and foster compliant behavior. In addition to correcting the widely held misconception that compliance in the developing world will only come with either increased state capacity or development (i.e., wealth and education), such a finding has powerful implications for those involved in legal and regulatory design. If compliance can be achieved in weakly institutionalized and difficult to regulate environments, my findings should be relevant and useful in both the developing and the developed worlds. Indeed, they seem to suggest that so long as those designing regulations are sensitive to the motivations and the needs of the populations they seek to regulate, compliance may be possible, even against the odds.

II. LITERATURE

The sociolegal compliance literature examines the circumstances under which law can successfully be used as an instrument to change behavior when the individuals or entities targeted by a law are not particularly receptive to the change required by it. Early figures like sociologist William Graham Sumner (1907) stated that the law must always reflect social practice and predicted that if law-ways were to come into conflict with folk-ways, the latter would surely win. For example, nearly everyone agrees that burglary is wrong and should be illegal, and nearly everyone complies. Meanwhile, the wrongness of drug use in the United States, and particularly the use of marijuana, is a far more contested matter: many individuals do not consider marijuana use to be wrong and have continued to use it for years despite its illegality. Now the tables have turned and voters have used democratic process in several states to legalize the possession, use, and even sale of marijuana, suggesting that Sumner was right, that law-ways cannot change folk-ways. Yet, other scholars have pointed to laws that have changed ostensibly entrenched folk-ways.

Prothro and Matthews (1963) found that in southern US states, even before the intrusive remedies provided by the 1965 Federal Voting Rights Act, laws that removed poll taxes and literacy tests had a positive influence on black voter registration in districts in which whites had taken action to limit same. Later, Orfield (1987) found that the exclusionary rule, which bans improperly collected evidence from a trial record, effectively
deterred narcotics officers in Chicago from illegal collection of evidence. Kagan and Skolnick (1993) examined no-smoking ordinances in restaurants and workplaces in some US cities in the late 1980s and early ‘90s and found that compliance without enforcement was common, as abetted by certain circumstances, such as infractions were highly visible; cost of compliance for smokers was low (only temporary); there was no strong culture of resistance among smokers (most of whom by then were generally aware that smoking was dangerous to themselves and others); and nonsmokers and businesses, rather than the state, could and would carry out much of the enforcement. Later, Kagan, Gunningham, and Thornton (2003) examined corporate performance vis-à-vis very costly-to-comply-with environmental regulations in Australia, New Zealand, Canada, and the United States, and found that polluting behavior of pulp and paper mills—which is highly visible, making many infractions easily detectable—is susceptible to change by regulation, particularly when civil society actors also apply pressure for compliance. That study and others (for a summary, see Kagan, Gunningham, and Thornton 2011) found that in addition to legal and social pressures, a sense of duty to comply with law, or with the norm underlying the law in question, often provides a significant incentive to comply. But Pager and Western (2009), who took an experimental approach to examining patterns of discrimination in the low-wage labor market in New York City, point out that compliance with civil rights and antidiscrimination laws is poor when infractions are not readily detectable and enforcement is difficult and minimal. In such situations, Winter and May’s (2001) work on the compliance of Danish farmers with agricultural/environmental regulations suggests that peer pressure, when set against a legal backdrop, may also foster compliance. Thus, according to the sociolegal compliance literature, the answer to the basic question of whether law can generate compliant social practice is yes, under certain conditions.

One can also glean from the literature a list of the conditions under which fear, duty, and social license pressures are likely to impact compliance. Among them are likelihood of detection (of noncompliance) (Klepper and Nagin 1989), severity of penalty (Scholz and Gray 1990; Klepper and Nagin 1989), cost of compliance in both time and money (Bowman, Heilman, and Seetharaman 2004; Yapp and Fairman 2004; Gerstenfeld and Roberts 2000; Hillary 1995), knowledge of the law and of enforcement odds (van der Wal et al. 2005; Yapp and Fairman 2004; Gerstenfeld and Roberts 2000; Petts 2000; Hillary 1995; Hutchinson and Chaston 1994), attitude toward and/or treatment by regulators (Yapp and Fairman 2004; Braithwaite and Makkai 1994), attitude toward regulation (Kagan, Gunningham, and Thornton 2003; Kagan and Scholz 1996; Makkai and Braithwaite 1996; Tyler 1990; Bardach and Kagan 1982), formal management systems—in the case of businesses, organizations, or governments (Palmer and van der Vorst 1996), social pressure (Kagan, Gunningham, and Thornton 2003), the belief that others are complying (Kagan, Gunningham, and Thornton 2003; Coleman 1996), the saliency of the need for compliance (Ko, Mendeloff, and Gray 2010; Bowman, Heilman, and Seetharaman 2004; Weil 1996; Gray and Scholz 1991; Siskind 1980), and formal allowances for self-regulation (Rees 1994). Yet, the evidence for these factors comes largely from the developed world and from places where the state is strongly institutionalized—places where traditional legal enforcement, even if largely not used in practice, retains its deterrent value.  

In light of this fact, what should we expect to find in the developing world where, for many types of regulations, effective and predictable enforcement is simply not a realistic option?

Limited research has examined compliance in developing world contexts. Gezelius and Hauck (2011), in their examination of compliance with fishery regulations in Norway, Canada, and South Africa, explain that the source of a motivation to comply with the law...
can vary from context to context and, as a result, a state’s strategy for ensuring compliance must change accordingly. Boittin (2013), in her study of sex workers in China, reveals that many individuals who break laws prohibiting prostitution often do so out of necessity, but, interestingly, that poverty-driven noncompliance does not imply rejection of the legal system in other contexts. Scott (1987) and Villegas (2012) find that attitudes toward the law and the state are often different in the developing world and that responses to same reflect this fact.

Against this backdrop, Kagan, Gunningham, and Thornton (2003, 2011) and Kagan, Thornton, and Gunningham (2005) tell us that enforcement, even if only used against a small percentage of the regulated, is important for getting the rest of a given target population to comply. This assertion suggests that state capacity need not be terribly great in order for deterrence-based enforcement to work. But it also, I believe, assumes that deterrence works similarly for all individuals and organizations, an untenable assumption in contexts in which many of the individuals in the population targeted by a particular regulation desperately need the very resource they are prohibited from taking from a relatively accessible source. Sibley (2005), Pogarsky (2009), Piquero et al. (2011) and, in particular, Christine Parker’s (2013) recent work on cartel compliance with financial regulation suggest as much. Parker finds that elite and nonelite actors are situated differently with respect to the law, at greater or lesser distance from it, and, as a result, are more or less susceptible to deterrence. Parker (2013) builds on Peter May’s (2005) conclusion that individuals are often differently motivated toward compliance. Tetty Havinga’s (2006) finding that private entities can have more of a deterrent effect than public ones; Judith van Erp’s (2011) argument that corporate perceptions of sanctions are socially embedded; and Parker’s own work with Viebeke Nielsen (Parker and Nielsen 2011), which suggests that a business case for compliance can be as important as deterrence in terms of determining behavior, all suggest that deterrence is in the eye of the beholder. And, yet, none of these authors consider cases in which enforcement is nearly impossible given resource and other constraints. This article takes up this latter issue: What happens when limited state capacity means that enforcement is nearly nonexistent? And when target populations have little to lose and quite a bit to gain from noncompliance? Are there ways to overcome the poverty problem (i.e., target populations situated in such a way that deterrence, even if it existed, would likely not work) and generate compliance against the odds?

A growing literature suggests that developing world actors still conduct cost–benefit analyses when considering compliance, but that their analyses may have more and different factors, particularly with respect to environmental issues, than those of their developed world counterparts. In a study of illegal pesticide use in China, Yan, Rooij, and van der Heijden (2015) find that farmers are more likely to respond to operational costs and benefits than deterrence when considering noncompliance. Schmidt and McDermott (2015) add that noncompliance with deforestation laws in the Amazon basin is associated with both stress and the perception that legal processes are contradictory, often because of inconsistent local law enforcement. Tacconi (2007) finds that the subjective interpretation of which forest practices are harmful can lead to noncompliance with related laws. Along the same lines, Pendleton (2007) shows that noncompliance with conservation regulations was only subjectively considered illegal when it met certain community-level, extralegal criteria. This may be because, as Yan, Rooij, and van der Heijden (forthcoming) point out in a separate article on compliance with pesticide regulations, motivations for compliance are not necessarily different from those for noncompliance but that deterrence may be more important to the former than the latter.

Despite the complicated cost–benefit analyses that developing world actors must consider when choosing whether or not to comply with conservation regulations, a number
of articles suggest that compliance with these types of regulations is possible (Barr 2000; Contreras-Hermosilla 1997, 2000, 2007). This literature, however, provides limited empirical evidence for the claims it makes and instead relies largely on best practices evidence derived from years of policy-promotion work. To get a better handle on whether weak states can generate compliance with conservation laws in spite of widespread poverty, I conducted research in a region in which the states involved have relatively weak deterrence-based enforcement capacity. Up until recently, this border region had been plagued, both in India and Nepal, by Maoist insurgencies. During this period, the state almost ceased to exist at the local level. In the intervening time, the Nepali and Indian states have reentered this region, but only minimally, and signs of the state remain few and far between. This region is also one in which the a priori likelihood that members of the target population will feel a strong duty to obey state-propounded regulations is low. In other words, I conducted research where legal norms’ chances, vis-à-vis social norms, are quite unfavorable—a so-called hard case.

III. RESEARCH DESIGN AND METHODOLOGY

CASE SELECTION

The Terai region in the South of Nepal and the North-Indian state of Bihar is an excellent place to test compliance theories in adverse circumstance for two main reasons: (1) it fits squarely within a least favorable case research design—the states on both sides of the border are weakly institutionalized, at least in this region; and (2) the populations on either side of the border are generally poor and uneducated. Indeed, for much of the period leading up to this study, the states on both sides of the border had largely retreated from this region in response to armed Maoist movements. Under these circumstances, it should not be surprising that illiteracy and poverty have remained high in the Terai, even while progress has been made on both fronts elsewhere in India and Nepal. The literature suggests that we should not expect to see compliance in such circumstances. Yet, observation suggests that there are in fact cross-border differences in compliance. This design, therefore, has the power to reveal those factors that lead to compliance in conditions in which we would not predict it.

Case selection was also part of an effort to use design to gain methodological traction on persistent questions in the sociolegal compliance literature. Chitwan and Valmiki are contiguous and divided only by an open international border that was not defined by geography or culture. The same culture and dominant ethnic group—the Tharus—prevail on both sides of the border, and most people in this region are poor, fairly uneducated, and speak the same language. In other words, I selected these parks and not other parks in India and Nepal because of the natural experiment created by the border and because this design provided methodological traction (see Dunning 2012) with respect to some of the sociolegal compliance literature’s older debates. To my knowledge, there are no other conservation areas in India and Nepal that afford such a fortuitous methodological framework within which to conduct this type of research. With the culture, income, and education of ordinary individuals being similar across this region, I was not forced to control for these potentially important causal variables. I did, however, measure each of these variables in order to be reasonably confident that cross-border differences in compliance stem from variation in the independent variables I measure and discuss below.
THE FREEDOM OF MOVEMENT PROBLEM

The fact that Indians and Nepalis can move freely across the border between the two countries is both a boon and a potential problem for this study. One might speculate that individuals from either side of the border might seek out low law-enforcement areas for noncomplying activities, while complying with regulations in their own village. In other words, a Nepali from an area in which enforcement is high, but who nevertheless wants or needs forest products, might travel to a low-enforcement area, either in Nepal or across the border, to collect wood. It is difficult to account for such patterns with the survey data I collect. However, I spent over a year in this region and spoke with many people about where and how they collect firewood, in addition to observing people doing so. My qualitative interviews indicate that individuals are not jurisdiction shopping when they choose where to collect firewood. Indeed, both Indians and Nepalis generally reported being worried about collecting firewood in a place, whether in their own country or across the border, that is unfamiliar to them. Much of this fear seems to stem from the risks associated with the wildlife in the area. Traveling to an unknown location to collect wood means collecting wood in a place where they may unwittingly put themselves in the path of a tiger, elephant, or rhino, a risk most are unwilling to take.

Based on this information, I do not believe that potentially confounding cross-border strategic behavior is happening on a large scale, at least not when it comes to firewood collection by ordinary individuals. And, while I did get a sense that the situation is quite different when it comes to the felling of live trees and timber smuggling, this is an altogether different set of activities (sophisticated/organized and specifically criminal) than the set I am trying to explain here. Thus, my findings should not be used, at least not without further research, to explain the illegal logging practices of criminal gangs.

HYPOTHESES AND VARIABLES

I hypothesize that compliance is possible, even in weakly institutionalized regulatory environments in the developing world. However, in order for legal institutions to work in this context, state or nonstate actors must overcome the obstacles presented by poverty-driven noncompliance.

Dependent Variable

The major dependent variable I investigate is compliance. A brief definition should be sufficient for the moment: compliance occurs when an individual acts or refrains from acting in such a way that his or her behavior is consistent with that required by law. Compliance of this variety, which I consider to be objective compliance, is distinct from subjective compliance, in which an individual believes that he or she is complying with the law but, because of his or her inaccurate legal understanding, is acting in a manner that is not actually in objective compliance with the law. In the case at hand, objective compliance involves refraining from taking wood out of both Chitwan National Park and Valmiki National Park and Tiger Reserve.

Independent Variables

To determine the circumstances under which institutions generate compliance, I examine, as noted above, a region that is characterized by the same rules, the same culture, and, seemingly, the same basic incentives to comply with or break the law. Both Chitwan National Park and Valmiki National Park and Tiger Reserve prohibit the removal of
wood from within conservation area boundaries; the population living just outside of these parks is dominated by the same Tharu ethnic group and individuals often speak Bhojpuri, as well as some Hindi and some Nepali, regardless of their home country; and, finally, poverty is rampant, but consistent on both sides of the border. But, if many of the variables that are customarily used to explain rule-following behavior are held constant, what varies? There is one key factor: the cost of compliance. In this case, I measure the cost of compliance by estimating the proportion of individuals for whom compliance with formal legal rules and institutions remains incompatible with basic survival.

Poverty-Driven Noncompliance

An individual might comply with a particular law or regulation because compliant action either aligns with or does not undercut that individual’s pursuit of her/his self-interest (Molnar, Scherr, and Khare 2004; Parker 2002; Pearce and Tombs 1990, 1997, 1998). For instance, at least in theory, an individual who has ample material resources is less likely to break a law that prohibits stealing than an individual who has few resources and is desperate for, say, food. This means that, as Anatole France once wrote, while “in its majestic equality, the law forbids rich and poor alike to sleep under bridges, beg in the streets and steal loaves of bread,” all individuals are not similarly situated to comply.

Throughout much of the developed world, poverty is fairly low and thus, we can assume that noncompliance owing to poverty alone must also be relatively low. The fact that such a relatively small percentage of the population is poor means that deterring or motivating these individuals away from noncompliance is somewhat manageable given the strength and resources that most developed world states possess. In a place like India or Nepal, where more than half of the population is poor, the cost to deter or otherwise motivate individuals away from poverty-driven noncompliance would be quite high. Such a high cost would be unmanageable for these states, because it would represent such a significant portion of gross domestic product (GDP) and state resources. In contrast, states with ample resources have many options at their disposal to motivate compliance. Some choose to manipulate the incentives that individuals face so that individual pursuit of self-interest and compliant behavior are not mutually exclusive, thus aligning the self-interest of a larger swath of the population with compliant behavior. The financial capacity of regulated entities to comply with existing or proposed laws has been shown to affect the design of regulatory programs in the United States (Huber 2011; Thornton, Kagan, and Gunningham 2008). Examples of such efforts include tax breaks or credits, subsidized government loans to cover the costs of compliance, certification regimes that help consumers identify compliant organizations (possibly generating higher revenues), and payouts for compliant behavior (Huber 2011). The US Affordable Care Act (a.k.a. Obamacare) includes many such components: all US citizens and legal residents are now required to carry health insurance, but this insurance is heavily subsidized for low-income individuals who would otherwise have difficulty covering this type of expense and, as a result, might not comply with the insurance mandate. Interestingly, states with the strength and resources to do so also use such approaches when the underlying behavior the state wants to change is not prohibited but remains, in the eyes of many, against the public interest or public health. In the United States, steep taxes on cigarettes and gun buy-back programs would be examples of this type of approach to behavioral change. But all of these are programs and approaches that are far more easily carried off in strongly institutionalized regulatory environments, by states with substantial state capacity, and when targeting a relatively small percentage of the population.

In the developing world, poverty is widespread and poverty-driven noncompliance can be endemic. Along the India–Nepal border, where most live at or below the poverty line...
and where many struggle to feed and clothe themselves, it is difficult to imagine compliance with regulations that run contrary to the basic needs of the majority of a population targeted by a given regulation. For instance, school attendance is mandatory and holidays do not always coincide with periods of intense agricultural activity. As a result, large numbers of students, whose families rely on subsistence agriculture, skip school during certain parts of the year to work on their parents’ farmland. Compliance with regulations that run counter to basic needs is particularly problematic in this region because the governments in the area are weakly institutionalized, and the states on either side of the border are limited in the degree to which they can engage in deterrence-based enforcement. Yet, some compliance with wood-gathering restrictions is happening: 66 percent of Nepali respondents and 29 percent of Indian respondents act in a manner that is compliant with wood-collecting restrictions in place in both Chitwan and Valmiki National Parks. This suggests that not all individuals find compliance to be against their respective self-interests.

Given this information, I hypothesize that many of those individuals who can afford to comply will do so. More specifically, among the relatively small segments of the population for whom the cost of compliance is low relative to their incomes, we should expect compliance so long as (1) the cost of compliance is lower than the perceived cost of noncompliance, and/or (2) individuals believe that it is their duty to comply. Indeed, those who are relatively well off in the area surrounding Chitwan and Valmiki cook with gas and, thus, do not need firewood. As one relatively well-off female business owner explained to me, “We use gas. It is easier and there is no facility for an open fire in a modern house.” The poor, however, do need firewood on a regular basis, and must weigh this need against their motivation to comply. As a result, my expectations regarding their behavior are quite different. These latter individuals face a very high cost of compliance and, even if the cost of noncompliance was very high, many of them would rather risk enforcement-related penalties than face the alternatives. As one of my respondents explained, rationalizing her noncompliance, “They make us steal it. But even if we are thieves, we are alive.” Furthermore, even if these individuals believe they have a duty to comply, it is likely not powerful enough to overcome their poverty-driven noncompliance.

Finally, I hypothesize that among those individuals who have the option to both comply and attend to their basic needs, those motivated by either fear or duty will comply in significantly higher numbers than those of their low-income counterparts who have no viable option other than noncompliance.

Community Forest Access

One factor that might reduce the cost of compliance for those living near Chitwan and Valmiki is ready access to an alternative source of firewood. There are a number of ways that one might gain such access, but few are affordable for the poor. For instance, one could collect firewood on one’s own property or one could buy firewood at the market. But the poor will not do either of these things in large enough numbers to create the large observed cross-border variation in compliance we see just outside of Chitwan and Valmiki. There is, however, one additional option. As mentioned in the introduction to this article, there are numerous Community Forests located just outside of Chitwan National Park, and access to fallen wood in these forests is both legal and relatively affordable. One needs transport to and from the Community Forest, and one might have to pay a nominal fee for access if not part of the user group who petitioned for and maintains the forest, but little else. Thus, for those who have access to a Community Forest, compliance
with Chitwan’s wood-taking restrictions is considerably less costly than it is for those who need firewood but lack access. As Community Forests are not ubiquitous in Nepal, and as India’s analog to Community Forests, Joint Forest Management, was not in place at the time of research, I hypothesize that those who have access to a Community Forest will be more likely than their counterparts who lack access, regardless of income level, to be found in compliance.

To test these hypotheses, I first compare the self-reported compliance behavior of those for whom the cost of compliance is relatively high to those for whom the cost of compliance is relatively low, using income as a means to determine relative cost of compliance. Compliance, in this case, is measured via anonymous self-reporting. This may, at first glance, seem problematic, but respondents were quite forthcoming about illegal behavior; the sheer number of respondents who self-reported noncompliance is a testament to this fact. After this first comparison, I check to make sure that these two income groups do not report different levels of both fear and duty. Finally, I examine factors other than income, Community Forest access in particular, which lower the cost of compliance to determine whether they reduce poverty-driven noncompliance.

**SAMPLING AND DATA COLLECTION**

Survey data and interviews with relevant actors form the basis for my explanation of the observed cross-border variation in compliance. In order to gather this survey data I trained and managed two teams of approximately ten interviewers, one on each side of the border. Each interviewer spoke the dominant language in the area, Bhojpuri/Tharu, in addition to Nepali or Hindi (depending upon the context). As surveys were conducted simultaneously on both sides of the border, I also hired a local manager to handle day-to-day problems on the Indian side of the border. The resulting data set includes over 1,300 respondents who come from fifty randomly sampled villages located within walking distance of the parks (ten kilometers), with twenty-five coming from each side of the border. Each was chosen via a semirandom convenience sample of at least twenty-five people within each village. Survey teams chose respondents by starting from a common point (a crossroads, a well, etc.) and fanning out in multiple directions, stopping at every seventh house to conduct an interview. Interviewers were instructed to interview men and women in roughly equal proportions and to consciously seek to interview individuals of varying ages. Respondents were asked, in person, a series of questions that started with demographic information and proceeded to questions designed to help measure variables of interest. For the exact questions/measures used and a description of the relevant coding, see Appendix A.

In order to ensure accurate data collection, all survey interviews and qualitative interviews were conducted in Hindi, the dominant language in Northern India, Nepali, the dominant language in Nepal, or Bhojpuri, the dominant language of the region (on both sides of the border). I speak Nepali, as well as some Hindi, but no Bhojpuri. As a result, I hired local interviewers with all three language skills to be the primary interviewers/enumerators. Local interviewers were important because, ex ante, I was worried about trust in terms of getting accurate answers to questions about participation in activities that, though widespread, are against the law. In my observation, however, these worries may have been unfounded, as individuals were quite forthcoming when describing their activities in the national parks. This may be because I first asked individuals about their firewood needs and where they go to collect it, without any priming on the legality of this act. Collecting firewood is something almost everyone does and people did not hesitate to describe their habits. It is also likely because all of my data collection was conducted...
and respondents were assured that the research was not associated with any government.

In addition to the above-described large-\(N\) survey, I personally conducted thirty-five follow-up interviews using snowball samples in three different locations to better understand my survey data. For the same purposes, I also convened a focus group of forty-three women in Jagatpur VDC, Nepal—a village located just two kilometers away from Chitwan National Park’s headquarters and immediately adjacent to a Community Forest. These latter data collection endeavors followed a semistructured interview format.

**IV. FINDINGS**

Life for many along the India–Nepal border is harsh, and people have little in the way of material possessions; indeed, 78 percent of my more than 1,300 respondents live on less than one dollar per day, with roughly even numbers of poor respondents on either side of the border. Even in the most humble dwelling, however, the hearth is considered sacred. It is also a place of practical importance, with 85 percent of respondents in Nepal and 66 percent of respondents in India indicating that they use firewood on a regular basis to either cook food or heat their homes. When combined, these data suggest that there is both a great need for firewood and, given the percentage of the population living below the poverty line, few cost-effective alternatives (i.e., gas) to this important resource. Qualitative evidence supports this assessment. As one woman in Nepal explained to me, “Of course we go into the park to get firewood. What choice do we have? My husband is a day laborer and gas costs more than he makes some months.” Indeed, a single canister in Nepal costs approximately Rs. 2100 or US$23 at the time of research. The cost problem across the border in India is similar but with the added component that gas canisters are difficult to come by near the park.

Despite this backdrop of poverty and need, I hypothesize that fear and duty do work, even in weakly-institutionalized environments, and that those who can afford to comply with wood-taking regulations will do so. Put more concretely, if the poor who live close to the park were provided with gas stoves and a regular supply of cheap fuel, many of those who are aware of wood-collection prohibitions would be motivated to comply; with their basic needs taken care of, they would not go back into the park to collect firewood, for instance, sell to others. To test the hypothesis that illegal wood collection around Valmiki and Chitwan is driven by poverty, I run \(t\)-tests on the data after subsetting by income level and location. This analysis suggests that there is a significant interclass difference between rates of compliance for the poor and nonpoor; the interclass differences reported in Table 1 are significant to \(p = 0.001\), in Nepal, and to \(p = 0.002\), in India. Poverty, therefore, is an important predictor of noncompliance, even if \(t\)-test analysis does not allow us to gauge the magnitude of this difference. For the poor, lower-caste farmer I spoke to who works a small plot of land right next to Valmiki and has three children and a wife to feed, “There is no option [other than wood]; some, they live near the cane fields or have access

<table>
<thead>
<tr>
<th></th>
<th><strong>India</strong></th>
<th><strong>Nepal</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Above Poverty Line</td>
<td>42% ((N = 96))</td>
<td>75% ((N = 171))</td>
</tr>
<tr>
<td>Below Poverty Line</td>
<td>25% ((N = 270))</td>
<td>63% ((N = 467))</td>
</tr>
</tbody>
</table>

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to gohra [a fuel made largely of dried cow or water buffalo dung], do not need wood, but we do.” For the middle-class woman who lives several kilometers from the Chitwan park boundary, fuel choice is largely a matter of ease: “My mother did this [collected wood in the park], yes, but we can afford gas and collecting wood takes time, and there is risk.” When asked to explain this risk, she noted that she feared both park officials and wildlife, however low the probability of running into either. Thus, the poor and the relatively well off are positioned quite differently with respect to the cost of compliance.

Importantly, rates of compliance for both the poor and the nonpoor are lower on the Indian side of the border, a fact I will return to later. The fact that rates of reported compliance are not zero on the Indian side of the border for those living below the poverty line raises a question about whether my respondents are really being driven to noncompliance by their poverty and lack of access to other fuel. An examination of the fuels my respondents on both sides of the border reported using suggests that those living on the Indian side of the border appear to have greater access to a wood/gas alternative for both cooking and heating: sugar cane leaves. Almost none of my respondents on the Nepal side of the border reported using sugar cane leaves as fuel, and this is hardly surprising given that there is little to no sugar grown in this region of Nepal. However, just across the border in India, approximately 38 percent of my respondents reported using sugar cane leaves to meet at least some of their fuel needs. This is also not surprising as sugar is grown on a commercial scale in Paschim Champaran, Bihar, and sugar cane leaves are often discarded and available for locals with proximity to sugar production operations to use as fuel.

Having established an inverse relationship between poverty and compliance, it is important to check to make sure that differing levels of fear are not driving these numbers, even though the Nepali and Indian states maintain only a minimal presence in this region. Here the data indicate that 95 percent in Nepal and 88 percent in India believe they will be caught and punished if they remove firewood from the national park. These numbers are similar for income-level subsets, indicating that those above and below the poverty line are not differentially motivated by fear. Interclass differences in reported rates of fear are not statistically significant; the p-values for t-tests comparing class groups were $p = 0.222$, in Nepal, and $p = 0.163$, in India. As one man in Nepal explained to me, “We all fear [the state]. One bureaucrat can make a lot of trouble, even if he is in the wrong.” Moreover, the fact that fear rates in India are statistically nondifferentiable from those in Nepal, despite India’s significantly lower compliance rates, suggests that fear is not driving cross-border variation in compliance. Indeed, individuals do not perceive the penalties for noncompliance differently on either side of the border. Among my respondents, the average “harshness of the penalty” response was 2.36 in Nepal and 2.37 in India, with 2 being “Reasonable” and 3 “Not Very Harsh.”

As the Indian and Nepali states might have done better or worse at instilling a sense of duty to comply with the law in their citizenry, I also check to make sure that variation in the rates at which individuals report a sense of duty is not behind income-level disparities in compliance rates. On one side of the border, Chitwan National Park was previously a royal hunting reserve, and many Nepalis still feel a sense of duty toward the now-defunct monarchy. On the other side of the border stands India’s long-standing democratic tradition, and this might motivate locals to comply. The data, however, do not indicate a significant difference. Reported rates for relevant duties—“duty to obey the law” and “duty to protect the forest”—are available in Figure 1.

When the data are subsetted by income level, there are no significant differences between the rates at which respondents who live above the poverty line and below the poverty line report either of the above duties. With respect to the duty to protect the
forest, the \( p \)-value associated with the \( t \)-test comparing the compliance of those who reported fear and those who did not was \( p = 0.241 \), in Nepal, and \( p = 0.831 \), in India, suggesting no statistically significant difference between these groups. The same was true for the duty to obey the law; the \( p \)-values associated with this \( t \)-test were \( p = 0.605 \), in Nepal, and \( p = 0.337 \), in India.

Finally, I test whether factors that lower the cost of compliance—access to a Community Forest, in particular—have an effect on compliance rates. Community Forests—which lower the cost of compliance for those who have access to them—are only available on the Nepal side of the border. This low-cost compliance option allows individuals who live near a Community Forest, and are allowed to remove wood from it, to choose compliance more freely than individuals whose only source of wood is the national park. Individuals who have Community Forest access are able to meet their own firewood needs and comply with Chitwan National Park’s wood-taking prohibitions. As one woman explained to me, “Yes, we get our firewood in the Community Forest. There is no risk [of enforcement] and it is equally close.”

It should not be surprising then, that when examining those who have Community Forest access (approximately 56 percent of my respondents in Nepal), I find no significant difference in compliance when I look across income levels: the \( p \)-value for this comparison is 0.406, indicating no statistical significance. I do, however, find a significant difference across income levels when I look at those who do not have access to a Community Forest: the \( p \)-value for this comparison was \( p = 0.000 \), indicating strong significance (see Table 2).

This also follows, as poverty-driven noncompliance has not been mitigated by Community Forest access. The respondent I quoted above who was forced to “steal” her wood from the national park did not have access to a Community Forest. Her choices included “theft” and “uncooked food.” In this region, the latter is a nonchoice as it means poor health, given the virtually nonexistent food and water sanitation standards. Thus, those who cannot afford gas and who lack Community Forest access must risk penalties and engage in noncompliance.

Table 2. Compliance in Nepal by Community Forest Access and Income Level \((N = 650)\)

<table>
<thead>
<tr>
<th>Community Forest Access</th>
<th>No Community Forest Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above Poverty Line</td>
<td>80%</td>
</tr>
<tr>
<td>Below Poverty Line</td>
<td>79%</td>
</tr>
</tbody>
</table>

Figure 1. Percentage of Respondents Reporting a Duty by Location.
The fact that Community Forest access creates meaningful choices and fosters compliance supports my initial hypothesis—that fear and duty do induce compliance, for the most part, even in weakly-institutionalized environments, and that those who can afford to comply generally do so. It also suggests that cross-border differences in compliance are at least partially explained by the fact that the extremely high cost of compliance for the poor has been lowered to some degree in Nepal, through relatively widespread access to Community Forests, while the same cost in India remains unmitigated.

V. IMPLICATIONS

I have shown that those living above the poverty line are more likely to comply with regulations that impose a high cost of compliance than their counterparts living below the poverty line. I have also shown that income-level variation in compliance is not being driven by differing reported rates of fear or duty in the populations targeted by regulations that prohibit wood taking from nearby national parks. Finally, I have presented evidence that, when a low-cost compliance option is available, there is no income variation in compliance. All of this suggests that even in developing world conditions, characterized by weakly institutionalized regulatory environments and endemic poverty, conditions that many have assumed to be incompatible with rule of law, regulatory compliance can be achieved under the right parameters. These findings have three important implications for both the sociolegal compliance literature and for those who try to use law to change social practice in similar environments throughout the world, be it inner-city Detroit, the coastal waters of Somalia, or along the India–Nepal border.

First, even in weakly institutionalized regulatory environments, states with meager resources can bring about both fear of legal sanctions and a sense of duty to comply. But fear and duty are sometimes not enough to bring about compliance. This is particularly true when prohibited behavior is necessary to the material existence of a large percentage of the population targeted by a particular regulation, thus driving the cost of compliance to extraordinary heights for the majority of those regulated. I spoke with many people on both sides of the India–Nepal border who were quite motivated to comply with government regulations, and quite eager to protect the parks they live near, but who also willingly admitted to “stealing” wood from those parks to cook and to heat their homes. The fact that many of them chose the word steal in this context is telling: they feel that even though they are otherwise upstanding citizens, they have been forced into a position in which the very resource on which they are dependent—one that was once theirs—is no longer available to them without risk. The noncompliance of these individuals does not result from an absence of fear or sense of duty—resulting from a weakly institutionalized regulatory environment—as many have assumed. Instead, it results from a dearth of low-cost compliance alternatives. My findings show that many people will comply with the law if given a low-cost opportunity to do so.

The second important implication of my findings is that carefully designed regulations and policies, ones that take into account the various motivations and needs of those targeted by them, can be used to change social practices, even in places previously thought to be challenging rule-of-law environments. The ancestors of many living just outside Chitwan National Park used and managed the forest now inside park boundaries for centuries, depending upon it for basic building materials, food, medicines, and firewood. Some of them even lived inside what are now park boundaries. Despite the limited capacity of government authorities to exercise control over such a large tract of heavily forested land, many of these individuals, motivated by either fear or duty or both, are willing to alter
their customs and source these materials outside of the park—so long as they can source them somewhere.

Nepal’s Community Forests have become this somewhere and appear to meet the needs of those who have access to them. Compliance is particularly high among the subset of the general population that has Community Forest access, regardless of income level. But one has to wonder, from an environmental sustainability perspective, whether providing Community Forest access simply means that one part of the forest becomes degraded rather than another. The forest governance literature suggests that this may not be the case. Authors like Arun Agrawal (1999), Magaret McKean (1992), and Elinor Ostrom (1992) demonstrate that resource users are often capable of creating long-term institutional arrangements that help them allocate forest resources equitably and with little forest loss. Meanwhile, Dietz, Ostrom, and Stern (2003) argue that resources like forests are often in bad condition because they are managed by governments, implying that, were the Nepali government still managing the land on which Community Forests are located, forest conditions might actually be worse. Observation suggests that the literature is spot on. Community Forests outside of Chitwan are generally well cared for, and some have actually managed to increase the forest cover in the area, correcting for past degradation (Nagendra, Karmacharya, and Karna 2005). Thus, Community Forests do appear, at present population and resource demand levels, to be a policy prescription that not only fosters compliance with wood-taking restrictions in Chitwan National Park, but also makes sense from a sustainability perspective.

Across the border in India and in some locations in Nepal, the seemingly important resource pressure valve that Community Forests have become is missing. Despite the fact that similar conditions prevail in these areas, at least in terms of the variables I measure, compliance with wood-taking regulations is low. When forced to choose between compliance and meeting basic needs, many choose the latter. When taken together, these results suggest that high levels of compliance are possible, even in weakly institutionalized regulatory environments, but that the burden of turning possibility into reality lies with those crafting regulations. Regulations that pose an extremely high cost of compliance for populations that can ill afford such a cost will likely be met with noncompliance, whereas those that lower this cost stand a much greater chance of success.

The third implication of my findings is that the regulations and policies that ultimately drive compliance may be different from and, at first glance, seem orthogonal to the initial regulation against which compliance is measured. In the case at hand, the original regulation is a prohibition on removing wood from a protected government forest, but the regulation that appears to be driving compliance actually allows for wood collection on government-owned forest land, just in a slightly different location—importantly, a location that the government does not consider crucial for survival of the big game species living in the nearby national park. If we only look at the original regulation and then at the means available to secure compliance, we might come away wondering how the state has fostered such high rates of compliance under such adverse conditions. But the fact of the matter is that regulations and policies, like the people they regulate, do not exist in isolation. Instead, they form a complex system of incentives, threats, and obligations that people navigate to the best of their ability while also trying to live their lives in the ways that they see fit. Those involved in regulatory and policy design should be mindful of the fact that regulations and policies that create opportunities for individuals to comply with other regulations while also allowing those individuals to continue living in the ways that they are accustomed to living may provide a viable route to compliance, not only in weakly institutionalized regulatory environments, but in any context in which legal norms contrast with cultural norms.
VI. CONCLUSION

Though it appears at first glance as if the assumptions built into the standard deterrence model of compliance are not appropriate in weakly institutionalized regulatory environments and that this is why we find rule of law to be weak in such areas, my data suggest otherwise. It seemingly does not take much to instill at least a generalized sense of both fear and duty in the population targeted by a particular regulation. Instead, the problem in such places may lie with poorly designed regulations. My data suggest that when a regulation imposes a high cost of compliance on a poor target population, compliance will be low, but that if the same or related legislation can lower the cost of compliance for a substantial percentage of this same target population, compliance will likely be significantly higher. This finding on its own is not all that surprising as sociolegal scholars have known for quite some time that the cost of compliance is an important predictor of compliant behavior. What this article adds is a new dimension to our understanding of what is driving large-scale noncompliance in locales in which poverty is the norm rather than an exception. But it also goes further: rather than simply identifying a problem, it also identifies a solution. My findings on the Community Forests in Nepal suggest that there are fairly inexpensive, nondeterrence based policy options that the state, particularly if it cannot afford to motivate large swaths of the population with fear or duty, can nevertheless use to achieve high rates of compliance.

NOTES

1. Interestingly, the lack of developing world evidence may stem from a bias in academia itself. When preparing to conduct this research, I spoke with legal academics who stated quite plainly that law schools are not interested in hiring individuals who study compliance in the context of the developing world. The same is largely true of Political Science and Sociology Departments.

2. My definition and measurement of compliance for purposes of this article includes individuals who appear to do what the law requires but whose reasons for doing so may have little or nothing to do with a felt obligation to comply.

3. While per capita income in Bihar, according to government of Bihar data, stood at US$540 at the time of research, average earnings in the four districts surrounding Chitwan, according to UN Development Program data, ranged from $716 to $951. My own data suggest that, within ten kilometers of the parks, individuals on both sides of the border are quite similar to one another but poorer than their counterparts who live further from the parks. In India, 74 percent of my respondents reported living on less than $1 per day, while in Nepal, this statistic was 73 percent.

4. Anatole France (1894): “La majestueuse égalité des lois, qui interdit au riche comme au pauvre de coucher sous les ponts, de mendier dans les rues et de voler du pain.”

5. I use the word manageable here because the cost of deterring or motivating individuals away from poverty-driven noncompliance would, generally speaking, be small relative to both GDP and state resources.


8. For reference, the population of the Village Development Committees (VDCs) located within ten kilometers of Chitwan National Park, in Nepal, is 693,522, according to the 2011 Census of Nepal; the same statistic for the Tehsils located within ten kilometers of Valmiki National Park, in India, is 762,534, according to the 2011 Census of India. I cannot give a precise figure for how many individuals live within the ten-kilometer boundary in either country because publicly available census data does not allow for this calculation. Neither the Indian nor the Nepali census provides village-level data on population and for many VDCs and Tehsils, the ten-kilometer line runs through the middle of the unit. It was for this reason that I sampled villages first and then conducted a semirandom convenience sample within each village. I was able to
sample villages by using maps and satellite imagery to create a list of all villages within ten kilometers of the park.

9. This was a demand of the UC Berkeley Internal Review Board.

10. Interview conducted at Bacchauli on February 8, 2013.

11. I ran these t-tests on data for all respondents who report a need for wood. Because those who report a need for wood are significantly more likely to be poor than those who do not, this analysis likely underestimates the compliance gap between those living above and below the poverty line.

12. Interview conducted at Dumri, India on February 6, 2013.

13. Interview conducted at Ratnanagar, Nepal on February 12, 2013.

14. These numbers are surprisingly high, given the low level at which the states on either side of the border engage in enforcement. I plan to explain this phenomenon in a separate paper, but I will mention here that I believe the generally capricious enforcement of regulations and laws in both India and Nepal, coupled with frontline bureaucrats’ abilities to extract bribes for nonenforcement from citizens who can ill afford to pay them, leads to a general fear of the state that individuals take with them to almost any regulatory context regardless of the level of enforcement in the particular set of circumstances in which they find themselves.

15. Interview conducted at Tribeni, Nepal on January 10, 2014.


SUSAN L. OSTERMANN is ABD in the Travers Department of Political Science at the University of California—Berkeley. While her research focuses primarily on regulatory compliance in South Asia, she has also written about the Indian bureaucracy, the 2014 Indian general elections, state capacity in South Asia, intercaste marriage, and the role of skin color in Indian politics. Before Berkeley, Susan earned a law degree from Stanford Law School and spent several years as a practicing litigator.

REFERENCES


**APPENDIX A: INCOME LEVEL/POVERTY**

“Which of the following categories best describes your family’s income last year?”

1. Less than 32,000 NPR/20,000 INR (Only enough for food and shelter.)
2. 32,000-1 lakh NPR/20,000-60,000INR
3. 1-5 lakhs NPR/60,000-3 lakhs INR
4. More than 5 lakhs NPR/More than 3 lakhs INR
5. Other_________________

There was also a code for respondents who refused to answer or did not know their income. Then, for data analysis purposes, I used the first category, which roughly corresponds to one dollar per day, to mark those living below the poverty line. I used responses two, three, and four to mark those living above the poverty line. Finally, I manually categorized responses in category five into categories one through four.
Firewood Need

“Do you use wood to cook, for heat in your house or any other purpose?” Interviewers then placed respondents’ answers into one of four categories: 1) “Yes;” 2) “No;” 3) “Sometimes;” and 4) “Don’t Know or Won’t Say.”

Compliance

In order to assess compliance, I asked those respondents who gave a “Yes” or “Sometimes” answer to the “firewood need” question the following question, in either Hindi or Nepali: “Where do you go to collect wood?” Interviewers in Nepal then placed respondents’ answers into one or more of the following five categories: 1) “National Park;” 2) “Community Forest;” 3) “Buffer Zone;” 4) “Other;” and 5) “Don’t Know or Won’t Say.” Meanwhile interviewers in India placed respondents’ answers into one or more of the following five categories: 1) “National Park;” 2) “Government Forest Area;” 3) “Privately Owned Land;” 4) “Other;” and 5) “Don’t Know or Won’t Say.” I developed each of these location-specific lists during preliminary field work, as well as during the pilot for this survey; they roughly correspond to the answers I received on either side of the border during the early phases of the project. The fact that the only substantial “Other” response that I received was “Purchase” indicates that these categorizations are accurate. Also, while concerns about the self-reported nature of this data are not unfounded, my experience has been that respondents on both sides of the border are quite forthcoming about where they collect wood, regardless of the legality of doing so in those locations. The fact that so many of my respondents on both sides of the border admit to collecting wood in the national parks suggests that self-reported compliance data is not as problematic, at least in this case, as one might expect.

Fear

Moving on to possible confounding variables, I assess whether respondents are fearful about the punishment associated with noncompliance by asking them the following question: “If someone went into the National Park and collected fallen wood, do you think that person would be punished by the authorities?” Interviewers then categorized responses into: 1) “Yes;” 2) “No;” and 3) “Don’t Know or Won’t Say.” I followed this question with another designed to assess respondents’ perceptions of the punishment associated with noncompliance: “How would you describe the punishment for collecting fallen wood from the National Park?” Interviewers offered respondents the following options: 1) “Harsh;” 2) “Reasonable;” 3) “Not Very Harsh;” and 4) “Don’t Know or Won’t Say.”

Duty

In order to assess whether respondents believed they had a duty to comply, I asked two separate questions. First: “In your opinion, do people have a duty to protect the forest?” Interviewers then placed respondents’ answers into the following categories: 1) “Yes;” 2) “No;” and 3) “Don’t Know or Won’t Say.” I also asked: “In your opinion, do people have a duty to obey the law?” Interviewers asked respondents to pick one of the following categories: 1) “Always;” 2) “Often;” 3) “Sometimes;” 4) “Never;” and 5) “Don’t Know or Won’t Say.” For purposes of data analysis, I separated responses one and two from responses three and four, with the former indicating a duty to obey the law.
Community Forest Access

In order to assess Community Forest access I asked respondents in Nepal: “Can you access a community forest?” Interviewers then placed responses into one of the following three categories: 1) “Yes;” 2) “No;” and 3) “Don’t Know or Won’t Say.” I did consider trying to measure this variable by calculating the distance to the nearest Community Forest from each village, but I eventually decided that this seemingly more objective measure is more problematic than the subjective measure I used due to variation in access to transportation. For those who must travel on foot, which is the majority of the population, Community Forest access is quite proscribed. However, for those who have a bicycle or a motorcycle, a more distant Community Forest is still accessible to them. Thus, asking respondents whether they have access gets closer than the distance calculation to measuring whether or not they can use Community Forest wood to cook or heat their homes.