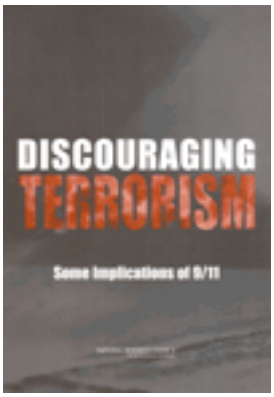

Discouraging Terrorism: Some Implications of 9/11

Neil J. Smelser and Faith Mitchell, Editors, Panel on Understanding Terrorists in Order to Deter Terrorism, National Research Council

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DISCOURAGING TERRORISM

Some Implications of 9/11

Panel on Understanding Terrorists in Order to Deter Terrorism

Neil J. Smelser and Faith Mitchell, *Editors*

Center for Social and Economic Studies

Division of Behavioral and Social Sciences and Education

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PANEL ON UNDERSTANDING TERRORISTS IN ORDER TO DETER TERRORISM
2002

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*The appendix is not printed in this volume but is available online. Go to http://www.nap.edu and search for *Discouraging Terrorism: Some Implications of 9/11.*

Preface

The national scientific community is as aware of and concerned with the contemporary terrorist threat to the nation as all other segments of American society. Consistent with this posture, the presidents of the National Academies—the National Academy of Sciences, the Institute of Medicine, and the National Academy of Engineering—wrote a letter on September 20, 2001, to President George W. Bush pledging the scientific resources of the nation, as represented in the National Academies, to help contend with the new national crisis.

Also consistent with the relevance of scientific knowledge for understanding and contending with terrorism, in October 2001 the Defense Advanced Research Projects Agency (DARPA) of the U.S. Department of Defense approached the Division of Behavioral and Social Sciences and Education of the National Research Council (NRC) to conduct a study of "what terrorists value." That phrase conveyed a request to identify the ingredients of terrorists' mentality and situation that are positively meaningful to them and that might be deterred by threat or inducement. The NRC formed the panel, and the material in these pages constitutes our report. The panel's activities ran parallel to but had different emphases from the National Academies' own Committee on Science and Technology for Countering Terrorism, which concentrated on the role of science and technology in defending the nation against terrorist attacks. That committee's report is entitled *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism* (National Research Council, 2002).

From the beginning, the panel realized how difficult the DARPA charge was, given the complex and only partially understood situation of international terrorism and terrorists. Accordingly, we determined to take a multilevel approach to the charge

and address it from all angles that seemed potentially fruitful. Beginning with the most immediate and direct approach—deterrence—we evaluate that strategy and suggest both limitations and appropriate adaptations of it in dealing with terrorism. We call special attention to the role of third parties in the deterrence of terrorists. The panel also identifies the kinds of audiences that are important to terrorists as well as their special network mode of organization, focusing on both the assets and vulnerabilities of each. We also specify certain long-term international, demographic, economic, political, and cultural conditions that are conducive to terrorist activity and its support. Effective modification of these conditions might diminish the impulses favoring terrorism.

The panel includes scholars of anthropology, demography, economics, history, political science, psychology, and sociology. Their special areas of expertise include the study of terrorism itself, the contemporary Middle East, Islamic history and religion, revolutionary social movements, deterrence and game theory, the cognitive structure of beliefs, and the politics of diplomacy and peacekeeping. The panel had a preliminary discussion on January 14 and held formal meetings on February 25 and April 5, 2002. Between meetings we coordinated the drafting and review of materials. The face-to-face meetings were especially valuable in synthesizing knowledge about terrorism in general and keeping focused on the special charge given to us. We read widely in diverse strands of literature but did not consult any classified material.

The panel was responsible for completing this report in a record four-month period. We would like to thank the National Research Council staff who supported our work and facilitated the achievement of this ambitious goal: Faith Mitchell, study director, Janet Garton, research assistant, and Benjamin Woolsey, project assistant. Erik Smith worked as a consultant with Eugene Hammel on groundbreaking demographic analysis. The panel is grateful as well to DARPA for its financial support.

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the Report Review Committee of the NRC. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for

objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

We thank the following individuals for their participation in the review of this report: Coleen Conway-Welch, School of Nursing, Vanderbilt University; Martin E. Marty, Fairfax M. Cone Distinguished Service Professor, University of Chicago; Clark McCauley, Psychology Department, Bryn Mawr College; Daniel S. Nagin, H. J. Heinz School of Public Policy, Carnegie Mellon University; Melford E. Spiro, Department of Anthropology, University of California, San Diego; and Edward Wenk, Professor Emeritus of Engineering, Public Affairs, and Social Management of Technology, University of Washington.

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations nor did they see the final draft of the report before its release. The review of this report was overseen by Robert Frosch, Belfer Center for Science and International Affairs, Harvard University, and Charles Tilly, Departments of Sociology and Political Science, Columbia University. Appointed by the National Research Council, they were responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring panel and the institution. Finally, the panel also thanks Michael Teitelbaum, Sloan Foundation, who reviewed the paper by Hammel and Smith that appears as the Appendix (on line only).

Neil J. Smelser, *Chair*
Panel on Understanding Terrorists in
Order to Deter Terrorism

Executive Summary

This report addresses the question of what terrorists hold in value, a question asked in order to assess some means and strategies for deterring, deflecting, or preventing terrorist activities. We approach the question at several levels, moving from the use of short-term deterrent strategies to the modification of the broader contexts and conditions conducive to terrorist activities in the long run. We focus on contemporary Islamic terrorism but deal with generic dimensions in many instances.

The report does not address domestic, or homeland, aspects of terrorism, which are covered in detail in two National Academies reports, *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism* (National Research Council, 2002) and *Terrorism: Perspectives from the Behavioral and Social Sciences* (National Research Council, in press). Nor does it recommend policy strategies based on the application of its conclusions.

Deterrence as a known strategy is demonstrated to have a positive role in contending with terrorists, though terrorism poses special problems that limit its effectiveness and call for modifications. Among those problems are (a) difficulties in getting unambiguous and credible threats across to terrorists, (b) the unwillingness of terrorists to communicate except indirectly and on their own terms, (c) exceptionally high levels of mutual distrust, (d) uncertainty about how to affect what terrorists value, and (e) uncertainty about the targets to which threats should be directed.

In light of these problems, the best policy may be one of deterrent threats combined with policies of working with and through third parties who may have the capacity to influence

terrorists. Among such parties are state regimes that harbor terrorists, moderate political and social groups in such states, neighboring regimes, and U.S. allies.

Terrorists carry out their activities before a number of different audiences— potential recruits, their own memberships, states and politically interested groupings ("sentiment pools") in societies in which they operate, the media and its imagined readership, audiences in enemy societies, and the audience of "world public opinion." These audiences are both sources of potential support and foci of vulnerability for terrorism.

Terrorist organizations are typically far-flung networks that rely on secrecy, invisibility, flexibility, extreme commitment on the part of members, and coordination of military-like activities as their trademarks. These features are sources of both strength and vulnerability.

Moving to broader contexts and conditions, we identify three factors that help explain the rise of terrorism as a form of activity: the great asymmetry of economic, political, and military power in the world; the availability of weapons of mass destruction; and the permeability of world society occasioned by processes of globalization.

With respect to political context, terrorism and its supporting audiences appear to be fostered by policies of extreme political repression and discouraged by policies of incorporating both dissident and moderate groups responsibly into civil society and the political process.

With respect to economic and social conditions, many societies that foster terrorism are characterized by high population growth and large numbers of disadvantaged youth and by extreme economic inequality and poverty. When these conditions combine with strong—sometimes religiously reinforced—anti-Western ideologies, a fertile field for supporting terrorism is generated.

RECOMMENDATIONS

The panel ventures the several specific recommendations about deterrence and prevention that follow from our analysis:

- Deterrence, understood conventionally as the direct use

of threats, punishments, and inducements to prevent enemy action, has a viable place in dealing with terrorists (supporting text, pp. 8-14).

- Many of the assumptions of conventional deterrence, however—availability of channels of communication, credibility among communicating parties, knowing what adversaries value—are not likely to be present in contemporary terrorist situations. As a result, reliance on direct deterrence can be only somewhat effective. In addition, direct threats and perceived overretaliation may have counterproductive effects with respect to generating support for terrorist groups and activities by previously uncommitted audiences (supporting text, pp. 10-14).
- Direct efforts to deter should therefore be accompanied by working through all available third parties—societies hosting terrorist organizations, countries trusted by host societies, or the United States's own allies—who may have more credibility with and influence on terrorist organizations than this country, as enemy, does (supporting text, pp. 14-16).
- Whenever possible, policies should be directed toward distancing and alienating relevant audiences from terrorist organizations and activities. The incorporation of potentially extremist political groups into the civil society of actual and potential host societies is especially important (supporting text, pp. 16-22).
- Intelligence, infiltration, and related activities should be directed at points of vulnerability of terrorist organizations—their reliance on audience, their ideological inflexibility, their problems of maintaining commitments, and their potential for organizational failure (supporting text, pp. 22-25).
- The social conditions fostering the use of terrorism are complex and include demographic, economic, political, and educational factors. In the long run, preventive strategies should include improving these conditions in countries vulnerable to terrorist organizations and activities, as a means of diminishing the probabilities of their emergence and crystallization (supporting text, pp. 25-31).

The one sure conclusion emerging from this report about strategies for countering terrorism is that there are no silver bullets or quick fixes available. It is possible to specify more effective and less effective deterrent and preventive policies at various levels and under different conditions. However, the

general policy approach has to be adaptive, opportunistic, and multisided. The conventional problem-solving logic so attractive in American culture—find a problem and then fix it—is of limited utility, and a longer term, more contextualized approach is necessary.

Discouraging Terrorism: Some Implications of 9/11

The panel was given both an abbreviated charge and an elaborated one. The first was to bring behavioral and social science knowledge to bear on the question, "What do terrorists value?" with an eye to influencing their behavior by affecting what they value.

In considering, studying, and reflecting on this brief charge, the committee ultimately concluded that to provide simple, direct, and unambiguous answers to the question is not possible. In addressing the abbreviated version of the charge, the panel faced the following formidable obstacles:

- Terrorists committed to secrecy have little interest in communicating what they value from motivational and strategic points of view.
- Some inferences about what terrorists value can be drawn from what targets they attack, why they say they are attacking them, and statements about their own beliefs, but such inferences are necessarily indirect and often speculative.
- It is reasonable to assume that what terrorists value is not at all static but changes according to (a) their changing sense of the opportunities that are open or possible for them, (b) the changing outlooks of their leaders, (c) the outlooks of those whom they hope will support them, and (d) the postures and the expected and actual responses of those they attack.

In considering these obstacles, the panel decided that it would not be responsible to spin out a list of what terrorists value and a corresponding list of threats to destroy or take away what they value.

Accordingly, the panel devised a strategy that we regard as taking seriously the abbreviated charge but also taking into

account the complexities of contemporary terrorism. In this effort we were guided in part by the expanded charge, which contained both a general and a specific request. The first request was to "examine the social, cultural, organizational, and psychological context of the terrorism now directed at the U.S., and the implications for new approaches to deter terrorism." The second was to pay attention to "what terrorists value, as a means of developing effective strategies for deterring terrorist acts." The first assignment calls for a social science analysis of conditions and contexts—and how they might be affected in the interests of dealing with terrorism. The second implies a more immediate, strategic line of thinking.

These two assignments blend into one another. On one hand, what terrorists value is found in large part in the context of their cultural beliefs, in the ways they organize themselves, and in their motivational and group psychology. On the other, according to the logic of deterrence, the appropriate strategies are to threaten to take away, impair, or destroy what they value—or, alternatively, to offer inducements that are meaningful in terms of what they value—so that they will be prevented from launching attacks on the United States. A more enduring result is to affect the lives and situations of terrorists so that they will not *want* to attack the country.

This very blending made our task formidable, because contemporary terrorism and what terrorists value are bred by multiple causes and, correspondingly, no single preventive solution can be realistically envisioned. Furthermore, the historically novel combination of elements in current terrorist activities—their clandestine networks of organization, their capacity to use new technologies, and the particular ideologies they live by—call for a reexamination of warlike conflict and ways of dealing with it.

We have approached our assignment at several different levels of analysis in order to unscramble these complexities and to identify more precisely the points at which sanctions and policies might be relevant. The report discusses both discouraging terrorism, which in the long term depends on support and recruits from the sympathy pool, and discouraging current terrorists. We begin with the immediate and situational aspects of terrorism as it now threatens the nation, posing the question of short-term deterrence. Deterrence theory as it has evolved is a useful way of thinking, but it must be tailored to the current

circumstances. Next we look at the audiences of terrorists, which operate—but only crudely and approximately—as a kind of public opinion in their environment and which they care about and value. Then we consider the nature and vulnerabilities of the specific organizational forms of contemporary terrorism, and in what sense these might be targets for making terrorist activities fail. Then, moving toward even more remote and general causes, we consider the political, demographic, and economic contexts of terrorism. At this stage we consider conditions and determinants of contemporary terrorism—what facilitates and discourages its development as a form of conflict—and move into the arena of long-term policy issues. We do not recommend specific economic, political, and foreign policies, or reactions to the attacks of September 11—that lies beyond the compass of our charge—but we give our best account of the considerations that might serve as background for such policies.

The scope of the report precluded the panel's exploration of several important, related topics. These include the evolution of individuals and groups into terrorism, the opportunities for deterrence presented by specific cultural and religious values, the variety of paths to conflict and warfare, and the particular circumstances of the September 11 attacks.

A lengthy review of the literature is also beyond the scope of this report. Several useful sources are referenced in the text that follows. Additional scholarly and informative analyses include Wieviorka (1993); Pillar (2001); Hoffman (1998); Schmid et al., (1988); Lewis (2002); and Stout (in press).

Finally, in responding to our assignments, we focus largely on Islamic terrorists and the problem of deterring them. We also focus on terrorism directed toward American targets in this country and abroad. There are practical and political reasons for this narrowing of the topic, because Islamic terrorism is, at the moment, the most salient threat to the nation—the elephant in the living room, as it were. In addition, the resources available to the panel and the short time-line for our work prevented us from covering the entire range of what is called terrorism. At the same time, we recognize the analytic limitations of this narrowing.

For example, we exclude from consideration many varieties of terrorism—separatist and independence movements, suicide bombers in Israel, domestic terrorism by antiabortion and anti-pollution activists and others. Were we to extend the analysis

historically to include everything we understand to be terrorism, we would work from a generic definition, such as the illegal use or threatened use of force or violence with the intent to coerce, treating Islamic terrorism as a special case, and focusing on its anti-Western and religious dimensions. If we were to consider terrorism in general, we would also have to extend and qualify many statements in this report. Despite the narrowed focus, however, some of our observations do apply in varying degree to terrorism in general.

We also exclude discussion of the domestic reactions to terrorism. For this, the reader is referred to the reports, *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism* (National Research Council, 2002) and *Terrorism: Perspectives from the Behavioral and Social Sciences* (National Research Council, in press), which present a consideration of some of the general aspects of terrorism, including implications for homeland security.

TERRORISTS' MOTIVES, VALUES, AND ORGANIZATION

Deterrence and Terrorism

Deterrence as an ingredient of conflict is age-old. Theoretical understanding as well as refined applications of it are more recent, a product of the cold war period of conflict between the United States and its allies and the Soviet bloc and international communism in general (Schelling, 1966; Pape, 1996). The idea of deterrence has also been developed in the study of such topics as crime prevention, drug dealing, and the behavior of employees (Nagin, 1998, Kleiman, 1992, Schelling, 1984). As a result of its apparently successful exercise in the era of superpower confrontation, deterrence comes readily to mind as an effective defense against terrorism—to deter terrorists by coercive threats and inducements. However, contemporary terrorism looks very different from many other warlike situations and, as a result, creates limitations on deterrence as we have come to understand it and calls for adaptations in our thinking.

Deterrence comes from the Latin root that means "to frighten." Its simple definition is to prevent or discourage a party from acting by creating fear or doubt. Deterring is a form of coercing others not to act, but coercion may also involve compelling them actively to comply or act in a way they would not otherwise have done—the term "compellence" has been coined to describe this. Iraq illustrates the difference between deterrence and compellence. The United States hopes to deter the regime of Saddam Hussein from acquiring or using weapons of mass destruction (or from attacking Kuwait or Israel or other neighbors), but it may also need to compel the regime to disclose, to let inspectors in, to disarm, or to resign.

Deterrence is essentially passive, focused on preserving the status quo. It requires no action as long as the adversary does nothing; it requires action by the deterrer only when the status quo is violated. Compellence usually requires a deadline or some coercive action until the adversary complies. Giving in to deterrence can also have a face-saving aspect; neither the Soviet Union nor the North Atlantic Treaty Organization (NATO) ever had to say that they had hostile intentions that they were afraid to carry out, even though this appeared to be the case. Complying with compelling demands is more public because it calls for more active, conspicuous behavior on the part of the adversary being compelled. Being deterred has no aftermath; it simply means that an adversary does not act over an indefinite period. Compelling demands can be said to have been met if the adversary complies. Furthermore, unlike deterrence, giving in to compellence is in principle identifiable—though often difficult to ensure, even with surveillance—and it often sets off a new set of demands, that is, some kind of compensation for complying.

Interestingly, terrorism and deterrence shade into one another, because both rely on creating fear in an adversary. Terrorism, particularly when it has political goals on its agenda, involves committing acts of violence (that presumably induce terror) to gain its ends, however tenuous and remote the hope that the attacked nation will comply with its demands. In that sense, political terrorism is a diffuse form of compelling behavior. Deterrence usually involves threats to use violence as an ultimate action, but that violence is reserved for retaliation when an adversary steps over a line that has been defined as a limit.

In the literature on deterrence a distinction is made between deterrence proper, that is, capitalizing on fear generated by

threat, and "deterrence by denial," or opposing attacks so effectively that the adversary cannot achieve its objective. The principle of denial lies behind the efforts to control the borders of the society and to harden or make inaccessible anticipated targets of terrorist attack. In this report we push the logic of prevention even further and consider, as a part of long-term prevention, the broad conditions of terrorism. Modifying those conditions may be said to be an indirect and long-term way of deterring terrorism, though it does so by softening its impulse rather than creating fear or doubt.

To return to deterrence in its simpler form, we note several conditions that must be met for it to be successful: first, a threat has to come across unambiguously to the adversary; second, the threat if carried out has to be painful and costly to the adversary; and third, it has to be credible, that is, it must induce in the adversary the belief that the deterrer can, or probably can, fulfill the threat. The last condition, ironically, presupposes a weak variation of trust—not the sort bred by solidarity or mutual affection, but a belief that the other will behave in accord with the stated intentions.

The problem bedeviling efforts to rely on deterrence in dealing with contemporary terrorism is that every one of these conditions is met only imperfectly if at all. In this connection we make the following observations:

- Successful deterrence is often mutual. The Soviets were probably deterred from attacking westward during the cold war, and NATO was deterred from making a preemptive movement into Warsaw Pact territories. The hope is that India and Pakistan may be moving toward a similar mutuality in which clear definitions of lines not to be crossed by either side come to be well articulated and understood. In contrast, the contemporary terrorist situation involves an asymmetry rather than a mutuality. On their side, the United States and its allies are clearly interested in deterring terrorist actions of all sorts. Yet deterrence is not a precise or helpful notion in characterizing the current orientations and goals of terrorists. It is difficult to imagine that terrorists rely on threats of attacks or actual attacks to *deter* the United States and its allies from retaliating (the threat of nuclear attacks is an evident exception). In fact, such attacks come closer to inviting retaliation, given the enormous power differential between international terrorist organizations

and the nations they attack. Furthermore, retaliation by the United States may be in fact "welcomed" as a way to "prove" victimization of the terrorists and a means to mobilize the uncommitted, particularly if there is collateral damage of civilian targets. Neither does the idea of "lines not to be crossed" seem to apply. While terrorists operate within certain kinds of constraint on their actions, a condition of their success is to strike with surprise on often unanticipated targets, to rule no target out altogether, and to capitalize on ambiguity and uncertainty rather than defined understandings. In a word, deterrence is not much in the vocabulary of terrorists. Depending on its type of ideological framing, terrorist activities tend to be defined as attacking a general source of evil in the world, as defined by an anti-American or anti-Western mentality; as a means to gain certain political ends (withdrawal of troops, end of support for Israel); or as actions consistent with a fundamentalist religious mission.

- The conditions for being able to communicate with terrorists are not easily realized. There are known cases in which actual or threatened terror is used instrumentally as an entrée for negotiation. However, in many cases, the premium on the terrorist side is on secrecy and *not* communicating directly with or being communicated to by the enemy. Because terrorism thrives on secrecy and surprise, enemy knowledge of terrorists' whereabouts and possible intentions—likely to be revealed by direct communication—places them at a disadvantage. Most of the "communicating" done by many terrorist organizations is either by attacking without notice, by sometimes (but not always) taking credit for attacks through various media, or by otherwise communicating indirectly through their favored audiences. The idea of being communicated with by adversaries is often ruled out because it compromises the whole foundation of secrecy and undermines the purpose of terrorism.
- The level of mutual suspicion and distrust among adversaries in the contemporary terrorist situation is so high that credibility is weak and sometimes nonexistent. In some cases, threats, if believed, can be effective even though adversaries distrust one another; the cold war produced many instances of this. The key element is not precisely trust but credibility; even if adversaries regard one another as mortal enemies, deterrence can be effective if they believe their enemies' threats and believe that they will be acted on. In other cases, extreme distrust

makes for distortions of communication and, consequently, dilution of credibility.

The ideologies involved also matter. If, as is often the case, the terrorist ideology is that the West is committed to dominating or destroying Islamic societies and religion (Shuja, 2001; Pollack, 2001), then *any* communication can be turned into an untrustworthy one. Consider, for example, the airing of the explanation in some Muslim countries that the attacks on the World Trade Center and the Pentagon on September 11, 2001, were a Jewish plot designed to mobilize the might of the West to attack the Arab countries; consider also the widespread accusation that the videotape showing Osama bin Laden boasting about the destruction on September 11 was a Western fabrication.

More generally, if the terrorist ideology calls for an undaunted and absolute war—as some versions of fundamentalist Islam ideologies do—then adherents may hold the belief that they are undeterrable or that efforts to deter do not matter to them. Distrust also runs high on the American side, and to the degree that citizens reciprocate the terrorists' worldview by believing terrorism to be an unqualified evil, this mentality augments their suspicion and perhaps diminishes their effectiveness. To venture these insights is not to assign blame but to diagnose. And the diagnosis is that under conditions of extreme mutual suspicion, the probabilities for successful deterrence are weakened.

- Successful deterrence depends on a reasonably accurate knowledge of what the enemy values, that is, what the enemy is not willing to lose. In the case of the Soviet Union it was clear that it valued its national life and existence as framed by the Communist ideology of the time and, in the end, was not willing to risk its obliteration. The Western countries valued the same (though framed in an ideology of freedom and Western capitalism) and were willing to settle for a policy of containment rather than aggression.

What terrorists value is more difficult to determine. Certainly they value their own lives, except under the condition of the decision, made on their own terms, that suicide is justified by the overriding importance of personal salvation or group

cause. They value their families, their organizations, their comrades, their weapons, their financial support, their way of life, and their vision of the future. The importance of this vision of the future is well articulated by Hoffman (1998, p.169), "All terrorists, however, doubtless have one trait in common: they live in the future: that distant—yet imperceptibly close—point in time when they will assuredly triumph over their enemies and attain the ultimate realization of their political destiny. For the religious groups, this future is divinely decreed and the terrorists themselves specifically anointed to achieve it. The inevitability of their victory is taken for granted." They value their own cultural values and, if these are religiously based, their religious commitments. If religious commitment is part of the picture, they are likely to regard themselves as moral actors, doing violence to others and even to themselves for good and sufficient reasons. In the case of committed Muslim terrorists, strong elements of honor, shame, and revenge are often salient.

Sometimes what they value can be affected (for example, attempting to close off sources of financial support through the international banking system). In many cases, however, direct threats to take away or destroy what terrorists value are not viable because they are not believed or because they cannot be readily carried out. Terrorists may know that their enemy can destroy them in the long run, but if they believe it cannot retaliate in the short run, they may proceed anyway. Finally, terrorist organizations, though their operations are often located in part within states, are usually stateless in that they do not have the responsibility of governing and defending national integrity and cannot be directly or readily influenced by threats to nations.

From these observations we conclude that direct deterrence by clearly communicating credible warnings and threats to terrorists is of limited utility in comparison to other types of wartime situations. There are several ways in which deterrent threats can fail. First, the threat never gets made, because it is not known (by the party likely to be attacked) what the assault might be (though the World Trade Center was known to be a potential target mainly because of its 1993 bombing, it was not feasible to issue a specific threat that if it was bombed, then specific enemies could expect specific consequences). Second, the adversary may not believe a threat if made; as indicated, terrorists have a combination of motives and ideological values

conducive to such disbelief. For example, what is intended as a threat may be received as a provocation. Third, even if the threat is heard and understood, it may fail because terrorists may decide that the gain from challenging it is worth the anticipated cost—again, a plausible response, given their worldview. Fourth, given the far-flung nature of terrorist networks, it may not be clear who are the "they" one wishes to deter. It is likely that terrorists are not a single actor who is reachable by threats but rather a diverse coalition of people who may not be in full command of their own forces. And finally, deterrence, even if it "works," is limited in that it does not work to remove the political and social determinants of terrorism and is therefore not a substitute for policies that might do so.

All this is not to conclude that deterrence cannot be a viable strategy in the current circumstances. Perhaps if the Taliban regime in Afghanistan had believed that it would cease to exist (which it has for all practical purposes) in the event of a terrorist attack on the United States, it may have acted to discourage such an attack on the part of the Al Qaeda organization. If Al Qaeda had anticipated and believed that its organization would be possibly fatally damaged and in any event crippled and dispersed, it may have bided its time and made other calculations. The facts that the Taliban lost control of Afghanistan and Al Qaeda was wounded no doubt constitute a credible warning to other states harboring terrorists—and perhaps terrorists themselves—that the United States is willing to act and that it has a destructive capacity to destroy what terrorists value by killing them or otherwise rendering them ineffective.

This line of reasoning suggests the importance of relying on the help of third parties in efforts to deter. If terrorists are determined not to communicate with adversaries except in their chosen ways, if they cannot be communicated with directly, if they do not understand or believe what is communicated by their principal and deeply distrusted adversaries, then logic dictates that one should, as an element of overall strategy, rely in part on *others* who might be able to communicate with them more effectively and with greater credibility. Several implications flow from this general point.

- State-to-state relations should be maintained with states friendly to terrorist activity or those who have harbored terrorists. Because of the depth of the terrorist threat, it is tempting

for the United States to assume mainly a threatening or punitive posture toward those states. Certainly those states should be the object of deterrent threats. But at the same time, they can also serve to help make the threats credible to terrorist organizations in their midst, because these states have greater credibility in their communications with them than their adversaries do. To be sure, this strategy is an uncertain one with many possibilities of slippage, both because such states usually have limited affection and trust for the United States and because they also have fragile relations with—and cannot control completely—the terrorist organizations in their midst. The logic underlying this argument is that communication with terrorists is extraordinarily difficult, and any means possible should be kept open.

- Some work may be accomplished by working with moderate agencies *within* such societies that do not condone terrorism but that exist side by side in the political and social system with terrorist organizations and may be sources of influence on them. We have in mind two kinds of agencies in these countries: (a) moderate political parties that may or may not be friendly to the West but that have chosen to work by means of exerting political influence within the rules of the political game and (b) educational institutions at all levels—scientific academies, universities, colleges, secondary and primary systems—that stand side by side with but serve as important counterbalances to the radical Islamic schools that teach and instill virulent anti-Western views.

- Relations should also be maintained with nations that have had a history of friendliness toward anti-Western terrorism but whose political postures have turned around to some degree (for example, Libya, Egypt, and Pakistan share such a history, though there are differences among them). If relations with the United States are solid enough, these states can be used as intermediaries to communicate with other nations in their region with less friendly relations to the United States but who trust their neighbors more and are more likely to give credibility to them. Similar types of intermediary roles might be envisioned for the United Nations (UN) and for nations that are generally perceived as neutral or have participated in peacekeeping activities.

- Another set of third parties is U.S. allies—mainly Western—who share vulnerability to terrorism and also share the U.S. attitude of enmity toward terrorism. Three points should

be noted: (a) Deterrence by coalition is hard to manage, as evidenced by the failure of allies to agree on objectives and force commitments in the Congo in the 1960s and Bosnia in the 1990s (Winner, 2002). The pattern more likely to be effective is U.S. leadership while securing cooperation and support from friends. (b) In the main, U.S. allies are not as likely to be as aggressive or steadfast in their commitments against terrorism. This is understandable given the lesser vulnerability of many of those countries, even though Great Britain, France, and other countries are likely targets of international terrorism. (c) To ask allies to support U.S. antiterrorist activity also means asking them to assume the cost of exposure to attacks, and this has to be acknowledged. These three points pose special challenges for the United States, which has much to lose by going it alone and must continuously persuade others to be relentless and to stay on board while also listening to them responsibly.

The conclusion to be drawn from these arguments is that the contemporary terrorist situation, as it has evolved, enforces a certain *indirectness* in the use of deterrent measures that involve threats meant to supplement—but stopping short of—a brute force policy of rooting out and destroying terrorists at any opportunity. As indicated, direct threats still have a place, but they are not likely to be effective on their own. Because of the special difficulties involved, the nation needs all the friends it can secure in efforts to deter terrorism.

Audiences for Terrorists: Six Subsets

AUDIENCES FOR TERRORISTS

— Potential Recruits
— Internal Audience
— Host Societies
— Media
— Enemy Societies
— World Opinion

While terrorist organizations are secretive and not accountable, they nevertheless regard their status with various audiences as important for their survival, effectiveness, and success. Very little is known about the dynamics of terrorist-audience relations, but audiences are so important to them—and constitute potential sources of vulnerability—that some words about them need to be said.

The issue of audiences arises in six different ways, as outlined below and described in the sections that follow.

Potential Recruits

The first audience is that of potential recruits. Recruits to terrorist organizations do not come from a single class of individuals

(e.g., alienated middle class, down-and-outers) (McCauley, in press, Library of Congress, 1999; Maddy-Weitzman, 1996; Krueger and Maleckova, 2002; Hamzeh, 1997; Sivan, 1997; Abootalebi, 1999; Alam, 2000). Furthermore, the paths and processes by which any given individual becomes a terrorist are idiosyncratic, both in terms of when and how he or she becomes alienated from some important aspect of life and in terms of when that alienation transforms itself into participation in terrorist activities (Kellen, 1979; Library of Congress, 1999; Sprinzak, 1998). The precise supply of terrorists is unknown, and while recruiters know of some fruitful sources—for example, those who have attended schools and mosques that preach virulent anti-Americanism and militant and fundamentalist Islam—the actual process of recruitment is highly uncertain, as it is for any extremist social movement (Lofland, 1966; Erickson, 1981).

One important way of affecting the potential supply of recruits is to strive to incorporate the groups from which they derive into the general political processes of the countries in which they reside—into parties, pressure groups, or coalitions of voters (Ferracuti, 1998). Meaningful involvement in civil society makes the groups involved responsible and thereby operates as a deflection if not direct deterrent of extremist activities. Meaningful involvement in the more informal side of civil society—family, friends, and occupation—may also provide a certain inhibition to recruitment for extremist activity (Hoffman, 2001).

Internal Audience

The internal audience is in terrorist organizations themselves. One of the most important features of gaining and holding recruits is the group dynamics involved (McCauley, in press, 2002). After recruitment, a definite process unfolds: isolating the individual from outside conflicts, indoctrination, cultivating loyalty to comrades, and giving instructions and training about future activities (see Bandura, 1998). The primary group of dedicated comrades comes to overshadow but at the same time reinforces other kinds of commitment. Whatever the original reasons for joining, the individual becomes entrapped. At the same time—at least, according to interviews with some terrorists—the process generates anxiety for having crossed a point of no return, problems of dealing with flagging of enthusiasm and commitment during long periods of inactivity (or out-

right renunciation of the terrorist activities by a political organization), and a level of coerciveness and mistrust among comrades, bred from the suspicion and dread of potential defectors (Kellen, 1979). Because of these internal pressures, forced inactivity can actually cause a terrorist group to come apart. For organizations that include terrorists but also have members who carry out teaching and other social activities, the latter constitute another kind of internal audience whose attention and loyalty are important.

Host Societies

Terrorist organizations maintain a variety of relationships with the nations in which they conduct their activities. Some countries sympathetic to terrorists play host to them by not repressing them, permitting training camps, and so on. And some states themselves have sponsored terrorism or engaged in it. Especially in cases in which terrorist organizations are given support or encouragement, the host society becomes a relevant audience for terrorists. It is important to cultivate relations with them, to curry support from relevant groups and politicians in those societies. Miscalculations and mistakes can cost the support of host states; this, of course, is a source of vulnerability for a terrorist group, which must then dedicate more of its energies to its "foreign relations" with states, resisting repression on the part of those states by going underground or leaving the country altogether. In all events, the host state is a relevant audience.

In addition, the societies from which terrorist groups arise or operate are made up of a diversity of social groups (intellectuals, religious believers, political interests) who constitute potential "sentiment pools" that are sources of support or lack of support for extremist groups and terrorist activities (see Snow et al., 1986). These groups are not themselves involved in terrorism, but their orientations toward it are important. They may be turned off by what they regard as terrorist excesses; they may be drawn to support terrorists if they come to regard them as persecuted martyrs. This kind of public opinion is an important determinant of the fate of the terrorist impulse in societies in which it is present. Needless to say, involvement of these groups in the processes of civil society also tends to have a moderating influence on the opinions of their members.

Media

The media that report terrorist activities—as well as the imagined readership of those media—are another very powerful and gratifying audience. The media constitute an important avenue for the attention-getting potential of terrorist activities, which constitutes one element in the psychological makeup of terrorists (Post, 1998). The coverage of terrorists in the media and public awareness about them has been noticeable for some time, but they skyrocketed to a high and sustained level after September 11.

There is no large and significant public event—the Olympics, an economic summit, an important gathering of officials—that is not accompanied by worry about security and the threat of terrorist activity. The amount of literature devoted to terrorism is of unprecedented proportions. Osama bin Laden was considered as a contender for *Time* magazine's "Man of the Year" for 2002, an award that ultimately went to New York Mayor Rudolph Giuliani. The issue that drew attention to both was terrorism.

Sprinzak (2001) has gone so far as to suggest a new brand of terrorism that he calls "the megalomaniac hyperterrorist," by which he means self-anointed individuals with larger-than-life callings: Ramzi Youssef (the man behind the 1993 World Trade Center bombing), Shoko Asahara (leader of Aum Shinrikyo and architect of the 1995 gas attack in a Tokyo subway station), Timothy McVeigh (the 1995 Oklahoma City bomber), Igal Amir (who assassinated Itzhak Rabin), and Osama bin Laden all had in common the urge to use catastrophic attacks in order to write a new chapter in history. This characterization should be taken as a simple psychological explanation of some terrorist activities, but Sprinzak has highlighted the intrinsic concern with audience as a key ingredient in the terrorist mentality.

Enemy Societies

Another audience is that of enemy societies. The vast majority of terrorist attacks have a political objective. Sometimes these are highly specific, as in the case of the favored forms of terrorism in the 1970s, hijacking and kidnapping, which were typically accompanied by a specific demand for release of hostages, military withdrawal, or other political objective. The

most recent wave of religion-based terrorism is accompanied by such demands as withdrawing U.S. troops from Saudi Arabia or the end of U.S. support for Israel. Even the Unabomber, widely regarded as a loner, had a remote political agenda for saving American society from the devastating influences of advanced technology.

In most cases the political demands of terrorists do not generate concessions, yet there are enough successes to keep hopes alive. The targeting of American and French citizens in Lebanon contributed to the decisions of those countries to withdraw their forces from Lebanon. Hezbollah (the Party of God) is generally regarded in Lebanon as the successful vanquisher of the Israeli occupation. Eighteen months after the slaughter of the Israeli athletes in Munich, Yasser Arafat was invited to address the UN General Assembly. Hope for terrorists is also kept alive by the prospect that minorities within enemy countries may constitute a political force favoring terrorism (Crenshaw, 1997: 154-155):

> In some cases, the support [for terrorism] is linked to ethnic or ethnonationalist divisions within a society that leave a minority community feeling threatened by a majority community, or seeking a separate solution. In Western democracies, we think immediately of Ireland and the IRA; Spain and the Basque population; and also France and the Corsicans. . . .[E]ven in liberal democracies with no significant social cleavages, terrorist underground movements may enjoy a reasonable amount of social support, enough to hamper a government response.

World Opinion

One kind of dialogue between terrorists and their enemy societies is the contest that is carried out before a final kind of audience, which can be called, for want of a better term, the *audience of world opinion.* Both terrorists and their target nations vie for attention and legitimacy before this partly real and partly imagined audience. In many respects the struggle is a symbolic game of last tag—the attempt on both sides to place themselves forward in world opinion as being the righteous victim and the other party as the aggressor. This kind of contest is a familiar one; protestors and police forces constantly engage in the struggle to avoid being tagged with the labels of unprovoked aggression, excess, and illegitimacy. Even though outcomes are

never certain in the audience of world opinion, the imagined consequences of winning or losing are significant, and the impulse to compete in this arena remains alive.

Audiences in Perspective

With respect to the possibilities of deterring terrorism, each of these several audiences has a different status. The *supply of recruits* and the effectiveness of terrorist organizations in recruiting them are not easy to control in the short run, except for a conceivable modest impact that infiltrators and agents may have on recruitment strategies. In the longer run, affecting the educational systems and fostering appropriate economic and social changes in the countries of origin of terrorism, attempting to work with nations' leaders on successfully containing and controlling terrorists, and enlightened foreign policies on the part of the United States can affect the supply of alienated and potentially interested terrorists. The *attention-getting* characteristics of terrorists—especially leaders—are by and large beyond any kind of meaningful intervention. It is possible that the mass media could develop voluntary understandings among themselves to limit sensationalism in reporting terrorist events. Also essentially beyond outside control are the *internal dynamics* of how terrorists communicate with one another, except, again, for the modest impact that surveillance and infiltrators may have. *Audiences in host countries* can be affected mainly by the policies of those regimes in fostering economic and social stability and in not alienating their own populations through political repression; the United States can have a role in these processes by working with those regimes. Finally, with respect to *audiences in the United States* and *world public opinion*, this appears to be an ongoing process involving enlightened political policies on the part of the United States—and communicating them effectively—and engaging as effectively as possible in the inevitable game of last tag mentioned earlier (Hoffman, 1998; Lewis, 2002; Pillar, 2001).

Two hopeful notes with respect to audience effect should be mentioned. First, because the audiences for terrorists are multiple, they run the risk of pleasing one and alienating another by the same action; this creates public relations problems for them. Second, far from being completely steadfast and resolute, terrorists are driven by the need for action and audience support,

and long periods of time between actions make for restlessness, feelings of isolation and entrapment, and a heightened tendency for internal conflicts over means and ends (Kellen, 1979). Policies of patience and containment on multiple fronts may encourage impatience in terrorist organizations and a waning of interest in their relevant audiences. The ingredients of such policies would include (a) containing terrorist organizations militarily, (b) destroying them when necessary, (c) securing U.S. borders, (d) making targets as inaccessible as possible; (e) supporting alternative ideologies, and (f) working deliberately with third parties who can possibly neutralize terrorist activities. This combination constitutes perhaps the most conducive set of conditions for the stagnation, withering, burnout, and eventual natural death of terrorist groups (Gurr, 1998).

Organization of Terrorist Networks

The preferred organizational form for terrorism is networks or, perhaps better, networks of network-based organizations (Arquilla and Ronfeldt, 2001). As such they are—like other aspects of terrorism—relatively unfamiliar to those who study organizations, who have focused more on formal organizations, such as corporations, hospitals, universities, civil service bureaucracies, voluntary organizations, and organizations developed to direct the activities of social movements. As a result, there are only some, mainly indirect insights about terrorist organizations from the literature on formal organizations.

The characteristics of terrorist organizations can be understood by tracing out the implications of the fact that terrorism must be simultaneously invisible and at the same time coordinated for preparing and executing terrorist activities. Consistent with these purposes, terrorist organizations must maintain extreme secrecy, avoid record keeping, and minimize any paper trails that could reveal their internal movements, plans, and intentions. The last is extremely difficult to ensure completely, because of the necessity to rely on computer and telephone—in addition to handwritten and face-to-face—communication as a part of organizational coordination, and the necessity sometimes to rely on financial transaction institutions to shift resources from place to place and on credit cards to facilitate movements of their personnel by cars, buses, trains, and airplanes.

The foreign affairs or external political exigencies of terrorist organizations are limited and concern mainly their relations with the host states in which they are located. If they are unknown to those states—rarely if ever the case—then questions of foreign relations with them are moot, because terrorist organizations avoid routine interactions with governing regimes. However, host states usually know about, tolerate, protect, or promote terrorist organizations for their own political purposes. This knowledge means establishing relations with terrorist organizations, taking an interest in and perhaps influencing their activities, thus forcing the terrorist organizations to observe and perhaps play along with various state-related realities.

Because much of the glue of contemporary terrorist organizations is commitment to an extreme ideology, there is a special range of issues of maintaining internal control. They must recruit those whom they regard as ideologically committed and ideologically correct. They must dedicate some of their organizational activities to maintaining that loyalty and commitment and preventing backsliding among members who are frequently living in societies with values, ways of life, and institutions that are different from their own and may be found seductive. The need to maintain various kinds of discipline through intense personal ties, hierarchical control, and surveillance is very strong. Organizations have to ensure that information flows but also that information is kept secret. They may have to coordinate extremely complex activities of destruction. And they must attend to the steadiness of ideological commitment.

There are several associated points of vulnerability of terrorist organizations, many of which involve failures of information flow, security of information, and coordination of activities. Organizations may also be subject to internal rivalries among leaders, especially if they are only partially integrated as networks of organizations. One additional vulnerability, characteristic of all ideologically extreme organizations, is the constant danger of schismatic ideological tendencies from within. Demanding extreme conformity, such organizations constantly face problems of internal deviation, mutual accusations among both leaders and followers that they are less than true believers, the splitting off of factions based on ideological differences, and the political intrigues that are involved in preventing such splits and dealing with them once they occur.

Direct knowledge about these organizational dynamics is

very limited, mainly because it is so difficult to study organizations that are bent on secret operations and concealment of information. Such knowledge must usually come from electronic surveillance, defectors, detainees who cooperate, and agents who have been able to infiltrate. However, the world has experienced many other kinds of secret, network-based organizations, and a base of knowledge about them and their operations has accumulated. Among these organizations are spy networks, gang rings such as the Mafia, drug-trafficking organizations, Communist cells, sabotage operations undertaken during wartime and during the cold war period, and extremist social and political movement organizations. In addition, network analysis as a field of study in sociology, social psychology, and elsewhere has yielded a great deal of theoretical and empirical knowledge during recent decades, and some aspects of this general knowledge might also be brought to bear.

We conclude this section on motives, values, and organization of terrorist organizations by noting a number of potential limitations on and vulnerability of contemporary terrorism: (a) their partial dependence on "domestic" friendly audiences, whose support and applause can wane if the terrorists appear to be inept or gratuitously excessive in their activities (Gurr, 1998; Crenshaw, 1999; Wieviorka, 1993; Post, 2001); (b) their dependence on states within which they operate—variable in terms of their precise relationship with those states—which may constrain their activities in light of their own "state" interests in the international arena; (c) extreme ideological and religious rigidity and backsliding, both of which have the potential to generate schisms within the terrorist organizations; (d) motivational failings, reversals, and defections, always a possibility when so much psychic energy is invested in an extreme cause; and (e) organizational failures, especially flows of information in a dispersed, secretive network.

CONDITIONS AND CONTEXTS OF TERRORISM

We now move to a more general level of analysis: to conditions fostering the rise of terrorism and the social, political, and cultural contexts in which it develops. To consider this is to

leave the realm of deterrence in the short run and to move to more indeterminate background conditions. We continue to focus on the problems of prevention, though in the longer run.

Historical Givens of Contemporary Terrorism

Before moving to demographic, economic, and social conditions, we mention three broad contextual features of contemporary terrorism. None of these features concerns policy areas—that is, things one can or wants to do something about—but they constitute the broadest possible contexts for understanding terrorism as a historical phenomenon.

The first consideration concerns terrorism as a form of conflict. Throughout most of human history, warfare has been a form of conflict undertaken by two or more parties (tribes, regions, nations), each of which operates under the belief—not necessarily based on adequate information—that it has a chance of vanquishing the other by available military means. This might be called the assumption of imagined parity. That assumption is still roughly valid for many local wars throughout the world, but the larger picture has changed radically with the advent of weapons of mass destruction and a new asymmetry between the strong and weak nations of the world. During the cold war, there were two superpowers with weaponry capable of destroying one another and perhaps the rest of the world. The Soviet Empire and the Western Alliance engaged in a standoff of mutual deterrence during those four decades and relied on other means—diplomacy, propaganda, economic aid, clandestine international strategies of political disruption, and limited wars—in other parts of the world.

With the collapse of the Soviet Union in 1989 and its effective evaporation as a superpower, the United States—considered both alone and with its NATO allies—emerged as the sole superpower from a military point of view, with a quantum distance between it and the rest of the world. No country in the world can hope to challenge the United States militarily. No nation in the world can conceive of having the slimmest hope of winning a military war against the United States and its NATO allies. As a result, the options to wage conflict have narrowed. This situation has been fully in place for the past decade and continues; it may change if nuclear weapons and delivery tech-

nology proliferate sufficiently widely, but for the historical moment that is the dominant picture.

This general international situation reveals in large part why terrorism as a form of conflict has come into such prominence. It has emerged as a strategy of the enemies of the United States and the West in the context of their weakness, considered from a conventional military point of view. (Some beliefs, among them Muslim ones, hold that in the longer run God will prevail and victory will be achieved, or that the West, if disrupted, will collapse from the weight of its own corruption.) Terrorism as a system of harassing, disruptive, and destructive activities carried out by clandestine, stateless, mobile, and opportunistic networks of committed groups makes sense in this context of military imbalance. Such forms of violence are among the few options available. Considerations such as these give credence to the assessment that terrorism is a form of extortion from the strong by the weak.

The reason why contemporary terrorism is more than a nuisance is found in the second broad conditioning factor to be mentioned—technology. This factor is significant in two ways. First, the development of chemical, biological, and nuclear capabilities gives an enemy who can deploy them great destructive power. The potential willingness of terrorist organizations to use this technology wherever and whenever they can makes terrorism a real and present danger. Second, in U.S. and other developed societies, the deployment of technology in the interests of economic development and efficiency has created societies that are internally differentiated systems of interdependent parts. Crippling one sector—for example, the electrical system, the transportation system, the information technology system—quickly generalizes to other sectors, and as a result the entire system is vulnerable.

The third broad conditioning factor has to do with the increasing internationalization and interdependence of the world. This is often referred to with varying degrees of precision as globalization. To some degree, the idea of globalization has become an ingredient of terrorist and other ideologies, and it is represented as an extension of Western capitalism that disadvantages poorer countries. In another context, globalization has occasioned an extraordinary growth in the international movement of commodities, information, ideas, money, and people and, as a result, has necessarily increased the permeability of

boundaries of society. This permeability makes all societies vulnerable to undetected penetration from outside, and terrorists can capitalize on this vulnerability. Regarded in this way, globalization constitutes an advantageous set of conditions for terrorists, both in terms of their capacity to locate in nonstate space and in their capacity to gain access to the societies of adversaries.

The reason we term these three conditions as "givens" is that they constitute the broad world historical context in which any efforts to prevent, contain, or disable terrorism must be developed.

Political Considerations

The political settings of terrorist activities during the past four decades have been dispersed and complex, and for that reason they defy simple generalizations. The areas of operation of terrorists during this period include dozens of countries and regions. Their political/ideological motivations include nationalism, separatism, both right- and left-wing radical, revolutionary, and Islamist beliefs. Many terrorist groups have only local horizons, many others have international missions, and still others have a mix of both. No single political formula applies to this scene of great diversity—though anticapitalism, antiimperialism, and antimodernity themes are frequent—and, correspondingly, no simple political formula for dealing with them emerges. In fact, a recent exhaustive survey of counterterrorist activities undertaken by the United States includes "negotiation of international agreements, military strikes against state sponsors of terrorism, and the creation of decontamination teams, changes in immigration procedures, advances in surveillance, and an increase in the severity of penalties associated with terrorist attack" (Donahue, 2001: 2). In light of this great historical diversity, however measured, the first lesson to be learned about political responses to terrorism is that a certain ad hoc and flexible approach is necessary and desirable.

Some words can be said on the politics of terrorist activities that command the most immediate attention—those associated with radical Islamic fundamentalism—though these are only a part of the whole terrorist picture. It is well known that these groups target unbelief as their main enemy, and this includes both Western countries and local, secularizing political regimes

with an interest in modernizing their countries. In the twentieth centuries, nationalist elites, usually secular, either captured power (Turkey, Indonesia, Egypt, Pakistan, for example) or allied themselves with modernizing monarchies (Afghanistan, Iran).

These regimes were often opposed—sometimes quietly, sometimes noisily—by the traditional religious hierarchies. The most active opposition took the form of demanding an Islam-based state (the Muslim Brotherhood in Egypt, the Pakistani Islamic Party, and the Dar ul Islam movement in Indonesia). State policies toward these religious movements varied between toleration and brutal repression (especially of the more radical movements). Correspondingly, some of the movements worked themselves into the polity as lobbies or opposition parties, and some of them were driven underground and became even more radicalized in their religious and political outlook, developing a more systematic view of what an Islamic state or the Islamic community should be and more intolerant of anything that deviated from that. Included in the ideology of these groups was a thoroughgoing hatred of the military power of the West. It comes as no surprise that radical Islam is one of the feeder sources to anti-Western terrorism.

The policy of state repression has been as often counterproductive as it has been effective. As indicated, repression drives movements underground and tends to radicalize them. It may also drive movements out of the country to more hospitable environments. In addition, imprisonment of leaders and others often leads to the use of the prisons themselves as bases to breed radical ideas ("the best school for crime is a prison"). Repression also often radicalizes the repressive regime, which generalizes its fear of opposition to include more moderate forms, thus compromising the polity in an antidemocratic direction.

The lesson that emerges from this historical sketch is that the United States, in dealing with regimes in countries where terrorism has developed, ought to work as closely as it can with those regimes, but it should resist the temptation—strong as it is, because of the terrorist threat—simply to repress radical terrorist groups, because of the likely counterproductivity of simple and brutal repression (see Crenshaw, 1999; Post et al., 2002). The history of extremist groups in general indicates that a combined policy is preferable—repressing illegal and violent activities while simultaneously fashioning some kind of place in

the political spectrum and the political process for both disaffected and moderate groups (Boulby, 1999; Wiktorowicz, 2001; Wickham, 1996). Neither radical political groups nor extremist religious organization are forever frozen in time as dangerous, destructive forces. To repress them as such—rather than recognizing that they have their own careers and are responsive to their political environments—does not remove them from the scene and may contribute to the very conditions in which they thrive (Shah-Kazemi, 1995; International Crisis Group, 2002; Chung, 2002; McDaniel, 1988; Auda, 1994).

Demographic and Economic Considerations

Because of the range and diversity of locations in which terrorism as an activity has developed, generalizations about demographic and economic origins are as difficult to come by as political generalizations, as are definitive long-term policies designed to deal with them. Nevertheless a few general observations can be made.

Terrorism is a strategy of the weak against the strong, and the broad array of terrorist activities in the past half-century gives broad credence to that view. The historical origins of the weakness of the weak are to be found in the centuries-long processes of differential economic development and disadvantage, colonization, the effects of wars and military domination—as the effects of these have accumulated.

Contemporary aspects of the weakness of nations outside the West include their demographic and economic disadvantages. Regarding Muslim states as a special case once again, we note that these countries are among those with the highest fertility rates in the world (though dropping in some places). This makes for not only rapid growth of their populations (a growth that itself places economic demands on those states), but also a particular age distribution of the population (many young, few old). The resulting youth dependency ratio puts great pressure on the education systems of these societies and also results in high proportions of young people in the economy who cannot find their way into paying and productive economic roles, and whose economic futures are dim (Kepel, 2002; United Nations Development Programme, 2002). The typical consequences of this situation are to generate great competitive

pressures for marginal jobs domestically, pressures to emigrate, high unemployment among the young, and frequently large-scale social marginalization. Finally, a high growth ratio produces large numbers of children in families, and this may spread thin the family's financial and emotional resources. Some research (Sulloway, 1996; Skinner, 1992) suggests that later-born children in families are more rebellious. This research suggests the possibility that in a population in which many families have many children, the level of rebelliousness in the society may be higher than elsewhere.

The demographic sources of disadvantage combine with the economic realities that many of the Muslim nations are among the poor nations of the world, and that the distribution of wealth in them is among the most regressive (United Nations Development Programme, 2002). The origins of economic inequality lie both in the hierarchical traditions of these countries and in the fact that the fruits of mainly Western-induced economic development in them have not been distributed equitably. Both the demographic and the economic realities feed into high levels of social and political dissatisfaction in these nations, and when this dissatisfaction is given meaning in the context of anti-Western and radical Muslim ideologies, a fertile breeding ground for terrorist recruits is at hand (Guenena, 1986; Ibrahim, 1980, 2002; Dekmejian, 1995).

The demographic and economic disadvantages of these regions do not lend themselves to short-term cures, much less arenas for short-term deterrence of radical sentiments and terrorist activities. They are among the longer-term conditions. The longer-term picture is, however, that if these disadvantages persist in the political and religious contexts of this region, there is reason to believe that the social malaise, alienation, and disaffection of significant parts of the populations will also persist. Appreciating these realities does not provide neat formulas for what the long-term economic, political, and foreign policies of the United States and the West should be. They surely dictate, however, that those realities have to be taken into account if policies are to be enlightened.

CONCLUSION AND RECOMMENDATIONS

The one sure conclusion emerging from this report about strategies for countering terrorism is that there are no silver bullets or quick fixes available. It is possible to specify more effective and less effective deterrent and preventive policies at various levels and under different conditions. However, the general policy approach has to be adaptive, opportunistic, and multisided. The conventional problem-solving logic so attractive in American culture—find a problem and then fix it—is of limited utility, and a longer term, more contextualized approach is necessary.

Despite this important caution, the panel ventures the following specific recommendations about deterrence and prevention that follow from our analysis:

- Deterrence, understood conventionally as the direct use of threats, punishments, and inducements to prevent enemy action, has a viable place in dealing with terrorists.
- Many of the assumptions of conventional deterrence, however—availability of channels of communication, credibility among communicating parties, knowing what adversaries value—are not likely to be present in contemporary terrorist situations. As a result, reliance on direct deterrence can be only somewhat effective. In addition, direct threats and perceived overretaliation may have counterproductive effects with respect to generating support for terrorist groups and activities by uncommitted audiences.
- Direct efforts to deter should therefore be accompanied by working through all available third parties—societies hosting terrorist organizations, countries trusted by host societies, or the United States' own allies—who may have more credibility with and influence on terrorist organizations than this country, as enemy, does.
- Whenever possible, policies should be directed toward distancing and alienating relevant audiences from terrorist organizations and activities. The incorporation of potentially extremist political groups into the civil society of actual and potential host societies is especially important.

- Intelligence, infiltration, and related activities should be directed at points of vulnerability of terrorist organizations—their reliance on audience, their ideological inflexibility, their problems of maintaining commitments, and their potential for organizational failure.
- The social conditions fostering the rise of terrorism are complex and include demographic, economic, political, and educational factors. In the long run, preventive strategies should include improving these conditions in countries vulnerable to terrorist organizations and activities, as a means of diminishing the probabilities of their emergence and crystallization.

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Appendix

POPULATION DYNAMICS AND POLITICAL STABILITY

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PART I

Theory

1. Introduction. In this appendix we argue that high rates of population growth may lead to political instability.[1] Because recent political events have led us to focus on the Muslim world, we pay particular attention to it.[2] The argument has several parts:

   1.1. High growth rates lead to high ratios of youth to economic producers. These ratios burden any economy, especially weak ones.

      1.1.1. The resources of the state are insufficient to educate youth properly so that they must take menial and unsatisfying jobs if those are even available.

      1.1.2. The opportunities for employment are insufficient to absorb the "youth bulge."

      1.1.3. Unemployment leads to delayed adulthood, delayed marriage, and frustration.

      1.1.4. Large family sizes lead to parental underinvestment in children, to high ratios of younger versus older siblings, and to consequent political rebelliousness.

   1.2. To explore these issues we must first define some basic demographic concepts. *Readers who are familiar with or would prefer not to deal with these technicalities but go to the main argument should skip to Section 3.* After a general examination of the relationship between population growth, population structure, and political instability, we analyze in Part II individual-level data from Demographic and Health Surveys (DHS)[3] to test some of the theoretical ideas

about the relationship between fertility, ethnic and religious identity, and several measures of socioeconomic status (SES).

2. Demographic concepts.

2.1. Age structure. The age structure of a population is the count of persons by age, typically shown in the customary categories of 0, 1-4, 5-9, … 95-99..., where these intervals are closed on the bottom and open on the top. Age 0 includes persons from birth until the instant before the first birthday, 1-4 includes those from the first birthday until the instant before the fifth, and so on. The age structure is often graphically presented as an age pyramid, one side showing the distribution for females, the other for males, thus encapsulating both the age and the sex structure of the population. The detailed distribution by age is often summarized in the "dependency ratios." The child or young-age dependency ratio is usually the ratio of persons 0-14 to those 15-64, while the elderly or old-age dependency ratio is usually that of persons 65 and older to those 15-64. The underlying assumption is that persons 15-64 are producers while those below and above that range are consumers. Of course, actual practices and labor market conditions may affect the typical age range of "producers" and what proportion of them (especially according to sex) are actually producing.[4] Note that at the individual level an analog to the child dependency ratio is the number of living children per mother, or per couple, with similar caveats about producers and consumers.[5]

2.2. Population dynamics. Apart from migration, populations are subject to change in size through birth and death. For the moment we consider only "closed" populations, that is, populations with no migrational inflows or outflows. There are no such populations reliably known (other than the population of the entire world), but the concept is useful analytically. Obviously, in any population, if the number of births in some time period is the same as the number of deaths, the population does not change in size. If births exceed deaths, it grows; if deaths exceed births, it shrinks. More generally we may say that if the crude birth rate (births per thousand persons) equals the crude death rate (deaths per thousand persons), the population does not change in size, and if one rate exceeds the other, the population changes accordingly. These concepts lead to the definition of three kinds of populations.

2.2.1. Stable populations are those in which the birth and death rates have not changed, or at least have not changed appreciably in a long time. A fundamental idea is that a population with a particular schedule of mortality (the probability of death by age) underlying its crude death rate, and with a particular level of fertility, will have a characteristic and unchanging age structure. This is easy to see intuitively. A given rate of fertility will produce a certain number of births; each of these enters the population at age zero. As these persons age, year by year, some and eventually all are removed from the population by mortality. Since they are removed at a particular rate at each age, the age pyramid is sculpted to a particular shape by the mortality schedule. Since, in each year that some set of persons born

(a birth cohort) increases in age and is diminished by mortality, some next cohort is born in exact proportion to the total, the pyramid retains its shape.

2.2.1.1. If the crude birth and death rates are equal, the population does not change in size. Such a stable population is called "stationary."

2.2.1.2. If the crude birth and death rates are unequal, the population does change in size, but since the population is stable, as defined above, the age structure does not change.

2.2.1.3. The combination of crude birth and death rates yields a population growth rate, which remains constant through time so long as the birth and death rates are stable.

2.2.2. By obvious contrast, unstable populations will have shifting age distributions. Typically, unstable populations will change in size, for example, through a crisis of mortality induced by warfare or disease, or through a sudden change in fertility, as in a "baby boom." It is possible, of course, for a population to experience simultaneously a change in fertility and a precisely offsetting change in mortality, so that the population remains the same in size, even though it changes in age structure. We would not expect to see such precisely offsetting fertility and mortality shifts very often. Indeed, a crisis sending mortality up will commonly send fertility down, and boom times will do the opposite. Fertility changes generally have more dramatic effects on age structure than do proportionally equivalent mortality changes, although they have equivalent and opposite effects on population size. This is because mortality changes are usually spread across

many age groups, whereas fertility changes impact only the youngest (newborns).

2.3. Population dynamics and stable age distributions. Stable populations typically have different age structures, depending on the combination of their fertility and mortality rates. These can be appreciated intuitively. Let us imagine a stationary population in which no one dies until age 100, at which point everyone dies. The population pyramid will be a rectangle. Every year, the same number of people are born, every year everyone gets one year older, and when they reach 100, they disappear. The age pyramids of countries like Japan and those of Western Europe now approach this rectangular shape.[6] Fertility is low and not changing much (if we ignore the immigrants). Infant and child mortality are low, so that a very high proportion of newborns survive to be adults. Adult mortality is also low until the advanced ages. Now imagine a population in which fertility is higher but mortality is *not* concentrated just at the highest ages. The base of the pyramid will be broader, because more people are born, and they will be subtracted starting at an earlier age. The higher the level of fertility, compared with mortality, the broader is the base of the pyramid and, importantly, the higher is the rate of growth. The age pyramids of rapidly growing countries, such as those of the Middle East or South Asia or Africa, show this broad-based shape. Figure 1 shows some contrasting age pyramids, including one that is projected; these are described in Section 3.

3. Two consequences of age structures. Some readers will have skipped to this point. Age structures of different shapes imply consequences for the people in them. There are two levels at which such consequences are felt: the society in general and the family in particular.

   3.1. Figure 1 shows some sample population pyramids—graphs of the age structure of populations according to sex, for the United States, Japan, and Gaza in 2002, and one projected for Japan in 2050.[7] The United States has relatively low mortality at all ages and a moderate fertility rate and has a rate of natural increase of 0.6 percent per year. By 2002 these had produced an age pyramid that was approaching a columnar or rectangular shape. Relatively few people are born, proportional to the whole population, and mortality is rare until after about age 55. Because the United States has a high immigration rate, the shape of the pyramid is affected by migrants, however. Since most of these migrants are in the working ages, they swell the pyramid in those ages. To the extent that migrants have high fertility, they swell the bottom of the pyramid. The bulge around age 40-50 in the U. S. pyramid is the result of the baby boom of the 1950s. In Japan, the shrinkage at the low ages is the result of declining fertility. By 2050 fertility in Japan is projected to fall sufficiently, and old-age mortality is projected to improve so much that the growth rate will be close to zero, with the age structure resembling a triangle with the apex pointing downward.[8] By contrast, fertility is so high in Gaza in 2002—and mortality sufficiently low—that the annual rate of increase is 3.7 percent, and the shape of the pyramid is the reverse of what Japan's will be in 2050. The Gaza type of age pyramid is typical

of countries growing at a high rate. Egypt, Libya, the Sudan, the Western Sahara, Iraq, Jordan, Oman, the Palestinian Territories, Qatar, Saudi Arabia, and Syria are all growing at more than 2 percent per year.[9] The mean growth rate for North Africa and the Middle East is 2.1 percent, implying a doubling time of 33 years. The doubling time for the population of the Palestinian Territories is 19 years.[10]

3.2. To appreciate some general societal effects of age structures, think of a population as consisting not only of people but also of opportunities to be fully functioning adults—roughly speaking, "jobs" or the opportunity to marry. Our discussion is simplistic, but we offer it to paint a stark picture of how population age structure might affect the life chances of individuals. Imagine that these opportunities to become and progress as adults exist for persons aged 20-65. They are vacated as the incumbents die or retire and are successively vacated and filled as persons age upward in the opportunity structure and age structure simultaneously. At the lowest level (age 20) they are filled as those who were 19 last year become 20 this year. Ideally, the number of opportunities vacated by 20-year olds becoming 21 is equal to the number of persons aged 19 who survive to be 20. If their number is greater than the number of vacancies, some will be unemployed. At typical ages for marriage, some will be unmarried. These younger people will have to wait until an opportunity opens up. In the meantime, they may experience frustration. The greater the disparity between a larger, younger age group and the next older and smaller age group, the greater is this disparity between number of potential incumbents and number of opportunities.

Thus, in rapidly growing populations, one might expect slower advancement, delays in marriage because of delays in becoming economically self-sufficient,[11] sexual frustration, and the social and political consequences thereof. Of course, as we note below, societies have numerous opportunities—social, cultural, and economic—to ameliorate such conditions. We only wish to suggest their existence.

The demographic engine in a rapidly growing population is also on a runaway course. Every year there are increasing numbers of persons entering their reproductive period, who produce (at high rates) children who will produce even more children at similar rates. At the same time, as each age group (say, the 19-year-olds) ages upwards, their numbers exceed those of the persons one year older. Mortality is not high enough to bring their numbers down to what the next oldest were last year; the fertility engine has increased them. In the Palestinian Territories, 10.4 percent of the male population is aged 15-19, and about 8.9 percent is aged 20-24. The difference is 1.5 percent. We can think of this difference as a demographically induced crude "unemployment" rate—the difference between new aspiring workers and the jobs occupied by the next older group. By contrast, if the growth rate were zero, the proportions in those age groups would have been about 6.81 percent and 6.78 percent, respectively.[12] The difference due to mortality alone would thus be only about 0.03 percent (when growth is zero). The excess of males aged 15-19 in the rapidly growing population described, compared with the number in the stationary population,

amounts to 1.47 percent of the population (about 9,000 men in the Palestinian Territories, for example). It is produced by fertility-driven expansion alone. This is 9,000 young men who have poor prospects of employment, because they exceed by 9,000 the number of jobs vacated by the 20-24 year olds (if indeed all of those have jobs), or marriage, because they cannot support a family. This situation continues proportionally at each successive age group.[13]

Of course, the situation is more complex.[14] Where unemployment is high, wages fall, and more people may be hired at a lower wage (if there is work). If employment rises, more money is earned and spent, and the economy itself expands. Nevertheless the basic thrust of the simple model is compelling. Figure 2a shows the level of unemployment that might be anticipated at the boundary between age groups 15-19 and 20-24 according to the preceding arguments, if the mortality pattern were that of the model life table noted above, with expectation of life at birth about 71 years for males. This is not an untypical level for many countries of the Near East. The figure shows the excess of persons in each age group 15-19 compared with the next higher group across ages 20-24 for growth rates of 0, 0.005, 0.020, and 0.035. The disparity is about 0.03 percent at zero growth but about 1.7 percent at a growth rate of 3.5 percent per year. Figure 2b shows the total "unemployment" disparity across the ages 15-64. The total disparity is 1.85 percent at zero growth and is accounted for entirely by mortality as the population ages across the span. The gross disparity, discounting mortality, is by definition 0 at zero growth but about 9 percent at a

growth rate of 3.5 percent per year. The net disparity at that point is over 7 percent (amounting to 16,000 adult males in Gaza, for example). Of course, this disparity is in addition to any other unemployment level that may prevail for purely economic or political reasons.

3.3. There are several ways in which such problems can be ameliorated.

3.3.1. One way is to lower the population growth rate. Increased levels of mortality will have that effect, either by more rapidly emptying positions in the opportunity structure[15] or by diminishing the number of younger persons trying to move into them, or both. Increasing mortality is not a policy option, although as Malthus observed, it is often an outcome. Lowering fertility is a policy option, although it is vigorously opposed by some segments of the political spectrum in the United States and elsewhere, including ethnic groups that feel the need to keep their numbers high. Nevertheless, programs to lower fertility especially in poor countries have had beneficial effects over the past 50 years or so. It is important to observe that fertility has declined quite rapidly in some parts of the Muslim world. The classic levels, after World War II, were high. The total fertility rate (TFR) (roughly speaking, the number of children a woman could expect to bear if she lived out her reproductive span) was around 6.[16] It has fallen to 2.3 in Tunisia,[17] 3.1 in Algeria, 3.5 in Egypt, 2.5 in Lebanon and Turkey, but remains high at 6.8 in the Western Sahara, 5.9 in the Palestinian Territories, 5.7 in Saudi Arabia, and 7.2 in Yemen.[18] Note, however, that in an increasing population, continually increasing numbers of women enter their

reproductive years. Even with a reasonable decline in the birth *rate*, increasing *numbers* of children will be born, eventually to be parents, and a reasonable decline in fertility can only have a delayed effect on population size. The effect on the age distribution will be immediately felt at age zero, but effects on the labor market and in population reproduction will be delayed until the typical age of entry into the labor or marriage markets. Effects on the educational system will of course be felt somewhat sooner, and in parental investment in children, sooner than that.

3.3.2. Another way is to stimulate the opportunity structure to create more jobs. This is a policy that has been pursued along with family planning but with somewhat mixed results because economic development has sometimes led to the enrichment of a few and little benefit to the many, and has often been accompanied by enormous inefficiencies, including corruption. Roughly speaking, unemployment will not worsen as population growth increases, if the economy also increases. Just how much economic growth is necessary to offset some level of population growth is a difficult technical question that we do not address here.

3.3.3. A third way is to keep people off the job market by expanding the educational system. This is a particularly effective policy if economic development simultaneously provides local opportunities. Much depends on the kind of education offered. If it is strictly religious education, it carries few benefits of the kind described. If it is primarily in the humanities and law, it produces potential civil servants and bureaucrats, exacerbating

common tendencies to expand governmental bureaucracy, which only drag down the productive economy.

3.3.4. A fourth way is to expand military capacity, especially militias. This is relatively simple to do if only untrained foot soldiers are required and is clearly an option often taken, with disastrous results for local civil rights, the development of democratic government, and relations with neighboring states. A number of African cases are egregious examples.

3.3.5. A fifth way is to relax strictures on sexual activity, with appropriate attention to avoidance of pregnancy.[19] Where premarital cohabitation is accepted, individuals may be occupationally but not necessarily sexually frustrated. Relaxation of sexual restrictions often goes hand in hand with expansion of the educational system, especially if it is coeducational. Where premarital heterosexual relations are not allowed, homosexuality may be an avenue of gratification. It is most likely to occur in situations in which large numbers of young men are confined in groups, for example, in prisons, militias, armies, or gangs. Such behaviors, being usually taboo, are difficult to document, but the patterns seem not to be infrequent.[20]

3.4. Some other consequences can be observed at the family level. Clearly, families in rapidly growing populations are large. While a population at zero growth will have families that average two surviving children, one of each sex, a population growing at 2 percent per year (doubling every 35 years) will have four, and one growing at 4 percent (doubling every 17 years) will have eight. It is worth noting that current populations of Africa and the Middle East are all growing at more

than 2 percent, most are over 3 percent, and some are close to 4 percent (like Gaza, at about 3.7 percent). What are the consequences of population growth and family size at the family level?

3.4.1. More children will be younger children. An only son has no junior brothers; the proportion of brothers that are junior to the firstborn is zero. In a sibling set of four brothers, the proportion is 75 percent.

3.4.2. Parental investment in children is known to decrease for younger children (Blake 1989 inter alios). Partly this is a function of the fact that as the number of children in the family increases, parents must divide their efforts among more children, with lower shares for each succeeding child. Until a second child is born, the first one receives all the attention, but that attention is less for both when the second is born, and so on. These effects are offset if parental resources increase as the parents get older, but in poor populations in which resources do not increase much with age, this effect is negligible. They are also offset when older children become old enough to care for younger children, but that effect is delayed at least about 6 years (perhaps accelerated if the oldest child is a female).

3.4.3. Peer effects are also important. The oldest child has the company of adults. As the family grows in size, the personal environment becomes less and less adult, especially for the younger children and especially as the older children begin to take care of the younger ones. Thus the youngest children are socialized in a more juvenile atmosphere than the older ones and are in some sense deprived of adult influence. This effect is offset to some extent

if family structures are extended, so that children are socialized in the presence of grandparents, aunts, uncles, cousins, and children in the neighborhood or in school. Extended family structures are more common in poor countries, but the grandparents, aunts, and uncles have their own similarly numerous grandchildren or children, and the age structure of cousins will be about the same as that of sets of siblings. Children in schools are generally grouped by age. This offset is thus not likely to be large.

3.4.4. Many researchers have focused on the effects of sibling set position on personality. A recent exposition (Sulloway 1996) proposes that the eldest son identifies more with the parents and existing social structures and is thus traditionalist.[21] The youngest son, burdened by the power of parents and older siblings, is revolutionary. Sulloway's analysis has the defect of focusing on the outcomes and then considering the relative proportions of older and younger children. A more reliable strategy would have been to select random samples of sibling sets and analyze outcomes by birth order. This approach was in fact followed by Skinner (1992) in an analysis of Chinese families in Indonesia. Skinner's analysis was still more nuanced, including details of gender ratio and alternation. He showed that younger sons, especially if unbuffered by sisters, were less filial and politically more left wing. On the whole, research in this field does support the idea that younger sons are more rebellious. It follows that populations with high growth rates and thus large sibling sets and thus higher proportions of younger sons will produce children who are on average more rebellious

against both parental and state authority (see also Atchley 1989; Blake 1989).

4. Population dynamics in the Muslim world. Muslim populations are perhaps the most rapidly growing religiously defined populations in the world. It is not clear, however, that Muslim populations are growing rapidly simply because they are Muslim. A vast array of Muslim populations in sub-Saharan Africa have been growing at rates typical of their region, although apparently somewhat faster than neighboring Christian or other populations. Muslim populations in southeastern Europe are also growing more rapidly than neighboring Christian populations (Courbage 1992). In formerly Soviet Central Asia, Muslim fertility has been declining but still appears higher than that of neighboring non-Muslim populations. The same patterns seem to hold in India and Thailand, although perhaps not in Malaysia or even Indonesia. These exceptions raise the possibility that underlying differences in fertility and rates of growth may be importantly and perhaps largely determined by social and economic conditions. Religious adherence could be a quite minor factor.

   4.1. The most sophisticated treatments of the effect of religion or ethnicity on fertility have been given by Goldscheider (1971) and Chamie (1981). Chamie's work in Lebanon is perhaps most directly relevant to our own efforts. He distinguishes four hypotheses for explaining fertility differences between populations that vary in ethnicity or religion. One is the "particularized theology" hypothesis, holding that populations of different faiths have different fertility because of cultural differences rooted in religious doctrine. Another is the "characteristics"

hypothesis, holding that populations of different faiths have different socioeconomic characteristics, and it is these differences that drive the fertility differences, religion being only a proxy for these material differences. The third is the "minority group status" hypothesis, holding that minority groups tend to have different fertility, sometimes higher, sometimes lower, on account of their perceived social and political position.[22] The fourth, the "interaction" hypothesis, is that the force of doctrinal (and we would add) minority factors differs according to the socioeconomic characteristics of subpopulations. Thus, one might imagine the effects of religiously driven pronatalism to be stronger among lower class adherents to that religion than among upper class adherents, who might have been more exposed to cosmopolitan value systems.

4.2. Analyses of population in the Muslim world have been given by Ahmed (1987), Al-Haj (1987), Allman (1980), Alvi and Srivastava (1994), Amin et al. (1992), Bailey (1986), Bose (1989), Chamie (1981), Chaudhury (1971), Collymore (2002), Courbage (1992, 1994, 1995), Das and Ghosh (1988) Das and Pandey (1985), Duza (1987), Faour (1989), Fargues (1989, 1993), Friedlander and Feldman (1993), Friedlander and Schellehens (1991), Goldscheider (1999), Goldscheider and Friedlander (1987), Jayasree (1989), Johnson (1993), Karim (1997), Keysar et al. (1992), Khlat et al. (1997), Kirk (1967), Knodel et al. (1999), Kollehon (1994), Leete (1989), Leete and Tan (1993), Mazrui (1994), Moulasha and Rao (1999), Nigem and Nagi (1988), Obermeyer (1992), Roudi (2002), Saw (1989), Shariff (1995), Sharma (1994), Srivastava and Saksena (1989), Weeks (1988), inter alios.

Muslims constitute today as much as 1.5 billion persons in more than 50 countries. The distribution of the world's Muslim population is markedly asymmetric. About a third of the approximately 1.5 billion Muslims live in just three countries: China, India, and Indonesia, and half live in those three countries plus Pakistan, Bangladesh, and Nigeria. About a half of all Muslims live in countries in which the population is at least 90 percent Muslim, and a fifth live in countries in which they constitute 20 percent or less. Thus, Muslims tend to live either as a distinctly majority or distinctly minority population. Figure 3a shows the distribution of 131 countries by the proportion Muslim. Figure 3b shows a Lorenz curve of cumulative Muslim versus cumulative total population.[23] The cumulative proportion Muslim climbs more rapidly, then decreases more rapidly than does that of the world population; hence the Lorenz curve is above the "line of equality."

Some studies simply report Muslim versus non-Muslim fertility and do not deal with possible socioeconomic correlates of religious affiliation. Few consider the diversity of Islamic practice and in particular the syncretism with earlier belief systems, for example in Africa. Obermeyer (1992) and Chamie (1981) are exceptions, explicitly raising the issue of the diversity of Islam. Karim (1997) summarizes a range of these studies and offers the most extensive comparisons to date, but the presentation is cursorily descriptive rather than analytic. Although it is possible to summarize the outcomes of many of the studies listed above, it is

difficult to do so with assurance that the data and findings are comparable. Different instruments and different designs were employed in the various studies. They occurred across a considerable stretch of time, while fertility change was progressing rapidly in some places. We sought by contrast (and seek to implement in Part II) a more strictly comparative approach.

4.2.1. The TFR in Muslim countries in the mid-1990s ranged from 2.4 in Kazakhstan and Azerbaijan to 7.1 in Yemen. The percentage decline in the TFR between 1960-1965 and the mid-1990s ranged from zero in Guinea to 63 percent in Tunisia, the smallest declines being largely in sub-Saharan Africa, Oman, and Yemen, the largest in North Africa, South Central Asia, and a few in West Asia (Kuwait, Lebanon, Turkey) (Karim 1997, Table 1). Karim examines a "human development index" (HDI) based on life expectancy at birth, literacy, and gross national product (GNP) per capita, and an index of governmental family planning effort (FPE) (Karim 1997, Table 2). Data on 43 countries show the TFR to be negatively related to the HDI and FPE (Karim 1997, Figs. 1-2). Karim also examines DHS data on children ever born to women aged 40-49 and on the total marital fertility rate for marriages lasting up to 19 years in nine countries in a series of bivariate plots. Fertility is higher in rural than urban locations. Fertility is negatively related to level of female education. It is generally higher for women who marry younger (Karim 1997, Figs. 18-23). It should not surprise us that fertility is higher in rural than in urban locations (for any number of reasons). Neither should it surprise us that fertility usually is lower for the

more highly educated (perhaps often because their entry into reproduction is delayed by education). Similarly, it is a truism that women who marry earlier will tend to have higher fertility because they have been exposed longer to the risk of pregnancy. Indeed, we would be surprised if these outcomes were reversed, and in what follows we encounter some of those surprises.[24]

4.2.2. We first analyzed data from 148 countries in the World Bank online databases by multiple regression to test the effects of world region, the TFR in 1999, expectation of life at birth in 1999, and GDP per capita in 1999 on the child dependency ratio. Table 1 shows the results. GDP per capita, as a measure of population well-being, was negatively related to the child dependency ratio. (Richer countries have fewer dependent children.) The TFR was positively related—no surprise there, since high fertility produces high dependency ratios. Expectation of life, taken as a measure of quality of life, was negatively related. (Countries with poor expectation of life also have high proportions of dependent children.) All of these relationships are in accord with theoretical expectations; as the quality of life increases and fertility declines, the youth dependency ratio declines. The proportion of the population that was Muslim was also positively related, suggesting that the influence of Islam on the youth dependency ratio was positive.[25] Of course, countries are heterogeneous, and the use of countries as units of observation may mask important details. On these grounds we did not pursue intercountry analysis further with data of this kind but moved to multivariate

analysis of individual-level data. With that strategy we allow plausible explanatory variables to compete with one another (since they are highly intercorrelated). Furthermore, we can use individual-level data to ask whether variability is not so great as to cast doubt on simple differences between means in the bivariate comparisons that are so common in the literature. Part II of this report is based on those analyses using DHS data.

PART II

Analysis of Individual-Level Data by Country

1. The DHS data present some problems in analyzing the effects of religious adherence on fertility behavior.

   1.1. Although information on the religion and ethnicity of respondents is a standard part of the DHS protocol, those questions were not always asked in particular countries, perhaps because of their political sensitivity. Table 2 shows by country and year whether information on these variables is present. The table shows the estimated proportion of Muslims in the population from our subsample of the DHS data or the CIA World Factbook, or both. It also shows the size of the original survey sample and the size of the subsample we analyzed after excluding certain cases (see below).

   1.2. Even if information on religion is included, we have no information on the particular sect to which informants adhere. Since the varieties of Islam can be quite different in attitudes and practices relevant to family life and reproduction, we may expect substantial unpredictability on this account.

   1.3. Because politics and resource allocation in many of the countries examined have long been driven by factors of ethnicity and religion (for example, under the Ottomans), we can expect that religious adherence may be highly correlated with economic factors. Many predictors may be collinear. Thus, we may find substantial multicollinearity in the data, leading to the instability of coefficients.[26] Our solution to this problem for purposes of explanation is to use a small number of predictors for which we have good theoretical grounds. In

predicting, we relax the restriction and use a fully saturated and interacted model for exposition.

2. There are two main ways to explore the effects of socioeconomic and ethnic and religious factors on individual-level fertility behavior with the DHS data available, each with a variant. We strive to use a uniform model across countries, recognizing that no overall model is likely to fit an individual country as well as a specialized one might, and that no model specialized for an individual country is likely to perform as well across all countries.

   2.1. For countries with a sufficient number of Muslims or of non-Muslims in the sample, we analyze within country, using a dummy variable for Muslim and/or other religions as appropriate, and any appropriate interactions for such variables. The effects (slopes) for all variables are thus free to vary across countries, but are constrained to be the same within a country. We also conduct separate regressions for Muslims and non-Muslims (or other religious groups) within such countries; the effects of variables are then free to vary between religious groups. For example, in Egypt, where about 6 percent of the population is non-Muslim, we analyze using a Muslim dummy variable and also run separate regressions for Muslims and non-Muslims.

   2.2. Because some countries have very small numbers of non-Muslims in the sample, we select and analyze only for the dominant group, using the same variables (except the religious dummies). Where the survey data do not include religion but other information indicates that the country in question is almost entirely

Muslim, we accept the data as though it were a religiously homogeneous sample. For example, in Yemen the population is virtually 100 percent Muslim.

2.3. Each of the above approaches can be used with a pooled sample that includes more than one country, using dummy variables to identify countries or regions, and/or any appropriate interactions. Slopes are thus constrained to be the same across countries.

2.4. At this writing we have in hand data for Bangladesh, Egypt, India, Morocco, Pakistan, Sudan, Tunisia, Turkey, and Yemen. We include here analyses according to (2.1) for Bangladesh, Egypt, India, and Turkey and according to (2.2) for Morocco, Pakistan, Sudan, Tunisia, and Yemen.

3. The model employed in analysis focuses on the reproductive behavior of individual women in their extant first marriages as the primary component of the societal age dependency ratio and the structural unemployment consequent on population growth, as discussed above. We avoid the complications of including remarriages and the difficulties of dealing with pregnant widows or divorcees or women not at risk between marriages. At this stage in analysis we look only at the behavior of individual women within countries, without explicit comparative analysis across countries. The analytic tool is multiple linear regression (OLS).

3.1. The dependent variable is based on the number of children born to women, plus one if pregnant at time of survey (CEBPLUS). This number is dependent on two factors—the age of the woman at entry into first union and her age at time of survey. These determine not only the length of time at risk of pregnancy but also

underlying fecundability. Grouping women by 5-year age groups starting at age 15 and running through for entry into first union, and starting at age 15 and running through age 49 for age at time of survey, we construct a matrix on these two dimensions, excluding the few women who fall outside these limits. In each cell (age of entry by age at survey) we count CEBPLUS for each woman and compute the mean of CEBPLUS for that cell across all women in that cell. The dependent variable for the i^{th} woman in cell y,z is

CEBPLUS(i,y,z) - MEAN[CEBPLUS(y,z)].

This difference is thus the fertility of each woman relative to the mean fertility for her cell, thus relative to other women of similar age at entry and age at survey. By definition, all of these within cell (x,y) sum to zero. Consequently they will also sum to zero across all cells, so that in regression, the coefficients can be interpreted as estimating a difference from the population mean.

3.2. The predictor variables are as follows:

3.2.1. MUSLIM, 1 if Muslim, else 0. This variable is included because of the motivating concern with religious influence. Our expectation is that the effect will be positive. For some countries, where there is more than one non-Muslim religion, we may use separate dummies. In the presence of other socioeconomic variables, this is our estimate of the "effect of religion." It should be noted that the "effect of religion" is not necessarily or even likely to be the effect of doctrine bearing directly on reproduction, or even

on gender roles. Religion may only proxy for other socioeconomic factors of which we have no direct knowledge. Indeed, anthropological intuition suggests that some of what is interpreted as "Muslim" is more likely to be "ancient Near East."

3.2.2. URBAN, 1 if the residence is urban, else 0. Our expectation is that the effect will be negative.[27]

3.2.3. REGIONn, 1 if the residence is in REGIONn, else 0. This specification differs by country and is used to standardize for important ecological differences. In selecting regions, we seek those that have been less open to influence from developed countries and code the less open portion of the country as 1. We expect that under these circumstances the effect of the region dummy will be positive.[28]

3.2.4. CASH, 1 if the woman currently earns cash for work, else 0. This is an index of current female participation in the formal labor market. We use this rather than a more general measure because the effects of informal female labor, as in household or farm work, are uncertain. While we could use survey information on whether a woman has ever been paid for labor, we do not, since the data sometimes seem unclear or contradictory. We expect the effect of paid labor to be negative.

3.2.5. SSES. Each woman is rated according to her percentile rank on a simple scale of socioeconomic standing approximating procedures used by Macro International.[29] This scale uses the frequency of occurrence of a set of material possessions in the study sample, e.g., type of floor, bicycle, radio,

etc. Each woman whose household has any of the items receives a score, for each item, that is the reciprocal of the mean value in the sample. Thus, for example, if 5 percent of the households owned an automobile, a woman whose household had an automobile would receive a score on that item of 1/0.05, and all such scores would be summed for each woman. We expect that the effect of wealth on fertility will be negative.[30]

3.2.6. YRSPRIMED. We expect the effect of years of primary education to be negative, although we are cognizant of the fact that, in some traditional societies, the effect of very small exposure to education on fertility can be positive as traditional suppressors of fertility are abandoned.

3.2.7. YRSSECED. We expect the effect of years of secondary education to be negative, although we are cognizant of the fact that if education is strongly sectarian (as, for example, in Catholic parochial schools in some countries at some periods), the effect may be positive through indoctrination in religiously based pronatalist norms.

3.2.8. YRSHIGHED. We expect the effect of years of postsecondary education to be negative, on the grounds that such education is more likely to be substantive and technical rather than doctrinaire. This expectation of the nature of higher education could of course be unjustified in strongly fundamentalist contexts.

3.2.9. RELINFMORT. This measure of relative infant mortality is constructed in almost the same way as the dependent variable CEBPLUS. Classifying women by age at entry into union and age at time of survey, we count the

number of children who have died for each woman and compute the cell mean. We compute the ratio of dead children to children ever born for individual women and the mean ratio for all women in the cell. RELINFMORT is the difference between the ratio of dead to ever-born children for each woman and the mean of that ratio for the cell. We expect that the effect of RELINFMORT on CEBPLUS will be positive, either because of replacement effects or because of unobserved factors positively correlated with both infant mortality and fertility.

3.2.10. A number of interactions are possible between MUSLIM and other variables, URBAN and other variables, and REGIONn and other variables. We have used these sparingly in exploration and avoid them as much as possible because of the difficulties of multicollinearity and interpretation. Nevertheless, we recognize that the use of interactions is crucial to exploration of Chamie's "interaction hypothesis" (1981).

4. Some general results can be seen in Figures 4 and 5 and in Table 3.

4.1. Figure 4 shows a graph of the *standardized* regression coefficients, regressing the dependent variable (CEBPLUS) on the predictors described.[31] Each column in Figure 4 pertains to one of the samples. The samples shown are for entire countries when religion could not be distinguished but the Muslim percentage was very large, or for Muslims only when the data did permit separation by religion. Within each column the parts show the size of the standardized coefficient for each variable indicated in the legend. Note that the urban variable

has a negative effect in six of nine countries (not in Yemen, Pakistan, and Muslim India). Child loss always has a positive effect. The isolated region usually has a positive effect (except in Morocco). Primary education always has a negative effect, and secondary education usually does, except in Egypt. Higher SES scores have a negative effect in some places (Egypt, Tunisia, Turkey, Morocco, modestly in Muslim India, and in Muslim Bangladesh) but a positive effect in others (Yemen, Sudan, and Pakistan). Working for cash usually has a negative effect, except in Pakistan (where the positive effect is minute). The general trend of these results supports theoretical expectations and also suggests some broad regional differentiation. India and Bangladesh are very similar. Pakistan seems more like a poor country of the Middle East. There is some consistency between Egypt and Tunisia, less so with Morocco.

4.2. Figure 5 presents the same data, but ordered differently. Here the columns are for each variable, and the countries are the segments of those columns. The general direction of effect for each variable is clear. Urban is mostly negative, isolated region mostly positive, all forms of education are mostly negative (although the effect diminishes sharply the higher the level of education), and child loss has a strongly positive effect. Working for cash has a negative effect, but it is quite small, especially in some countries. SES sometimes has a negative effect (as some economic theories about the costs of childbearing and quality-quantity trade-offs would suggest), but sometimes a positive effect (as some other theories about children as a means of conspicuous consumption would suggest).

4.3. Table 3 presents the *unstandardized* coefficients for the same set of comparable subsamples as the figures discussed above. From these coefficients one can quickly judge the raw effect on fertility of each of the variables in the presence of the others. These data are given in much greater detail in Tables 4-12 for different kinds of samples drawn from the data, e.g., the entire country, Muslims vs. non-Muslims distinguished by a dummy variable, separate regressions for Muslims and non-Muslims, etc. These tables are informative but demand detailed and tedious reading.

5. Results for **Egypt** (Table 4). The REGIONn dummy is for Upper Egypt. We have mixed expectations for this variable but recognize that Upper and Lower Egypt are ecologically different, that Lower Egypt is more exposed to influences from the developed world, and that the proportion of Christians is higher in Upper Egypt. Table 4a gives the regression results for Muslims and non-Muslims. The overall result is significant but the model accounts for only about 13 percent of the variance. In the presence of the factors included, Muslims have about 0.30 of a child more than the average, urban dwellers about 0.32 of a child less, and residents of Upper Egypt about 0.39 of a child more. A year of primary education has a significant but minute negative effect, -0.036 of a child per year, but this translates into -0.36 for a woman who has finished 6 years of primary school. A year of secondary education has an insignificant and minute positive effect. The effect of higher education is insignificant and negatively miniscule. A woman who currently works for cash has about 0.12 of a child less, while women have about 0.002 of a child less for each

ascending percentile point on the SES scale. The effect of infant mortality is strongly positive and interpretable in this way: The coefficient is about 3 for a unit change of 1 in the difference between the individual ratio of dead to all children born and the mean ratio. Suppose the mean ratio were close to zero, while that for some individual woman who had lost all of her children would be one. The effect of that factor would be to triple the fertility of that woman, relative to the mean.

To give a hypothetical example across all these predictors, consider two hypothetical Egyptian women who were exactly average in all characteristics, except that one was Muslim, the other non-Muslim. What would their fertility be? The outcome of this exercise is that the predicted fertility for the Muslim average woman is 0.0166 above the population mean, while that of the non-Muslim average woman is 0.2814 below that mean, a difference of 0.298. Given a sample mean fertility of 3.93 children, the fertility of the Muslim woman would be 3.95, while that of the non-Muslim woman would be 3.65. This is the "Muslim effect" for an "average Egyptian woman."[32]

5.1. These results for Egypt show that most effects are as anticipated. Within Egypt, controlling for the other factors included, Muslim women have more children. Urban women have fewer. Women in Lower Egypt have fewer. Women working for cash have fewer. Richer women have fewer. Primary education depresses fertility, but secondary and higher education have no significant effect. Higher than average loss of children increases fertility. That being Muslim has a positive effect is important, because the analysis controls for wealth and

education. The outcome for Egypt is in accord with a number of other analyses, e.g., Courbage on Eastern Europe (1992), Friedlander and Feldman on Israel (1993), Knodel and others on Thailand (1999), inter alios. That outcome is also similar to the results from the intercountry analysis using World Bank data, where the effect of the proportion Muslim was positive.[33]

5.2. For purposes of comparison, we also split the Egyptian sample into Muslim and non-Muslim women and ran separate regressions. These results are given in Tables 4b and 4c. The results for the Muslim fraction are similar to those for the whole country, not surprisingly, since it constitutes 94 percent of the population. Urban residence lowers fertility, residence in Upper Egypt raises it, primary education lowers it, secondary and higher education have no significant effect. Working for cash and high SES status lower fertility. The loss of children raises fertility. The non-Muslim fraction of the population behaves in much the same way with respect to residence, region, education, and loss of children, but while the SES score and working for cash are negatively related to fertility, the coefficients are not statistically significant. The sample of non-Muslims is of course quite small.

6. Results for **Yemen** (Table 5). The REGIONn dummy for Yemen is South and East Yemen, the part away from the Red Sea, the capital, and the principal port of Aden, partly in a corner between southern Saudi Arabia and Oman, facing the Arabian Sea and the Indian Ocean. These results, treating the entire sample as Muslim for lack of any information other than the ubiquity of Islam, are somewhat different from those

for Egypt. Urban residence has no significant effect. However, the more isolated region, like Upper Egypt, has significantly higher fertility. Primary education depresses fertility, but, as in Egypt, secondary and higher education have no significant effect. Working for cash has no significant effect, and the effect of wealth is significant but minutely positive. As in Egypt, the loss of children is associated with higher fertility. The major discrepancies with the results for Egyptian Muslims are the lack of an urban effect or of working for cash and the positive (if minute) effect of wealth.

7. Results for **Sudan** (Table 6). The REGIONn dummy for Sudan is Kordofan and Darfur, but its effect is not significant. Note that the survey of the Sudan omitted the southern third of the country, which is more isolated and less Muslim. The urban dummy is not significant. Primary education has a negative and significant effect; other educational effects are not significant, although secondary education has a negative effect significant at the 10 percent level. The effect of child loss is positive and significant and that of working for cash is negative and significant at the 10 percent level. Running separate regressions for Muslims and non-Muslims does not clarify the relationships.
8. Results for **Tunisia** (Table 7). The REGIONn dummy for Tunisia is the southern interior. Muslim and non-Muslim cannot be distinguished in the survey data. The outcomes for Tunisia are nevertheless more like those for Egypt than those for Yemen or the Sudan. The urban effect is significant and negative, the regional dummy (Sahel and South) is significant and positive, primary education is significant and negative, and secondary education is also significant and negative. The effect of

child loss is significant and positive. The SES score and working for cash both have a negative effect, although they are significant only at the 10 percent level.

9. Results for **Morocco** (Table 8). Religion cannot be distinguished in the data for Morocco. Nevertheless, the results, like those of Tunisia, are similar to those for Egypt. The urban effect is significant and negative. The "isolated region" (southern Morocco) also has a significant effect, but it too is negative.[34] The effect of primary education is significant and negative; the effects of secondary and higher education are not significant. Loss of children has a significant positive effect. SES has a significant and negative effect, but working for cash does not have a significant effect.
10. Results for **Pakistan** (Table 9). Religion cannot be distinguished in the data for Pakistan. The urban dummy is positive and significant. The regional dummy is not significant (see earlier comments on the difficulties of picking the isolated region in Pakistan). Primary and secondary education are both negative, but the former is significant only at the 10 percent level. Child loss has a significantly positive effect. The SES score has a significant negative effect, but working for cash has no significant effect.
11. Results for **India** (Table 10). Religion can be distinguished for India. Muslims have higher fertility than non-Muslims in general (and deeper analysis shows that they have higher fertility than both Hindus and Sikhs). The regional dummy is the northeastern region toward Bangladesh, and its effect is positive. Urban women have fewer children. Both primary and secondary education has a significant negative effect. Child loss has a significant positive effect. SES and working for cash have a

significant negative effect. Only the urban dummy and child loss continue to have significant effects for the Muslim-only subsample.

12. Results for **Bangladesh** (Table 11). Religion can be distinguished for these data. Muslims have higher fertility than non-Muslims. Urban women have fewer children. The "isolated region" (Chittagong and Barisal) has a significant and positive effect. Both primary and secondary education have a significant negative effect, as do SES and working for cash. Child loss has a significant positive effect. Bangladesh looks a lot like India, but Pakistan looks more like Yemen.
13. Results for **Turkey** (Table 12). Religion is identifiable in these data. The Muslim dummy is insignificant; the fertility of Muslims in Turkey is, all else equal, indistinguishable from that of non-Muslims. Note, however, that 90 percent of the population is Muslim (about like that of Egypt) but most of the remaining 10 percent did not answer the religion question (claimed "don't know"). Fertility is higher in the more isolated region (eastern Turkey). Urban fertility is lower. The effect of both primary and secondary education is negative and significant. The effect of higher education is not significant at 0.05, but it is positive, although minute. As in the other countries examined, child loss has a positive effect. The wealth effects (SES and cash) are negative and significant. In Table 12b, for Muslims only, the effects are, not surprisingly, similar. We do not learn much from Table 12c (non-Muslims), again not surprisingly, given the responses on the religion question. All in all, Turkey looks a lot like Egypt. Note that it is the most secular of the Muslim countries examined thus far. Everything that we see for Turkey conforms to prior expectations

from theory (except for the distinction between Muslim and non-Muslim, which we think is a data problem).

PART III

Discussion

This as yet cursory attempt to examine the simultaneous effects of socioeconomic, ecological, and cultural variables on fertility in the Muslim world had a particular motivation and enjoys modest advantages over some previous efforts in the literature. It was motivated by the theoretical position that political unrest in that world (as elsewhere) was in some measure a function of rapid population growth leading to high youth dependency ratios, inferior technical education, high unemployment, delayed entry into full adult status, and rebellion both at the societal and family levels.[35] Unlike some other explorations of fertility, it is explicitly comparative and uses a rather consistent survey instrument across time and space. Of course, as noted, the use of a broad and consistent instrument is both a blessing and a curse. Consistency is a virtue in comparison, but no consistent comparative instrument is likely to be locally adequate.

The model employed thus far is a simple one. It could be enriched by the addition of other variables. A more detailed SES scale could be developed, but that is a major undertaking that even Macro International has not completed for all the DHSs involved. Measures of exposure to mass media could be developed to complement the rather ad hoc "isolated region" variable that we used, but the mass media questions in the several surveys are not entirely consistent. They are also not so easily interpretable.[36] Husband's education could be used in addition to the education of the respondent, but our explorations of this showed little value added, and the dangers of multicollinearity would be increased.[37] Further work might explore explicit interaction of variables, such as

Muslim * SES. It might also pool the data, identifying countries by a dummy variable or attempting to evaluate their degree of exposure to Western norms. The analysis could be expanded to include countries with sufficiently large Muslim populations outside of North Africa, the Middle East, and South Asia, especially to see whether "being Muslim" (with controls for other variables) enhances fertility.

Conclusions

Where direct and controlled comparisons can be made, Muslims have higher fertility than non-Muslims. To assert that they have higher fertility because they are Muslim would be premature. First, it is hard to make consistent and plausible arguments that religious doctrine per se enhances Muslim fertility. Indeed, just the opposite would seem to be demonstrated by some Islamic writings. The Koran explicitly endorses long breastfeeding, a practice that would reduce fertility. The Hadith appears to contain no specifically pronatalist arguments. Second, characteristics of social organization usually associated with Islam (gender roles, in particular) may reflect only that Islam is the most consistent inheritor of the traditions of the ancient Near East. The subordination of women to men is a consistent part of the culture of early civilizations, especially in their lesser legal status (as in Roman law), or their restriction to the domestic scene (as in purdah or other forms of separation from public life), and their restricted access to education. Third, "being Muslim" may simply proxy other characteristics (in addition to the broad historical ones noted) that are not observable in the data. But for the moment, the empirical observation stands: Muslim fertility, controlled for a spectrum of

theoretically relevant factors, is higher than that of other groups (some sharing much of the same historical and Abrahamic tradition, such as Christianity and Judaism).

Broadly speaking, and leaning as much on intuition as on statistics, there appear to be at least two or perhaps three kinds of countries along a rough continuum of exposure to the world economy and a global and European-dominated culture. Countries like Tunisia, Turkey, and Egypt are at one end of this continuum, Yemen, Pakistan, and Sudan at the other. The effect of being Muslim appears least important at the former end, more important at the latter. The effects of some variables, such as SES and urban residence, reverse themselves, being in accord with Western-based theoretical expectations at the "developed" end of the continuum and opposite at the "isolated" end. These results are entirely in accord with Chamie's findings in Lebanon (1981) that the effect of Islam was apparent mostly (or only) among the lower classes. They are also in accord with some data from Israel that show ultra-Orthodox Sephardim to have fertility close to that of Israeli Arabs (although not as high and of course far from that of Palestinians). These Sephardim (many of them from Morocco and Yemen) are as religiously conservative as "Islamists." Our data, and our intuitions, lead us to support Chamie's "interaction hypothesis," although we interpret "interaction" more broadly to include more than religion and SES. Our data also underline his prescient observations about the demographic threats to the Lebanese political system. The high fertility that we posit as a runaway engine resulting in a train wreck of poverty, frustration, rebellion, and violence is itself a function of those historical conditions. The policy question is, how is this cycle to be broken?

Notes

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[2] The role of population dynamics in political instability has been treated in various ways. A recent broad overview of "political demography" is to be found in Weiner and Teitelbaum (2001), with antecedents in Weiner (1993). See also Chamie (1981), Fargues (1989, 1993), Kaplan (1994), and the references therein. Concerning the demography of Muslim populations, see Chamie (1981), Courbage (1992, 1994, 1995), Obermeyer (1992), Kirk (1967), and the references therein. More broadly, on the issue of demographic structure and change and their relationship to social and psychological outcomes, see Atchley (1989), Meyers (1989), Featherman (1989), and the references therein. The origins of speculation about the relationship between population and political power and the stability of social organization lie of course with Plato and later with Machiavelli and Ibn Khaldun.

[3] The DHSs are the successor to the World Fertility Survey and are conducted worldwide by Macro International, Inc. The respondents typically are a stratified sample of women of childbearing age, and sometimes their conjugal partners. DHSs have been conducted in several waves in over 60 countries. An attempt is made to keep data structure

consistent across countries in the same wave and between waves. Nevertheless, not all questions in the protocol are implemented in each country. A notable example of this lack of uniformity, and important for our examination, is the lack of information on religion and ethnicity of respondents, sometimes within the same country across successive DHS waves.

[4] Not to mention what they are producing. Elderly grandmothers frequently "produce" childcare, thereby liberating their daughters to produce "goods." Children frequently also "produce" childcare for younger siblings, liberating their mothers to produce "goods."

[5] The ratio of production to consumption by children as they mature is a matter of great dispute. An emerging view is that even in subsistence economies they do not pay their own way until well into their teens, if then. This topic is too large and contentious to address here.

[6] If the data underlying the age pyramid include migrants, the distribution will not be a simple result of the interaction of mortality and fertility.

[7] While our discussion of stable populations and their underlying rates pertains to closed populations (with no migration), these age pyramids prepared by the U.S. Bureau of the Census include known effects of past migration, and for projections into the future, estimated effects of future migration.

[8] The population pyramid for Japan in 2050 is of course a projection based on assumptions about the behavior of birth and death rates over the next half-century. We include it only to show the dramatic effect that extreme rates have on population age structure, with populations like Gaza at the other extreme. In respect of the foregoing caveats on migration, note that migrational effects in Japan are typically small.

[9] By contrast, the population of Europe was growing at a peak of about 2 percent per year in the 18th and 19th centuries. That rate was sufficient to alarm Malthus. The British colonies in North America, able to arrogate land at will from the indigenous inhabitants, were growing at close to 3 percent, an unheard of rate.

[10] Population Reference Bureau World Population Data Sheet. http://www.prb.org/Content/NavigationMenu/Other_reports/2000-2002/2001_World_Population_Data_Sheet.htm. For purposes of comparison, note that at a growth rate of 1 percent, the doubling time is about 70 years, at 2 percent about 35 years, at 3 percent about 23 years, at 4 percent about 17 years. The doubling time is ln(2)/r where r is the annual rate of increase expressed as a decimal fraction.

[11] We are obliged to an anonymous reviewer for the suggestion that a weak economy may generate insufficient housing units to accommodate newly married couples. This kind of deficiency is of course often overcome by extended family residence patterns.

[12] Estimated from the model life table: Coale-Demeny Model West, level 23.

[13] Perhaps it should be remarked that demographic problems of this kind are not the only ones characterizing the population described. Exclusivity of explanation is not our intent.

[14] Fargues (1989:155) presents a simple model like the one described here for the marriage market. For the complexities of the job market, see Bloom and Freeman (1986).

[15] By "opportunity structure" here we mean the set of openings, such as employment, marriage, or other markers of adulthood, differentiated by age and sex.

[16] Strictly speaking the TFR is a "period" rate, estimated simultaneously for all women of reproductive age at a point in historical time. It combines the experience, for example, of

women aged 20 and of women aged 40, as though the women aged 20 would have the fertility of those aged 40 when they themselves reached 40, and as though the women aged 40 had had the fertility of those aged 20 when they themselves had been 20. Since fertility rates change over historical time, the TFR as a period rate is only an approximation of what history will ultimately show the fertility rate to have been. But if you cannot wait to find out, the TFR is a reasonable approach and commonly used.

[17] Tunisia is the classic case of rapid fertility decline in the Muslim world.

[18] For comparison, note that under conditions of relatively low mortality, a TFR of about 2.1 is sufficient to achieve a zero growth rate. This is "replacement level" fertility.

[19] This is intended as a demographic, not moralistic, stricture.

[20] See also www.escap-hrd.org/sae/pakistan.pdf for a U.N. report on sexual exploitation of children in Pakistan, especially p. 16 on "beardless youths" on the Northwest Frontier. See also Smith (2002).

[21] Sulloway's work has been sharply challenged. See, for example, Freese et al. (1999).

[22] "Minority" can be understood either in terms of numerical balance or in terms of political power, or both.

[23] A "Lorenz curve" or its algebraic summary in the "Gini coefficient" is typically used to show the degree of inequality in a distribution. For example, if a thousand people are ranked by their income, and if those incomes are cumulated along that rank order, a result might be "the top 10 percent of people earn 50% of the money," whereas another population might show that "the top 10 percent of people earn 75% of the money." The degree of inequality would be greater in the second population than in the first. If there

were perfect equality, the Lorenz curve would lie on the diagonal of the chart with the result that "the top 10 percent of people earn 10% of the money."

[24] For example, we show that the ordinary expectations that fertility will be significantly lower in urban contexts, or where people are wealthier, or where they are more educated, are not always borne out by analysis.

[25] The table gives the p values for the coefficients. However, since 148 countries constitute about three-fourths of the countries of the world, the comparisons are closer to involving a universe of data than to a sample, and the p values may not be important.

[26] For example, if some variable y is correlated with a set of variables x1, x2, … ,xn, and if the x variables themselves are not at all correlated with one another, the estimate of their individual correlations with y will be unaffected by which ones are jointly included in the analysis. On the other hand, if the x variables are strongly correlated, the estimate of their individual correlations will be greatly affected by which ones are included or excluded and even by the order in which they enter into the regression analysis. Thus, to say that one variable has a greater effect than another may be unwarranted or misleading. However, if all the variables are taken into account and the intent is to predict the value of y rather than explain it, the instability of the coefficients of the x variables does not matter, since they will all jointly predict in the same way no matter what their intercorrelations are.

[27] Other important variables may be proxied by "urban." For example, it is probably easier to obtain advice on family planning in urban locales. Access to mass media may be easier (although it is not at all clear to us what it means to read the newspaper or watch TV when the data say nothing about which newspaper is read or what kinds of programs

are watched). We explored using other variables that might indicate access to family planning facilities, such as vaccination rates for children. Such data were not consistently reported across countries and survey waves. Using as predictors knowledge and practice of contraception, which one might think would be negatively related to fertility, yields a counterintuitive positive selection result, since it is women who have reached higher parities who employ contraception in "stopping" behavior.

[28] In some cases, picking the isolated region seems straightforward, as in picking Upper Egypt or the interior of Tunisia. Picking that region for other regions is more difficult. For example, Pakistan has important gateways to the world at either end—Karachi in the south and the capital, Peshawar, in the north, below the Khyber Pass and the gateway to Central Asia. Kashmir would have been a good choice, but it was not included in the survey data.

[29] Macro International, in providing data to the World Bank Poverty Group, divides the sample into quintiles. However, for our purposes we saw no reason to lose the refinement available in a simple rank ordering of respondents. Note that these SES scores are based on the country means and are thus comparable across countries in terms of the relative SES of individuals within them.

[30] This measure, and especially our implementation of it, is open to question. First, we used only 10 items rather than the 40 used by Macro International. Macro International has not yet computed SES scores for all of their surveys. Second, while Macro International uses factor-analytic procedures to develop the scale, we used the inversion of the mean as described. There is a problem with this procedure, which we illustrate by example. Suppose that most people buy an automobile before they buy a motorcycle.

The frequency of ownership of autos will be higher than that of motorcycles, and so the score for owning a motorcycle is higher than that for owning an auto, even though the cost and thus the wealth implications of owning an auto are higher than those of owning a motorcycle (unless people only buy a motorcycle after buying a car). We do not know in fact how serious this problem is in the data, but it behooves caution in interpretation. Finally, where most respondents are abysmally poor, the distribution on the SES scale will be highly clustered at zero, so that the variable, having little variance, will be useless as a predictor.

[31] Using the *standardized* coefficients (relative to the standard deviation of each coefficient) allows one to compare the *relative* effect of variables on different underlying scales.

[32] We used a fully saturated interactive regression model in estimating the effect of religious differences. That approach can be taken only for the subset of countries in which respondents were identified by religion. Thus far, we have done that only for Egypt, where the number of non-Muslim respondents is sufficient to allow some confidence in the stability of the result.

[33] As earlier noted, that effect was not "significant" at the 0.05 level, but the use of criteria of statistical significance in this instance is moot, since the sample used in the regression almost constitutes the universe of countries.

[34] There may be important ethnic differences between the North and South that are not detectable in the survey data.

[35] Some commentators have stressed that many or most of the planners and participants in the attack of September 11 on New York were neither poor nor uneducated. This

observation may miss the point that the demographic and economic conditions discussed here create a social environment in which less poor and more educated individuals can emerge as leaders of the masses, reflecting and focusing their dissatisfaction.

[36] These measure include the amount of time people spend listening to the radio, watching TV, how often they read the newspaper, and so on. The same measures are not used in all surveys. It is not clear whether an hour of watching TV in one country is equivalent to an hour of TV in another, especially in terms of exposure to cosmopolitan culture.

[37] Husband's education will be strongly correlated with wife's education.

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TABLE 1
Child Dependency Regressed on Endogenous, Socioeconomic, and Cultural Factors

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.97294931
R Square	0.946630361
Adjusted R Square	0.943149732
Standard Error	0.059027248
Observations	148

	Coefficients	*P-value*
Intercept	0.151370475	0.0669
MENA	0.004333345	0.8672
SSAF	0.036886382	0.1532
SCAS	0.08180526	0.0005
ASIA	0.023922325	0.1884
AMER	0.06928645	0.0003
PMUSLIM	0.03826385	0.0908
TFR1999	0.12562383	0.0000
e01999	-0.000296352	0.7807
GDPPC99	-2.912E-06	0.0002

MENA = Middle East and North Africa.
SSAF = Sub-Saharan Africa.
SCAS = South and Central Asia.
ASIA = East and Southeast Asia.
AMER = North, Central, and South America.
PMUSLIM = proportion of the population that is Muslim.
TFR1999 = total fertility rate in 1999.
e01999 = expectation of life at birth in 1999.
GDPPC99 = gross domestic product per capita in 1999.

TABLE 2
Population, Sample Size, Percent Muslim by Country by the DHS

Country	DHS Date	Full DHS Sample Size[1]	Sample Size[2] (used for this analysis)	Sample Percent Muslim	Sample Mean Children Ever Born +1 if Pregnant (std.error)	Total Fertility Rate in 2001 (births)[3]	Population Growth Rate (percent)[3]	Population 2001 (thousands)[3]	Population Percent Muslim[3]
Bangladesh	1993-94	9,640	8,042	87	3.52 (0.0286)	2.78	1.59	131,270	83
Bangladesh	1996-97	9,127	7,544	88	3.31 (0.0279)	2.78	1.59	131,270	83
Bangladesh	pooled 1994&1997	NA	15,586	87	3.42 (0.0020)	2.78	1.59	131,270	83
Egypt	1992	9,864	8,686	94	3.96 (0.0290)	3.07	1.69	69,537	94
Egypt	1995	14,779	13,096	94	3.91 (0.0238)	3.07	1.69	69,537	94
Egypt	pooled 1992&1995	NA	21,782	94	3.93 (0.0184)	3.07	1.69	69,537	94
India	1992-93	89,777	82,555	10	3.16 (0.0076)	3.04	1.55	1,029,991	12
Morocco	1987	5,982	4,670	NA	4.49 (0.0464)	3.05	1.71	30,645	99
Morocco	1992	9,256	4,495[4]	NA	4.29 (0.0460)	3.05	1.71	30,645	99
Morocco	pooled 1987&1992	NA	9,165	NA	4.39 (0.0327)	3.05	1.71	30,645	99
Pakistan	1991	6,611	6,171	NA	4.31 (0.0372)	4.41	2.11	144,617	97
Sudan[5]	1989-90	5,860	4,791	98	4.62 (0.0473)	5.35	2.79	36,080	70
Tunisia	1988	4,184	3,843	NA	4.11 (0.0428)	1.99	1.15	9,705	98
Turkey	1998	8,576	5,657	90	2.96 (0.0297)	2.12	1.24	66,494	99
Yemen	1991-92	6,010	4,704	NA	4.92 (0.0499)	6.97	3.38	18,073	99

[1] Most, but not all, DHSs for these countries use a sampling universe of ever-married women, ages 15–49.
[2] To maintain continuity in terms of exposure to childbearing, we have limited our samples used for analysis to women in current first marriages.
[3] CIA World Factbook (http://www.cia.gov/cia/publications/factbook/).
[4] Sampling universe of all women, so limiting to the purified sample removed proportionately more women than from other surveys.
[5] Southern third of Sudan was not included due to open warfare at time of survey.

TABLE 3
Summary Table
Unstandardized Coefficients from Whole-Country Regressions

Variable (effects significant at p < 0.05 are in **bold face**)	Egypt: Muslims Only	Tunisia: All Muslims Assumed	Turkey: Muslims Only	Bangladesh: Muslims Only	India: Muslims Only	Morocco: All Muslims Assumed	Pakistan: All Muslims Assumed	Yemen: All Muslims Assumed	Sudan: Muslims Only
Urban dummy	**-.311**	**-.422**	**-.266**	**-.115**	**.107**	**-.650**	**.170**	.124	-6.861E-02
Regional dummy	**.384**	**.251**	**.986**	**.456**	**.142**	**-.328**	7.945E-02	**.576**	5.532E-02
Years of primary education	**-5.611E-02**	**-4.695E-02**	**-.183**	**-3.238E-02**	**-.109**	**-6.342E-02**	-3.679E-02	**-3.718E-02**	**-2.831E-02**
Years of secondary education	8.530E-03	**-7.365E-02**	**-5.728E-02**	**-9.700E-02**	**-8.265E-02**	-1.728E-02	**-9.391E-02**	-.104	-3.815E-02
Years of higher education	-1.436E-02	-5.644E-03	8.320E-02	-2.325E-03	-2.983E-03	-5.947E-02	-8.121E-02	-6.963E-03	-3.815E-02
Child loss: difference between individual and average ratio of dead to ever-born children	**2.936**	**3.102**	**3.159**	**1.824**	**1.460**	**2.132**	**2.095**	**1.824**	**1.090**
Simple SES percentile	**-1.759E-03**	-2.165E-03	**2.709E-03**	**-1.963E-03**	-2.665E-04	**-3.506E-03**	**3.487E-03**	**7.715E-03**	1.234E-03
Currently working for cash	**-.109**	-.179	**-.243**	**-.196**	-5.532E-02	-4.944E-02	2.345E-02	-.153	-.172

Regression Results, Main Model
(Effects Significant at p < .05 are in **bold face**)

Table 4a
Egypt
Muslims and Non-Muslims

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Egypt: Muslims and Non-Muslims	.366(a)	.134	.134	1.67343982

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: MUSLIM, dummy: URBAN, Years of Higher Education, dummy: Upper Egypt, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
Egypt: Muslims and Non-Muslims	Regression	9455.344	9	1050.594	375.158	.000(a)
	Residual	60970.327	21772	2.800		
	Total	70425.671	21781			

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: MUSLIM, dummy: URBAN, Years of Higher Education, dummy: Upper Egypt, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Egypt: Muslims and Non-Muslims	(Constant)	1.738E-02	.057		.306	.760
	dummy: MUSLIM	**.298**	**.049**	**.039**	**6.092**	**.000**
	dummy: URBAN	**-.323**	**.027**	**-.089**	**-12.022**	**.000**
	Regional dummy: Upper Egypt	**.386**	**.025**	**.105**	**15.264**	**.000**
	Years of Primary Education	**-5.629E-02**	**.006**	**-.087**	**-9.231**	**.000**
	Years of Secondary Education	9.139E-03	.007	.015	1.376	.169
	Years of Higher Education	-1.312E-02	.014	-.007	-.947	.344
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**2.993**	**.077**	**.251**	**39.053**	**.000**
	Simple SES Percentile	**-1.751E-03**	**.000**	**-.028**	**-3.697**	**.000**
	Currently Working for Cash	**-.116**	**.037**	**-.023**	**-3.147**	**.002**

a Dependent Variable: dependent3: Difference Fertility

Table 4b
Egypt
Muslims Only

Model Summary

Model	R dummy: MUSLIM = 1 (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
Egypt: Muslims Only	.358(a)	.128	.128	1.67780156

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: URBAN, dummy: Upper Egypt, Years of Higher Education, Simple SES Percentile, Years of Primary Education, Years of Secondary Education

ANOVA(b,c)

Model		Sum of Squares	df	Mean Square	F	Sig.
Egypt: Muslims Only	Regression	8469.702	8	1058.713	376.094	.000(a)
	Residual	57645.940	20478	2.815		
	Total	66115.642	20486			

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: URBAN, dummy: Upper Egypt, Years of Higher Education, Simple SES Percentile, Years of Primary Education, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

c Selecting only cases for which dummy: MUSLIM = 1

Coefficients(a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Egypt: Muslims Only	(Constant)	.309	.029		10.706	.000
	dummy: URBAN	**-.311**	**.028**	**-.086**	**-11.250**	**.000**
	Regional dummy: Upper Egypt	**.384**	**.026**	**.104**	**14.776**	**.000**
	Years of Primary Education	**-5.611E-02**	**.006**	**-.087**	**-8.917**	**.000**
	Years of Secondary Education	8.530E-03	.007	.014	1.238	.216
	Years of Higher Education	-1.436E-02	.015	-.008	-.981	.327
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**2.936**	**.079**	**.246**	**37.065**	**.000**
	Simple SES Percentile	**-1.759E-03**	**.000**	**-.028**	**-3.600**	**.000**
	Currently Working for Cash	**-.109**	**.038**	**-.021**	**-2.841**	**.005**

a Dependent Variable: dependent3: Difference Fertility

b Selecting only cases for which dummy: MUSLIM = 1

Table 4c
Egypt
Non-Muslims Only

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	dummy: MUSLIM = 0 (Selected)			
Egypt: Non-Muslims Only	.473(a)	.224	.219	1.59743962

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: Upper Egypt, Years of Higher Education, Simple SES Percentile, Years of Primary Education, dummy: URBAN, Years of Secondary Education

ANOVA(b,c)

Model		Sum of Squares	df	Mean Square	F	Sig.
Egypt: Non-Muslims Only	Regression	946.598	8	118.325	46.369	.000(a)
	Residual	3281.632	1286	2.552		
	Total	4228.230	1294			

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: Upper Egypt, Years of Higher Education, Simple SES Percentile, Years of Primary Education, dummy: URBAN, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

c Selecting only cases for which dummy: MUSLIM = 0

Coefficients(a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Egypt: Non-Muslims Only	(Constant)	.106	.147		.718	.473
	dummy: URBAN	**-.538**	**.122**	**-.148**	**-4.422**	**.000**
	Regional dummy: Upper Egypt	**.385**	**.112**	**.100**	**3.428**	**.001**
	Years of Primary Education	**-6.339E-02**	**.025**	**-.097**	**-2.557**	**.011**
	Years of Secondary Education	2.506E-02	.025	.045	1.003	.316
	Years of Higher Education	-2.532E-03	.042	-.002	-.060	.952
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**3.874**	**.303**	**.324**	**12.798**	**.000**
	Simple SES Percentile	-1.025E-03	.002	-.017	-.529	.597
	Currently Working for Cash	-.189	.139	-.043	-1.359	.174

a Dependent Variable: dependent3: Difference Fertility

b Selecting only cases for which dummy: MUSLIM = 0

Table 5
Yemen
All Muslims Assumed

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Yemen: All Muslims Assumed	.210(a)	.044	.043	2.15030012

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, Simple SES Percentile, regional dummy: South & East, Years of Higher Education, Years of Primary Education, dummy: URBAN, Years of Secondary Education

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
Yemen: All Muslims Assumed	Regression	1005.194	8	125.649	27.175	.000(a)
	Residual	21727.192	4699	4.624		
	Total	22732.386	4707			

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, Simple SES Percentile, regional dummy: South & East, Years of Higher Education, Years of Primary Education, dummy: URBAN, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Yemen: All Muslims Assumed	(Constant)	-.749	.097		-7.712	.000
	dummy: URBAN	.124	.094	.024	1.321	.187
	Regional dummy: South & East	**.576**	**.075**	**.119**	**7.654**	**.000**
	Years of Primary Education	**-3.718E-02**	**.018**	**-.042**	**-2.068**	**.039**
	Years of Secondary Education	-.104	.086	-.026	-1.206	.228
	Years of Higher Education	-6.963E-03	.068	-.002	-.103	.918
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**1.824**	**.184**	**.143**	**9.892**	**.000**
	Simple SES Percentile	**7.715E-03**	**.001**	**.101**	**5.504**	**.000**
	Currently Working for Cash	-.153	.197	-.013	-.778	.437

a Dependent Variable: dependent3: Difference Fertility

Table 6
Sudan
Muslims Only

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	dummy: MUSLIM = 1 (Selected)			
Sudan: Muslims Only	.129(a)	.017	.015	1.83207398

a Predictors: (Constant), Currently Working for Cash, regional dummy: Kordofan and Darfur, Difference between Individual and Average Ratio of Dead to Ever-Born Children, Years of Higher Education, Years of Primary Education, dummy: URBAN, Years of Secondary Education, Simple SES Percentile

ANOVA(b,c)

Model		Sum of Squares	df	Mean Square	F	Sig.
Sudan: Muslims Only	Regression	266.927	8	33.366	9.941	.000(a)
	Residual	15701.684	4678	3.356		
	Total	15968.611	4686			

a Predictors: (Constant), Currently Working for Cash, regional dummy: Kordofan and Darfur, Difference between Individual and Average Ratio of Dead to Ever-Born Children, Years of Higher Education, Years of Primary Education, dummy: URBAN, Years of Secondary Education, Simple SES Percentile

b Dependent Variable: dependent3: Difference Fertility

c Selecting only cases for which dummy: MUSLIM = 1

Coefficients(a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Sudan: Muslims Only	(Constant)	5.844E-02	.068		.863	.388
	dummy: URBAN	-6.861E-02	.068	-.018	-1.006	.315
	Regional dummy: Kordofan and Darfur	5.532E-02	.063	.014	.883	.377
	Years of Primary Education	**-2.831E-02**	**.014**	**-.040**	**-1.999**	**.046**
	Years of Secondary Education	-3.815E-02	.022	-.035	-1.755	.079
	Years of Higher Education	3.373E-02	.068	.008	.495	.621
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**1.090**	**.163**	**.098**	**6.708**	**.000**
	Simple SES Percentile	1.234E-03	.001	.019	.962	.336
	Currently Working for Cash	-.172	.115	-.023	-1.503	.133

a Dependent Variable: dependent3: Difference Fertility

b Selecting only cases for which dummy: MUSLIM = 1

Table 7
Tunisia
All Muslims Assumed

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Tunisia: All Muslims Assumed	.343(a)	.118	.116	1.67640370

a Predictors: (Constant), Currently Working for Cash, regional dummy: Sahel and South, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: URBAN, Years of Higher Education, Years of Secondary Education, Years of Primary Education, Simple SES Percentile

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
Tunisia: All Muslims Assumed	Regression	1440.958	8	180.120	64.092	.000(a)
	Residual	10774.803	3834	2.810		
	Total	12215.761	3842			

a Predictors: (Constant), Currently Working for Cash, regional dummy: Sahel and South, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: URBAN, Years of Higher Education, Years of Secondary Education, Years of Primary Education, Simple SES Percentile

b Dependent Variable: dependent3: Difference Fertility

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Tunisia: All Muslims Assumed	(Constant)	.470	.057		8.248	.000
	dummy: URBAN	**-.422**	**.069**	**-.117**	**-6.081**	**.000**
	Regional dummy: Sahel and South	**.251**	**.058**	**.067**	**4.348**	**.000**
	Years of Primary Education	**-4.695E-02**	**.012**	**-.071**	**-3.760**	**.000**
	Years of Secondary Education	**-7.365E-02**	**.022**	**-.061**	**-3.279**	**.001**
	Years of Higher Education	-5.644E-03	.067	-.001	-.084	.933
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**3.102**	**.210**	**.226**	**14.778**	**.000**
	Simple SES Percentile	-2.165E-03	.001	-.035	-1.795	.073
	Currently Working for Cash	-.179	.099	-.030	-1.813	.070

a Dependent Variable: dependent3: Difference Fertility

Table 8
Morocco
All Muslims Assumed

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Morocco: All Muslims Assumed	.305(a)	.093	.092	1.91990149

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, regional dummy: South, Simple SES Percentile, Years of Higher Education, Years of Primary Education, dummy: URBAN, Years of Secondary Education

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
Morocco: All Muslims Assumed	Regression	3446.496	8	430.812	116.877	.000(a)
	Residual	33708.669	9145	3.686		
	Total	37155.165	9153			

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, regional dummy: South, Simple SES Percentile, Years of Higher Education, Years of Primary Education, dummy: URBAN, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Morocco: All Muslims Assumed	(Constant)	.599	.042		14.237	.000
	dummy: URBAN	**-.650**	**.053**	**-.160**	**-12.227**	**.000**
	Regional dummy: South	**-.328**	**.062**	**-.054**	**-5.249**	**.000**
	Years of Primary Education	**-6.342E-02**	**.015**	**-.059**	**-4.156**	**.000**
	Years of Secondary Education	-1.728E-02	.019	-.013	-.894	.371
	Years of Higher Education	-5.947E-02	.054	-.012	-1.108	.268
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**2.132**	**.132**	**.163**	**16.103**	**.000**
	Simple SES Percentile	**-3.506E-03**	**.001**	**-.050**	**-3.854**	**.000**
	Currently Working for Cash	-4.944E-02	.064	-.008	-.767	.443

a Dependent Variable: dependent3: Difference Fertility

Table 9
Pakistan
All Muslims Assumed

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Pakistan: All Muslims Assumed	.202(a)	.041	.040	1.97800275

a Predictors: (Constant), Currently Working for Cash, dummy: URBAN, Difference between Individual and Average Ratio of Dead to Ever-Born Children, Years of Higher Education, regional dummy: Punjab and NWFrontier, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
Pakistan: All Muslims Assumed	Regression	1028.737	8	128.592	32.867	.000(a)
	Residual	24100.969	6160	3.912		
	Total	25129.705	6168			

a Predictors: (Constant), Currently Working for Cash, dummy: URBAN, Difference between Individual and Average Ratio of Dead to Ever-Born Children, Years of Higher Education, regional dummy: Punjab and NWFrontier, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Pakistan: All Muslims Assumed	(Constant)	-.178	.063		-2.812	.005
	dummy: URBAN	**.170**	**.063**	**.042**	**2.693**	**.007**
	Regional dummy: Punjab & NWFrontier	7.945E-02	.052	.019	1.516	.130
	Years of Primary Education	-3.679E-02	.019	-.037	-1.946	.052
	Years of Secondary Education	**-9.391E-02**	**.023**	**-.082**	**-4.123**	**.000**
	Years of Higher Education	-8.121E-02	.081	-.014	-.998	.318
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**2.095**	**.158**	**.167**	**13.285**	**.000**
	Simple SES Percentile	**3.487E-03**	**.001**	**.050**	**2.976**	**.003**
	Currently Working for Cash	2.345E-02	.080	.004	.294	.769

a Dependent Variable: dependent3: Difference Fertility

Table 10a
India
Muslims and Non-Muslims

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
India: Muslims and Non-Muslims	.298(a)	.089	.089	1.53551018

a Predictors: (Constant), Currently Working for Cash, Years of Secondary Education, dummy: East/Surrounding Bangladesh, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: MUSLIM, dummy: URBAN, Simple SES Percentile, Years of Higher Education, Years of Primary Education

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
India: Muslims and Non-Muslims	Regression	18906.216	9	2100.691	890.957	.000(a)
	Residual	194053.316	82303	2.358		
	Total	212959.531	82312			

a Predictors: (Constant), Currently Working for Cash, Years of Secondary Education, dummy: East/Surrounding Bangladesh, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: MUSLIM, dummy: URBAN, Simple SES Percentile, Years of Higher Education, Years of Primary Education

b Dependent Variable: dependent3: Difference Fertility

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
India: Muslims and Non-Muslims	(Constant)	.211	.012		17.037	.000
	dummy: MUSLIM	**.578**	**.018**	**.109**	**32.337**	**.000**
	dummy: URBAN	**-6.265E-02**	**.013**	**-.018**	**-4.651**	**.000**
	Regional dummy: East/Surrounding Bangladesh	**.259**	**.015**	**.057**	**16.748**	**.000**
	Years of Primary Education	**-5.485E-02**	**.003**	**-.094**	**-20.254**	**.000**
	Years of Secondary Education	**-5.383E-02**	**.006**	**-.055**	**-9.720**	**.000**
	Years of Higher Education	1.026E-02	.011	.004	.949	.342
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**1.858**	**.032**	**.198**	**58.810**	**.000**
	Simple SES Percentile	**-1.391E-03**	**.000**	**-.025**	**-5.591**	**.000**
	Currently Working for Cash	**-.108**	**.014**	**-.026**	**-7.634**	**.000**

a Dependent Variable: dependent3: Difference Fertility

Table 10b
India
Muslims Only

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	dummy: MUSLIM = 1 (Selected)			
India: Muslims Only	.236(a)	.056	.055	1.81102505

a Predictors: (Constant), Currently Working for Cash, dummy: URBAN, Difference between Individual and Average Ratio of Dead to Ever-Born Children, Years of Higher Education, dummy: East/Surrounding Bangladesh, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

ANOVA(b,c)

Model		Sum of Squares	df	Mean Square	F	Sig.
India: Muslims Only	Regression	1636.170	8	204.521	62.358	.000(a)
	Residual	27619.295	8421	3.280		
	Total	29255.464	8429			

a Predictors: (Constant), Currently Working for Cash, dummy: URBAN, Difference between Individual and Average Ratio of Dead to Ever-Born Children, Years of Higher Education, dummy: East/Surrounding Bangladesh, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

c Selecting only cases for which dummy: MUSLIM = 1

Coefficients(a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
India: Muslims Only	(Constant)	.794	.048		16.505	.000
	dummy: URBAN	**.107**	**.045**	**.028**	**2.372**	**.018**
	Regional dummy: East/Surrounding Bangladesh	**.142**	**.051**	**.031**	**2.794**	**.005**
	Years of Primary Education	**-.109**	**.010**	**-.152**	**-11.268**	**.000**
	Years of Secondary Education	**-8.265E-02**	**.025**	**-.050**	**-3.266**	**.001**
	Years of Higher Education	-2.983E-03	.065	-.001	-.046	.963
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**1.460**	**.122**	**.128**	**11.919**	**.000**
	Simple SES Percentile	-2.665E-04	.001	-.004	-.293	.770
	Currently Working for Cash	-5.532E-02	.065	-.009	-.855	.393

a Dependent Variable: dependent3: Difference Fertility

b Selecting only cases for which dummy: MUSLIM = 1

Table 10c
India
Non-Muslims Only

Model Summary

Model	R dummy: MUSLIM = 0 (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
India : Non-Muslims Only	.284(a)	.080	.080	1.49953953

a Predictors: (Constant), Currently Working for Cash, dummy: URBAN, Difference between Individual and Average Ratio of Dead to Ever-Born Children, Years of Higher Education, dummy: East/Surrounding Bangladesh, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

ANOVA(b,c)

Model		Sum of Squares	df	Mean Square	F	**Sig.**
India : Non-Muslims Only	Regression	14527.459	8	1815.932	807.577	.000(a)
	Residual	166114.465	73874	2.249		
	Total	180641.925	73882			

a Predictors: (Constant), Currently Working for Cash, dummy: URBAN, Difference between Individual and Average Ratio of Dead to Ever-Born Children, Years of Higher Education, dummy: East/Surrounding Bangladesh, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

c Selecting only cases for which dummy: MUSLIM = 0

Coefficients(a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
India: Non-Muslims Only	(Constant)	.210	.013		16.620	.000
	dummy: URBAN	**-9.418E-02**	**.014**	**-.028**	**-6.691**	**.000**
	Regional dummy: East/Surrounding Bangladesh	**.282**	**.016**	**.062**	**17.330**	**.000**
	Years of Primary Education	**-4.777E-02**	**.003**	**-.085**	**-17.028**	**.000**
	Years of Secondary Education	**-5.298E-02**	**.006**	**-.057**	**-9.426**	**.000**
	Years of Higher Education	1.220E-02	.011	.005	1.131	.258
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**1.902**	**.032**	**.210**	**58.712**	**.000**
	Simple SES Percentile	**-1.554E-03**	**.000**	**-.029**	**-6.053**	**.000**
	Currently Working for Cash	**-.112**	**.014**	**-.028**	**-7.869**	**.000**

a Dependent Variable: dependent3: Difference Fertility

b Selecting only cases for which dummy: MUSLIM = 0

Table 11a
Bangladesh
Muslims and Non-Muslims

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Bangladesh: Muslims and Non-Muslims	.316(a)	.100	.100	1.52625335

a Predictors: (Constant), Currently Working for Cash, dummy: URBAN, dummy: MUSLIM, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: Chittagong & Barisal, Years of Higher Education, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
Bangladesh: Muslims and Non-Muslims	Regression	4030.043	9	447.783	192.227	.000(a)
	Residual	36201.971	15541	2.329		
	Total	40232.014	15550			

a Predictors: (Constant), Currently Working for Cash, dummy: URBAN, dummy: MUSLIM, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: Chittagong & Barisal, Years of Higher Education, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Bangladesh: Muslims and Non-Muslims	(Constant)	-.206	.044		-4.687	.000
	dummy: MUSLIM	**.438**	**.037**	**.091**	**11.833**	**.000**
	dummy: URBAN	**-.124**	**.037**	**-.028**	**-3.319**	**.001**
	Regional dummy: Chittagong & Barisal	**.440**	**.027**	**.124**	**16.059**	**.000**
	Years of Primary Education	**-3.552E-02**	**.007**	**-.050**	**-5.109**	**.000**
	Years of Secondary Education	**-8.693E-02**	**.012**	**-.078**	**-7.406**	**.000**
	Years of Higher Education	-7.475E-03	.027	-.002	-.278	.781
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**1.829**	**.067**	**.209**	**27.158**	**.000**
	Simple SES Percentile	**-1.842E-03**	**.001**	**-.033**	**-3.543**	**.000**
	Currently Working for Cash	**-.187**	**.033**	**-.044**	**-5.693**	**.000**

a Dependent Variable: dependent3: Difference Fertility

Table 11b
Bangladesh
Muslims Only

Model Summary

Model	R dummy: MUSLIM = 1 (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
Bangladesh: Muslims Only	.303(a)	.092	.091	1.53957947

a Predictors: (Constant), Currently Working for Cash, Years of Secondary Education, dummy: Chittagong & Barisal, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: URBAN, Years of Higher Education, Simple SES Percentile, Years of Primary Education

ANOVA(b,c)

Model		Sum of Squares	df	Mean Square	F	Sig.
Bangladesh: Muslims Only	Regression	3261.488	8	407.686	171.997	.000(a)
	Residual	32179.260	13576	2.370		
	Total	35440.747	13584			

a Predictors: (Constant), Currently Working for Cash, Years of Secondary Education, dummy: Chittagong & Barisal, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: URBAN, Years of Higher Education, Simple SES Percentile, Years of Primary Education

b Dependent Variable: dependent3: Difference Fertility

c Selecting only cases for which dummy: MUSLIM = 1

Coefficients(a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Bangladesh Muslims Only	(Constant)	.233	.030		7.879	.000
	dummy: URBAN	**-.115**	**.040**	**-.026**	**-2.833**	**.005**
	Regional dummy: Chittagong & Barisal	**.456**	**.030**	**.127**	**15.283**	**.000**
	Years of Primary Education	**-3.238E-02**	**.008**	**-.045**	**-4.304**	**.000**
	Years of Secondary Education	**-9.700E-02**	**.013**	**-.085**	**-7.499**	**.000**
	Years of Higher Education	-2.325E-03	.030	-.001	-.079	.937
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**1.824**	**.073**	**.207**	**24.977**	**.000**
	Simple SES Percentile	**-1.963E-03**	**.001**	**-.035**	**-3.505**	**.000**
	Currently Working for Cash	**-.196**	**.036**	**-.045**	**-5.491**	**.000**

a Dependent Variable: dependent3: Difference Fertility

b Selecting only cases for which dummy: MUSLIM = 1

Table 11c
Bangladesh
Non-Muslims Only

Model Summary

Model	R dummy: MUSLIM = 0 (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
Bangladesh: Non-Muslims Only	.306(a)	.094	.090	1.43003201

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: Chittagong & Barisal, dummy: URBAN, Years of Higher Education, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

ANOVA(b,c)

Model		Sum of Squares	df	Mean Square	F	Sig.
Bangladesh: Non-Muslims Only	Regression	414.789	8	51.849	25.354	.000(a)
	Residual	4002.048	1957	2.045		
	Total	4416.837	1965			

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: Chittagong & Barisal, dummy: URBAN, Years of Higher Education, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

c Selecting only cases for which dummy: MUSLIM = 0

Coefficients(a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Bangladesh: Non-Muslims Only	(Constant)	-.222	.081		-2.759	.006
	dummy: URBAN	-.163	.096	-.040	-1.694	.090
	Regional dummy: Chittagong & Barisal	**.319**	**.069**	**.102**	**4.637**	**.000**
	Years of Primary Education	**-5.458E-02**	**.018**	**-.085**	**-3.019**	**.003**
	Years of Secondary Education	-3.068E-02	.028	-.033	-1.108	.268
	Years of Higher Education	-3.133E-02	.064	-.012	-.490	.624
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**1.870**	**.172**	**.238**	**10.858**	**.000**
	Simple SES Percentile	-8.623E-04	.001	-.016	-.619	.536
	Currently Working for Cash	-.129	.083	-.034	-1.548	.122

a Dependent Variable: dependent3: Difference Fertility

b Selecting only cases for which dummy: MUSLIM = 0

Table 12a
Turkey
Muslims and Non-Muslims

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Turkey: Muslims and Non-Muslim	.492(a)	.242	.241	1.50129813

a Predictors: (Constant), Currently Working for Cash, dummy: MUSLIM, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: URBAN, Years of Primary Education, Years of Higher Education, dummy: East, Simple SES Percentile, Years of Secondary Education

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
Turkey: Muslims and Non-Muslims	Regression	4067.017	9	451.891	200.493	.000(a)
	Residual	12727.751	5647	2.254		
	Total	16794.768	5656			

a Predictors: (Constant), Currently Working for Cash, dummy: MUSLIM, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: URBAN, Years of Primary Education, Years of Higher Education, dummy: East, Simple SES Percentile, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Turkey: Muslims and Non-Muslims	(Constant)	.878	.080		11.011	.000
	dummy: MUSLIM	3.404E-02	.068	.006	.502	.616
	dummy: URBAN	**-.256**	**.046**	**-.070**	**-5.610**	**.000**
	Regional dummy: East	**.997**	**.054**	**.228**	**18.408**	**.000**
	Years of Primary Education	**-.180**	**.010**	**-.221**	**-17.279**	**.000**
	Years of Secondary Education	**-5.699E-02**	**.019**	**-.050**	**-2.993**	**.003**
	Years of Higher Education	7.387E-02	.042	.028	1.764	.078
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**3.092**	**.156**	**.232**	**19.884**	**.000**
	Simple SES Percentile	**-2.687E-03**	**.001**	**-.045**	**-3.455**	**.001**
	Currently Working for Cash	**-.230**	**.058**	**-.049**	**-3.961**	**.000**

a Dependent Variable: dependent3: Difference Fertility

Table 12b
Turkey
Muslims Only

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	dummy: MUSLIM = 1 (Selected)			
Turkey: Muslims Only	.502(a)	.252	.251	1.49384723

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: URBAN, dummy: East, Years of Higher Education, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

ANOVA(b,c)

Model		Sum of Squares	df	Mean Square	F	Sig.
Turkey: Muslims Only	Regression	3820.453	8	477.557	213.999	.000(a)
	Residual	11347.582	5085	2.232		
	Total	15168.035	5093			

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: URBAN, dummy: East, Years of Higher Education, Years of Primary Education, Simple SES Percentile, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

c Selecting only cases for which dummy: MUSLIM = 1

Coefficients(a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Turkey: Muslims Only	(Constant)	.936	.063		14.872	.000
	dummy: URBAN	**-.266**	**.048**	**-.071**	**-5.525**	**.000**
	Regional dummy: East	**.986**	**.055**	**.233**	**17.969**	**.000**
	Years of Primary Education	**-.183**	**.011**	**-.223**	**-16.542**	**.000**
	Years of Secondary Education	**-5.728E-02**	**.020**	**-.051**	**-2.933**	**.003**
	Years of Higher Education	8.320E-02	.043	.032	1.935	.053
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**3.159**	**.165**	**.234**	**19.141**	**.000**
	Simple SES Percentile	**-2.709E-03**	**.001**	**-.045**	**-3.316**	**.001**
	Currently Working for Cash	**-.243**	**.061**	**-.051**	**-3.957**	**.000**

a Dependent Variable: dependent3: Difference Fertility

b Selecting only cases for which dummy: MUSLIM = 1

Table 12c
Turkey
Non-Muslims Only

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	dummy: MUSLIM = 0 (Selected)			
Turkey: Non-Muslims Only	.395(a)	.156	.144	1.57305598

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: URBAN, dummy: East, Years of Primary Education, Years of Higher Education, Simple SES Percentile, Years of Secondary Education

ANOVA(b,c)

Model		Sum of Squares	df	Mean Square	F	Sig.
Turkey: Non-Muslims Only	Regression	253.701	8	31.713	12.816	.000(a)
	Residual	1370.876	554	2.475		
	Total	1624.577	562			

a Predictors: (Constant), Currently Working for Cash, Difference between Individual and Average Ratio of Dead to Ever-Born Children, dummy: URBAN, dummy: East, Years of Primary Education, Years of Higher Education, Simple SES Percentile, Years of Secondary Education

b Dependent Variable: dependent3: Difference Fertility

c Selecting only cases for which dummy: MUSLIM = 0

Coefficients(a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Turkey: Non-Muslims Only	(Constant)	.737	.163		4.517	.000
	dummy: URBAN	-.173	.145	-.051	-1.192	.234
	Regional dummy: East	**1.229**	**.354**	**.137**	**3.468**	**.001**
	Years of Primary Education	**-.161**	**.032**	**-.209**	**-5.124**	**.000**
	Years of Secondary Education	-3.248E-02	.085	-.021	-.383	.702
	Years of Higher Education	-8.073E-02	.182	-.023	-.443	.658
	Difference between Individual and Average Ratio of Dead to Ever-Born Children	**2.597**	**.470**	**.219**	**5.531**	**.000**
	Simple SES Percentile	-2.662E-03	.003	-.045	-1.045	.296
	Currently Working for Cash	-.131	.183	-.029	-.716	.474

a Dependent Variable: dependent3: Difference Fertility

b Selecting only cases for which dummy: MUSLIM = 0

Figure captions:

Figure 1 Contrasting population pyramids

Figure 2a Percent unemployed at age 15-19/20-29 at different growth rates

Figure 2b Sum of interage group disparities 15-64 (“unemployment”)

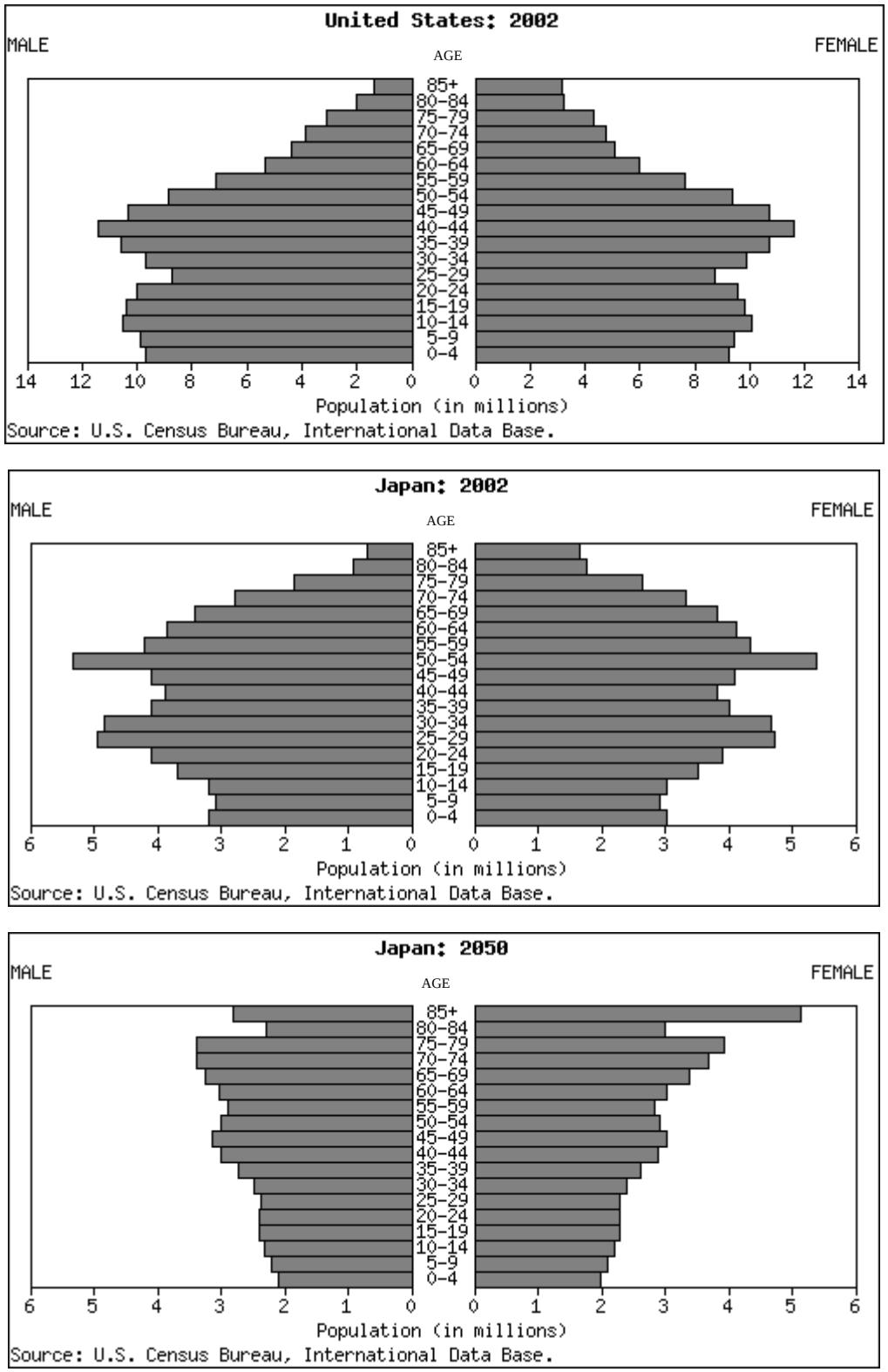
Figure 3a Distribution of 131 countries by proportion of population that is Muslim

Figure 3b Lorenz curve of Muslim population

Figure 4 Standardized regression coefficients by country by variable

Figure 5 Standardized regression coefficients by variable by country

FIGURE 1 Contrasting population pyramids



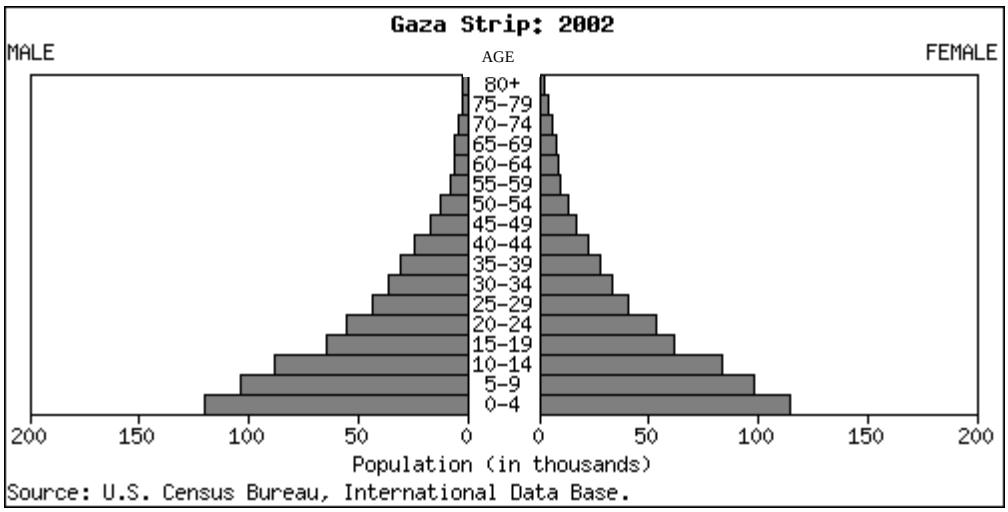


FIGURE 2a Percent unemployed at age 15-19/20-29 at different growth rates

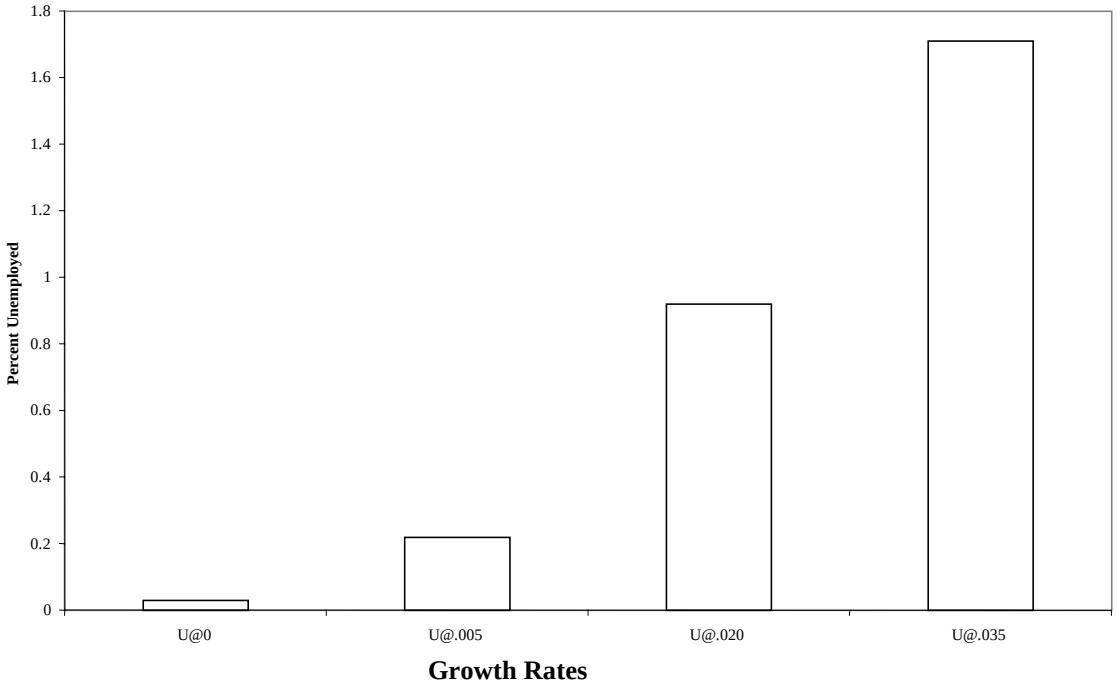


FIGURE 2b Sum of interage group disparities 15-64 ("unemployment")

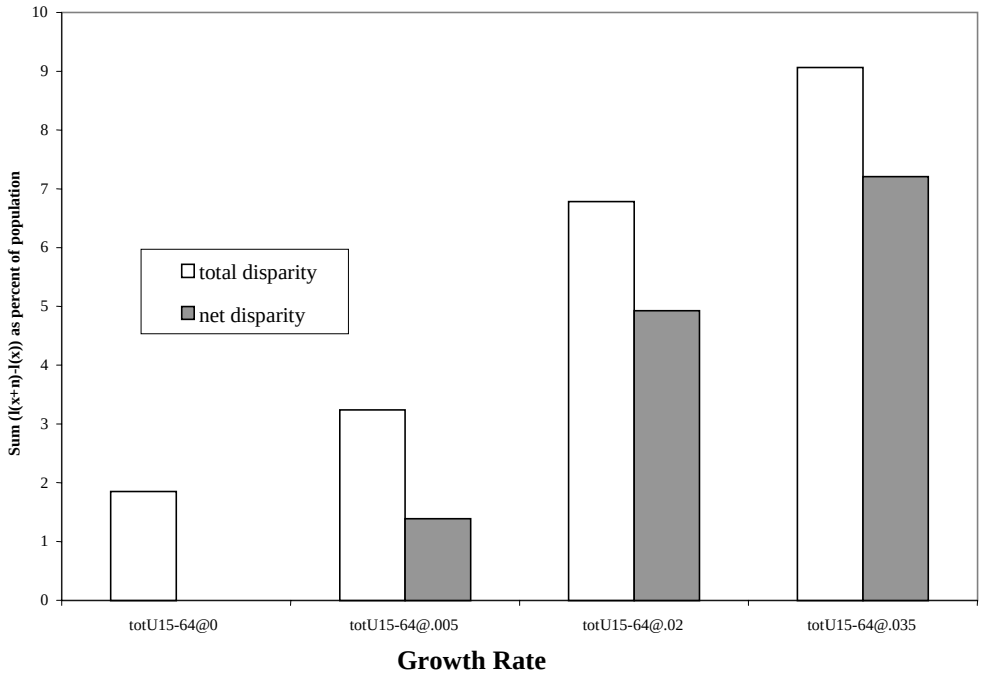


FIGURE 3a Distribution of 131 countries by proportion of population that is Muslim

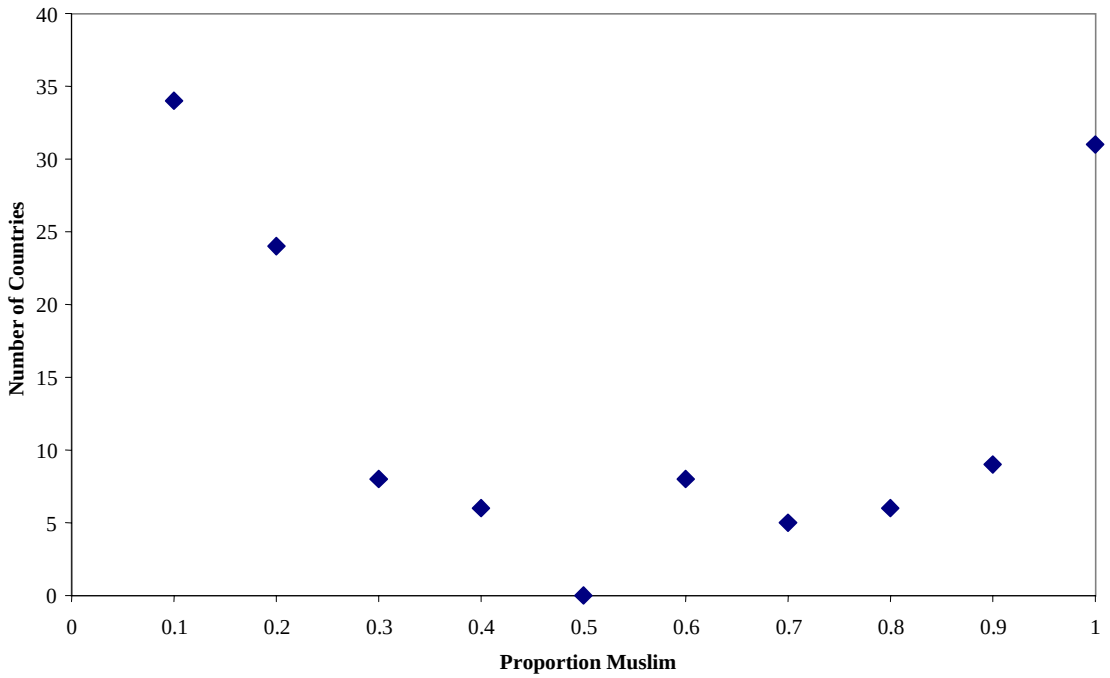


FIGURE 3b Lorenz curve of Muslim population

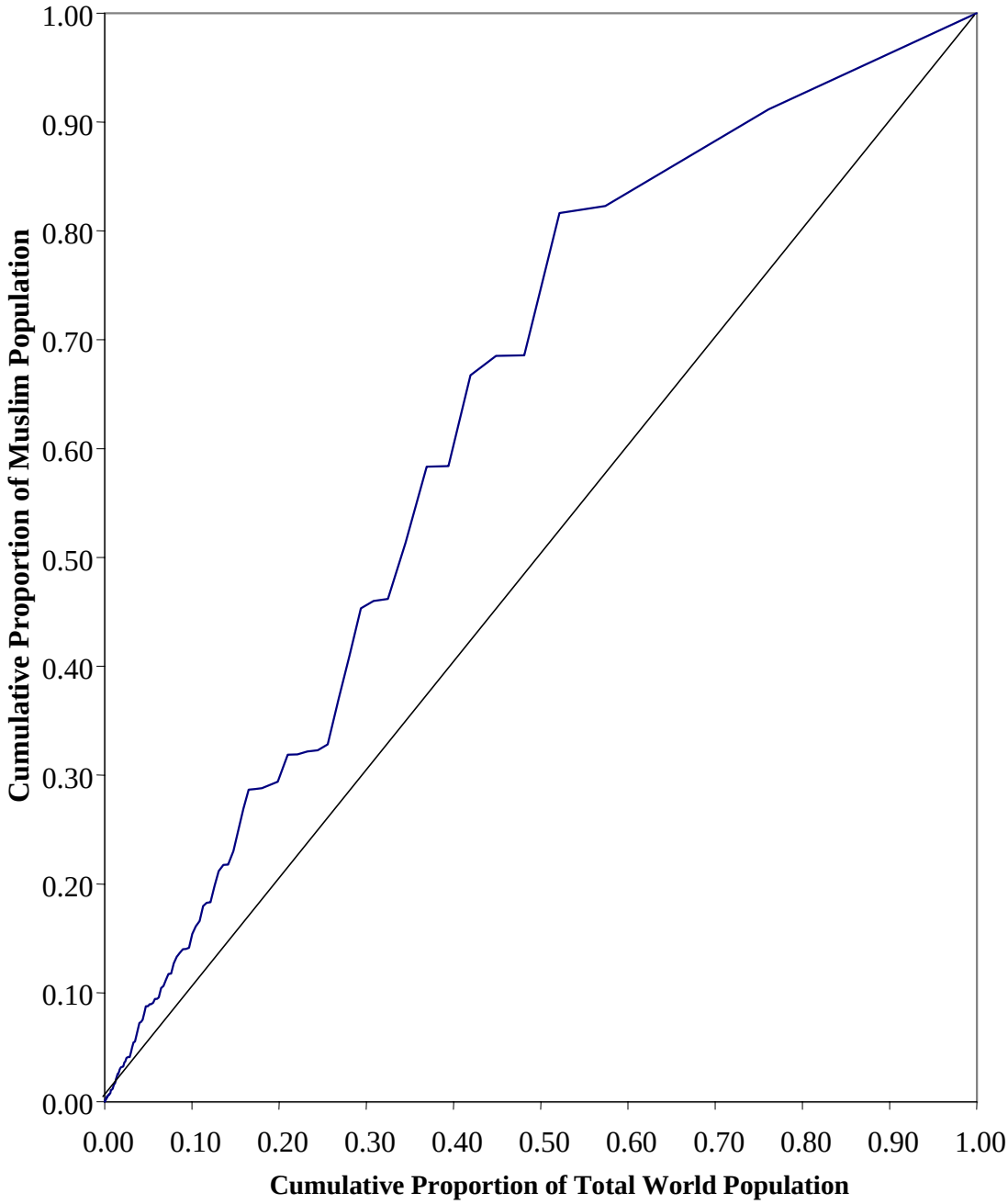


FIGURE 4 Standardized regression coefficients by country by variable

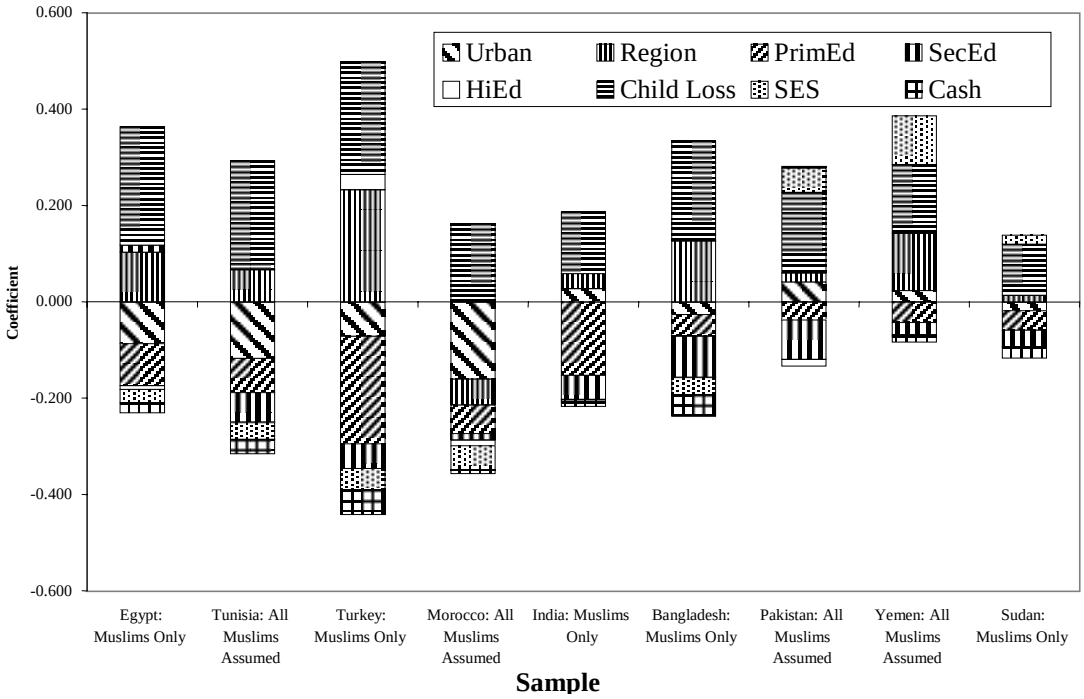


FIGURE 5 Standardized regression coefficients by variable by country