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GROUP SIZE, HETEROGENEITY, AND PROSOCIAL BEHAVIOR: DESIGNING LEGAL STRUCTURES TO FACILITATE COOPERATION IN A DIVERSE SOCIETY

*D. Benjamin Barros**

The social benefits that large and diverse groups may provide to their communities are well recognized and fundamental to modern American law in many respects. However, recent empirical research indicates that the larger and more diverse a group is, the less likely it is that the group's members will cooperate to achieve those benefits. This Essay addresses the need for legal structures that mitigate the adverse effects of diversity and growth in size while encouraging prosocial behavior that brings about benefits to the community. Beyond just promoting diversity and its benefits, this Essay argues that the law needs to go further in some instances to ensure that the benefits of diversity are actually realized.

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INTRODUCTION

A recent empirical study by the political scientist Robert Putnam revealed that increased diversity within a community corresponds strongly with social isolation and alienation among that community's members.[1] These findings are consistent with other recent empirical research showing that increases in both diversity (heterogeneity in social science speak) and group size often have a negative impact on cooperation and other prosocial behavior.[2]

One easy conclusion to draw from these findings is that it is best to organize people into small, homogeneous groups. Another is that government policies that interfere with people's apparent preferences for these types of groups do more harm than good. For example, discussing Putnam's study in a column titled *Greater Diversity Equals More Misery*, one commentator took a shot at "central planners" who encourage diversity through "[m]ass immigration" instead of respecting people's "age-old peaceful preferences" to maintain homogeneous communities.[3]

The impact of group size and diversity on prosocial behavior, however, is too complicated to lend itself to simple solutions. Leaving aside the significant normative issues raised by diversity, organizing people into small, homogeneous groups has at least two practical problems. First, increases in group size and diversity can have beneficial effects that should not be discounted.[4] As a result, the overall impact of heterogeneity and group size on cooperative behavior can be extremely complicated.[5] It is far more difficult to generalize about the preferability of large, diverse groups over small, homogeneous ones than a superficial reading of the social science literature might suggest. Second, diversity is a well-established fact of contemporary life that is likely to increase

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[1] Robert D. Putnam, *E Pluribus Unum: Diversity and Community in the Twenty-first Century*, 30 SCANDINAVIAN POL. STUD. 137, 149 (2007). Although it does not clearly pinpoint diversity as the culprit, another recent study found a marked decrease in close friendships in American society. *See* Miller McPherson et al., *Social Isolation in America: Changes in Core Discussion Networks over Two Decades*, 71 AM. SOC. REV. 353, *passim* (2006). Between 1985 and 2004, the number of Americans who said that they have no one to talk to about important issues more than doubled, from 10 to 25 percent. *See id.* at 358 tbl.1, 359 tbl.2.

[2] *See infra* notes 35–46 and accompanying text.

[3] Ilana Mercer, Op-Ed., *Greater Diversity Equals More Misery*, ORANGE COUNTY REG., July 22, 2007, http://www.ocregister.com/opinion/putnam-diversity-social-1781099-racial-greater.

[4] Putnam, *supra* note 1, at 140–41 (summarizing studies about the positive impact of diversity); *see also infra* notes 23–28 and accompanying text (discussing the positive impacts of group size). One recent example, cited by Putnam, is SCOTT E. PAGE, THE DIFFERENCE: HOW THE POWER OF DIVERSITY CREATES BETTER GROUPS, FIRMS, SCHOOLS AND SOCIETIES (2007). *See* Putnam, *supra* note 1, at 140.

[5] *See* discussion *infra* Part I.A.

over time,[6] and many interactions in modern societies inevitably take place on a large scale. Rather than debate the abstract merits of homogeneity or pine away for an idealized recollection of small-town life, it seems more productive to examine how diversity and group size impact cooperation and learn how to mitigate negative effects while taking advantage of positive ones.

This Essay focuses on a subset of the larger enterprise of addressing group size and diversity in society. It discusses recent social science research that explains how and why group size and heterogeneity affect prosocial behavior. It then considers how to take the results of this research into account in the design of legal structures. These structures, created by both government and private actors, often shape human interaction. Consider a few examples. Property rules, whether publicly or privately imposed, can influence how and when neighbors interact with each other and how resources are managed within a community. Public corporate law and private corporate charters and by-laws define the context in which members of a corporate board work with each other to fulfill their duties. Lending groups organized by private microfinance banks create mutual dependencies between borrowers.

In many of these scenarios, legal structures can be designed to encourage cooperation, either by placing people into contexts where cooperation naturally thrives or by consciously addressing the factors that cause group size and diversity to undercut cooperation. The problem addressed here is not a new one. In *Politics*, Aristotle described with admiration the sharing of property among friends and observed, "[T]he special business of the legislator is to create in men this benevolent disposition."[7] As one study of the social psychology of helping behaviors observed, this "benevolent disposition" has more to do with social structure than anything else: "Rather than seeing prosocial behavior as something that is determined either by personality or by the situation, one may conceptualize everyday helping more accurately as originating in the social relationship."[8] The "special business" of designers of legal structures, whether legislators or private actors, therefore should be to place people in contexts that maximize the possibility of prosocial behavior or take affirmative steps to minimize the factors that tend to undercut it.

This Essay looks at the impact of group size and heterogeneity on prosocial behavior in two contexts. Part I focuses on cooperation in the

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[6] *See* Putnam, *supra* note 1, at 138. This trend towards increasing diversity is reflected in recent census data. *See* Sam Roberts, *Minorities Now Form Majority in One-Third of Most Populous Counties*, N.Y. TIMES, Aug. 9, 2007, at A14.

[7] Aristotle, POLITICS, Bk. II (Benjamin Jowett trans., 1943), *available at* http://classics.mit.edu/Aristotle/politics.2.two.html.

[8] Paul R. Amato, *Personality and Social Network Involvement as Predictors of Helping Behavior in Everyday Life*, 53 SOC. PSYCHOL. Q. 31, 41 (1990).

provision of public goods. The impact of increased group size and heterogeneity on cooperation tends to be consistently negative in this context.[9] The characteristics of some types of goods, however, are such that they are more likely to be provided in large or diverse groups.[10] The net impact of increases in group size and heterogeneity on the provision of public goods therefore depends on the type of good being provided.[11] The social science literature in this area also explains how increases in group size and heterogeneity impair cooperative behavior by, among other things, making informal enforcement of group norms more difficult.[12] Designers of legal structures can address this problem by formalizing norms and using dispute resolution mechanisms as a means of enforcement.

Part II examines how people interact on smaller scales to help others. For everyday helping behavior, the impact of group size and heterogeneity largely mirrors the results for the provision of public goods. People are more likely to engage in helping behavior within social networks where informal norms of reciprocity are easier to enforce.[13] Grameen Bank, a microlender that recently won the Nobel Peace Prize, takes this into account by organizing small, homogeneous groups of borrowers who are interdependent upon each other.[14] In another small-scale context, involving helping behavior in emergencies, the impact of group size is striking: a person in need of assistance in an emergency is actually less likely to receive help from a large group than from a small group.[15] The psychological explanation for why the presence of others inhibits action by an individual could apply to other scenarios where it is desirable for a person to take action in ambiguous circumstances. In the context of corporate boards, for example, the negative impact of group size on helping behavior suggests that directors will be more likely to take

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9 MANCUR OLSON, LOGIC OF COLLECTIVE ACTION 48 (1965) (explaining that larger groups are less likely to cooperate and further their own interests).

10 *See* Pamela E. Oliver & Gerald Marwell, *The Paradox of Group Size in Collective Action: A Theory of the Critical Mass. II*, 53 AM. SOC. REV. 1, 3 (1988).

11 *See id.*

12 *See, e.g.*, Oriana Bandiera et al., *Cooperation in Collective Action*, 13 ECONOMICS OF TRANSITION 473, 478 (2005) ("[S]ocial heterogeneity might undermine the ability to devise mechanisms that sustain cooperation. For instance, if social sanctions are effective within but not across different groups, heterogeneous communities are less likely to be able to use sanctions as an enforcement mechanism.").

13 Amato, *supra* note 8.

14 *See* Grameen Bank, *Credit Delivery System*, http://www.grameen-info.org (follow "Methodology" tab; then follow "Credit Delivery System" hyperlink) (explaining Gamgreen's system for lending and how it groups borrowers in homogeneous groups of five).

15 *See* John M. Darley & Bibb Latané, *Bystander Intervention in Emergencies: Diffusion of Responsibility*, 8 J. OF PERSONALITY & SOC. PSYCHOL. 377 (1968); *see also* Martin Gansberg, *Thirty-Eight Who Saw Murder Didn't Call the Police*, N.Y. TIMES, Mar. 27, 1964, at 1, *available at* http://www2.selu.edu/Academics/Faculty/scraig/gansberg.html.

action against corporate malfeasance when the size of the board is small and where supervisory responsibility is clearly assigned to individual board members.[16]

I. LARGE-SCALE INTERACTION: COOPERATION IN THE PROVISION OF PUBLIC GOODS

The impact of group size and heterogeneity on cooperative behavior in the large-scale provision of public goods is complex. Theoretical models of collective action reflect this complexity, with the predicted impact of increases in group size and heterogeneity on the provision of public goods depending in significant part on the nature of the good being provided. Another significant factor impacting the provision of public goods is the increase in transaction costs that can accompany increases in group size and heterogeneity.

Empirical research reveals outcomes consistent with the theoretical models. Studies of cooperation in the provision of public goods reveal ambiguous results on the impact of group size, reflecting in part the different ways group size can impact cooperation for different types of goods. The studies are less ambiguous on the impact of group heterogeneity, which typically inhibits cooperation by increasing the transactions costs associated with negotiating and policing the agreements or norms necessary to facilitate cooperation.

This section examines the theory and the empirical evidence in turn. It then discusses ways to design legal structures to either promote cooperation or mitigate the negative effects that increases in group size and heterogeneity have on cooperative behavior.

A. The Theory: Collective Action and the Provision of Public Goods

According to theoretical models of collective action, the impact of group size and heterogeneity on the provision of a public good depends on the specific nature of the good to be provided.[17] The most important characteristic in this context is a good's jointness of supply—that is, the degree to which the good costs the same to produce regardless of the number of people who consume it.[18] A radio broadcast has very high jointness of supply because the costs of production have very little, if any, relation to the number of people who listen to the broadcast. In contrast, manufactured products typically have low jointness of supply because the cost of production increases with the number of consumers.

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16 *See infra* note 96 and accompanying text.

17 Oliver & Marwell, *supra* note 10, at 2–4.

18 *Id.*

Economies of scale, however, may make the increase in cost less than directly proportional to the increase in consumers.

Mancur Olson famously conjectured in *Logic of Collective Action* that provision of public goods would be more likely in small groups than in large groups.[19] Research has shown, however, that this is true only where goods have low jointness of supply.[20] Goods with low jointness of supply, however, also tend to be highly excludable, meaning that it is possible to prevent others from consuming the good.[21] Collective action problems are reduced when a good is excludable.[22] An individual willing to provide the good can secure the benefits of the good, and if a group cooperates in pooling resources to provide the good, then the group can exclude people who do not cooperate (i.e., free riders) from consuming the good. Because exclusion can be done on a group level even if the good is held in common within the group, this model is relevant to goods that are most efficiently provided by a group, such as community infrastructure projects.

At the opposite extreme, goods that cost the same regardless of the number of consumers, and therefore have pure jointness of supply, are more likely to be provided in large groups because large groups are more likely to have a critical mass of people willing to provide the good.[23] An individual or group of individuals who value the good will be willing to provide it if the benefits of provision outweigh the costs.[24] Because there is no increased cost in providing the good to the entire community, there is no reason to exclude others.[25] In fact, where there is pure joint-

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19 OLSON, *supra* note 9, at 33–36.

20 Oliver & Marwell, *supra* note 10, at 3. Oliver and Marwell illustrate the impact of jointness of supply on the provision of public goods with the example of an academic department that shares computer terminals and encourages members to use portions of their research grant money to buy terminals for the department. *See id.* at 3–4. A necessary, if unrealistic, assumption for the example to work is that because of technological constraints, members of the department cannot be excluded from using any of the terminals, although outsiders can be excluded. *See id.* Assuming a need to provide computer access to fifty percent of the department at any given time, then five terminals are needed for a ten-person department, and fifty terminals are needed for a one hundred-person department. *Id.* If an individual purchases a computer for the department, then that person's benefit from the added terminal is one-tenth of a terminal in a ten-person department but is one one-hundredth of a terminal in a one hundred-person department. *Id.* If a new terminal costs $500, then in the ten-person department the individual would have to value access to a terminal at $5,000 for it to be worth spending the money for a one-tenth-of-a-terminal increase in access. *Id.* Even worse, the individual would have to value access at $50,000 for it to be worth spending the money in a one hundred-person department. *Id.* It therefore is more likely that the individual will be willing to purchase the terminal in a ten-person department than in a one hundred-person department. *See id.*

21 *See id.*

22 *See* ELINOR OSTROM ET AL., RULES, GAMES, AND COMMON-POOL RESOURCES, 6–8 (defining exclusion and discussing the difficulty of excluding common-pool resources).

23 *See* Oliver & Marwell, *supra* note 10, at 3–4.

24 *See id.*

25 *See id.*

ness of supply, there is often no way to exclude others.[26] An example is a non-commercial radio broadcast that will be of special interest to a specific group of listeners—perhaps members of a religious or cultural group. The good (the broadcast) will be provided if the interested individuals are willing to bear the cost, and the broadcast will be available to anyone who wants to listen. The larger the overall group, the more likely that a subset of the group will be willing to unilaterally supply the good. Similarly, the more heterogeneous the group (heterogeneity in this theoretical context being measured by diversity of preferences), the more likely an individual or small subset of the group will be willing to act unilaterally.[27] It is important, however, to clarify that in this circumstance, the prosocial behavior (i.e., providing the public good) is achieved by unilateral action, rather than by cooperation. If the cost of the good is so high that the costs exceed the benefits for any subset of the larger group, serious collective action problems arise and the good may not be provided.[28]

In between the extremes are goods with intermediate jointness of supply, where economies of scale reduce, but do not eliminate, the marginal cost of providing the good to additional consumers.[29] The impact of group size on the provision of this type of good is complex and depends on three factors. The first is the cost function of the good, which measures the degree to which the cost changes as the number of consumers increases.[30] If the cost function is such that the price per consumer reduces greatly with the number of consumers (i.e., if the good has high economies of scale), then the provision of the good will be more likely as the size of the group increases. The second is the distribution of the willingness to bear the cost within the group.[31] If the willingness to bear the cost is heterogeneous within the group, and this heterogeneity increases the likelihood that some members of the group will be willing to bear relatively large portions of the cost, then the likelihood of provision will increase.[32] The third is transaction costs.[33] As a group becomes larger, organizational and other transaction costs increase, making cooperation in the provision of the good less likely. Transaction costs can also increase with group heterogeneity. Diversity of preferences can make agreement difficult, increasing negotiation costs. Diversity of other sorts—for example, of ethnicity, religion, or social class—can also

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26 *See id.*
27 *See id.*
28 *See id.*
29 *See id.* at 4.
30 *See id.*
31 *See id.*
32 *See id.*
33 *See id.*

impede the formation of a social consensus, thereby increasing transaction costs.[34]

Therefore, the impact of group size and heterogeneity on the cooperative provision of goods with intermediate jointness of supply depends on the interrelationship of these factors. The outcome of this interrelationship, of course, will be situation-specific. For goods with high economies of scale, and therefore relatively high jointness of supply, increases in group size can increase the likelihood of cooperative provision of the good. Increases in heterogeneity can also increase the likelihood of provision if some segments of the group are willing to bear a large share of the cost of providing the good. These potentially beneficial impacts will be counteracted by any corresponding increase in transaction costs caused by increases in group size and heterogeneity.

B. Empirical Research on Cooperation in Collective Action

The results of recent empirical studies on cooperation in the provision of public goods have been consistent with the model of collective action discussed in the prior section. The impact of group size varied depending on the context of the study. Group heterogeneity, most often reflected in differences in ethnicity, social class, or religion, had a consistently negative impact on cooperation. There are several plausible explanations for the negative impact of group heterogeneity, each of which is consistent with the view that group heterogeneity can increase transaction costs and therefore inhibit cooperation.

Many empirical studies have examined cooperation in the context of public good provision in developing countries. In this context, the impact of group size was ambiguous, perhaps reflecting the economies of scale possible with the types of public goods at issue.[35] The impact of heterogeneity, however, was consistently negative. A study in rural Kenya found that ethnic diversity negatively impacted the provision of school funding and water well maintenance.[36] In a study of irrigation systems in Mexico, social heterogeneity, measured by the number of villages from which members of an irrigation system were drawn, "ha[d] a

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[34] *See e.g.*, Pranab Bardhan, *Irrigation and Cooperation: An Empirical Analysis of 48 Irrigation Communities in South India*, 48 ECON. DEV. & CULTURAL CHANGE 847 (2000); Asim Ijaz Khwaja, *Can Good Projects Succeed in Bad Communities? Collective Action in the Himalayas* (John F. Kennedy Sch. Of Gov't, Harvard University, Working Paper No. RWP01-043, 2001), *available at* http://papers.ssm.com/abstract=295571.

[35] Oriana Bandiera et al., *Cooperation in Collective Action*, 13 ECON. OF TRANSITION 473, 481–82 (2005); Bardhan, *supra* note 34, at 861; Jeff Dayton-Johnson, *Determinants of Collective Action on the Local Commons: A Model With Evidence from Mexico*, 62 J. DEV. ECON. 181, 182 (2000).

[36] Mary Kay Gugerty & Edward Miguel, *Ethnic Diversity, Social Sanctions, and Public Goods in Kenya*, 89 J. PUB. ECON. 2325 (2005).

consistently negative impact on group performance."[37] Other studies of cooperation in the context of community irrigation systems in Pakistan[38] and India[39] also showed the negative impact of heterogeneity on cooperation.

Bandiera, Barankay, and Rasul suggest four theoretical explanations for the negative impact of heterogeneity on cooperation in these contexts: (1) "socially homogeneous communities might be better at solving collective action problems because all members have similar tastes, whereas heterogeneous communities find it hard to agree on the characteristics of the common good," (2) "individuals might simply dislike working with others outside their group, thus making cooperation less likely in heterogeneous communities," (3) "the different groups in heterogeneous communities might disagree on how to share the private benefits associated with collective action, or value less the benefits accruing to members of the other groups," and (4) "social heterogeneity might undermine the ability to devise mechanisms that sustain cooperation."[40] Another contributing explanation could be the reduced participation in social activities that Putnam and others have found in localities that are economically, racially, or ethnically heterogeneous.[41]

As will be discussed further in the next section, it is critical to take the fourth explanation into account when designing legal structures, because legal structures can replace or strengthen the informal cooperative mechanisms that are undercut by increases in heterogeneity. Both theoretical and empirical research suggests that cooperation is increased through credible punishments for non-cooperators. Bandiera, Barankay, and Rasul observe that "successful communities usually exhibit well-defined rules, the ability to monitor . . . and to punish deviators, . . . a mechanism for conflict resolution and . . . a forum for discussions."[42] An instructive example of how heterogeneity can undercut these mechanisms of cooperation comes from the Kenya study, which showed that social sanctions play an important role in sustaining public goods provision by a group and that ethnic diversity undercuts those social sanctions.[43] For example, "[s]chool committees in ethnically diverse areas threaten fewer sanctions and use less verbal pressure against parents who

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37 Dayton-Johnson, *supra* note 35, at 182.

38 Khwaja, *supra* note 34.

39 Bardhan, *supra* note 34, at 847.

40 Bandiera et al., *supra* note 35, at 478–79; *see also* Juan-Camilo Cardenas, *Real Wealth and Experimental Cooperations: Experiments in the Field Lab*, 70 J. DEV. ECON. 263 (2003).

41 Putnam, *supra* note 1, at 149; *see also* Alberto Alesina & Eliana La Ferrara, *Participation in Heterogeneous Communities*, 115 Q.J. ECON. 847 (2000).

42 Bandiera et al., *supra* note 35, at 474–75.

43 Gugerty & Miguel, *supra* note 36, at 2327.

do not contribute at public fundraisings, pay school fees, or contribute in other ways to the school."[44]

Although the impact of group size generally is ambiguous in the context of providing community infrastructure, it does have a clear impact on cooperation in different experimental settings involving other types of public goods. As with the findings on increases in heterogeneity, the impact of group size on the ability to enforce informal norms plays an important role in the provision of public goods. Bandiera, Barankay, and Rasul performed a field study using data on daily productivity from farm workers picking fruit.[45] The motivation to cooperate came from a relative incentive scheme, where workers were paid based on their performance relative to the other workers—that is, workers who picked more fruit than the group average were paid at a higher rate.[46] In this structure, the optimal outcome for the group of workers as a whole was to cooperate and expend a minimum amount of effort.[47] Each individual worker, however, had an incentive to defect and pick more fruit than the average.[48]

In the experiment, workers were placed in groups with different characteristics on different days.[49] The relative incentive scheme was replaced halfway through the picking season with a flat piece rate in which there was no incentive to cooperate.[50] The results showed that the workers were more productive using the piece rate, indicating some degree of cooperation by the group under the relative incentive scheme.[51]

In this setting, increasing group size under the relative incentive scheme had a significant negative impact on cooperation, demonstrated by an increase in worker productivity.[52] The negative impact of increasing group size began to level off, however, as the groups reached a size of around 30 to 45 workers.[53] Group size had no impact on productivity when piece rate compensation was used.[54]

This study tested three dimensions of heterogeneity, all of which negatively impacted cooperation. First, cooperation decreased as the percentage of workers of the same nationality decreased, suggesting that it is easier to enforce cooperation among people of the same national-

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44 *Id.*
45 Bandiera et al., *supra* note 35, at 488–94.
46 *Id.* at 482–84.
47 *Id.*
48 *Id.*
49 *Id.* at 485–88.
50 *Id.* at 483.
51 *Id.* at 488–94.
52 *Id.*
53 *Id.*
54 *Id.*

ity.[55] Second, cooperation decreased as diversity of ability increased, reflecting the strongest workers' lack of incentive to cooperate.[56] Third, cooperation decreased as the diversity of stakes for being fired increased.[57] For this latter metric, the study took advantage of the fact that some workers, who were working as part of a university internship program, would lose more than other workers if they were fired for shirking.[58] The interns had less of an incentive to cooperate than other workers, and as the percentage of interns increased, productivity increased.[59] The last two results, on diversity of skills and stakes, show that the presence of people with low individual incentives to cooperate reduces overall cooperation.[60]

Regarding the impact of heterogeneity as measured by nationality, this study is consistent with others showing that cooperation in the provision of community infrastructure goods decreases with ethnic, class, and religious diversity. These findings collectively suggest that increased diversity of this type makes enforcement of cooperative norms more difficult. In terms of the impact of group size, the difference between the results for the infrastructure studies and the field study is likely attributable to the different characteristics of the goods at issue. Goods like an irrigation system feature some economies of scale, which can counteract the negative impact of group size on cooperation. The good at issue in the field study, in contrast, was simply cooperative behavior. This behavior has pure jointness of supply—the cost of producing cooperative behavior is the same regardless of how many people benefit. The benefit that accompanies this behavior, however, changes significantly depending on whether other members of the group also cooperate. In this circumstance, no subgroup would be willing (or able) to unilaterally provide the good. Absent economies of scale, increased group size affects cooperative behavior negatively.

C. *Cooperative Behavior and the Design of Legal Structures*

The theoretical models and empirical studies described in the prior sections suggest that increases in group size and heterogeneity reduce cooperative behavior, that these negative effects are sometimes overcome by the advantages of economies of scale possible in the provision of some types of goods, and that the reductions in cooperative behavior are caused at least in part by the inhibition of informal mechanisms used

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55 *Id.* at 489–91.
56 *Id.* at 491–93.
57 *Id.* at 493–94.
58 *Id.*
59 *Id.*
60 *Id.* at 491–94.

to enforce cooperative norms. These results in turn suggest two approaches that designers of legal structures can take to encourage cooperation. First, legal structures can be designed to place people into contexts in which they are likely to cooperate. Second, legal structures can be designed to account for the inhibitions on cooperation caused by increases in group size and diversity either by using dispute resolution mechanisms to strengthen informal norms or by replacing informal norms with formal ones. This section illustrates the potential of these approaches through two examples from property law: (1) the organization of residential communities, and (2) the ownership of natural resources.

1. Structuring Residential Communities

Public and private legal structures shape the organization of residential communities. For example, subdivision and zoning regulations place public law constraints on the size of developments. Common interest communities provide private governance structures—homeowners', cooperative, or condominium associations—that control many aspects of the organization of residential communities. Resident councils can play a significant role in public housing.

The authors of the field worker study mentioned above noted that "the finding that smaller groups cooperate more would justify . . . the organization of larger communities into smaller subgroups that interact with each other through representatives."[61] One method of doing so would be to design residential communities to facilitate interaction between people on a smaller scale. Subdivision and zoning regulations could be used to limit the size of residential communities, though such regulations would be relatively blunt instruments to use in this context. Perhaps more promisingly, private law common interest communities could be structured to allow people to interact in smaller groups.

It is important to recall, however, that smaller is not always better in this context. Some goods are better produced in large groups. Take, for example, the design of a suburban residential community that will have around 400 homes. Some public goods with economies of scale, like a communal pool, would best be provided by the entire community. On the other hand, fostering more generic community cooperation may work better on smaller scales. The best approach, therefore, may be to have an overall organization that handles the provision of certain goods for the entire community, while dividing the community into smaller groups for other purposes. This structure could be conceived as a confederation of smaller groups that on most matters decide issues for themselves, but

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[61] *Id.* at 495.

agree to cooperate on larger scales when circumstances make it beneficial to do so. Privately created residential structures of this type are already starting to emerge. As Robert H. Nelson recently observed, "The private community of Reston, Virginia has almost 60,000 residents who live in more than 130 neighborhood 'clusters,' ranging in size from 11 to 231 housing units, and each with its own neighborhood governing association. At a higher level, one overarching Restonwide association privately oversees all this."[62]

The design of common interest community organizations, resident councils, and other private law structures can also play a role in mitigating the negative impacts of group size and heterogeneity by strengthening or replacing the informal mechanisms that facilitate cooperative behavior in small, homogenous groups. In diverse settings, these informal shaming mechanisms could be replaced by formal dispute resolution mechanisms that address problems of non-cooperation. The goal here is not to avoid conflict, but to encourage members of the group to raise disputes over cooperation and to facilitate the effective resolution of those disputes.

The Kenya study discussed in the prior section examined the negative impact that heterogeneity has on cooperation and found that school committees in diverse districts were less likely to use informal sanctions such as verbal pressure than those in homogeneous districts.[63] The problem identified by the Kenya study was not that informal sanctions were less effective in diverse groups, but rather that the informal sanctions were used less often. The hesitancy to use this type of informal shaming mechanism in diverse groups could have various sources, such as fear of offending a member of another group or fear of criticizing members of one's own group in front of members of another group. Formalized dispute resolution mechanisms could enable group leaders to confront non-cooperators while making confrontation as respectful and effective as possible.

The Kenya study also highlights the risks of relying on informal cooperative norms for the provision of goods like school funding in large and diverse groups. For the provision of some goods in some groups, using formal dispute resolution mechanisms to enforce cooperation may work. For other goods in other groups, informal norms may need to be replaced by formalized rules. Taking examples from the Kenya study,

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62 Robert H. Nelson, Community Associations in Tiebout and Non-Tiebout Worlds: Double Taxation and Other Complications 12 (Sept. 2, 2007) (paper presented at the annual meeting of the American Political Science Association, Aug. 30–Sept. 2, 2007), *available at* http://www.allacademic.com//meta/p_mla_apa_research_citation/2/1/0/1/3/pages210135/p210135-1.php.

63 *See* Gugerty & Miguel, *supra* note 36.

voluntary school funding could be replaced by a sliding tuition schedule that takes ability to pay into account, and formal limits could be set for the use of a shared resource like an irrigation system.[64] In the context of organizing residential communities, express rules could be established for the use of common areas in a residential community, and fees could be set for the maintenance of common facilities. Whether a formal or informal approach is preferable will depend on the particular context, but it is a safe presumption that as group size and heterogeneity increase, so does the utility of formality.

2. Management of Natural Resources

Management of natural resources provides another illustration of both the uses and the limits of relying on informal cooperative norms. In this context, the public good being provided is restraint from overconsumption. In terms of structures of ownership, the question is typically presented as whether a common property system will inevitably lead to a tragedy of the commons. The debate is most relevant to common-pool resources, which are amenable to exclusion of non-group members even if they are held in common by the group.[65] In a common-pool scenario, the potential for a tragedy of the commons is limited to overconsumption by members of the group. Examples include pastureland held in common by members of a village and the common irrigation systems mentioned in previous sections. Outsiders are excluded, and overconsumption can be avoided if the members of the village are able to cooperate.

In a tragedy of the commons scenario, the optimal outcome is for all people to cooperate and consume the common resource at a sustainable rate.[66] The lack of mechanisms to enforce cooperation, however, makes overconsumption an option for each member of the group, because an individual member gains nothing from refraining while others consume as much as they can.[67] In economic terms, the tragedy of the commons results from both positive and negative externalities—the benefits of cooperation are external to the actor, as are the harms of overconsumption.[68] One solution to the tragedy of the commons is to divide common property into private property, because private property internalizes both the positive and negative externalities associated with the commons—if property owners consume at a sustainable rate, forbearance inures to

64 *See id.*

65 *See supra* note 20 and accompanying text.

66 *See* OSTROM ET AL., *supra* note 22, at 4–6.

67 *Id.*

68 *Id.*

their benefit, and if they overconsume, they each suffer the consequences.

Private property solutions, however, are not the only way to avoid the tragedy of the commons for common-pool resources. A large body of literature has developed that explains how common management can work in some circumstances, and the theory is backed up by empirical research that shows how common management can work in practice.[69] Consistent with the research on group size and prosocial behavior discussed above, the literature suggests that common-pool resources will work for relatively small-scale resources controlled by small groups of people, but might not work for larger-scale problems.[70] The circumstances of cooperation "can be predicted from transaction cost analysis. Critically important are opportunities for mutual monitoring and social leverage; small group size helps to produce these opportunities, as do preexisting familial and social relations."[71]

Even though relying on cooperative behavior can be problematic in large or diverse groups, it may be helpful in addressing certain large-scale problems. As Carol Rose observes, "global commons problems have many components that are much more localized. Global warming from carbon dioxide may be a planet-wide environmental issue, yet forests that sequester carbon can be highly localized."[72] A recent empirical study of a community forestry system developed in Nepal provides an example. In 1993, the government of Nepal began transferring forestland from national government ownership to local community ownership.[73] The result was a significant reduction in resource consumption—that is, communal ownership led to less deforestation than when the forests were owned by the public.[74]

Success in collectively managing common-pool resources is most likely to be achieved by small or homogeneous groups, because they are more likely to be able to enforce collective norms on resource consumption. As discussed above in the context of residential communities, the negative impacts of group size and heterogeneity may be mitigated to a certain extent through organizational structure and dispute resolution mechanisms. In many resource scenarios, however, it may be that other ownership structures need to be used. Common ownership structures

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69 *See generally id.*

70 Carol M. Rose, *Expanding the Choices for the Global Commons: Comparing Newfangled Tradable Allowance Schemes to Old-Fashioned Common Property Regimes*, 10 DUKE ENVTL. L. & POL'Y F. 45, 49–50 (1999).

71 *Id.* at 49.

72 *Id.* at 50.

73 Eric V. Edmonds, *Government-Initiated Community Resource Management and Local Resource Extraction from Nepal's Forests*, 68 J. DEV. ECON. 89, 90 (2002).

74 *Id.* at 112–14.

that work for some resources in small, homogeneous communities—such as common ownership of pastureland in a small village or common management of forests in Nepal—are likely to fail if the characteristics of the good or group make reliance on informal cooperation impractical or undesirable.

II. SMALL-SCALE INTERACTION: HELPING BEHAVIOR AND RESPONSES TO EMERGENCIES

Another type of prosocial behavior, often relevant on a smaller scale than cooperation in the provision of public goods, is helping. This section discusses helping behavior in two contexts. First, it discusses how ordinary helping behavior resembles the cooperative behavior discussed in Part I and illustrates how legal structures can be designed to take advantage of this behavior through the example of the borrowing groups created by Grameen Bank. Second, it examines how and why an increase in group size can inhibit helping behavior in an emergency and applies the results to the design of corporate boards.

A. Group Membership, Helping, and Cooperation

Helping behavior on a small scale mirrors the large-scale cooperative behavior discussed in Part I. People are more likely to direct helping behavior of various sorts towards people who are members of their social group rather than helping strangers to the group.[75] Put another way, most acts of help are made for the benefit of someone known to the helper.[76] By definition, these groups are relatively small and tend to be homogeneous because people, left to their own devices, tend to interact with people like themselves.[77] The mechanisms of cooperation are also similar to the large-scale context. Helping behavior correlates to the amount of help received from other members of the group, illustrating "the operation of network reciprocity."[78] Interactions characterized by anonymity "increase[ ] the incidence of free riding," while communication between group members promotes cooperation.[79]

In the microlending context, where small, unsecured loans are made to very poor people to give them the capital to start income-producing businesses, the Nobel Peace Prize-winning Grameen Bank takes advantage of the impact of group size and heterogeneity in designing its credit

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75 Louis A. Penner et al., *Prosocial Behavior: Multilevel Perspectives*, 56 ANN. REV. PSYCHOL. 365, 369 (2005).

76 Amato, *supra* note 8, at 33–34.

77 Miller McPherson et al., *Birds of a Feather: Homophily in Social Networks*, 27 ANN. REV. SOC. 415 (2001).

78 *Id.* at 40.

79 Penner, *supra* note 75, at 381.

structure. As the Bank explains on its website, "Borrowers are organized into small, homogeneous groups. Such characteristics facilitate group solidarity as well as participatory interaction. Organizing the primary groups of five members and federating them into centres has been the foundation of Grameen Bank's system."[80]

The microcredit context is a good example of how legal structures designed to encourage prosocial behavior can be created privately. The bank's lending groups are initially created by the borrowers themselves, and the requirement of homogeneity is imposed by a private entity. The importance of mutual trust and support is particularly important in this context, and it is understandable why the groups are homogeneous. This scenario, however, highlights the potential for policies encouraging prosocial behavior to conflict with policies that encourage social diversity. Imagine the reaction, legal and otherwise, if a bank in the United States required borrowers to form ethnically homogeneous groups as a condition of receiving a loan.

B. Responding to Emergencies

Contemporary research on helping behavior in emergencies has its genesis in the public outcry that arose in the aftermath of the murder of Kitty Genovese in 1964.[81] A few weeks after Genovese was killed near her home in Kew Gardens, Queens, the *New York Times* reported that thirty-eight people heard the attack but failed to call the police.[82] The public reaction to the perceived apathy of the witnesses spurred social psychologists to conduct experiments on helping behavior in emergencies.

In a classic paper inspired by the Genovese murder, John M. Darley and Bibb Latané reported on the results of an experiment in which people expecting to take part in a discussion group by intercom were confronted with the sounds of a person appearing to have a seizure.[83] The study reported that an increase in the size of the group witnessing an emergency inhibited helping behavior, measured in this case by the time taken to report the victim's epileptic fit.[84] The study showed that the negative impact on helping behavior was so strong that the increase in group size reduced not only the likelihood that a given individual would act, but also reduced the likelihood that *any* member of the group would act. As a result, a "victim [wa]s considerably more likely to have gotten help

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80 Grameen Bank, *supra* note 14.

81 *See* Gansberg, *supra* note 15, at 1.

82 *Id.*

83 Darley & Latané, *supra* note 15.

84 *Id.* at 379–80.

from one or two observers than from five during the first minute of the fit."[85]

As David Hyman observed, the negative impact of group size is most likely to be a problem in ambiguous circumstances.[86] Subsequent research reinforcing the Darley and Latané findings on the inhibiting effect of increases in group size on helping behavior highlights the role of ambiguity in this context. In a meta-study reviewing subsequent work on the issue, Latané and Steve Nida listed three psychological processes that together account for this effect.[87] First, "audience inhibition" is caused by a fear of embarrassment resulting from acting incorrectly.[88] When more people are present, the risk of embarrassment is greater, making the inhibition stronger.[89] Second, "social influence" occurs when a person looks to other people in the group for cues on how to address an ambiguous situation.[90] In the emergency context, each member of the group may see the others' inactivity and "interpret the situation as less critical than it actually is or decide that inaction is the expected pattern of behavior."[91] Third, "diffusion of responsibility" is caused by the reduction of the psychological cost of non-intervention that results when others are present.[92] "The knowledge that others are present and available to respond, even if the individual cannot see or be seen by them, allows the shifting of some of the responsibility for helping to them."[93]

The group dynamics that inhibit response to emergencies resemble the group dynamics of a corporate board of directors and other oversight groups facing possible wrongdoing. In this context, all three of the factors that inhibit responses to emergencies are present. Audience inhibition is particularly strong in the corporate board context because an incorrect accusation of wrongdoing could be not only embarrassing, but also permanently damaging to the director's reputation and career. Social influence is also relevant in this context because each director would tend to take the inaction of others as a signal that there is nothing to be concerned about. Similarly, diffusion of responsibility is relevant because the consequences of inaction are spread over the whole board. To address this problem, it would make sense to both limit overall board size and clearly assign responsibility for uncovering wrongdoing to an

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85 *Id.* at 380.

86 David A. Hyman, *Rescue Without Law: An Empirical Perspective on the Duty to Rescue*, 84 TEX. L. REV. 653, 699–700 (2006).

87 *See* Bibb Latané & Steve Nida, *Ten Years of Research on Group Size and Helping*, 89 PSYCHOL. BULL. 308 (1981).

88 *Id.* at 309.

89 *Id.*

90 *Id.*

91 *Id.*

92 *Id.*

93 *Id.*

audit committee, or another small subset of the board.[94] Although the assignment of responsibility to a small group might absolve the other members of the board, the research on emergency helping shows that the overall likelihood of action increases when responsibility is placed on the fewest number of people.

CONCLUSION

In an increasingly diverse and complex society, the negative impacts of group size and heterogeneity on prosocial behavior will have a tremendous impact on legal and policy issues. This essay sketches ways in which legal structures can be used to mitigate those negative effects, as well as preserve and promote the positive benefits of diversity. The easy solution of organizing people into small, homogeneous groups may work in some contexts, as shown by forestry management in Nepal and Grameen Bank's borrowing groups. This easy solution, however, is often unwarranted, impossible, or normatively undesirable. Designers of legal structures should therefore take steps to mitigate the ways in which group size and heterogeneity interfere with cooperative behavior. In large-scale contexts, mitigation can be achieved by using dispute resolution mechanisms to enforce informal norms, or by replacing those informal norms with formal ones. Similar mitigation efforts can be made in small-scale contexts that are analogous to emergency helping by placing the responsibility for acting on a small and clearly defined group. In any of these scenarios, designers of legal structures can take positive steps to facilitate cooperation in a diverse society.

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[94] Limiting board size would be consistent with empirical research that has shown that board size is inversely proportional to overall corporate performance. *See, e.g.*, Pablo de Andres et al., *Corporate Boards in OECD Countries: Size, Composition, Functioning, and Effectiveness*, 13 CORP. GOVERNANCE 197 (2005); Panagiotis K. Staikouras et al., *The Effect of Board Size and Composition on European Bank Performance*, 23 EUR. J.L. & ECON. 1 (2007).