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POLYGyny AND VIOLENCE AGAINST WOMEN

Rose McDermott*
Jonathan Cowden**

ABSTRACT

This Essay examines the link between polygyny, or one man who is married to multiple woman, and the physical security of women and children, and political rights and civil liberties using a unique dataset of 171 countries drawn from the WomanStats Project. Controlling for the independent effects of gross domestic product and sex ratio, we find statistically significant relationships between polygyny and an entire downstream suite of negative consequences for men, women, children, and the nation-state, including the following outcomes: discrepancy between law and practice concerning women's equality, birth rate, rates of primary and secondary education for male and female children, difference between males and females in HIV infection, age of marriage, maternal mortality, life expectancy, sex trafficking, female genital mutilation, domestic violence, inequity in the treatment of males and females before the law, defense expenditures, and political rights and civil liberties. Elevated frequency of polygynous marriage thus tends to be associated with increases in behavioral constraints and physical costs experienced by women and children in particular but also exerts effects that redound poorly to the majority of poor men as well. Defenders of such practices often refer to the importance of religious freedom in defending their views in support of polygyny; however, our data clearly show that such practices impose tremendous personal harm on their victims. Data taken from virtually every country in the world clearly documents polygyny as a practice that constitutes a fundamental abuse of basic human rights and dignity.

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INTRODUCTION

After the events of September 11, 2001, academics, pundits, policymakers, and other members of the interested public wondered why “they” hated “us.” And, indeed, whether derived from politics, economics, religion, or history, some degree of resentment towards the West and Western values is no doubt fuelled by struggles over land, resources, power, and preferred institutions for political and economic structures.¹ If these were the only sources of enmity, the search for peace would be hard enough. But the problem is worsened by a fundamental clash of values specifically surrounding the appropriate role of women in society that emerges entirely independently of economic and political contests, although such issues often serve to fuel such conflicts. Because Western values often encourage a foundation of at least legal equality between the sexes, threats to the assumed sociopolitical dominance of men in areas that strongly espouse these traditions provoke systematic hostility and opposition. As a result, we suggest that the original question is the wrong one to pose. Rather than counterposing East against West, arguing about the clash of civilizations in the prototypical Huntington sense,² the critical concern should actually revolve around the sources and consequences of violence by men toward women as the root of conflict both within and among nations. What are some of the origins of the violence that men direct toward women? Is it simply rooted in male sexual desire for women and the anger and frustration that may result when men hold women responsible for their own drives? Or do men seek to control women simply because they are physically and financially stronger and because they are able to get away with exerting power over those with fewer resources? Or does male violence emerge from a much broader array of social incentives and permissions? And what are the consequences of such violence, not only for women and children but also for the men who instigate it and for the societies that sanction it? These patterns of violence often begin in the home and serve as models for the assumed hierarchical relationships between the sexes as well as implicit endorsement for dominance, coercion, and violence as the proper form of conflict resolution in society more broadly.³

¹ See, e.g., GILLES KEPEL, *JIHAD: THE TRAIL OF POLITICAL ISLAM* 1 (2002); BERNARD LEWIS, *ISLAM AND THE WEST* (1993). See generally SAMUEL P. HUNTINGTON, *THE CLASH OF CIVILIZATIONS AND THE REMAKING OF WORLD ORDER* (1996) (discussing that cultural identities are shaping the patterns of cohesion, disintegration, and conflict in the post-Cold War era).

² See HUNTINGTON, *supra* note 1.

³ See generally SYLVIANE AGACINSKI, *PARITY OF THE SEXES* (Lisa Walsh trans., 2001) (claiming that the duality of the sexes will be practiced and reproduced across time).

We argue here that female financial and social independence are feared not merely because of their material effects but also because of the threat they pose to the cultural values, status, and personal power of many men, particularly in underdeveloped and developing regions of the world. Specifically, the emancipation of women erodes men's control over their own families in ways that are potentially culturally humiliating and emotionally painful for men, especially those emanating from a tradition of strong patriarchy. In short, the prospect of liberated women threatens male status. In addition, it often also threatens the position of senior women in these developing societies who are allowed to dominate junior women, such as daughters and daughters-in-law, as well as junior men, including sons. Note here that men are not necessarily the primary guardians of a culture that oppresses women in these circumstances; women actively participate in such repression because they refuse to give up control over those few cultural areas, such as control inside the home, to which they have been assigned by men, including circumscribing the activities of their female family members. The prospect of female emancipation therefore provides a potent source of male—and sometimes even female—support for more secular or democratic movements, particularly in more patriarchal societies.

This process is exacerbated by the common practice of patrilocality, whereby women move to the town, village, or home of their husbands, often leaving behind the fathers, brothers, or uncles who might protect them if they lived closer to home.⁴ Without such protection from family members, the only prospect many women have for protection from abusive relatives is to give birth to sons who are valued by the father's family.⁵ These sons, in turn, may prove loyal to these mothers. Such a family structure further erodes the bonds between husband and wife since the husband's primary female loyalty often remains with his mother rather than his wife or his daughters.⁶ Such a privileging of parent-child bonds over the marital bond diminishes the possibility for creating models of equality between the sexes for children of such unions.

⁴ See Ting Ji, Jing-Jing Xu & Ruth Mace, *Intergenerational and Sibling Conflict Under Patrilocality*, 25 HUM. NATURE 66, 67 (2014).

⁵ Valerie M. Hudson, *The Missing Girls of China and India: What Is Being Done?*, 41 CUMB. L. REV. 67, 69 (2011).

⁶ Valerie M. Hudson, Donna Lee Bowen & Perpetua Lynne Nielsen, *What Is the Relationship Between Inequity in Family Law and Violence Against Women? Approaching the Issue of Legal Enclaves*, 7 POL. & GENDER 453 (2011).

We define patriarchal societies as those in which men have power over women. Aspects of patriarchal cultures may be explained or exacerbated, at least in part, by patrilocal and polygynist family structures but are not defined by such characteristics. Recognition of the way in which patrilocal and polygyny each independently and in combination precipitate violence toward women and children in these societies draws attention to the structural problems associated with societies that combine these features and opens some possibilities for ameliorating its effects.

Here, we specifically address simultaneous, as opposed to sequential, polygyny because it reduces the availability of young women for young men, posing tremendous consequences for young men's prospects for marriage and reproduction, as well as increasing the risk for political violence.⁷ We show how this causes increased levels of many forms of violence in and across these areas.

An essential point is that men's desire for patriarchal control of women is not so arbitrary that it can be blown away by a good breath of Western logic, education, or liberalism. Rather, it finds its roots in strong traditions and structures, often endorsed, wrongly or otherwise, by religious beliefs that privilege male power and dominance in all aspects of life.⁸ The violent effects emerge from the widespread lifestyle of patriarchy, polygyny, and patrilocal and therefore have continuing significance in many countries today where such practices continue to dominate cultural and economic traditions.⁹ We trace these origins of male power and note their consequences for the lives and status of women throughout the developing world. We do so by discussing the independent effects of patriarchy and polygyny. We then provide a detailed analysis of the impact of these forces on a wide variety of manifestations of violence toward women and children using data derived from the WomanStats Project.¹⁰ At the end, we consider the challenges faced by policymakers and human-rights advocates who wish to begin to redress such gender inequalities.

⁷ VALERIE M. HUDSON & ANDREA M. DEN BOER, BARE BRANCHES: THE SECURITY IMPLICATIONS OF ASIA'S SURPLUS MALE POPULATION (2004); Valerie M. Hudson & Andrea Den Boer, *A Surplus of Men, a Deficit of Peace: Security and Sex Ratios in Asia's Largest States*, INT'L SECURITY, Spring 2002, at 5, 11, 29.

⁸ See, e.g., DISCIPLINES OF FAITH: STUDIES IN RELIGION, POLITICS AND PATRIARCHY (Jim Obelkevich, Lyndal Roper & Raphael Samuel eds., 1987); PEGGY REEVES SANDAY, FEMALE POWER AND MALE DOMINANCE: ON THE ORIGINS OF SEXUAL INEQUALITY 4–5 (1981).

⁹ Deniz Kandiyoti, *Bargaining with Patriarchy*, 2 GENDER & SOC'Y 274, 274–75, 283–85 (1988); Barbara Smuts, *The Evolutionary Origins of Patriarchy*, 6 HUM. NATURE 1, 10–20 (1995).

¹⁰ WOMENSTATS PROJECT, <http://www.womanstats.org> (last visited May 17, 2015).

I. POLYGyny

To begin, a few definitions are in order. Polygamy includes both polygyny, where one man has many wives, as well as polyandry, where one woman has many husbands.¹¹ Political issues surrounding laws about polygyny are exacerbated by the cultural and religious circumstances that are often associated with it. Polygyny remains a common practice around the world, existing in more than 83% of 849 cultures worldwide;¹² in about 35% of cases, such practices are commonly sororal, meaning men marry sisters.¹³ Such a practice may be undertaken to help reduce the risk of inter-marital tension and hostility among wives or toward children of such unions. Everywhere, the practice is more widespread among high-status, high-wealth men.¹⁴ By contrast, polyandry is found in only 4 of 849 cultures worldwide, occurs mostly in Nepal, and always co-occurs with polygyny, such that high-status men in such cultures also take multiple wives.¹⁵ In such cultures, polyandry tends to occur only briefly and among low-status men, although it is often fraternal in nature as well.¹⁶

However, to be clear, the consequences of violence we document here do not extend to polyandry. As a result, we examine polygynous practices where one man has more than one wife simultaneously. Polygyny holds important implications for reproductive success and control, and having children with more than one wife at a time affects this process in ways that differ in significant ways from having children sequentially with different mates over time. In our analysis, the critical concern revolves around the sources and consequences of violence of men toward women and children and how this affects the tendency toward violence and suppression of civil rights and political liberties within states. This latter phenomena results in large part from the surplus of men that occurs in polygynous systems where many junior men

¹¹ Stephen T. Emlen & Lewis W. Oring, *Ecology, Sexual Selection, and the Evolution of Mating Systems*, 197 SCIENCE 215, 217 tbl.1 (1977).

¹² ALLAN D. COULT & ROBERT WESLEY HABENSTEIN, CROSS TABULATIONS OF MURDOCK'S WORLD ETHNOGRAPHIC SAMPLE (1965); see also GEORGE PETER MURDOCK, ATLAS OF WORLD CULTURES 133 (1981); Gray, J. Patrick, *Ethnographic Atlas Codebook*, 10 WORLD CULTURES 86 (1998), available at <http://eclectic.ss.uci.edu/~drwhite/worldcul/Codebook4EthnoAtlas.pdf>.

¹³ COULT & HABENSTEIN, *supra* note 12.

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ Melvin Ember, Carol R. Ember & Bobbi S. Low, *Comparing Explanations of Polygyny*, 41 CROSS-CULTURAL RES. 428, 433 fig.1 (2007).

need to be evicted from the society in order for senior men to have access to multiple wives.¹⁷

In addition, we are not concerned with simultaneous sexual relationships that do not involve childbearing or prospects for the intergenerational transfer of wealth as a result of the shared economic circumstances that remain intrinsic to legal marriages. That is because there can be two potential meanings of polygyny, the first as a social bonding system and the second as a breeding one. It is possible to conceptualize these two types of systems in a two-by-two table. Most mammals, including gorillas for example, have both polygynous social and polygynous breeding systems, while there are no species that exhibit a polygynous social system in concert with a monogamous mating structure.¹⁸ By contrast, most birds engage in monogamous social bonding in the context of polygynous breeding, while a few, including the black vulture, demonstrate both monogamous bonding and breeding are preferences.¹⁹ However, in human systems, such monogamous breeding structures are often socially imposed and occur in large, complex societies or ecologically imposed by limited resources, which make it prohibitive for men to provide sufficiently for multiple wives or children.

We argue that violence toward women and children and suppression of basic rights can be potentiated by a number of factors, including patriarchy, patrilocality, and polygyny. These cultural features and social structures often go hand-in-hand and, in combination, enhance male control over women and children in ways that allow, and often encourage, violence and suppression of political rights and liberties. In particular, we demonstrate, using detailed empirical data, that polygyny is strongly correlated with a wide array of violence against women and children as well as suppression of political rights and liberties and increased spending on weapons.

While many westerners argue that it is inappropriate to make value judgments about other cultures' preferences regarding social structures,²⁰ we see the issue of polygyny in terms of basic human rights. We demonstrate here

¹⁷ See, e.g., Kelly R. Schwab, Note, *Lost Children: The Abuse and Neglect of Minors in Polygamous Communities of North America*, 16 CARDOZO J.L. & GENDER 315, 334 (2010).

¹⁸ See ECOLOGICAL ASPECTS OF SOCIAL EVOLUTION: BIRDS AND MAMMALS 352–78, 452–70 (Daniel I. Rubenstein & Richard W. Wrangham eds., 1986).

¹⁹ See *id.* at 175–200, 452–70.

²⁰ See, e.g., Jack Donnelly, *Cultural Relativism and Universal Human Rights*, 6 HUM. RTS. Q. 400, 402, 411 (1984); Melford E. Spiro, *Cultural Relativism and the Future of Anthropology*, 1 CULTURAL ANTHROPOLOGY 259 (1986).

that such rights, particularly those of women and children, are fiercely abrogated in societies and cultures where polygyny is present.

A. The Persistence of Patriarchal Values

In our construction, patriarchal values are promoted by two important features: patrilocality and polygyny. The effects of these variables may appear partly regional and partly religious, but we postulate that each feature will exert an independent effect on the outcomes of interest: violence by men against women and children. For our purposes, we examine this outcome along three separate dimensions: violence against women, violence against children, and state-level effects. For the final dimension, we extend our analysis to examine the effect of such marital structures and the economic, political, and social practices that often accompany them—civil rights, political freedoms, and weapons procurement—as a proxy for the propensity of the state to consider and model violence as a viable means of conflict resolution between states.

Patriarchy can exert its effects through many subtle and overlapping mechanisms. One of the ways in which this power can manifest is through male control over female marriage decisions. For example, male expectation of control over a daughter's marriage is critical in many societies because a man's economic and social status is importantly determined by his kinswomen's alliances.²¹ A man who marries into a family with many strong and wealthy men enhances his ability to protect his flock and to increase his local status through such an association. Arranged marriages are therefore traditionally preferred to love matches.²² In the service of maximizing the benefits from a marriage, a woman's value is enhanced by various practices that restrict her own romantic choices and promote her chastity, including claustration, genital mutilation, and veiling.²³ Control is supported by stringent punishments for women who flout cultural norms.²⁴

While the degree to which men exert physical control over women in particular societies remains contingent on a host of sociological and economic

²¹ See Barbara Smuts, *Male Aggression Against Women*, 3 HUM. NATURE 1 (1992).

²² See Menelaos Apostolou, *Sexual Selection Under Parental Choice: The Role of Parents in the Evolution of Human Mating*, 28 EVOLUTION & HUM. BEHAV. 403, 404 (2007).

²³ Glenn E. Weisfeld, *Social Status and Values in Traditional Arab Culture*, in 1 SOCIAL STRATIFICATION AND SOCIOECONOMIC INEQUALITY 75 (Lee Ellis ed., 1993).

²⁴ See Susan Moller Okin, *Is Multiculturalism Bad for Women*, in IS MULTICULTURALISM BAD FOR WOMEN? 7, 14–17 (Joshua Cohen, Matthew Howard & Martha C. Nussbaum eds., 1999).

factors, men retain control over the vast majority of physical resources needed to survive, including money and property.²⁵ This often becomes codified in family law customs and practices that restrict a female's ability to marry someone of her choosing, divorce an abusive husband, retain custody of children following an imposed divorce, or inherit property.²⁶ In many parts of the world, men's lives exist primarily in the public sphere while women's lives still remain largely confined to the household.²⁷ Ironically, this segregation of sexes can lead to a remarkable degree of female independence over their own social lives and worlds within the home.²⁸ Nevertheless, women continue to be restricted in their public movements from the time of puberty in many developing countries.²⁹ Such limitations prevent many women from being able to get an education or to achieve financial independence through employment. Instead, women often remain at the mercy of those men who can provide for their sustenance.

A woman's position in these societies thus becomes largely determined by her marriage. But because divorce is so common and can be granted only by male fiat in many areas, women's position in the hierarchy remains tenuous at best,³⁰ indeed, in many parts of the world, men often retain control of all important resources, including custody of any children, while women revert to the status of property in the hands of other male relatives following divorce.³¹ Whatever security a woman has results from the formal nature of her marriage contract and the strength of her family of origin, particularly her male relatives in the specific area, which is why patrilocality imposes such insecurity on so many women. Any man can be dishonored by threats to the chastity and virtue of his female relatives, and killings of honor on behalf of these women may be committed by brothers, fathers, or husbands to retain family status.³² However,

²⁵ LINDA MEALEY, *SEX DIFFERENCES: DEVELOPMENT AND EVOLUTIONARY STRATEGIES* (2000); Lawrence Rosen, *The Negotiation of Reality: Male-Female Relations in Sefrou, Morocco*, in *WOMEN IN THE MUSLIM WORLD* 561, 562–66 (Lois Beck & Nikki Keddie eds., 1978).

²⁶ Hudson et al., *supra* note 6, at 462–63.

²⁷ Susan Moller Okin, *Gender, the Public, and the Private*, in *FEMINISM AND POLITICS* 116, 117–18 (Anne Phillips ed., 1998).

²⁸ Lloyd A. Fallers & Margaret C. Fallers, *Sex Roles in Edremit*, in *MEDITERRANEAN FAMILY STRUCTURES* 243, 246–49 (J.G. Peristiany ed., 1976).

²⁹ Okin, *supra* note 27, at 117–18.

³⁰ MEALEY, *supra* note 25, at 341; Rosen, *supra* note 25, at 565–66.

³¹ See Hudson et al., *supra* note 6, at 455–60.

³² Phyllis Chesler, *Worldwide Trends in Honor Killings*, *MIDDLE E.Q.*, Spring 2010, at 3, available at <http://www.meforum.org/2646/worldwide-trends-in-honor-killings>.

fathers most often blame their daughters, rather than the perpetrator, for violations of purity.³³

A man uses his control to ensure that a woman marries not just to her advantage (as he perceives it) but more importantly to the advantage of himself and his male kin. A woman marrying below her social status dishonors her family, whereas her marriage into a large- and high-status kin-group creates or cements a relationship of social importance for her entire family.³⁴ He, or other male relatives, might benefit in other ways as well. For example, by exchanging his daughter for a wife for himself or a male relative, a man might use his control over a daughter to get an extra bride and thus increase his own reproductive advantage by making it possible to have more sons. Equally, he could resolve a blood feud by giving a woman in marriage. Or, by obtaining as high a bride-price as possible, he increases his wealth (and thus his own future marriage prospects).

Thus, male control over women under his dominion constitutes a key part of his family life as well as his social and economic status. Since his women increase in value with their modesty and chastity, it is vital for him to control their behavior around other men. Women also participate in enforcing and perpetuating these standards by often “out-bidding” each other in seeking to appear pious in order to improve their marriage prospects.³⁵ This phenomenon clearly contributes to the high divorce rate in many of these areas as men come to find out that, once married, their wives may try to break out of the strict standards they adhered to prior to marriage. Yet, a woman who did not adhere to such standards prior to marriage would reduce her prospects since her male relatives would not be able to secure her a higher-status marriage partner. By contrast, there has traditionally been “no objection to a man marrying a woman of lower status, since the woman, in the view of the jurists, is in any case inferior, and no social damage could therefore result from such a marriage.”³⁶ This partly results from the inherent value placed on female beauty, which exists independent of social status, and also from the fact that the real value a woman offers to a man lies in the number and physical strength of her male

³³ Fallers & Fallers, *supra* note 28, at 259.

³⁴ See Vern Baxter & A.V. Margavio, *Honor, Status, and Aggression in Economic Exchange*, 18 SOC. THEORY 399, 400 (2000).

³⁵ David S. Patel, *Concealing to Reveal: The Informational Role of Islamic Dress*, 24 RATIONALITY & SOC’Y 295, 298–99 (2012).

³⁶ BERNARD LEWIS, *THE MIDDLE EAST: 2000 YEARS OF HISTORY FROM THE RISE OF CHRISTIANITY TO THE PRESENT DAY* 180 (1995).

kinfolk and offspring, which is another reason why infertile women in such societies often become particularly vulnerable.

It is therefore inevitable that when confronted with attempts to promote women's political, economic, or sexual independence, men from traditional cultures, espousing conservative expectations about patriarchal control, will feel threatened and resentful. And, as noted above, men are not the only ones whose positions may be threatened. Senior women, who retain control over their daughters-in-law and young sons, may also find their positions compromised by any threat to the existing patriarchal system.

However, as Kandiyoti argues, inherent contradictions lie at the root of certain types of patriarchy, and, in the end, polygyny and the subjugation of women "ultimately mutilate[] and distort[] the male psyche."³⁷ This results from the complex dynamic between the sexes in societies where the marital bond remains weak relative to the mother-child bond or to bonds within sexes.³⁸ Societies where men feel a stronger loyalty to their mothers than their wives encourage violence toward junior women by senior women who know that their sons will not oppose their actions. In addition, polygyny means that there will not be enough women to provide mates for lower-status men, who will likely remain childless.

Those who work for female equality commonly assume that education or modernism will erode such attitudes and values, but history shows the resilience of entrenched cultural traditions that validate, instantiate, and perpetuate patriarchal control. Although the French Revolution inspired widespread debate about the emancipation of women, it led to little change for women compared to men. For example, even in the wake of the French Revolution's ostensible commitment to liberty and equality, there was persistent resistance to change in women's attire.³⁹ Even in Turkey, one of the most westernized countries, Atatürk never prohibited the veil, though he banned the fez; and modern Islamic revival has been notably associated with a

³⁷ Deniz Kandiyoti, *The Paradoxes of Masculinity: Some Thoughts on Segregated Societies*, in *DISLOCATING MASCULINITY: COMPARATIVE ETHNOGRAPHIES* 196, 197 (Andrea Cornwall & Nancy Lindisfarne eds., 1994).

³⁸ See ALICE S. ROSSI & PETER H. ROSSI, *OF HUMAN BONDING: PARENT-CHILD RELATIONS ACROSS THE LIFE COURSE* 251–72 (1990).

³⁹ See OLWEN H. HUFTON, *WOMEN AND THE LIMITS OF CITIZENSHIP IN THE FRENCH REVOLUTION* 18–19 (1992); LYNN HUNT, *POLITICS, CULTURE, AND CLASS IN THE FRENCH REVOLUTION* 82–86 (1986); see also JOAN B. LANDES, *WOMEN AND THE PUBLIC SPHERE IN THE AGE OF THE FRENCH REVOLUTION* 146 (1988).

return by women, but not men, to traditional dress in Turkey and elsewhere.⁴⁰ Likewise, there is no evidence that such consequences of modernization, such as the acquisition of wealth or exposure to Western ideas, tend to reduce the patriarchal value system. Thus, “the emancipation of women is one of the main grievances of the fundamentalists and its reversal is in the forefront of their programme.”⁴¹ A fundamental clash of values over the rights of women relative to men will therefore not be resolved by anything as straightforward as economic globalization or improvements in literacy. A deeper understanding of the nature of resentment toward female independence and equality must incorporate a realistic account of why patriarchal control is so highly valued by so many men, particularly in polygynous societies.

One school sees patriarchy as essentially arbitrary, emerging from specific historical events that no longer justify its maintenance. Women’s political marginalization and loss of freedom has been traced, for example, to the eighth and ninth centuries, when international conquests and the acquisition of women slaves gave men exceptional power in sexual politics.⁴² This perspective implies that if modern men are presented with enough pressure for equality, they may be persuaded to abandon their old-fashioned ideals.⁴³ But the strong resistance that many men have shown to women’s increasing independence and striving for equality suggests the alternative view that we propose. In our view, patriarchal control is not merely the arbitrary remnant of a temporary historical culture, but it is rather intimately associated with the prevailing family structure, economic system, and access to reproductive rights and freedoms. For example, Tertilt finds that “banning polygyny . . . reduces fertility by 40 percent, increases savings by 70 percent, and raises output per person by 170 percent.”⁴⁴

Ironically, it appears to be the case that societies, including agricultural ones, where women possess more productive value and are thus more independent, produce higher rates of polygyny.⁴⁵ This seems to be the case

⁴⁰ See LEWIS, *supra* note 36, at 180.

⁴¹ *Id.* at 383.

⁴² FATIMA MERNISSI, THE VEIL AND THE MALE ELITE: A FEMINIST INTERPRETATION OF WOMEN’S RIGHTS IN ISLAM 148–52 (Mary Jo Lakeland trans., 1987).

⁴³ See SHERYL SANDBERG WITH NELL SCOVELL, LEAN IN: WOMEN, WORK, AND THE WILL TO LEAD 159–72 (2013).

⁴⁴ Michèle Tertilt, *Polygyny, Fertility, and Savings*, 113 J. POL. ECON. 1341, 1365 (2005).

⁴⁵ Ron Lesthaeghe et al., *Post-Partum Abstinence, Polygyny, and Age at Marriage: A Macro-Level Analysis of Sub-Saharan Societies*, in NUPTIALITY IN SUB-SAHARAN AFRICA: CONTEMPORARY

because women in these societies must balance their productive and reproductive responsibilities wisely. Long periods of postpartum abstinence (i.e., over a year) accomplish this goal while encouraging male polygyny. In essence, different women take turns with the same man to balance their productive and reproductive activities through polygynous processes.

Giving a kinswoman in marriage is one important mechanism for alliance formation. In particular, male children of such unions establish strong incentives for each side of the family to invest in the resources that will go to those children.⁴⁶ In these circumstances, the high value that a man places on his control of women is no whim. Rather, it is central to his ability to function effectively as a father and family provider.⁴⁷ Control over a woman confers status precisely because it ensures paternity over her children and thus helps establish and cement networks of control.

B. Polygyny and Male Violence

Wealth-based polygyny is widespread.⁴⁸ Polygyny can be potentiated by other sources, such as the uneven accumulation of wealth in oil-based economies. The results in some cases are extreme. The Crown Princes of Saudi Arabia, defined as the *male* descendants of Ibn Saud (who founded the country and died in 1953), are estimated to number between 6,000 and 7,000.⁴⁹ Not only does polygyny increase the number of unmarried men, but the uneven wealth distribution that accompanies it presents a further predictor of violence. For example, the Gini coefficient of inequality across household incomes accounts for most of the difference between homicide rates between Canada and the United States.⁵⁰ Polygyny is concentrated everywhere in the wealthier families and leads to an accumulation of unmarried men in poorer classes.⁵¹

ANTHROPOLOGICAL AND DEMOGRAPHIC PERSPECTIVES 25, 27–28 (Caroline H. Bledsoe & Gilles Pison eds., 1994).

⁴⁶ Frank J. Floyd, Laura A. Gilliom & Catherine L. Costigan, *Marriage and the Parenting Alliance: Longitudinal Prediction of Change in Parenting Perceptions and Behaviors*, 69 CHILD DEV. 1461 (1998).

⁴⁷ See Weisfeld, *supra* note 23, at 77–88.

⁴⁸ COULT & HABENSTEIN, *supra* note 12; Patrick, *supra* note 12.

⁴⁹ *Frontline: The House of Saud*, PBS (Aug. 1, 2005), <http://www.pbs.org/wgbh/pages/frontline/shows/saud/tree/>.

⁵⁰ Martin Daly & Margo Wilson, *Darwinism and the Roots of Machismo*, SCI. AM. PRESENTS, 1999, no. 3, at 8.

⁵¹ Richard Dawkins, *Wealth, Polygyny, and Reproductive Success*, 9 BEHAV. & BRAIN SCI. 190 (1986); Frederic L. Pryor, *Simulation of the Impact of Social and Economic Institutions on the Size Distribution of Income and Wealth*, 63 AM. ECON. REV. 50 (1973).

Polygyny therefore has the unfortunate consequence of generating a class of people—young unmarried men—who are statistically inclined to violence. For example, most homicides in Canada and the United States result from the actions of males aged 15–35; among those, the majority are committed by men between the ages of 20 and 29; and of those, the majority are committed by unmarried men.⁵² In his study of the relationship between single men and social violence in American history, David Courtwright argues that

[w]here married men have been scarce or parental supervision wanting, violence and disorder have flourished, as in the mining camps, cattle towns, Chinatowns, black ghettos, and the small hours of the morning. But when stable family life has been the norm for men and boys, violence and disorder have diminished. . . .

. . . What we should not doubt is the social utility of the family, the institution best suited to shape, control and sublimate the energies of young men.⁵³

Similarly in India, districts with higher ratios of men to women have higher rates of homicide.⁵⁴

This phenomenon has both a social and a physiological basis. Mazur and Booth report that men with high levels of testosterone, including unmarried men, are more likely to exhibit violent and antisocial behaviors, including getting into trouble with the law, substance abuse, and other forms of aggressive behavior.⁵⁵ This is at least in part because testosterone acts in the face of challenge, especially threats to social status. Unmarried men searching for mates are more likely to get involved in intrasexual competition with other men, which can easily turn violent.⁵⁶ In addition, Mazur and Michalek show that age-adjusted testosterone is not constant over time.⁵⁷ Rather, male testosterone increases in the years surrounding divorce and decreases in the years surrounding marriage, independent of age.⁵⁸ But male testosterone drops

⁵² Daly & Wilson, *supra* note 50, at 12.

⁵³ DAVID T. COURTWRIGHT, *VIOLENT LAND: SINGLE MEN AND SOCIAL DISORDER FROM THE FRONTIER TO THE INNER CITY* 280 (1996).

⁵⁴ Jean Drèze & Reetika Khera, *Crime, Gender, and Society in India: Insights from Homicide Data*, 26 *POPULATION & DEV. REV.* 335 (2000).

⁵⁵ Allan Mazur & Alan Booth, *Testosterone and Dominance in Men*, 21 *BEHAV. & BRAIN SCI.* 353 (1998).

⁵⁶ Margo Wilson & Martin Daly, *Competitiveness, Risk Taking, and Violence: The Young Male Syndrome*, 6 *ETHNOLOGY & SOCIOBIOLOGY* 59 (1985).

⁵⁷ Allan Mazur & Jack Michalek, *Marriage, Divorce and Male Testosterone*, 77 *SOC. FORCES* 315 (1998).

⁵⁸ *Id.*

in the time surrounding courtship and marriage, and drops further with the birth of each child.⁵⁹ Thus, men married to women receive beneficent effects on their propensity toward violence and aggression relative to unmarried men. Mazur and Michalek argue that this phenomenon helps explain both the low criminality found in married men and the high rates of domestic abuse seen in cases of divorce.⁶⁰ This greater propensity toward violence in young men is likely supported, at least in part, by the higher baseline levels of testosterone found within these age ranges.

The presence of large numbers of young unmarried men can arise not only from polygyny but also from distorted overall sex ratios, deriving from such factors as sex-selected abortion, female infanticide, high rates of maternal death in childbirth, and poorer health treatment for women. High sex ratios of men to women occur, for example, in regions such as Afghanistan and Pakistan, as well as other countries such as India and China.⁶¹ These high sex ratios have historically been associated with intra-society violence, aggressive foreign-policy initiatives, and governments that, aware of the threat to the stability of their own regime posed by organizations of unmarried men, tended to be repressive and authoritarian.⁶² But here we concentrate on the independent effects of polygyny on violence specifically directed toward women and children, as well as those that affect the state. Polygyny remains problematic in this regard because for every man who has more than one wife, another man may not be able to find any wife at all.

Even terrorist groups understand the threat posed by large numbers of unmarried men. One of the most notorious terrorist groups ever, the Black September movement, conducted the seizure of Israeli athletes at the Munich Olympics in 1972.⁶³ When Arafat's organization sought to dismantle this group for fear of their violence undermining broader political objectives, military leaders decided to simply marry them off.⁶⁴ Through a system of

⁵⁹ Peter B. Gray et al., *Marriage and Fatherhood Are Associated with Lower Testosterone in Males*, 23 EVOLUTION & HUM. BEHAV. 193, 194 (2002).

⁶⁰ Mazur & Michalek, *supra* note 57, at 320–28.

⁶¹ Hudson & Den Boer, *supra* note 7, at 7, 9 tbl.2.

⁶² *Id.* at 25–26.

⁶³ CHRISTOPHER DOBSON, BLACK SEPTEMBER: ITS SHORT, VIOLENT HISTORY (1974); AARON J. KLEIN, STRIKING BACK: THE 1972 MUNICH OLYMPICS MASSACRE AND ISRAEL'S DEADLY RESPONSE (2005); SIMON REEVE, ONE DAY IN SEPTEMBER: THE FULL STORY OF THE 1972 MUNICH OLYMPICS MASSACRE AND THE ISRAELI REVENGE OPERATION "WRATH OF GOD" 1–2 (2000).

⁶⁴ Bruce Hoffman, *All You Need Is Love: How the Terrorists Stopped Terrorism*, ATLANTIC, Dec. 2001, at 34, available at <http://www.theatlantic.com/magazine/archive/2001/12/all-you-need-is-love/302351/>.

financial incentives and structured “mixers,” members of Black September married attractive young Palestinian women.⁶⁵ When such men were later asked to leave the country with legal passports, not a single one agreed to go, for fear of losing his family because of past terrorist activities.⁶⁶ The Northern Ireland Prison Service used similar strategies when they offered early release to former IRA and loyalist terrorists. None of the men who were offered early parole through a system designed to reaffirm family ties ever returned to prison.⁶⁷ The larger point remains that unmarried men simply have less to lose. They also have more incentive to seek dominance through less conventional and more dangerous means, in hopes of garnering the resources required to attract sexual partners.

Entirely aside from international power struggles, therefore, polygynous societies contain the basis for violent response toward women and children. The combination of distorted sex ratios, particularly in the poorer classes, and relatively large wealth differentials means that resentment and anger towards women can be predictably fuelled with a ready supply of frustrated, risk-prone young men. When this mixture is added to a volatile political system, the dangers become obvious.

II. ANALYSIS

Here we use a unique data source, the WomanStats Project, to provide a substantial cross-cultural analysis of (1) the impact of polygamous relationships on women’s equality; (2) the impact of polygamous relationships on children, including child brides and the children of polygamous unions; and (3) the impact of polygamous relationships on the nation-state.

Polygynous mating systems are known to promote intensified male–male competition for females and tend to restrict options for females because of male coercion.⁶⁸ We examine the link between polygyny and the physical security of women and children using a unique dataset of 171 countries. Controlling for the independent effects of gross domestic product (GDP) and sex ratio, we find statistically significant relationships between polygyny and

⁶⁵ *Id.* at 36.

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ F. Marlowe, *Paternal Investment and the Human Mating System*, 51 BEHAV. PROCESSES 45, 54 (2000); Barbara B. Smuts & Robert W. Smuts, *Male Aggression and Sexual Coercion of Females in Nonhuman Primates and Other Mammals: Evidence and Theoretical Implications*, 22 ADVANCES STUDY BEHAV. 1, 3–11 (1993).

the following: discrepancy between law and practice concerning women's equality, birth rate, rates of primary and secondary education for male and female children, difference between males and females in HIV infection, age of marriage, maternal mortality, life expectancy, sex trafficking, female genital mutilation, domestic violence, inequity in the treatment of males and females before the law, defense expenditures, and political rights and civil liberties. Elevated frequency of polygynous marriage thus tends to be associated with increases in behavioral constraints and physical costs experienced by women and children in particular. Since our results control for relative wealth (using GDP), these costs appear to be due, at least in part, to structural and institutional attempts to control female sexuality and reproduction independent of economic constraints.

A. Data and Methods

The WomenStats Project provided national data on polygyny and most of the effects we examine here.⁶⁹ Data used in this Essay are sampled from 171 countries for the period 2000 to 2007. We used year-matched data when available. Our maximum gap between data samples was five years, a short period compared to rates of societal change. The WomanStats database provides the largest compilation of information on the status of women in the world, coding over 260 variables for 174 countries. Because we limited our observations to countries with over 200,000 people in the population, we restricted our analysis to 171 of these countries. The preponderance of data came from scholarly research, NGO and IGO reports, governmental reports, and national statistical bureaus, with each piece of information being fully indexed as to source. The WomanStats Project constitutes a unique data set that provides extensive information about women's issues around the world. No other dataset on women's issues in the world ranks its equal, whether in terms of the breadth and depth of its coverage, the degree of its reliability checks, or the time spent in its creation. It literally is the best of its kind and permits a comprehensive, comparative statistical analysis unlike any other.

The data on the nation-state comes from two well-respected international organizations whose main goal is to collect the information we examine. The data on arms expenditures comes from the Stockholm International Peace Research Institute (SIPRI). SIPRI describes themselves as "an independent international institute dedicated to research into conflict, armaments, arms

⁶⁹ WOMENSTATS PROJECT, *supra* note 10.

control and disarmament,” although they are supported, in part, by the Swedish government.⁷⁰ Their data exists free on the web at www.sipri.org, which is where we obtained this data.⁷¹ They are widely considered to be an unbiased and world-class resource for this material. The information regarding political freedoms and civil liberties comes from Freedom House, an independent nongovernmental organization widely considered to provide the most accurate and comprehensive data on social and political freedoms for countries around the globe. Their information can be accessed at www.freedomhouse.org, which is where we obtained the data.⁷²

A total of seventeen outcome variables are considered here, comprising a rich variety of dimensions of women’s lives, children’s lives, and the influence on the nation-state, aggregated to the level of the state. Taken together, these variables show the profound, systematic, and negative influence of polygyny on women’s health and equality, child welfare, and the nation-state.

Naturally, the state is not the only possible unit of analysis; ethnic enclaves present another alternative, for instance. But states constitute the basic unit of analysis in the international system and add comparative context to unique or anecdotal case material, particularly so when measures of the variables, such as polygyny, are arguably and reasonably homogenous across the subunits that a state encompasses.

The variables analyzed below constitute the group of outcomes theoretically hypothesized to be most likely to be affected by polygyny. In other words, given how polygyny affects factors such as sex-ratio imbalance as discussed above, and given its inherent incentives and demands, it was possible to generate hypotheses about which factors related to women, children, and the nation-state might be affected by polygyny.

It is not possible to test every variable for its relationship to polygyny, so we test here those that appear most theoretically plausible and empirically tractable. For instance, we can hypothesize that polygyny is likely to lead to higher rates of prostitution, but we cannot test for this relationship because we do not have enough data on rates of prostitution around the world to make it

⁷⁰ *About SIPRI*, STOCKHOLM INT’L PEACE RES. INST., <http://www.sipri.org/about> (last visited May 17, 2015).

⁷¹ *SIPRI Military Expenditure Database*, STOCKHOLM INT’L PEACE RES. INST., http://www.sipri.org/research/armaments/milex/milex_database (last visited May 17, 2015).

⁷² *Reports*, FREEDOM HOUSE, <https://freedomhouse.org/reports#.VMViCSeJAig> (last visited May 17, 2015).

possible to examine this variable statistically. This does not mean that a significant relationship does not exist or might not be uncovered in the future when more comprehensive data on other dependent variables might become available; it just means that we cannot know whether a statistically significant relationship exists currently because we are lacking the data to test it. So we must remain agnostic, barring additional data, on whether such a relationship exists. In addition, there may be other factors affected by polygyny that exist, and we did not know or think to test or report them here. However, every relationship discussed below fell within the conventional accepted standard for a statistically significant effect given a prior hypothesis. This means that the likelihood that such relationships occurred by chance and are actually unrelated to polygyny remain very, very low.

In this analysis, it is very important that we control for other variables that might directly cause the outcomes we examine. In particular, we need to control for the effect of GDP, measured in U.S. dollars, on the relationship between polygyny and the other issues we examine. This is because other streams of literature have long indicated a strong relationship between economic development and other aspects of women's rights.⁷³ If poor outcomes toward women are entirely attributable to poverty, then naturally, polygyny does not exert an impact, though such might be erroneously concluded if sole attention were paid to polygyny in the quantitative analysis. But controlling for GDP allows for an independent analysis of the influence of polygyny on the outcome variables concerning equity that comprise our concern. Combined, these two characteristics constitute an incredibly powerful tool for the study of polygyny. We deductively assess the hypothesized relationship between cause (polygyny) and effect (say, domestic violence), and we do so all other things, including the wealth of a country as measured by GDP, being equal.

B. Results of Analysis

The polygyny variable categorizes countries according to its prevalence. Countries were divided into five categories, ranging from places where polygyny is illegal and uncommon to places where it is legal and common, meaning more than 25% of women exist in such unions.

⁷³ Amartya Sen, *More Than 100 Million Women Are Missing*, N.Y. REV. BOOKS (Dec. 20, 1990), <http://www.nybooks.com/articles/archives/1990/dec/20/more-than-100-million-women-are-missing/>; see also Amartya Sen, *Gender and Cooperative Conflicts* 2–3 (World Inst. Dev. Econ. Research, Working Paper No. 18, 1987).

We begin with the variable called “discrepancy.” Discrepancy is a variable that taps (a) whether a country’s laws are in concordance with the United Nations Convention on Elimination of Discrimination Against Women (CEDAW),⁷⁴ and (b) whether the country enforces these laws. We use the 2007 coding of this variable in this analysis.⁷⁵ In the lowest category are those countries where CEDAW-consonant laws exist and are enforced, while the highest category refers to countries in which CEDAW-consonant laws are not present or are not enforced. Intrastate conduct that is not consonant with CEDAW does occur more often in more polygynous societies.

Figure 1 displays the following: a “scatter” of the data displaying the actual values of discrepancy and polygyny; the line of best fit, which indicates a strong positive relationship between polygyny and discrepancy, as expected; and the confidence interval portraying the accuracy of prediction.

Further evidence of the effect of polygyny comes in the form of a multiple regression controlling for GDP. These relationships can be seen in Table 1. The fit statistic here is distributed $F(2, 129) = 75.62$, and this is of the magnitude that indicates that the variables are not jointly zero, at a high level of significance ($p < 0.0005$). There is more evidence of an association, namely, the coefficient of determination (i.e., the R^2) is 0.54.

Polygyny retains an effect in the context of a multiple regression. The multiple-regression coefficient for polygyny is positive ($\beta = 0.240888$), and the two-tailed significance test of the null hypothesis can be rejected far beyond the conventional standard ($p < 0.0005$). Thus, there is strong confirmation of the role of polygyny. As polygyny goes up, discrepancy rises.

⁷⁴ *opened for signature* Mar. 1, 1980, 1249 U.N.T.S. 13 (entered into force Sept. 3, 1981).

⁷⁵ *Codebook*, WOMENSTATS PROJECT, <http://womanstats.org/new/codebook/> (last visited May 17, 2015).

Table 1: Effect of Polygyny and GDP on Discrepancy and Births Per 1,000

Variable	Discrepancy			Births Per 1,000		
	Coefficient	S.E.	<i>p</i> -value	Coefficient	S.E.	<i>p</i> -value
<i>Polygyny</i>	0.240888	0.045434	<0.0005	4.690576	0.426328	<0.0005
<i>GDP</i>	-0.000038	0.000005	<0.0005	-0.000234	0.000044	<0.0005
N	132			170		
Fit Statistic	$F(2, 129) = 75.62, p < 0.0005$			$F(2, 167) = 109.23, p < 0.0005$		
R^2	0.54			0.57		

Notes: Coefficients, associated standard errors, *p*-values, and fit statistics from ordinary least squares (OLS) regressions with discrepancy and births per 1,000 respectively as dependent variables and polygyny and GDP in each of the regressions as independent variables. For discrepancy, the effect of polygyny can be interpreted as follows: each unit increase in polygyny increases discrepancy by 0.24 units, GDP controlled. The coefficient for polygyny in births per 1,000 indicates that for each unit increase in polygyny, birth rates go up by 4.69 units, GDP controlled. Interpret other OLS coefficients in the same manner.

Women in polygynous countries have more children, on average, than women in less polygynous states. Figure 2 presents the same visuals as Figure 1 and with the same punch line: polygyny substantially shapes the number of births per 1,000 women per year in a state. With a fit statistic of $F(2, 167) = 109.23, p < 0.0005$, it is extremely unlikely that the variables are

simultaneously zero. To this it may be added the coefficient of determination is 0.57.

What then of the effect of polygyny controlling for GDP? Births per 1,000 go up, as per the regression coefficient ($\beta = 4.690576$) and the apparent rejection of the two-tailed statistical test ($p < 0.0005$).

The scatter of points in Figure 3 suggest that births for women aged 15–19 in countries with higher degrees of polygyny are also on average more substantial, and this too is what is to be expected of the line of best fit and also from the relative tightness of the confidence interval.

To compile multivariate evidence of the effect of polygyny, a multiple regression controlling for GDP was performed. This can be seen in Table 2. The fit statistic with $F(2, 134) = 41.57$ indicates that the variables are not jointly zero, at a high level of significance ($p < 0.0005$). There is more evidence of an association in the form of the coefficient of determination, which is 0.38.

Table 2: Effect of Polygyny and GDP on Births 15–19 and Female Enrollment (Primary)						
Births, Women Aged 15–19				Primary Enrollment for Women		
Variable	Coefficient	S.E.	<i>p</i> -value	Coefficient	S.E.	<i>p</i> -value
<i>Polygyny</i>	16.885980	2.724238	<0.0005	-4.454723	1.018081	<0.0005
<i>GDP</i>	-0.000865	0.000265	<0.001	0.000001	0.000102	>0.992
N	137			159		
Fit Statistic	$F(2, 134) = 41.57, p < 0.0005$			$F(2, 156) = 11.11, p < 0.0005$		
R^2	0.38			0.12		

Notes: Coefficients, associated standard errors, *p*-values, and fit statistics from OLS regressions with births (15–19) and female enrollment (primary) as dependent variables and polygyny and GDP in each of the regressions as independent variables.

This regression indicates the separate effect of polygyny, what with a large and positive coefficient (estimated as $\beta = 16.885980$, with estimated standard

error of 2.724238) and a p -value beyond what is conventionally required for rejection of the null hypothesis ($p < 0.0005$).

Polygyny also exerts an effect on child welfare. Girls are less likely to receive an education in primary or secondary school as polygyny becomes more frequent. The same holds true for boys as well. Boys are less likely to receive either primary or secondary school education in polygynous societies than boys raised in non-polygynous societies.

The rates of primary enrollment of girls in school are shown in Table 3 and Figure 4. Figure 4 suggests that in countries that have lower primary enrollments of girls, polygyny is more frequent, on average, this returned by the scatter of data and the line of best fit. The confidence interval suggests confidence in the predictions.

Table 3: Effect of Polygyny and GDP on Female Enrollment (Secondary) and Male Enrollment (Primary)						
	Secondary Enrollment for Women			Primary Enrollment for Men		
<u>Variable</u>	<u>Coefficient</u>	<u>S.E.</u>	<u>p-value</u>	<u>Coefficient</u>	<u>S.E.</u>	<u>p-value</u>
<i>Polygyny</i>	-12.064350	1.291731	<0.0005	-7.429632	3.675072	<0.045
<i>GDP</i>	0.000861	0.000129	<0.0005	-0.000531	0.000367	>0.151
N	158			159		
Fit Statistic	$F(2, 155) = 102.90, p < 0.0005$			$F(2, 159) = 2.32, p < 0.1012$		
R^2	0.57			0.03		

Notes: Coefficients, associated standard errors, p -values, and fit statistics from OLS regressions with female enrollment (secondary) and male enrollment (primary) as dependent variables and polygyny and GDP in each of the regressions as independent variables.

A two-variable multiple regression fits the outcome variable reasonably well. Indeed, this is reflected in Table 2 with $F(2, 156) = 11.11$, $p < 0.0005$; $R^2 = 0.12$. As evinced by Figure 4, the coefficient linking polygyny to primary enrollment for girls is negative ($\beta = -4.454723$) and statistically significant ($p < 0.0005$), as anticipated. This means that in polygynous countries, girls are less likely to attend primary schools.

The fifth outcome variable, secondary enrollment of girls in school, behaves in response to polygyny in the same way as that for primary enrollment. Figure 5 displays this, composed as it is with the scatter plot, the slope estimate, and the confidence interval.

The fit is better, however. Table 3 contains the results ($F(2, 155) = 102.90$, $p < 0.0005$; $R^2 = 0.57$). Moreover, it can be seen that secondary enrollment of girls declines as polygyny becomes more frequent ($\beta = -12.064350$) and in a statistically significant way ($p < 0.0005$).

What then of the sixth outcome variable and the seventh, namely, the degree of primary and secondary enrollment for boys in school? In both cases, seen in Figures 6 and 7, enrollment for boys appears structured at least partially by polygyny.

The slope of the line of best fit is negative in both cases: countries with lower enrollments of boys in primary or secondary institutions are on average occurring in countries with higher levels of polygyny.

While these figures are suggestive, multiple regression is ultimately necessary to untangle the question of the role of polygyny for these outcome variables, and the technique for both outcome variables confirms how polygyny affects them, controlling for GDP.

To begin with, for primary education the fit statistics shown in Table 3, where $F(2, 159) = 2.32$, $p < 0.1012$; $R^2 = 0.03$, suggest a relationship between GDP, polygyny, or both, and primary education for boys. Moreover, the slope ($\beta = -7.429632$) is statistically significant ($p < 0.045$).

Moving to secondary enrollment, Table 4 shows an equation with a good fit, specifically where $F(2, 155) = 94.90$, $p < 0.0005$; $R^2 = 0.55$, indeed far more so than for primary enrollment. Moreover, secondary enrollment of boys in more polygynous societies is less common on average as indicated by the regression coefficient ($\beta = -9.722135$) and the two-tailed statistical test ($p < 0.0005$).

Table 4: Effect of Polygyny and GDP on Male Enrollment (Secondary) and HIV (Difference)

Secondary Enrollment for Men				HIV		
<u>Variable</u>	<u>Coefficient</u>	<u>S.E.</u>	<u>p-value</u>	<u>Coefficient</u>	<u>S.E.</u>	<u>p-value</u>
<i>Polygyny</i>	-9.722135	1.165776	<0.0005	0.377731	0.201288	<0.064
<i>GDP</i>	0.000829	0.000117	<0.0005	-0.000021	0.000020	>0.314
N	158			94		
Fit Statistic	$F(2, 155) = 94.90, p < 0.0005$			$F(2, 91) = 4.85, p < 0.01$		
R^2	0.55			0.10		

Notes: Coefficients, associated standard errors, p -values, and fit statistics from OLS regressions with male enrollment (secondary) and HIV (difference between women and men) as dependent variables and polygyny and GDP in each of the regressions as independent variables.

Increased polygyny also heightens the difference in the occurrence of HIV infection between women and men; women become more likely relative to men to suffer from HIV as polygyny becomes more common. The differences in HIV rates, as displayed by Figure 8, are loosely driven by polygyny: the line of best fit to the scatter cloud notes that the difference between HIV rates between women and men becomes larger, on average, in countries more beset by polygyny.

The fit statistics for the multiple regression indicate a joint or possible one variable relationship is at stake, where $F(2, 91) = 4.85$, $p < 0.01$; $R^2 = 0.10$, it should be noted that the estimated variance explained is not particularly impressive.

The relationship between the difference in HIV rates and polygyny survives a multiple-regression analysis ($\beta = 0.377731$) and the two-tailed statistical test ($p < 0.064$). To be sure, the latter misses the 0.05 confidence level, but it should be added that a one-tailed test is reasonable given the expected direction of the relationship, and this being the case, the multiple-regression coefficient, though not reflected in the table, is significant at conventional levels ($p < 0.032$).

Women in polygynous countries are more likely to marry at a younger age than women in countries where polygyny is less frequent. The scatter of points in Figure 9 shows that female marriage age in countries with higher degrees of polygyny is on average lower, and the line of best fit reinforces this. The confidence interval adheres at a reasonable level about the regression line.

Confirming demonstration of the effect of polygyny comes in the form of a multiple regression controlling for GDP. This is shown in Table 5. This has three parts. First, the fit statistic indicates that the variables are not jointly zero, where $F(2, 153) = 54.84$, $p < 0.0005$. Second, there is more evidence of an association, namely, the coefficient of determination is 0.42. Third, the slope coefficient is negative ($\beta = -0.751378$). There can be little statistical doubt the null hypothesis is false ($p < 0.0005$).

Table 5: Effect of Polygyny and GDP on Marriage Age (Female) and Maternal Mortality						
Female Marriage Age				Maternal Mortality		
Variable	Coefficient	S.E.	p-value	Coefficient	S.E.	p-value
Polygyny	-0.751378	0.162937	<0.0005	131.537200	19.492820	<0.0005
GDP	0.000114	0.000117	<0.0005	-0.007075	0.002008	<0.0005
N	153			170		
Fit Statistic	$F(2, 153) = 54.84$, $p < 0.0005$			$F(2, 167) = 42.83$, $p < 0.0005$		
R^2	0.42			0.34		

Notes: Coefficients, associated standard errors, p -values, and fit statistics from OLS regressions with age of marriage (female) and maternal mortality as dependent variables and polygyny and GDP in each of the regressions as independent variables.

Women are more likely to die in childbirth as countries become more polygynous. The scatter of points in Figure 10 and the accompanying line of best fit and the confidence interval are consistent with the hypothesis that as polygyny gets more extensive so does maternal mortality, defined as the number of women who died in childbirth per 100,000 live births.

A multiple regression affirms that the coefficients linking polygyny and GDP to maternal mortality are not jointly zero, specifically $F(2, 167) = 42.83$, $p < 0.0005$; $R^2 = 0.34$, meaning that both GDP and polygyny, or one of these variables, contribute to maternal mortality. Multiple regression with GDP as a control produces results reinforcing what is suggested by the bivariate regression.

Polygyny has a separate role to play. Its corresponding coefficient is estimated as 131.537200, with estimated standard error of 19.492820 and a p -value beyond what is conventionally required for rejection of the null hypothesis ($p < 0.0005$).

Longevity is also affected by polygyny. Life expectancy taps the average age at which a woman dies in a given country. Polygyny and female life expectancy are inversely linked: more polygynous countries experience lower life expectancy for females. In other words, women in more polygynous

countries die at a younger age on average, likely in part because they are susceptible to die in childbirth as noted above. Figure 11 portrays in two-space the relationship between female life expectancy and polygyny, and the according line of best fit, surrounded on either side by the confidence interval. In polygynous societies, female life expectancy is lower than in societies without it.

It can be seen from Table 6 that a multiple regression with polygyny and GDP as predictors fares well, specifically $F(2, 153) = 74.28$, $p < 0.0005$; $R^2 = 0.47$. The same may be said for polygyny considered on its own, GDP serving as a control. The coefficient is negative ($\beta = -4.479878$), and a high degree of confidence can be expressed in the rejection of the null hypothesis ($p < 0.0005$).

Table 6: Effect of Polygyny and GDP on Female Life Expectancy

Variable	Coefficient	S.E.	<i>p</i> -value
<i>Polygyny</i>	-4.479878	0.535178	<0.0005
<i>GDP</i>	0.000293	0.000055	<0.0005
N		153	
Fit Statistic	$F(2, 153) = 74.28, p < 0.0005$		
R^2		0.47	

Notes: Coefficients, associated standard errors, *p*-values, and fit statistics with female life expectancy as a dependent variable and polygyny and GDP in the regression as independent variables.

Ordered logistic regression was used to estimate the relationship between the following dependent variables and polygyny, with GDP used in all analyses as a control: sex trafficking, female genital mutilation (FGM), domestic violence (DVS), and inequity in family law. From a statistical standpoint, this technique has many advantages over an ordinary-least-squares regression when the dependent variable is comprised of a limited number of ordered, unevenly spaced categories.

Sex trafficking increases in more polygynous countries. This variable divides countries into five categories based on their degree of compliance with the Trafficking Persons Act of 2000. The lowest signifies that there are laws against sex trafficking, while the highest means that sex trafficking is permitted and that the country is not in compliance with the law. In the current analysis, the five-point scale in the WomanStats database was collapsed into four categories because there were not a sufficient number of observations in two of the categories. Specifically, we collapsed the lowest two categories since only one country fit into the lowest category. When this happens, the coefficients cannot be properly estimated, so this is standard practice in such cases. Table 7 displays the results of a proposed model of predictors consisting of polygyny and GDP. The likelihood-ratio test for the model produces $\chi^2(3) = 64.96$, which yields $p < 0.0005$. Consequently, it is very unlikely that the coefficients linking our independent variables to sex trafficking are both zero. The pseudo- R^2 equals 0.17, which suggests a relationship, though the degree cannot be quantified statistically.

Table 7: Effects of Polygyny and GDP on Trafficking

<u>Variable</u>	<u>Sex Trafficking</u>			<u>FGM</u>		
	<u>Odds Ratio</u>	<u>S.E.</u>	<u>p-value</u>	<u>Odds Ratio</u>	<u>S.E.</u>	<u>p-value</u>
<i>Polygyny</i>	1.251951	0.141874	<0.047	3.763611	0.944152	<0.0005
<i>GDP</i>	0.999901	0.000018	<0.0005	1.000018	0.000019	>0.365
N	154			74		
LR $\chi^2(3)$	64.96, $p < 0.0005$			48.53, $p < 0.0005$		
Pseudo R^2	0.17			0.31		

Notes: Coefficients, associated standard errors, p -values, and fit statistics from two separate ordinal logistic regressions with family law and trafficking, respectively as dependent variables and in each ordinal logistic regression polygyny and GDP as independent variables. Odds ratios indicate how the odds of the dependent variable change in response to shifts in an independent variable. For instance, changing polygyny by one unit alters the odds of being in the uppermost category of the ordered, discrete family law scale versus the other categories of domestic violence by 2.16 times, GDP controlled. Examples of the consequences of a change in polygyny on predicted probabilities of family law as well as the other dependent variables are presented in the text.

A two-tailed test for the hypothesis that polygyny has no effect on sex trafficking may be rejected using a standard level of significance ($p < 0.047$). One demonstration of the effect of polygyny is via the odds ratio: a movement from one level of polygyny to one immediately subsequent to it increases the odds of being in the uppermost category of the ordered, discrete sex trafficking scale versus the other categories by a factor of 1.25 times, GDP controlled.

Envisioning the effect of polygyny on sex trafficking via an odds ratio can be supplemented with a consideration of the effect of polygyny on predicted probabilities associated with categories of sex trafficking. In calculating the degree of association, though, it needs emphasizing that while odds ratios do not turn on the values of polygyny or GDP—where they are fixed, in particular—the predicted probabilities for sex trafficking must be calculated for levels of polygyny and some fixed value for GDP. This is due to the fact that the probabilities associated with categories of the dependent variables are nonlinear expressions of the independent variables: the interpretation of the effect of polygyny for one (fixed) value of GDP may be somewhat different than that for another, whereas the odds ratio associated with a shift from one level of polygyny to the one immediately following is the same regardless of whether one starts with, say, polygyny equals two or polygyny equals three.

However, the same is not true when the matter turns to predicted probabilities for sex trafficking, or any of our other ordinal dependent

variables. Even so, while caution must be exercised, it is still the case that a portrait of predicted probabilities has a substantive and visual appeal, particularly when accompanied by a figure plotting the effects.

Such is the case with Figure 13. The y-axis ranges from 0–1, as expected. The x-axis is polygyny, with graphically represented steps of one from 0–4, also expected. What do the lines represent? How can they be interpreted?

For a particular category, say sex trafficking equals four, the lines trace the effect of polygyny from one level to another and, further, across its range: how a change, say, from polygyny equals two to polygyny equals three, alters the predicted probabilities of sex trafficking when the value of sex trafficking is four.

Notice also that the slopes linking various categories step by step through the range of polygyny are not identical. For instance, when sex trafficking equals one (i.e., $pr(1)$), its associated predicted probabilities generally go down when polygyny goes down, while the general movement of predicted probabilities when sex trafficking equals four goes up as polygyny becomes more common.

What this means, in fact, is that as polygyny becomes more frequent, trafficking becomes more prevalent and women more victimized. As signaled

by the figure, the leap in predicted probabilities for this value of trafficking is impressive, particularly since GDP is controlled at its median value, a good choice given that this is a measure of central tendency.

Female Genital Mutilation (FGM), sometimes referred to as female cutting, also increases as countries become more polygynous. This practice exerts a detrimental effect on women's health because it can affect subsequent bladder, bowel, and childbirth processes, particularly if it is badly done or conducted under unsanitary conditions, as often occurs. This practice is often referred to as female circumcision, but this represents a clear misnomer and euphemism. As Toubia writes in the *New England Journal of Medicine*, "The mildest form, clitoridectomy, is anatomically equivalent to amputation of the penis. Under the conditions in which most procedures take place, female circumcision constitutes a health hazard with short- and long-term physical complications and psychological effects."⁷⁶

In our analysis, the highest category includes countries where more than 10%, and sometimes upwards of 50%, of women have sustained such cutting. FGM is divided by countries into five categories and then collapsed into three for purposes of the analysis because of the small number of cases for particular values of the variable. The number of cases here is comparatively small, suggesting perhaps that caution is warranted in interpreting the results. But such is not written in stone; alternatively, it might be speculated that countries with the highest levels of FGM do not report this, perhaps looking away, perhaps encouraging it, the impact of this being a suppressor effect—the relationship might look even stronger were data available for all countries. This said, the likelihood-ratio test for our model of two variables is distributed $\chi^2(3) = 48.53$, which yields $p < 0.0005$. So we can reject at conventional levels the hypothesis of a joint, null relationship between FGM and our two independent variables.

The pseudo- R^2 , which equals 0.31, is the highest so far seen. A linkage between polygyny and FGM is confirmed statistically with a very high degree of significance ($p < 0.0005$). Moreover, the slope ($\beta = 3.763611$) is statistically significant ($p < 0.0005$). This magnitude is especially impressive and is confirmed by the shape of the lines in Figure 14. At its most extreme, FGM has predicted probabilities that move almost in lockstep with polygyny.

⁷⁶ Nahid Toubia, *Female Circumcision as a Public Health Issue*, 331 NEW ENG. J. MED. 712, 712 (1994).

Of critical importance is the question of whether polygyny helps cause violence toward women. To answer this question, an omnibus measure of domestic violence was employed, one that incorporates domestic violence, rape, marital rape, and honor killings, as well as the extent and strength of the enforcement of the laws prohibiting these crimes in any given state. And indeed, as confirmed in Table 8 and Figure 15, polygynous countries contain more domestic violence against women. Table 8 shows the likelihood-ratio test for our model of two variables is distributed $\chi^2(3) = 76.03$, which yields $p < 0.0005$. So we can reject at conventional levels the hypothesis of a joint, null relationship between domestic violence and our two independent variables.

Table 8: Effects of Polygyny and GDP on Domestic Violence and Inequity

Variable	DVS			Inequity		
	Odds Ratio	S.E.	<i>p</i> value	Odds Ratio	S.E.	<i>p</i> value
<i>Polygyny</i>	1.466550	0.163000	<0.001	3.059176	0.423937	<0.0005
<i>GDP</i>	0.999916	0.000015	<0.0005	0.999935	0.000014	<0.0005
N	168			170		
LR $\chi^2(3)$	76.03, $p < 0.0005$			139.07, $p < 0.0005$		
Pseudo R^2	0.19			0.27		

Notes: Coefficients, associated standard errors, *p*-values, and fit statistics from two separate ordinal logistic regressions with DVS and inequity, respectively as dependent variables and in each case polygyny and GDP as independent variables.

A supplementary suggestion of a relationship comes courtesy of the pseudo- R^2 , which equals 0.19. Our test statistic suggests that one or both of our variables drive domestic violence. So what then of the effect of polygyny? A linkage between polygyny and the DVS is confirmed statistically with a very high degree of significance ($p < 0.001$). The odds ratio may be interpreted by assessing how moving polygyny by one unit upwards shifts the odds of being in the uppermost category of the ordered, discrete domestic violence scale

versus the other categories of domestic violence. Indeed, the odds increase by 1.47 times, GDP controlled. For the value of GDP we have chosen, it can be seen that domestic violence at its worst expression, i.e., $pr(4)$, and as expressed in terms of predicted probabilities, goes up as considered across the range of polygyny (Figure 15). There is also a dramatic on-balance shift for the category of domestic violence equals two, i.e., $pr(2)$.

Polygyny also affects the treatment of men and women before the law. Differences in the legal treatment of women versus men become greater, to the detriment of women, in more polygynous societies. We refer to this variable as inequity. Inequity measures the degree of equal treatment of men and women before the law. More particularly, inequity is defined as the relative standing of men and women under law, indexed on an ordinal scale. At the low end are countries where the legal age of marriage is eighteen or higher, where women may choose their spouse, where divorce is possible, where both partners are treated equitably by law, where abortion is permitted, and where women may inherit property. Countries at the high end permit marriage at younger than eighteen years of age; for example, such countries have laws that permit girls aged twelve or less to be married and also have laws more restrictive to women's rights on the other facets of this omnibus measure. Table 8 contains the results.

Our two-variable model performs well, as expressed by a likelihood-ratio test, with a distribution $\chi^2(3) = 139.07$, which yields $p < 0.0005$. So we can reject at conventional levels the hypothesis of a joint, null relationship between inequity and our two independent variables. As noted and absent a distribution, the pseudo- R^2 equals 0.27 conveys the same information as the likelihood-ratio statistic.

More evidence for the hypothesis that polygyny matters with regard to inequity comes in the form of a two-tailed statistical test of the null hypothesis that it does not ($p < 0.0005$). The accompanying information about predicted probabilities, displayed in Figure 16, is difficult to summarize and is perhaps our most notable manifestation of nonlinearities. We observe what we would expect: dips on balance when inequity manifests in its greatest form as polygyny turns from its lowest to its greatest amount, and the reverse being so when polygyny travels from its greatest to its lowest, driving as it does inequity at its lowest level.

Polygyny also has effects that extend beyond the outcome variables already considered. Polygyny can exert effects on various aspects of domestic and international politics for a given nation-state. First, to the extent that junior boys who have been excised from polygynous communities become wards of the state, the cost of educating, socializing, housing, feeding, and job training gets transferred from the family to taxpayers. Second, to the extent that secondary wives can obtain aid from the state under laws designed to help women with dependent children but without male support, financial costs for such support can escalate as well, since polygynous unions are sometimes not recognized by the state, especially in more Western countries.

Moreover, the effects of polygyny on the nation-state can be quantified along certain dimensions. States with higher rates of polygyny spend more money per capita on defense, particularly on arms expenditures for weapons. More specifically, we test whether defense expenditures have a partial foundation in polygyny. Defense expenditures are surely a crucial foreign policy stance, an orientation towards the outside world and perhaps an indication of the inner workings of policy elites. So polygyny is examined here for the extent to which it can exert influential impacts beyond the private and domestic spheres. We further investigate whether states with high levels of polygyny concurrently have low degrees of freedom, the former being a cause

of the latter and the latter a crucial measure of the internal workings of the state and the quality of life for all citizens.

We begin with defense expenditures. The Stockholm International Peace Research Institute has collected data about per capita defense expenditures. A particular advantage of this measure, aside from its being well respected and widely used, is that the unit of the analysis is the state, permitting what we have already done: particularly, a comparison of states with lower versus higher levels of polygyny with states that have lower or higher levels of outcomes negative towards women on average. Our question is whether this variable is related to polygyny.

Figure 17, complete with the scatter plot of data, the line of best fit, and the confidence interval, is consistent with the interpretation that states with higher amounts of per capita defense expenditures are more likely on average to have higher degrees of polygyny. Table 9 confirms this. The fit statistic confirms this marginally ($F(2, 91) = 2.73$, $p < 0.0687$), and the correlation coefficient is 0.228663 and is statistically significant at conventional levels ($p < 0.025$). We can conclude from this that states with higher expenditures are, on average, more likely to have higher degrees of polygyny as well. This is as we anticipated.

Table 9: Effects of Polygyny and GDP on Freedom and Defense Expenditures

Variable	SIPRI			Freedom		
	Coefficient	S.E.	<i>p</i> -value	Odds Ratio	S.E.	<i>p</i> -value
<i>Polygyny</i>	0.228663	0.100777	<0.025	0.682354	0.076193	<0.001
<i>GDP</i>	0.000004	0.000010	>0.68	1.000076	0.000020	<0.0005
N		137			166	
	$F(2, 91) = 2.73, p < 0.0687$			$LR \chi^2(2) = 52.28, p < 0.0005$		
Pseudo- R^2		0.2171			0.1463	

Notes: Coefficients, associated standard errors, *p*-values, and fit statistics from one OLS regression (defense expenditures) and one ordinal logistic regression (freedom). The OLS regression and the ordinal logistic regression both employ the same independent variables, viz., polygyny and GDP. Still, the interpretation of the coefficient for polygyny in the OLS regression (as so for GDP) is not the same as that for the odds ratio for polygyny (as so for GDP).

Polygyny also influences the degree of rights and freedoms experienced by citizens in a given country. Specifically, states with higher rates of polygyny display fewer political rights and civil liberties than those that have less polygyny. To be sure, a good deal about the liberties women enjoy, and the ones stripped from them because of their gender, can easily be inferred using data from the project. But here, the consideration of liberties is more generally construed within society at large, specifically those experienced by both men and women, and there is no measured analog for that in the WomanStats Project database. However, Freedom House has an excellent, well-thought-of omnibus measure, described as the “freedom in the world” historical rankings.⁷⁷

Summarizing the results of the ordered-logistic regression, it can be seen from Table 9, $\chi^2(2)=52.28, p < 0.0005$. Thus, we can dispense with the null hypothesis that there is jointly no effect of the predictors of the measured level of freedom. It is also the case that polygyny survives as an influence, GDP controlled ($p < 0.0005$). Though elsewhere not to be as diagnostic in the same ways as the likelihood-ratio statistics, the pseudo- R^2 equals 0.1463, suggestive of a relationship between at least one of the variables and freedom.

The odds ratio is 0.682354 and statistically significant ($p < 0.0005$), meaning that moving one category upward in polygyny lowers by 0.682354 times the likelihood that a country will be free as opposed to the two (ordered)

⁷⁷ *Freedom in the World*, FREEDOM HOUSE, <https://freedomhouse.org/report-types/freedom-world#.VVN34vVikp> (last visited May 17, 2015).

alternative. The final figure, Figure 18, visually shows how, when GDP is controlled for at its median, changes in polygyny affect the level of freedom of a state. As an example, look at the predicted probabilities for a state as “not free.” These probabilities, when looked at when polygyny is absent, are lower than the predicted probabilities when at least 25% of women are captured by polygyny.

III. DISCUSSION AND CONCLUSIONS

Examining over 170 countries around the world, we find that polygynous structures increase violence toward women and children, decrease civil rights and political liberties in the state more broadly, and increase the allocation of resources in society toward weapons procurement. Polygyny exerts economic, physical, and political consequences for societies in which such practices remain prevalent. For example, Kanazawa shows early menarche in polygynous countries and unrelated work has shown that early sexual trauma, common in polygyny where many girls are forced into early marriage to much older, abusive men, leads to increased morbidity, decline in longevity, and intergenerational transfer of changes in genetic expression.⁷⁸ Further, children

⁷⁸ Satoshi Kanazawa, *Why Father Absence Might Precipitate Early Menarche: The Role of Polygyny*, 22 EVOLUTION & HUM. BEHAV. 329, 331–34 (2001).

of young mothers do worse in education, have worse economic prospects, and remain at higher risk for crime.⁷⁹

Our results could, in theory, be confounded by the presence of other variables not considered in our analysis, such as religious affiliation or political system. The strengths of statistical association might also be modified by taking into account sociocultural similarities or historical continuities among countries. Controlling for such variables represents an important analytical challenge that has been solved when relationships between sample points are linguistic or cultural but not for countries as a whole since they include multiple populations. Data are currently not available to analyze by distinct cultural units. Future research may be able to test such hypotheses when further data become available. Furthermore, it is possible that causation can go in both directions. For example, higher rates of female mortality arising from violence towards women could lead to polygyny being favored.

Nevertheless, the consistency and strength of our findings across multiple independent measures of violence, together with their conformity to a well-supported anthropological theory about the impact of polygyny on the propensity for male violence, are clearly suggestive. In view of the importance of recognizing sources of violence that can be modified by appropriate legislative action, we believe our results warrant further intense investigation. Moreover, policymakers would have to change multiple laws across multiple domains to exert as much of an effect on these negative outcomes toward women and children as could be accomplished by the abolition of polygyny. We conclude the evidence in favor of the role of polygyny is sufficiently strong that efforts should be made to understand more clearly the contexts in which, and the mechanisms by which, polygyny fosters local and institutional violence towards women and children, as well as its role in undergirding support for the suppression of political rights and civil liberties. In addition, polygyny exerts its effects on violence against women independent of the effects of sex ratio alone, so the social, cultural, and institutional practices that support its existence manifest an impact that goes beyond merely increasing the number of unmarried men in society.

⁷⁹ Sara Jaffee et al., *Why Are Children Born to Teen Mothers at Risk for Adverse Outcomes in Young Adulthood? Results from a 20-Year Longitudinal Study*, 13 DEV. & PSYCHOPATHOLOGY 377, 377–78 (2001); see also J. Brooks-Gunn & Frank F. Furstenberg, Jr., *The Children of Adolescent Mothers: Physical, Academic, and Psychological Outcomes*, 6 DEVELOPMENTAL REV. 224 (1986).

Our data also show that increased GDP was generally associated with women having greater freedom from violence. We suggest that wealthier countries have more resources, and are thus possibly more willing to devote such resources, to accurately collect data on many aspects of society, including the treatment of women and children. We also suspect that as income rises, societies have increased wherewithal to treat women and children better. Possible explanations include women having more power because they generate a higher percentage of society's wealth, allowing them to be less economically dependent on men. In addition, wealthier societies might monitor conformity to the law more accurately, thanks to their greater resources. However, the problem of violence against women is not obviated by increasing wealth alone, as attested by the fact that many wealthy countries continue to suffer high rates of violence against women, including domestic violence, rape, and murder.⁸⁰ Poverty, while clearly important to the issue, represents only part of the problem generating violence against women. Polygyny constitutes an additional important piece of the puzzle. As long as this kind of family structure continues its legitimate status throughout much of the world, its consequences will continue to exert independent effects on the violent outcomes of concern. In other words, polygyny as well as poverty will have to be tackled before societies can gain a firm grasp on the challenge of reducing or eliminating violence against women and children within them.

More than simply increasing the number of men unable to find mates, polygynous practices also encourage control over women in many areas of social and political life, a practice that is required in order to maintain control over reproductive access. This analysis demonstrates that such control often devolves into systematic practices of violence against women and children. In this way, polygyny may represent a more sensitive measure of patriarchy than sex ratio, since sex ratio includes women outside reproductive age. This age-structure distribution may be particularly important with regard to older women; it may not matter much if there are a lot of old women compared to old men in terms of the impact of sex ratio on violence against women, but it may matter a great deal if most younger women are engaged in polygynous unions.

Polygyny appears to constitute a sizeable and independent piece of the puzzle explaining the emergence of violence directed at women and children.

⁸⁰ See, e.g., S. LAUREL WELDON, PROTEST, POLICY, AND THE PROBLEM OF VIOLENCE AGAINST WOMEN: A CROSS-NATIONAL COMPARISON 9–11 (2002).

In addition, the institutions necessary to keep it in place may help explain some of the patterns of repression across the globe. And yet this is a practice that will not necessarily be easily changed. One solution that has been offered to the problem of polygyny as a source of violence towards women might be to increase female social emancipation through education. Yet, Lesthaeghe and his coauthors found that increasing female literacy did not lead to a decline in polygyny rates, at least in sub-Saharan Africa.⁸¹ Reading does not help if the only information one encounters merely reconfirms preexisting beliefs. As long as male control of reading material is maintained, female literacy alone cannot begin to shift patterns of patriarchal control until women begin to possess the financial, economic, and social foundations of independence as well.

For those interested in human rights, the relationship between polygyny and violence against women should be particularly alarming. Indeed, an irony emerges from our analysis: conventional attempts to empower women in polygynous culture can be expected to make matters worse because they will increase the hostility felt by many men toward women and the cultural values that advocate for female emancipation. We do not conclude that such efforts, including advocacy of women's rights and education of both sexes, should be discontinued. But the inherent obstacles that women face should be appreciated. The cultural and political diversity of polygynous cultures creates many different opportunities for sensitively designed efforts to work, even if the emancipation of women can be predicted to encounter continuing resistance in various regions, including especially those culturally dominated by polygyny. It is important to remain aware of the fact that areas where such practices are common may prove more impervious to an improvement in women's rights than areas where such practices are less frequent.

After all, polygyny does not necessarily stem from women being uneducated. If it is rooted in a local socioeconomic system, economics rather than ideas may need to change in order to alter the incentives sustaining its practice. Empowering women alone is not enough. If the underlying causes of the male domination of the rights of reproduction remain unchanged, female emancipation will be limited. Such efforts therefore need to be complemented with strategies that address the deep causes of patriarchy, including polygynous family structures.

⁸¹ Lesthaeghe et al., *supra* note 45, at 48–51.

We do not intend here to assume that all practices that most westerners see as repressive of women, such as the wearing of the veil, need to be changed. But neither do we intend to embrace cultural relativism to the disservice of basic human rights and peaceful coexistence. Rather, we take note of Abu-Lughod's directive to recognize the historical and economic forces that engendered this reality and work to transform it within the context of a universal responsibility to mitigate injustice and prevent harm and injury to all humans while respecting genuine cultural preferences that do not impinge on basic human rights.⁸² With this in mind, we offer two observations.

The urban explosion of young, unmarried men could produce great social and political volatility. High-status men may still be able to secure lots of wives, and low-status men will still not be able to garner any wives, but since there will inevitably be more of the latter than the former, it becomes possible to rally the low-status males to overturn the system through sheer numbers. Establishing alliances with these disenfranchised men can only serve to encourage the transition that would be best for individual women and society alike. These men may be facilitated in this transition by women who may prefer not sharing a husband, which admittedly may not encompass all women.

A bigger question concerns polygyny. Polygynous culture, where men control women and their reproduction, supports and encourages violence both within these societies as well as outside of them. Polygynous cultures leave many young, lower-class men without sexual partners and prone toward violence.⁸³ They also provide men who have daughters with a certain amount of wealth and status that results from their control over a scarce resource.⁸⁴ Elaborate cultures and hierarchies rest on this control over women forced into passivity.

Cultural values that favor female emancipation and threaten to replace passive participants with independent women can frighten and enrage men in areas where control and domination of the productive and reproductive capacities of women embody an important source of power. In the face of their own poverty and unemployment, men who lose control over women may feel that they are left with nothing of value. Such a prospect renders these men particularly dangerous because they have nothing to lose in fighting a force

⁸² See Lila Abu-Lughod, *Do Muslim Women Really Need Saving? Anthropological Reflections on Cultural Relativism and Its Others*, 104 AM. ANTHROPOLOGIST 783 (2002).

⁸³ Hudson & Den Boer, *supra* note 7, at 25–26; see also Smuts & Smuts, *supra* note 68.

⁸⁴ Marlowe, *supra* note 68, at 54.

that threatens their only status and prospects for reproduction. As long as polygynous marital practices offer opportunities for men to use their control of women for their own personal power, wealth, and status, any threat to such a system will spawn rage and violence in response. And these systems will leave large numbers of poor men without women.

History suggests two sets of options that governments confronted with too many men have engaged to try to deal with this problem.⁸⁵ They can try policies that reduce the number of men, either through violence or by exporting them to other countries as missionaries or mercenaries.⁸⁶ Or they can try to increase the number of women, by importing brides or by reducing processes such as sex-selective abortion, female infanticide, female death in childbirth, and early childhood death of girls.⁸⁷ But these are stop-gap measures. As long as polygyny persists, countries run a high risk of violence, which may be exported beyond their borders. Only when these structures no longer present an opportunity for such men to benefit from their dominance of women will their emancipation no longer present a fundamental threat to these cultures.

It may be time, therefore, for human-rights advocates to consider a campaign to ban polygyny. The risk is that this would be seen as one more attempt to impose Western values on the developing world in ways that remain antithetical to their traditional cultural values. But just as the developing world might point to the seeds of terrorism in Western economic and political injustice,⁸⁸ so too can the developed world discover some of the sources of violence and repression in the social injustice inherent in polygyny. Abolishing polygyny and encouraging female emancipation is a formula for a safer world. By prohibiting polygyny, we reduce social inequities, violence toward women and children, and the proliferation of single men and the violence they perpetuate, as well as increase political rights and civil liberties for all.

⁸⁵ Hudson & Den Boer, *supra* note 7, at 26–28.

⁸⁶ *Id.*

⁸⁷ *See id.*

⁸⁸ *See* WALTER ENDERS & TODD SANDLER, *THE POLITICAL ECONOMY OF TERRORISM* 3, 10 (2d ed. 2012); Fathali M. Moghaddam, *The Staircase to Terrorism: A Psychological Exploration*, 60 AM. PSYCHOLOGIST 161 (2005).