

## Population and Conflict: Exploring the Links

Scholars and policymakers alike focus most of their attention on proximate sources of violent conflict, giving short shrift to underlying, obscured, or complex causes. The Environmental Change and Security Program has historically offered a place for debating less prominent explanations and for examining conflict's causal roots. We continue that tradition with these commentaries on links between population dynamics and conflict.

Those seeking to understand war or population need to know: what role do population dynamics play in spurring, supporting, or explaining conflicts? The connection is not simple, however; a wide range of demographic relationships work in concert with a host of other factors, including the economy, the environment, and governance. But if we understand these relationships better, we may be able to defuse some population issues before they inflict more collateral damage in the world's conflicts.

*ECSP Report* asked five scholars to contribute commentaries summarizing their current research on the links between conflict and four key factors: density, age structure, sex ratio, and differential population growth. These commentaries, which seek to help non-experts navigate this complex territory, offer recommendations for policymakers and programmers working to prevent conflict and stabilize population growth.

**Henrik Urdal**, who co-edited the July 2005 *Journal of Peace Research* issue devoted to the demography of conflict, presents his research's surprising conclusion: at the national level,

Geoffrey D. Dabelko is director of the Environmental Change and Security Program at the Woodrow Wilson International Center for Scholars.

population growth, land scarcity, and urbanization do not have a great influence on patterns of war and peace, with a few exceptions.<sup>1</sup> He encourages further research to explore the exceptions he found and suggests that sub-national data might reveal the effects of local population pressure on conflict.

The CIA's National Intelligence Council (NIC) recently cited "youth bulge"—a large percentage of youth in a population—as one ingredient in a "perfect storm for internal conflict in certain regions." While the connection between youth and conflict is commonly accepted, **Sarah Staveteig** finds a more subtle measure of age structure can effectively predict insurgent-based civil wars. By studying the future relative cohort size—the difference in the number of young adults versus the number of older working adults—policymakers could develop policies to reduce the chances of such conflicts.

The NIC's report also expressed concern about the destabilizing effects of the pervasive "son preference" in Asian countries—notably China and India—that has produced a shortfall of an estimated 90 million women. **Valerie Hudson** and **Andrea den Boer** summarize their groundbreaking research into this troubling phenomenon and its impact on the likelihood of conflict. They warn policymakers that

**GEOFFREY D.  
DABELKO**

gender imbalances will affect the democratic potential of these countries: “In many ways, a society’s prospects for democracy and peace are diminished in step with the devaluation of daughters.”

Ethnicity carries much of the popular blame for recent conflicts, a point echoed by the NIC. But little sustained research has explored how demographic shifts contribute to violence. **Monica Duffy Toft** explores why differential population growth has not garnered the scholarly attention it deserves, and warns that without government and academic efforts to improve the reliability and availability of data on these shifts, aid and intervention strategies may continue to be counterproductive or destructive.

## Notes

1. In 2005, two special issues of academic journals—the *Journal of Peace Research (JPR)* and the

*European Journal of Population*—focused on the demography of conflict and violence (see Christian Leuprecht’s review of the *JPR* issue in this *Report*). Emerging from a workshop organized by the Working Group on the Demography of Conflict and Violence under the International Union for the Scientific Study of Population (IUSSP), these journal issues reflect the width and breadth of the demographic causes and consequences of violence—genocide, economic inequality, war mortality, and migration, among others. In addition to editing the *JPR* issue, Henrik Urdal contributed an article to *JPR*, “People vs. Malthus: Population Pressure, Environmental Degradation, and Armed Conflict Revisited,” on which he based his commentary in this *Report*.

## References

National Intelligence Council. (2004). *Mapping the global future: Report of the National Intelligence Council’s 2020 Project*. Washington, DC: Government Printing Office. Available online at <http://www.foia.cia.gov/2020/2020.pdf>

# Defusing the Population Bomb: Is Security a Rationale for Reducing Global Population Growth?

## Introduction

Demographic and environmental factors have claimed a dominant position in post-Cold War security discourse. According to neo-Malthusians,<sup>1</sup> rapid population growth will lead to per capita scarcity of natural resources such as cropland, freshwater, forests, and fisheries, increasing the risk of violent conflict over scarce resources. In contrast, resource-optimists<sup>2</sup> claim that scarcity of agricultural land, caused by high population density, may drive technological innovation, which could lead to economic development and thus build peace over the long term. Although world population growth is projected to eventually level out, some areas and countries will experience relatively high growth rates for decades to come (Lutz et al., 2004). If these areas are seriously threatened by instability and violent conflict, reducing population growth could be an important concern for the international community.

Building on my recently published empirical analysis of the relationships between population pressure on natural renewable resources and the outbreak of domestic armed conflict,<sup>3</sup> this policy brief examines whether high population pressure is a general, persistent threat to domestic peace over time, and thus deserves the attention of security policymakers. While many empirical studies examine single cases with limited potential for generalization and prediction, this global, cross-country statistical model, which covers a 50-year period, assesses the relationships among several different indicators of population pressure and domestic armed conflict (involving at least 25 battle-related deaths in a year). Prior to this study, little empirical research has systematically exam-

ined the role of population pressure in causing domestic armed conflict.<sup>4</sup>

My analysis found that population growth, land scarcity, and urbanization do not greatly influence patterns of war and peace (see Table 1 for a summary). The national-level relationship between population-induced scarcity and conflict identified by several case studies does not seem to represent a strong general trend among countries over time. However, there were a few exceptions: countries experiencing high population growth and density in the 1970s were indeed more likely to suffer an outbreak of domestic armed conflict. In addition, further research may moderate these findings: for example, using local level data—rather than national—might reveal a stronger relationship between population pressure and conflict.

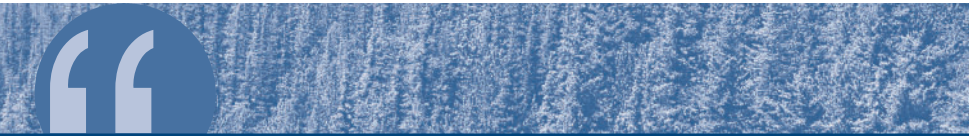
## Moderate Neo-Malthusians

Few scholars would argue that resource scarcities never occur or that they are irrelevant to conflict. Natural resources essential to human life and welfare are unevenly distributed between and within states, and local scarcities of certain natural resources may arise and persist, at least temporarily. According to Thomas Homer-Dixon and his Project on Environment, Population, and Security at the University of Toronto—the most influential neo-Malthusian school—population growth is an important

---

Henrik Urdal is a doctoral candidate and research fellow at the Centre for the Study of Civil War at the International Peace Research Institute, Oslo (PRIO) in Norway.

HENRIK  
URDAL



According to my results, high population growth—by itself—is not associated with armed conflict. In addition, scarcity of productive land is associated with less conflict, contrary to neo-Malthusian expectations.

source of demand-induced scarcity: if a resource base is constant, the availability of resources per person will diminish as an increasing number of persons share it, or as demand per capita rises (Homer-Dixon, 1999, page 48).<sup>5</sup>

Neo-Malthusians are primarily concerned with resources that are essential to food production. Homer-Dixon and Blitt (1998) argue that large populations in many developing countries are highly dependent on four key resources: freshwater, cropland, forests, and fisheries. The availability of these resources determines people's day-to-day well-being, and scarcity of such resources can, under certain conditions, cause violent conflict. Some propose that the resource scarcity and conflict scenario is more pertinent to developing countries due to their lower capacity to address environmental issues and to cope with scarcity (Homer-Dixon, 1999, pages 4–5; Kahl, 2002, page 258). Unlike some strict Malthusians, Homer-Dixon claims that population pressures do not increase the risk of conflict in isolation, but they could in combination with environmental degradation and uneven wealth distribution.

More recent contributions further moderate the neo-Malthusian position. Colin Kahl (2002) criticizes much neo-Malthusian writing for failing to identify the most important intervening variables. While state weakness is often cited as a necessary condition for environment-related conflict, Kahl argues that conflict may

also arise under conditions of “state exploitation,” when powerful elites exploit rising scarcities and corresponding grievances in order to consolidate power (page 265). Richard Matthew (2002, page 243) criticizes the simple neo-Malthusian thesis for understating the adaptive capacity of many societies and for not adequately addressing the historical and structural dimensions of violence, such as globalization and colonial influence.

### An Empirical Analysis of Neo-Malthusian Claims

If the basic neo-Malthusian scheme is correct, the risk of armed conflict for countries experiencing high levels of population pressure should be greater, all other factors being equal. This article investigates the likelihood that the following forms of population pressure affect the risk of armed conflict:

- Population growth;
- Population density relative to productive land area;
- Continued population growth when productive land is already scarce; and
- Urbanization.

My study encompasses statistical surveys of all sovereign states in the international system and all politically dependent areas (colonies, occupied territories, and dependencies) for the 1950–2000 period, including data on domestic armed conflict<sup>6</sup> drawn from the PRIO–Uppsala dataset (Gleditsch et al., 2002), and data on population growth and size, urbanization, and scarcity of productive land from the United Nations and other sources.<sup>7</sup> Since economic and political conditions may influence both demography and conflict, potentially confounding the relationships of interest, I used multivariate modeling. The study controls for poverty, governance, size of the country, economic growth, and length of time since the end of a previous conflict.<sup>8</sup> The population data I used are assumed to be among the most reliable and comparable available. However, data on

Table 1: Population and Risk of Conflict Summary

	Basic Model	Expanded Model	1970s	Post-Cold War
Population growth	Not significant	Not significant	Not significant	Not significant
Population density	Lower risk (weak)	Not significant	Not significant	Not significant
Growth*density	Not significant	Not significant	Higher risk (medium)	Not significant
Urban growth		Not significant		Lower risk (medium)

Note: This chart summarizes the direction and statistical significance (in parentheses) of the association between the main explanatory variables and the risk of conflict. For the actual values, please see Table 2.

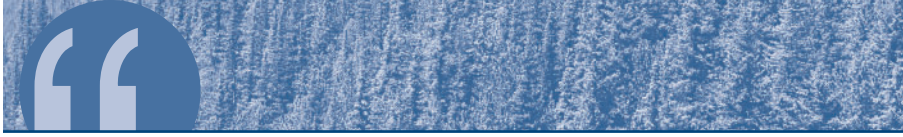
international migration flows are generally inadequate, and for many less developed countries and regions where population data are inferior or less available, the UN Population Division employs demographic techniques to arrive at reasonable estimates (UN, 2000).<sup>9</sup> Since the data are aggregated at the national level, the results do not reflect differences between regions of individual countries.

According to my results (see Table 2), high population growth—by itself—is not associated with armed conflict. In addition, scarcity of productive land is associated with less conflict, contrary to neo-Malthusian expectations. This is not a strong and robust statistical relationship, suggesting that population density is not an important predictor of peace *or* of war.<sup>10</sup> Land scarcity combined with continued high population growth is positively associated with conflict, but for the most part this relationship is neither strong nor robust, indicating that conflict is not more likely to break out in countries presumably experiencing “Malthusian traps.” Under certain specifications, however, the relationship turns significant.<sup>11</sup>

Furthermore, poor countries experiencing high levels of population pressure are not more susceptible to armed conflict, which counters the proposition that developing countries are

more vulnerable to violence generated by population pressure and resource scarcity. Urbanization does not appear to be a risk factor, and the interaction between urbanization and economic growth was not statistically significant, failing to lend empirical support to the theory that high urban growth rates may lead to violence when combined with economic crises.

Interestingly, the neo-Malthusian conflict scenario *was* supported when I considered the post-World War II decades separately. In the 1970s, countries experiencing high population growth and density were indeed more likely to see the outbreak of a domestic armed conflict. (This relationship is quite robust, but it disappears when the sample is restricted to sovereign states.) The rise of environmental security literature in this decade could reflect the greater significance of neo-Malthusian factors in this period. From 1965–80, less developed regions experienced their highest levels of population growth since World War II, particularly in parts of Asia where population density was already high. During this time, the superpowers were heavily involved in armed conflicts around the globe (Harbom & Wallensteen, 2005). The attention garnered by demographic and environmental changes may have influenced the superpowers’ choice of military engagements.



## The national-level relationship between population-induced scarcity and conflict identified by several case studies does not seem to represent a strong general trend among countries over time.

In the post-Cold War era, by contrast, there is no support for neo-Malthusian claims; instead, high rates of urbanization correlate with *less* conflict.

### Policy Recommendations and Future Research

According to basic neo-Malthusian theory, societies experiencing scarcity related to population growth should have a greater risk of domestic armed conflict. My empirical test does not render much support for this scenario, nor for the optimistic perspective. Factors like population growth, land scarcity, and urbanization simply do not appear to greatly influence patterns of war and peace.

Claims that the world has entered a “new age of insecurity” since the end of the Cold War appear to be unfounded (see de Soysa, 2002a, page 3). Rather, the post-Cold War era is notable for the strong statistical significance of conventional explanations of conflict, such as level of development and regime type. Although often portrayed as an emerging challenge to security, countries with high levels of urban growth were significantly less prone to armed conflict during this period. While Population Action International’s report, *The Security Demographic* (Cincotta et al., 2003), finds a bivariate relationship between high levels of urbanization and conflict, I find that this

relationship disappears when controlling for important and relevant variables such as the level of development.<sup>12</sup>

According to my results, using security as a rationale for reducing global population growth is unwarranted. It may even be counterproductive, potentially overshadowing more important rationales for reducing population growth. These may include human—rather than conventional—security issues like sustainable development; economic performance; and female education, empowerment, and reproductive health.

But the potential for further research is substantial, especially for exploring the relationships between population and other factors. For example, in related analyses, de Soysa (2002a, 2002b) finds that population density is positively associated with armed conflict when controlling for the level of international trade. Potentially, when a country trades fewer goods, land scarcity is more pertinent and may instigate armed conflict. Thus, a bad macroeconomic environment may exacerbate the relationship between armed conflict and scarcity of productive land.

The aggregated, national-level data I used to test the population pressure hypotheses may fail to reflect the effects of *local* population pressure, which presents important challenges for future research.<sup>13</sup> My study indicates that the national-level relationship between population-induced scarcity and conflict identified by several case studies does not seem to represent a strong general trend among countries over time. Geographically organized data and statistical tools could assess whether scale may account for the absence of empirical support for the neo-Malthusian paradigm. Studying sub-national data from arguably vulnerable countries might reveal the possibly conflict-conducive effects of local population pressures.

Finally, researchers should more thoroughly assess the often-neglected relationship between migration—both international and domestic—and conflict. This study, which incorporated a very crude measure of large refugee populations, did not support the claim that such pop-

Table 2: Population and Risk of Armed Conflict

	<b>Model 1 Basic</b> $\beta$ <i>st. error</i>	<b>Model 2 Expanded</b> $\beta$ <i>st. error</i>	<b>Model 3 1970s</b> $\beta$ <i>st. error</i>	<b>Model 4 Post-Cold War</b> $\beta$ <i>st. error</i>
<b>MAIN EXPLANATORY VARIABLES</b>				
Population growth	-0.009 (0.062)	-0.013 (0.071)	-0.024 (0.099)	-0.126 (0.086)
Population density	-0.088* (0.053)	-0.068 (0.060)	-0.080 (0.115)	0.064 (0.106)
Growth*density	0.042 (0.039)	0.014 (0.045)	0.129** (0.057)	0.040 (0.075)
Urban growth		-0.025 (0.041)		-0.112** (0.046)
<b>CONTROL VARIABLES</b>				
Country size (total population)	0.269*** (0.047)	0.289*** (0.055)	0.344*** (0.103)	0.228** (0.106)
Development (infant mortality rate)	0.006*** (0.001)	0.010*** (0.002)	0.011*** (0.003)	0.021*** (0.005)
Democracy	0.006 (0.014)	0.015 (0.015)	0.028 (0.029)	0.0001 (0.027)
Democracy, squared	-0.014*** (0.003)	-0.014*** (0.003)	-0.005 (0.007)	0.022*** (0.006)
Economic growth		-0.054** (0.024)		
Time since last conflict	1.819*** (0.275)	1.691*** (0.304)	1.101 (0.714)	1.716*** (0.467)
Constant	-6.078*** (0.488)	-6.302*** (0.599)	-7.433*** (1.143)	-5.691*** (1.087)
N	7,752	5,851	1,519	1,680
Log likelihood	-793.33	-631.85	-165.94	-194.43
Pseudo R <sup>2</sup>	0.107	0.113	0.103	0.197
Asterisks signify the level of statistical significance: * $p < 0.10$ , ** $p < 0.05$ , *** $p < 0.01$ .				

Note: Not all results are displayed in this table; for all results, see Urdal (2005).

ulations represent a security threat. However, more empirical work in this area may shed important light on this central aspect of neo-Malthusian theory.

## Notes

1. Thomas Malthus (1803/1992) asserted that food production would grow arithmetically, while human population would grow exponentially—which, at some point, would cause serious food shortages and human misery. At the end of the 1960s and the beginning of the 1970s, a wave of neo-Malthusian literature predicted that the rapidly growing world population would soon exceed the resource base and lead to serious environmental destruction, widespread hunger, and violent conflicts. Neo-Malthusian concern over security became even more pronounced in the 1990s.

2. Also known as “cornucopians,” resource-optimists believe that the world is continuously improving by both human and environmental standards. They offer three main challenges to the neo-Malthusian paradigm: first, they claim that most natural resources are not really scarce in a global context. Second, even if some resources are getting scarcer, humankind is able to adapt to these challenges. Third, they argue that *abundance* of valuable natural resources leads to violent conflict, not scarcity.

3. This policy brief is based on my article “People vs. Malthus: Population Pressure, Environmental Degradation, and Armed Conflict Revisited,” published in the *Journal of Peace Research* in July 2005.

4. Studying shorter time series, Hauge and Ellingsen (2001) and de Soysa (2002b) find that high population density slightly increases the risk of domestic armed conflict and civil war. Collier and Hoeffler (1998) find no significant effects of population growth or density on civil war (defined as producing more than 1,000 battle-related deaths in a year). In bivariate models, Cincotta et al. (2003) find a relationship between high urbanization rates and the risk of civil armed conflict onset.

5. Gleditsch and Urdal (2002) provide a review of Homer-Dixon’s work on population, environment, and conflict.

6. A domestic armed conflict is defined as a conflict confined to one country, fought between at least two organized parties of which at least one has to be a government, resulting in at least 25 battle-related deaths within a calendar year. Here, civil wars are defined as domestic armed conflicts with at least 1,000 battle-related deaths per calendar year.

7. Sources include the United Nations’ *World Population Prospects* (1999), the UN’s annual *Demographic Yearbook*, the *Statistical Abstract of the*

*World* (Reddy, 1994), the *CIA World Factbook* (CIA, 2001), and the World Bank’s *World Development Indicators* (2003). The data in the UN’s *World Population Prospects* cover all states and political dependencies with more than 150,000 inhabitants.

8. For full references and data descriptions, see Urdal (2005).

9. The UN’s population division uses a number of different sources to assess consistency. For some extreme cases, where information is outdated or non-existent, the UN derives estimates by inferring levels and trends from those experienced by countries in the same region with similar socio-economic profiles (UN, 2000).

10. These results are virtually unchanged when using a conventional density measure.


11. The relationship is statistically significant when the model requires a longer period of peace (five years or more) between hostilities to determine whether a conflict is “new.” However, it becomes insignificant when the sample is restricted to sovereign states.

12. Since the level of development—which is assumed to capture aspects of poverty and state weakness—is also a strong predictor of conflict, we have to control for development to assess the effect of urbanization. Cincotta et al. (2003) are thus rightfully cautious not to draw strong conclusions from the statistical relationships they find. In my own model, I find a similar statistically significant bivariate relationship between urbanization and conflict outbreak, but this relationship disappears when controlling for level of development.

13. Similar criticism could also be directed at previous case study literature in the field, including Homer-Dixon and Blitt (1998).

## References

- Central Intelligence Agency (CIA). (2001). *The world factbook*. Washington, DC: CIA. Available online at <http://www.umsl.edu/services/govdocs/wofact2001>
- Cincotta, Richard P., Robert Engelman, & Daniele Anastasion. (2003). *The security demographic: Population and civil conflict after the Cold War*. Washington, DC: Population Action International.
- Collier, Paul, & Anke Hoeffler. (1998). “On economic causes of civil war.” *Oxford Economic Papers* 50(4), 563–573.
- de Soysa, Indra. (2002a). “Paradise is a bazaar? Greed, creed, and governance in civil war, 1989–99.” *Journal of Peace Research* 39(4), 395–416.
- de Soysa, Indra. (2002b). “Ecoviolence: Shrinking pie or honey pot?” *Global Environmental Politics* 2(4), 1–36.
- Gleditsch, Nils Petter, & Henrik Urdal. (2002). “Ecoviolence? Links between population growth,



In the 1970s, countries experiencing high population growth and density were indeed more likely to see the outbreak of a domestic armed conflict.



- environmental scarcity and violent conflict in Thomas Homer-Dixon's work." *Journal of International Affairs* 56(1), 283–302.
- Gleditsch, Nils Petter, Peter Wallensteen, Mikael Eriksson, Margareta Sollenberg, & Håvard Strand (2002). "Armed conflict 1946–2001: A new dataset." *Journal of Peace Research* 39(5), 615–637.
- Harbom, Lotta, & Peter Wallensteen. (2005). "Armed conflict and its international dimensions, 1946–2004." *Journal of Peace Research* 42(5), 623–635.
- Hauge, Wenche, & Tanja Ellingsen. (2001). "Causal pathways to conflict." In Paul F. Diehl & Nils Petter Gleditsch (Eds.), *Environmental conflict* (pages 36–57). Boulder, CO: Westview.
- Homer-Dixon, Thomas F. (1999). *Environment, scarcity, and violence*. Princeton, NJ & Oxford: Princeton University Press.
- Homer-Dixon, Thomas F., & Jessica Blitt (Eds.). (1998). *Ecoviolence: Links among environment, population and security*. Lanham, MD: Rowman & Littlefield.
- Kahl, Colin H. (2002). "Demographic change, natural resources and violence." *Journal of International Affairs* 56(1), 257–282.
- Lutz, Wolfgang, Warren C. Sanderson, & Sergei Scherbov (Eds.). (2004). *The end of world population growth in the 21st century: New challenges for human capital formation & sustainable development*. London & Sterling, VA: Earthscan.
- Malthus, Thomas Robert. (1803/1992). *An essay on the principle of population*. Cambridge: Cambridge University Press.
- Matthew, Richard A. (2002). "Environment, population and conflict." *Journal of International Affairs* 56(1), 235–254.
- Reddy, Marlita A. (Ed.). (1994). *Statistical abstract of the world*. Detroit, MI: Gale Research.
- United Nations. (1999). *World population prospects: The 1998 revision*. New York: United Nations.
- United Nations. (2000). *World population prospects: The 1998 revision* (Volume III: Analytical Report). New York: United Nations.
- United Nations. (annual). *Demographic yearbook*. New York: United Nations.
- Urdal, Henrik. (2005). "People vs. Malthus: Population pressure, environmental degradation, and armed conflict revisited." *Journal of Peace Research* 42(4), 417–434.
- World Bank. (2003). *World development indicators on CD-ROM*. Washington, DC: World Bank.

## The Young and the Restless: Population Age Structure and Civil War

Three months after the attacks of September 11, 2001, the *New York Times* asked, “Is the Devil in the Demographics?” (Sciolino, 2001). The article examined the vulnerability of large cohorts of unemployed youth to extremist ideology and political recruitment, and speculated about the hazards created by future youth cohorts in the Middle East. In the post-9/11 era, however, there has been very little academic research on the relationship between youthful age structure and warfare (three notable exceptions: Urdal, 2002; Hammel & Smith, 2002; Cincotta et al., 2003). Literature on civil war and insurgency has instead highlighted the role of other causal factors such as the presence of valuable resources, the degree of ethnic fractionalization, and type of political regime, while downplaying the importance of population age structure (see, e.g., Collier & Hoeffler, 2001; Fearon & Laitin, 2003; Elbadawi & Sambanis, 2002).

While these factors likely play an important role in the onset of civil war,<sup>1</sup> the importance of youthful age structure—particularly in insurgency-based civil wars<sup>2</sup>—should not be

ignored. The relationship between large youth cohorts and civil war appears to have held throughout history. For example, Herbert Moller (1968) suggests that wars in pre-modern and present-day Europe, including the rise of the Nazi party in Germany, corresponded with surges in the proportion of young men in the population. Yale historian Paul Kennedy (1993) argues that revolutions occur more often in countries with large populations of “energetic, frustrated, young men.”<sup>3</sup> Even after controlling for the fact that more youthful countries are less developed and have more vulnerable political regimes, my research finds that a large difference in the number of young adults compared to the number of older adults—“relative cohort size”—can help predict civil war, particularly insurgent-based civil wars.

### “Excess Youth”: A Perfect Storm?

Some recent conflicts appear to lend credence to the “excess youth” hypothesis. For example, Philip Gourevitch (1998) describes how Rwandan *génocidaires* were recruited from among the jobless young men who were “wasting in idleness and attendant resentments...Most of the men were motivated by the opportunity to drink, loot, murder, and enjoy higher living standards than they were previously accustomed to” (page 93). In Sierra Leone, where young people comprised 95 percent of the fighting forces in a recent civil war, an NGO official explained that the youth are “a long-neglected cohort; they lack jobs and training, and it is easy to convince them to join the fight” (Mastny, 2004, page 19). While recent conflicts in Palestine and the Democratic Republic of the Congo are mostly influenced by other factors, both areas have among the highest

Sarah Staveteig is a doctoral candidate in sociology and demography at the University of California, Berkeley. The research described in this paper was conducted with the support of a National Science Foundation Graduate Research Fellowship. She completed the initial work during the 2004 Young Scientists Summer Program at the International Institute for Applied Systems Analysis (Austria).

SARAH  
STAVETEIG

ratios of young adults (15-29) to older working-age adults (30-54) anywhere in the world.

Even though population growth has slowed worldwide and will likely end within the next century (Lutz et al., 2004), high fertility rates in Africa and the Middle East will continue to bring increasingly larger cohorts of young adults for the next few decades. As Chart 1 illustrates, the ratio of young people to adults in the developing world will continue to remain well above the 1980 world peak for decades to come. The National Intelligence Council (2004) refers to these increasing youth cohorts as part of a “perfect storm”—including failed states, poor economies, and religious extremism—that will likely fuel conflict in certain parts of the world for decades to come.

### “Youth Bulge” Is a Misnomer

I believe that the mixed evidence on youthful age structure and the risk of conflict is largely due to the poor measurement of age structure in most research. The term “youth bulge” is a misnomer: although few authors use the same definition of youth bulge, nearly all researchers<sup>4</sup> measure it as the number of young people (generally between ages 15 and 24) as a percentage of the adult population. A bulge, literally defined as an “irregular swelling” (Abate, 1998), should be visible in the young adult section of the age pyramid. Yet some so-called youth bulges, such as that in contemporary Iraq (Panel A of Chart 2), do not produce the bulge shape characteristic of baby booms followed by “baby busts” (Panel B of Chart 2).

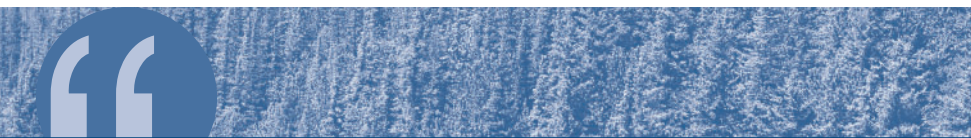
### Relative Cohort Size: A Better Measure of Age Structure

If not the bulge shape in and of itself, then why do youthful populations influence the risk of insurgency? I argue that the presence of young adults is not as important as the degree of alienation, frustration, and marginalization they experience. These factors are subjective and difficult to measure; one way might be to examine how much schools and the labor market must

expand to accommodate the incoming cohort of teenagers. We can obtain a rough estimate by measuring the current group of young adults (ages 15 to 29) as a proportion of the number of older working adults (ages 30 to 54) to find a “relative cohort size,” after a similar measure proposed by Richard Easterlin (1968, 1978, 1987).<sup>5</sup>

Relative cohort size can provide the missing link between the population of young men and the risk of civil war, especially if we consider only insurgency-based civil wars (Staveteig, 2004a, 2004b, 2005). Easterlin’s relative cohort size hypothesis delineates the relationship between youthful populations and the economic and psychological frustrations that enable political instability and, ultimately, civil war. As a large relative cohort comes of age, the tension produced by lack of success in the job and marriage markets may, in the presence of other factors, render armed conflict a more appealing option. While relative cohort size is unlikely to be an immediate cause of civil war, large birth cohorts often strain the schooling system and labor market of a country, particularly a developing one, which can result in massive frustration, unemployment, reduced wages, and dissatisfaction—and arguably create a potential army of young men who could be easily recruited in a rebellion.<sup>6</sup> If economic opportunities exist and expand in tandem with the youthful population, as they did in most parts of East Asia, enormous economic growth can result from relatively large cohorts (Bloom & Williamson, 1997; Bloom, Canning, & Malaney, 1999). Yet in most developing countries, where economic opportunities are not even sufficient for current youth cohorts, a rise in the population entering the labor force is likely to increase joblessness.

In the United States, a large relative cohort size—such as that created by teenage baby boomers—is thought to have been one cause of the social upheaval of the late 1960s and early 1970s (Macunovich, 2002; Easterlin, 1987). In countries with less economic opportunity and fewer channels for enacting social change, large cohorts of young adults may choose more



Even after controlling for the fact that more youthful countries are less developed and have more vulnerable political regimes, my research finds that a large difference in the number of young adults compared to the number of older adults—“relative cohort size”—can help predict civil war, particularly insurgent-based civil wars.

violent means of protest and social change. Historical case studies have documented that a youthful age structure in Cyprus, Palestine, Algeria, and Laos increased the size of the population that could be mobilized, which in turn influenced the intensity of the conflicts (Choucri, 1974, page 191).

One of the most important explanations of the importance of relative cohort size is what Easterlin (1978, 1987) calls “relative male income,” which is the standard of living a man’s income can buy relative to his father’s standard of living. Relative male income is inversely related to relative cohort size, other things being equal. In the United States, the baby boomers were a much larger birth cohort than their parents’ cohort, so people born later in the boom experienced a much tighter entry-level job market than those born early or before the boom. In this way, one’s birth and fortune were interlinked: members of smaller cohorts generally had an easier time finding jobs and education, while equally qualified members of larger cohorts struggled to achieve the same standard of living.

Not every society may respond the same way to low relative male income, but large birth cohorts in any country—particularly males—must be accommodated by the school system

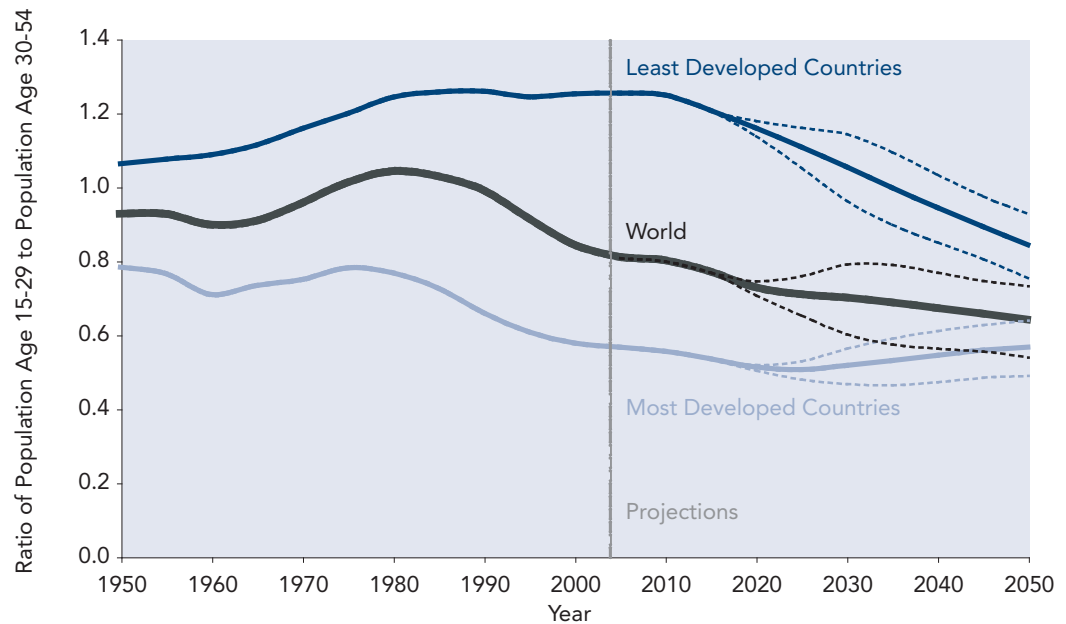
and eventually by the labor market. In populations with many women of child-bearing age, population momentum will cause overall population size to increase even decades after fertility declines. The government will be required to increase expenditures on services (such as roads, schools, and hospitals) to accommodate each new cohort. When the large birth cohort reaches adulthood, they will require more jobs than vacated by previous cohorts. In deeply religious contexts where pre-marital sex is forbidden and men are expected to financially establish themselves prior to marriage, such a shortage of economic opportunities can be particularly frustrating, as the shortage can prevent even educated adults from entering into marriage and achieving cultural notions of adulthood. Research on suicide bombers, for example, has shown that many are well-educated and highly capable, yet lack the economic opportunities necessary to establish themselves (Sprinzak, 2000; Pape, 2005)

### Measuring the Importance of Relative Cohort Size

To test the importance of relative cohort size in the probability of civil war, I built a dataset that combined information on civil wars (Strand et al., 2004), insurgency-based civil wars (Heidelberg Institute for International Conflict Research, 1999), national per capita income (Heston et al., 2004), demographic factors (United Nations, 2003), political regime (Marshall et al., 2004), and other relevant trade and economic variables (World Bank, 2002). The data span 10 five-year periods from 1950–2000 in 174 countries.

In accordance with previous research, my baseline model found that countries with unconsolidated political regimes,<sup>7</sup> high infant mortality rates, lower per capita incomes, and larger population sizes consistently had a higher risk of civil war onset (Staveteig, 2005). Infant mortality rate (which is often used as a proxy to measure development) and per capita income were nearly equally strong predictors of civil war onset, and both measures were highly correlated to one

Chart 1: Relative Cohort Size Worldwide 1950–2050



Note: "Relative Cohort Size" is defined as the ratio of population aged 15-29 to population aged 30-54.  
 Source: Author's calculations from United Nations' *World Prospects Data: The 2002 Revision* [CD-ROM].

another. I ultimately chose to use only the infant mortality rate in my models because the data over time and country were more complete. None of the other factors that researchers suggested are important—urbanization, per capita income growth, secondary school enrollment, and population density—measurably improved the baseline model.

Calculating youth as a percentage of the entire population ("non-relative cohort size") did not determine the onset of civil wars (insurgency-based or otherwise). On the other hand, comparing a *specific* population of youth to a *specific* population of adults (relative cohort size) and comparing a *specific* population of youth to *all* adults ("quasi-relative cohort size") both strongly predicted the risk of civil war. While the average country in the dataset experienced a 12 percent chance of any kind of civil war erupting in any given five-year period, differences in relative cohort size could swing that risk as low as 6 percent and as high as 28 percent, holding all other factors equal.<sup>8</sup> For insurgency-based civil wars the results were even stronger. While the average country faced a 9 percent chance of an insurgency-based civil war starting in any given five-year period, relative cohort size could make this risk as low as 2 percent or as high as 38 percent. Higher levels of infant mortality and an unconsolidated political regime could greatly increase this risk.

Could these results be influenced by the countries' different levels of development? Using the United Nations' classification scheme for more-developed and least-developed countries,<sup>9</sup> I found that even within these broad development categories, differences in age structure were significant and measurable predictors of conflict.

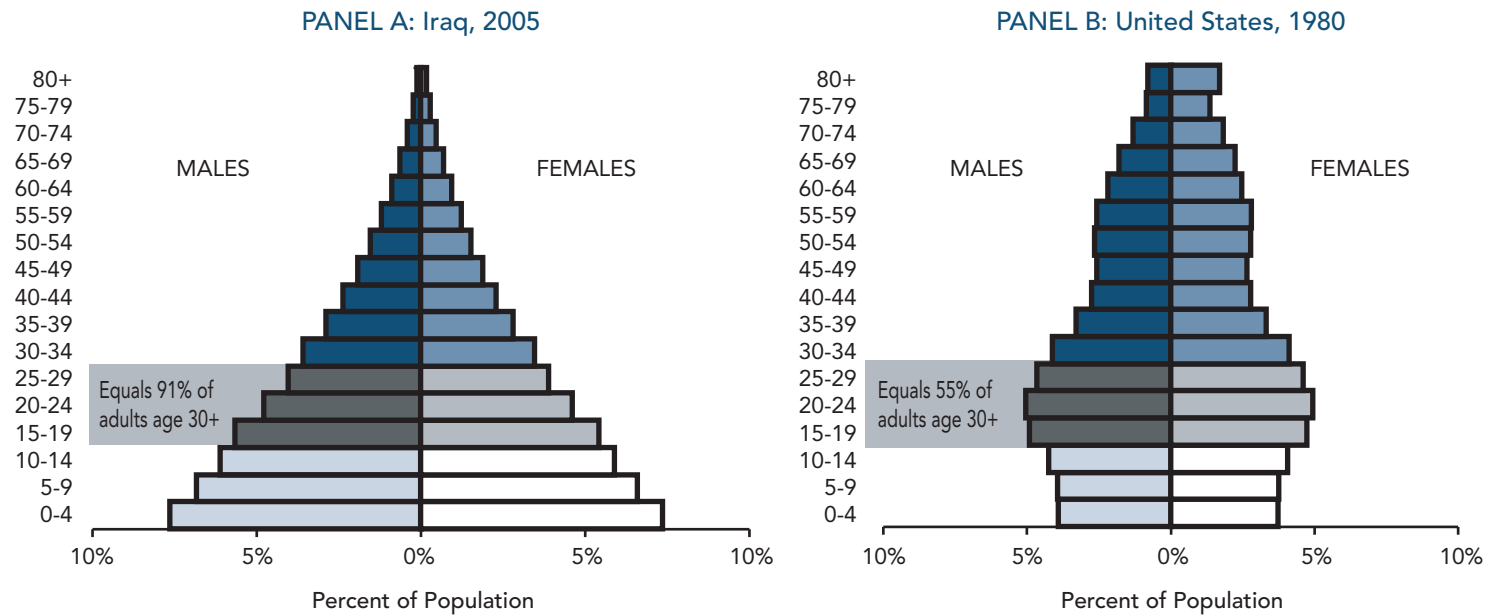
Interestingly, it appears that *future* relative cohort size could also be used to predict con-

flict. Relative cohort size can be measured up to 10 years in advance using current data on population age structure. For example, the ratio of future young adults (e.g., the current 5- to 19-year-olds) to future older adults (the current 20- to 44-year-olds)—combined with current information about infant mortality, population size, and governance—can predict whether conflict will occur 10 to 15 years from now almost as well as waiting 10 years to measure the actual relative cohort size. This finding could help develop conflict-prevention policies; by identifying large relative cohorts up to 10 years before they reach young adulthood, policymakers and funders might devise better strategies for easing the transition, and thus reduce the chances of conflict.

## Conclusion

Just as developed countries now face future pension shortfalls and other challenges associated with aging populations, less developed countries face the opposite problem: excess youth. In

Chart 2: Age Structure in Iraq 2005 and the United States 1980



Note: The term “youth bulge” is a misnomer: all contemporary definitions of the term would rank contemporary Iraq (Panel A) as having a larger youth bulge than the United States did in 1980 (Panel B), despite the fact that Panel B shows a more characteristic “bulge” shape.

Source: United Nations’ *World Prospects Data: The 2002 Revision* [CD-Rom]. The 2005 estimate for Iraq is based on the medium-range projections from 2002.

2005, 1.9 billion people—nearly one-third of the world’s population—are under the age of 15. Ninety percent of these youth live in less-developed countries.<sup>10</sup> Even if fertility decreases, large birth cohorts in developing countries are unlikely to wane for a few decades. As these large birth cohorts enter adulthood, the risk of insurgent civil wars increases. When relative cohort size peaked in the United States (as baby boomers entered young adulthood) in 1975, there was nearly a one-to-one ratio between the number of 15- to 29-year-olds and the number of 30- to 54-year-olds. In the average least-developed country, that ratio is expected to stay above one until 2035. The strain on school systems and labor markets in these countries will be profound. In absolute numbers, the increase in youth cohorts will be enormous.

Of course, it is not likely that a high relative cohort size will be *the* inciting cause of conflict in least-developed countries. A very youthful population is an important factor, among oth-

ers, that flares up only under certain conditions or “sparks.” But at the same time, sparks can only trigger violent conflicts when contextual factors enable them. If alternative means of social change are available, violence will be less appealing. A large relative cohort is not in and of itself a sufficient cause for civil war, but a smaller relative cohort size makes it more difficult for conflicts to erupt.<sup>11</sup> Even after controlling for the fact that more youthful countries are less developed and have more vulnerable political regimes, my research finds that relative cohort size is an important predictive factor for civil war, particularly insurgent-based civil wars.

The link I found between relative cohort size and civil war would have been even stronger if I had looked at the sub-national level, as insurgent groups often come from sub-populations with high relative cohort size (for example Chechens in Russia, Northern Irish in the United Kingdom, and Palestinians in Israel).<sup>12</sup> Recent suicide bombings in London and riots

in France are important reminders that developed countries are not immune to violent rebellions from youthful sub-populations. But these events alone do not justify restricting immigration; instead, I believe that they signal the urgent need to improve integration and equality. Industrialized countries facing major pension shortfalls due to a high ratio of retirees to workers could mitigate the problem by hiring young workers from the developing world. Even though immigration and integration are politically sensitive topics, developed countries should consider projected pension shortfalls and the cascading security risk of large youth cohorts in the developing world when debating immigration and integration policies.

Easing the transition of large birth cohorts into adulthood and developing viable nonviolent means of political change could help prevent civil war in countries where relative cohort size is expected to be high. Methods might include increasing the number of opportunities available for young people (perhaps by offering employers credits for hiring entry-level workers, expanding regional security forces, or using international aid to create an internal volunteer corps), expanding tertiary schooling options (if appropriate jobs will later be available), ensuring universal suffrage for young adults, and maintaining a fair and open political system.

A better understanding of contextual factors leading to civil war may improve our ability to prevent it in the future. Research on the causes of civil war should incorporate measures of relative cohort size. Unraveling the background factors that put a country at risk for conflict is arguably more important than finding the immediate “spark” of conflict, as policy is much better equipped to address structural problems than immediate factors. In many countries around the world, we cannot prevent large relative youth cohorts over the next two decades, but understanding the role of relative cohort size and planning wisely could help reduce the risk of future insurgency-based<sup>13</sup> civil wars.

## Notes

1. I define a civil war as an “internal armed conflict” according to the Armed Conflict Dataset from the International Peace Research Institute in Oslo (Strand et al., 2003; Gleditsch et al., 2002).

2. For the purposes of this paper, insurgency-based civil wars are defined as violent crises or wars involving a non-state group as a primary actor in the conflict, using the KOSIMO dataset (Heidelberg Institute for International Conflict Research, 1999).

3. Other authors have found a connection between “excess young men” and the outbreak of violence (Cincotta et al., 2003; Goldstone, 1991, 2001; Hammel & Smith, 2002; Mesquida & Wiener, 1999; Urdal, 2002).

4. See, for example, Cincotta et al. (2003); Choucri (1974); Goldstone (2002); O’Brien (2002); Mesquida and Wiener (1999); and Urdal (2002).

5. As youth unemployment rates are difficult to measure, particularly in the developing world, a relatively large youth cohort is a good proxy for the opportunity structure in a country. Hammel and Smith (2002) call the difference between adjacent cohorts the “demographically-induced unemployment rate.”

6. Youthful populations in and of themselves are unlikely to be a sufficient condition for civil war: insurgent groups must be able to form a coherent collective identity with which to challenge state authority, and they must also find opportunities for collective action (Diehl & Gleditsch, 2001). As Walter (2004) asserts, enlistment in a rebel group is only likely to be attractive “when two conditions hold. The first is a situation of individual hardship or severe dissatisfaction with one’s current situation. The second is the absence of any nonviolent means for change” (page 371).

7. As measured by the square of the political regime score assigned by the Polity IV dataset (Marshall, Jaggers, & Gurr, 2004).

8. Based on the observed range of relative cohort sizes from the dataset.

9. According to the United Nations, highly developed countries include those in Europe, North America, Japan, Australia, and New Zealand. The least developed countries include most of sub-Saharan Africa and parts of Asia and the Middle East. I put the remaining countries in a third category entitled “moderately developed.”

10. Author’s calculations based on figures from Population Reference Bureau (2005).

11. The main exceptions are conflicts in the former Soviet Union and Yugoslavia, where relative cohort size was small but other factors enabled protracted conflict.

12. Based on information about fertility rates from “Chechnya has highest birth rates in Russia” (2005),



By identifying large relative cohorts up to 10 years before they reach young adulthood, policymakers and funders might devise better strategies for easing the transition, and thus reduce the chances of conflict.

Ruddock et al. (1998), and Population Reference Bureau (2005).

13. Insurgent groups cannot always be deemed morally wrong (consider, for example, anti-colonial movements in many countries), but when groups feel they have no other means besides violence to enact social change, the costs for society can be enormous.

## References

- Abate, F. (Ed.) (1998). *The Oxford American English dictionary* (revised ed.). New York: Oxford University Press.
- Bloom, David E., David Canning, & Pia N. Malaney. (1999). *Demographic change and economic growth in Asia* (CID Working Paper). Cambridge, MA: Center for International Development at Harvard University.
- Bloom, David E., & Jeffrey G. Williamson. (1997). *Demographic transitions and economic miracles in emerging Asia* (Working Paper 6268). Washington, DC: National Bureau of Economic Research.
- "Chechnya has highest birth rates in Russia." (2005, April 21). *RIA Novosti*, Issue 571. Retrieved November 11, 2005, from [http://daily.rianovosti.com/issue.html?iss\\_id=15161](http://daily.rianovosti.com/issue.html?iss_id=15161)
- Choucri, Nazli. (1974). *Population dynamics and international violence: Propositions, insights and evidence*. Lexington, MA: Lexington.
- Cincotta, Richard P., Robert Engelman, & Daniele Anastasion. (2003). *The security demographic: Population and civil conflict after the Cold War*. Washington, DC: Population Action International.
- Collier, Paul, & Anke Hoeffler. (2001, October 21). *Greed and grievance in civil war*. The World Bank Group. Retrieved June 15, 2004, from [http://www.worldbank.org/research/conflict/papers/greedgrievance\\_23oct.pdf](http://www.worldbank.org/research/conflict/papers/greedgrievance_23oct.pdf)
- Diehl, Paul F., & Nils Petter Gleditsch (Eds.). (2001). *Environmental conflict*. Boulder, CO: Westview.
- Easterlin, Richard A. (1968). *Population, labor force, and long swings in economic growth: The American experience*. New York: National Bureau of Economic Research & Columbia University Press.
- Easterlin, Richard A. (1978). "What will 1984 be like? Socioeconomic implications of recent twists in age structure." *Demography* 15(4), 397-432.
- Easterlin, Richard A. (1987). *Birth and fortune: The impact of numbers on personal welfare* (Second ed.). Chicago: University of Chicago Press.
- Elbadawi, Ibrahim, & Nicholas Sambanis. (2002). "How much war will we see? Explaining the prevalence of civil war." *Journal of Conflict Resolution* 46(3), 307-334.
- Fearon, James D., & David D. Laitin. (2003). "Ethnicity, insurgency, and civil war." *American Political Science Review* 97(1), 75-90.
- Gates, Scott. (2002). "Recruitment and allegiance: The microfoundations of rebellion." *The Journal of Conflict Resolution* 46(1), 111-130.
- Gleditsch, Nils Petter, Peter Wallensteen, Mikael Eriksson, Margareta Sollenberg, & Håvard Strand. (2002). "Armed conflict 1946-2001: A new dataset." *Journal of Peace Research* 40(5), 593-607.
- Goldstone, Jack A. (1991). *Revolution and rebellion in the early modern world*. Berkeley, CA: University of California Press.
- Goldstone, Jack A. (2001). "Demography, environment, and security." In Paul F. Diehl & Nils Petter Gleditsch (Eds.), *Environmental conflict*. Boulder, CO: Westview.
- Goldstone, Jack A. (2002). "Population and security: How demographic change can lead to violent conflict." *Journal of International Affairs* 56(1), 3-22.
- Gourevitch, Philip. (1998). *We wish to inform you that tomorrow we will be killed with our families: Stories from Rwanda*. New York: Farrar, Straus and Giroux.
- Hammel, Eugene, & Erik Smith. (2002). "Population dynamics and political stability." In Neil J. Smelser & Faith Mitchell (Eds.), *Discouraging terrorism: Some implications of 9/11*. Washington, DC: National Academies Press.
- Heidelberg Institute for International Conflict Research. (1999). *KOSIMO dataset 1999*. Retrieved March 1, 2005, from <http://www.hiik.de>
- Heston, Alan, Robert Summers, & Bettina Aten. *Penn world table* (Version 6.1) [Data file]. Center for International Comparisons at the University of Pennsylvania. Retrieved July 8, 2004, from <http://pwt.econ.upenn.edu> 2004
- Kennedy, Paul. (1993). *Preparing for the twenty-first century*. New York: Random House.
- Lutz, Wolfgang, Warren Sanderson, & Sergei Scherbov (Eds.). (2004). *The end of world population growth in the 21st century*. London: Earthscan.
- Macunovich, Diane. (2002). *Birth quake: The baby boom and its aftershocks*. Chicago: University of Chicago Press.
- Marshall, Monty, Keith Jagers, & Ted Robert Gurr. (2004). *Polity IV dataset 2004*. Retrieved December 12, 2004, from <http://www.cidcm.umd.edu/inscr/polity/>
- Mastny, Lisa. (2004, September/October). "The hazards of youth." *World Watch Magazine*, 18-21.
- Mesquida, Christian G., & Neil I. Wiener. (1999). "Male age composition and severity of conflicts." *Politics and the Life Sciences* 18(2), 181-189.
- Moller, Herbert. (1968). "Youth as a force in the modern world." *Comparative Studies in Society and History* 10(3), 237-60.
- National Intelligence Council. (2004). *Mapping the global future: Report of the National Intelligence*



- Council's 2020 Project*. Washington, DC: Government Printing Office. Available online at <http://www.foia.cia.gov/2020/2020.pdf>
- O'Brien, Sean. (2002). "Anticipating the good, the bad, and the ugly: An early warning approach to conflict and instability analysis." *Journal of Conflict Resolution* 46(6), 791-811.
- Pape, Robert. (2005). *Dying to win: The strategic logic of suicide terrorism*. New York: Random House, Inc.
- Population Reference Bureau (PRB). (2005). *2005 world population data sheet*. Washington, DC: PRB.
- Ruddock, Vera, Rebecca Wood, & Mike Quinn. (1998). "Birth statistics: Recent trends in England and Wales." *Population Trends* 94, 12-18. Retrieved November 11, 2005, from [http://www.statistics.gov.uk/articles/population\\_trends/birthstats\\_pt94.pdf](http://www.statistics.gov.uk/articles/population_trends/birthstats_pt94.pdf)
- Sciolino, Elaine. (2001, December 9). "Radicalism: Is the devil in the demographics?" *The New York Times*, section 4, page 1.
- Sprinzak, Ehud. (2000, September/October). "Rational fanatics." *Foreign Policy* 120, 66-73.
- Staveteig, Sarah. (2004a, July). *Age structure, valuable resources, and the onset of civil war worldwide, 1960 - 2000*. Paper presented at the Young Scientists Summer Program Midsummer Workshop, International Institute for Applied Systems Analysis, Vienna, Austria.
- Staveteig, Sarah. (2004b). *The increased incidence of civil wars in sub-Saharan Africa: Assessing the effects of democratization and age structure*. Unpublished master's thesis, University of California-Berkeley.
- Staveteig, Sarah. (2005, July). *Relative cohort size and the risk of civil war worldwide, 1955 - 2000*. Paper presented at The XXV International Union for the Scientific Study of Population Conference, Tours, France.
- Strand, Håvard, Lars Wilhelmsen, & Nils Petter Gleditsch. (2003). *Armed conflict dataset* (Version 2.1). International Peace Research Institute. Available online at [http://www.prio.no/page/Project\\_detail//9244/45926.html](http://www.prio.no/page/Project_detail//9244/45926.html)
- Strand, Håvard, Lars Wilhelmsen, & Nils Petter Gleditsch. (2004). *Armed conflict dataset* (Version 3.0). International Peace Research Institute. Available online at [http://www.prio.no/page/Project\\_detail//9244/45926.html](http://www.prio.no/page/Project_detail//9244/45926.html)
- United Nations. (2003). *World population prospects: The 2002 revision* [CD-ROM]. United Nations.
- Urdal, Henrik. (2002, March). *The devil in the demographics: How youth bulges influence the risk of domestic armed conflict, 1950 - 2000*. Paper presented at International Studies Association 43rd Annual Convention, New Orleans, Louisiana.
- Walter, Barbara. (2004). "Does conflict beget conflict? Explaining recurring civil war." *Journal of Peace Research* 41, 371-388.
- World Bank. (2002). *World Bank development indicators 2000* [CD-ROM]. Washington, DC: World Bank.

## Missing Women and Bare Branches: Gender Balance and Conflict

**T**he emerging subfield of “security demographics” examines the linkages between population dynamics and the security trajectories of nation-states. For the last 5 to 10 years, researchers have examined the security aspects of such topics as the demographic transition, the sub-replacement birth rates of developed economies, the proportion of young men as compared to older men in the population, the effects of legal and illegal immigration, and the effects of pandemics such as AIDS and drug-resistant tuberculosis. We hope to add the variable of gender balance to the discussion: are societies with an abnormal ratio between men and women less secure?

### Missing Women

In two areas of the world such imbalances have become fairly significant in the last half-century: 1) Russia and several former Warsaw Pact nations, where we find a deficit of adult males;<sup>1</sup> and 2) Asia—particularly India, China, and Pakistan—where we find a deficit of women, including female infants and children. We will let other scholars research the link between a deficit of males and national security. Our research, as explained in *Bare Branches: The Security Implications of Asia's Surplus Male Population* (MIT Press, 2004), focuses on the deficit of females in Asia. Standard demograph-

ic analysis readily confirms this abnormal deficit.<sup>2</sup> If we compare overall population sex ratios, the ratio for, say, Latin America is 98 males per 100 females (using 2000 U.S. Census Bureau figures), but the corresponding figure for Asia is 104.4 males per 100 females. But one must also keep in mind the sheer size of Asia's population: India and China alone comprise approximately 38 percent of the world's population. Thus, the overall sex ratio of the world is 101.3, despite the fact that the ratios for the rest of the world (excluding Oceania) range from 93.1 (Europe) to 98.9 (Africa).

Birth sex ratios in several Asian countries are outside of the established norm of 105-107 boy babies born for every 100 girl babies. The Indian government's estimate of its birth sex ratio is approximately 113 boy babies born for every 100 girl babies, with some locales recording ratios of 156 and higher (India Registrar General, 2001). The Chinese government states that its birth sex ratio is approximately 119, though some Chinese scholars have gone on record that the birth sex ratio is at least 121 (China State Statistical Bureau, 2001).<sup>3</sup> Again, in some locations, the ratio is higher; for example, the island of Hainan's birth sex ratio is 135. Other countries of concern include Pakistan, Bangladesh, Nepal, Bhutan, Taiwan, Afghanistan, and South Korea.<sup>4</sup>

Another indicator of gender imbalance is early childhood mortality. Boys typically have a higher early childhood mortality rate, which virtually cancels out their numerical advantage by age five. Boys' higher mortality is tied to sex-linked genetic mutations, such as hemophilia, as well as higher death rates from common childhood diseases, such as dysentery. However, in some of the Asian nations mentioned above,

Valerie M. Hudson is a professor of political science at Brigham Young University. Andrea M. den Boer is a lecturer in political science at the University of Kent at Canterbury.

VALERIE M.  
HUDSON and  
ANDREA M.  
DEN BOER

early childhood mortality rates for girls are actually higher than boys' (United Nations Population Division, 1998). Furthermore, orphanages house more girls than boys in these nations.<sup>5</sup>

What forces drive the deficit of females in Asian nations such as India and China? Why are their birth sex ratios so abnormal? Why are early childhood mortality rates for girls higher than those for boys? Why are most children in orphanages girls? How do we account for the disappearance of so many women—estimated conservatively at over 90 million missing women in seven Asian countries alone (see Table 1)?

Some scholars assert that there may be a physical cause at work preventing female births, such as the disease hepatitis B, antigens of which have been associated with higher birth sex ratios (Oster, 2005). While this may well be a contributing factor, it is worth considering the experience of the municipality of Shenzhen in southern China. Alarmed at the rising birth sex ratio, which reached 118 in 2002, local officials instituted a strict crackdown on black market ultrasound clinics. Offering up to 2,000 yuan for tips, officials then vigorously prosecuted and imprisoned the owners and technicians. By 2004, the birth sex ratio had dropped to 108 ("Shenzhen's newborn sex ratio more balanced," 2005).

Accounts such as this support the thesis that the modern gender imbalance in Asia, as with historical gender imbalances in Asia and elsewhere, is largely a man-made phenomenon.<sup>6</sup> Girls are being culled from the population, whether through prenatal sex identification and female sex-selective abortion, or through relative neglect compared to male offspring in early childhood (including abandonment), or through desperate life circumstances that might lead to suicide.

The gender imbalance in Asia is primarily the result of son preference and the profound devaluation of female life. This value ordering is not confined to Asia; why, then, is the deficit of women found there almost exclusively? Historically, of course, the culling of girls was

not confined to Asia; evidence for this practice can be found on every continent. And practices are changing in some Asian nations: Japan normalized its sex ratios in the 20th century, and in South Korea, the deficit has been decreasing over time (Dickemann, 1975; South Korea National Statistics Office, 2001).

But this excellent question can only be answered through a multifactorial cultural analysis that examines variables such as religious prohibitions or sanctions; patrilocality (couples living with the husband's family); the duty of male offspring to support aged parents; dowry, hypergyny, and caste purity in India; the effect of interventions such as China's one-child policy; and the web of incentives and disincentives surrounding the issue of prenatal sex determination technology.<sup>7</sup>

### Bare Branches

What effect will this deficit of females have on the security trajectory of nations? Anthropologist Barbara D. Miller (2001) has termed the preservation of a balanced sex ratio a "public good" that governments overlook at their peril. Will it matter to India and China that by the year 2020, 12-15 percent of their young adult males will not be able to "settle down" because the girls that would have grown up to be their wives were disposed of by their societies instead? With each passing year between now and 2020 (or even further), both the proportion and the number of young adult males that exceed the number of young adult females in China and India will increase (Hudson & den Boer, 2004). The Chinese have a special term for such young men: *guang gun-er*, or "bare branches"—branches of the family tree that will never bear fruit, but which may be useful as "bare sticks," or clubs.

The Chinese elision between bare branches and truncheons echoes our argument: men who are not provided the opportunity to develop a vested interest in a system of law and order will gravitate toward a system based on physical force, in which they hold an advantage over other members of society. Furthermore, in a



Will it matter to India and China that by the year 2020, 12-15 percent of their young adult males will not be able to "settle down" because the girls that would have grown up to be their wives were disposed of by their societies instead?

Sources: Afghanistan—United Nations Population Division, *World Population Prospects: The 2002 Revision*, <http://www.un.org/esa/population/publications/wpp2000/annex-tables.pdf>; Bangladesh—Bangladesh Bureau of Statistics, *Population Census, 2001: Preliminary Report*, <http://www.bbsgov.org>; China—National Bureau of Statistics of the People's Republic of China, "Communiqué on Major Figures of the 2000 Population Census," No. 1, April 23, 2002, <http://www.stats.gov.cn/english/newrelease/statisticalreports/200204230084.htm>; India—Office of the Registrar General, *Census of India, 2001, Series 1: India, Paper 1 of 2001: Provisional Population Totals* (New Delhi: India, 2001), <http://www.censusindia.net/results>; Pakistan—Population Census Organization, Statistics Division, Government of Pakistan, "1998 Census of Pakistan," <http://www.pap.org.pk/population/sec2.htm>; South Korea—National Statistical Office, *Republic of Korea Census Population, 2000*, <http://www.nso.go.kr>; and Taiwan—Statistical Bureau of Taiwan, *Historical Comparison of the Census Results, 2000*, <http://www.stat.gov.tw>

Note: From *Bare Branches: The Security Implications of Asia's Surplus Male Population* (page 62), by Valerie M. Hudson and Andrea M. den Boer, 2004, Cambridge, MA: MIT Press. Copyright 2004 by Belfer Center for Science and International Affairs. Reprinted with permission.

**Table 1: Number of Missing Women for Selected Asian Countries Using Census Data**

Country	Year	Actual Number of Males	Actual Number of Females	Actual Sex Ratio	Expected Sex Ratio	Expected Number of Women	Missing Women
Afghanistan	2000	11,227,000	10,538,000	106.5	96.4	11,646,266	1,108,266
Bangladesh	2001	65,841,419	63,405,814	103.8	99.6	66,105,842	2,700,028
China	2000	653,550,000	612,280,000	106.7	100.1	652,897,103	40,617,103
India	2001	531,277,078	495,738,169	107.2	99.3	535,022,234	39,284,065
Pakistan	1998	68,873,686	63,445,593	108.6	99.2	69,429,119	5,983,526
South Korea	2000	23,068,181	22,917,108	100.7	100.0	23,068,181	151,073
Taiwan	2000	11,386,084	10,914,845	104.3	100.2	11,363,357	448,512
<b>Total</b>							<b>90,292,573</b>

system with too few women, the men who marry are those with higher socio-economic status. The men unable to marry are poorer, less educated, less skilled, and less likely to be employed. These men are already at risk for establishing a system based on physical force in order to obtain by force what they cannot obtain legitimately. Without the opportunity to establish a household, they may not transition from potential threats to potential protectors of society. The rate of criminal behavior of unmarried men is many times higher than that of married men; marriage is a reliable predictor of a downturn in reckless, antisocial, illegal, and violent behavior by young adult males (Mazur & Michalek, 1998). If this transition cannot be effected for a sizeable proportion of a society's young men, the society is likely to become less stable.<sup>8</sup>

Statistical evidence for the linkage between gender imbalance and conflict includes several excellent studies that have demonstrated a strong correlation between state-level sex ratios and state-level rates of violent crime in India (Oldenburg, 1992; Dreze & Khera, 2000). States with high sex ratios, such as Uttar Pradesh, have much higher violent crime rates than states with more normal sex ratios, such as Kerala. Historical case studies abound, since abnormal sex ratios are not a new phenomena. The 19th century Nien rebels came from a very

poor region in China with a sex ratio of at least 129 men per 100 women. At first, relatively smaller groups of men coalesced to form smuggling and extortion gangs. Eventually, these gangs banded together to form larger armies, wresting territory from imperial control. It took the emperor years to subdue this rebellion.

We must not overlook sociological theory and experimental evidence, as well. For example, scholars have studied the behavior of unattached young males, noting their propensity to congregate with others like them and to engage in dominance displays in such groups. Sociologists have found that the "risky shift" in group behavior, where a group is willing to take greater risks and engage in more reckless behavior than an individual member of the group, is much more pronounced in groups comprised solely of unattached young adult males (Johnson, Stemler, & Hunter, 1977).

After examining the evidence, some predictions can be made for societies with rising sex ratios: crime rates will increase; the proportion of violent crime will increase; rates of drug use, drug smuggling, weapons smuggling, trafficking, and prostitution will increase (see Hudson & den Boer, 2004). The society might develop domestic and international chattel markets that kidnap and traffic women within the country and across borders. For example, the shortage of marriage-age women in China is fueling a brisk

business in trafficked brides from North Korea (Demick, 2003).

We must also examine the reaction of the government. Historically, we have found that as governments become aware of the negative consequences of a growing number of bare branches, most governments are motivated to do something. In the past, “doing something” meant thinning the numbers of bare branches, whether through fighting, sponsoring the construction of large public works necessitating dangerous manual labor, exporting them to less populated areas, or co-opting them into the military or police. One 16th century Portuguese monarch sent his army, composed primarily of noble and non-noble bare branches, on one of the later crusades to avoid a crisis of governance; more than 25 percent of that army never returned, and many others were seriously wounded (Boone, 1983, 1986).

We find that the need to control the rising instability created by the increasing numbers of bare branches has led governments to favor more authoritarian approaches to internal governance and less benign international presences. In many ways, a society’s prospects for democracy and peace are diminished in step with the devaluation of daughters.

How will this play out in 21st century Asia? Gender imbalance does not cause war or conflict per se, but it can aggravate it. Will the internal instability caused by substantial numbers of bare branches (by 2020, 28 million in India—the same or more in China) overshadow external security concerns for the governments of these nations? Some potentially unstable situations spring to mind: the feuding countries of Pakistan and India have gender imbalances, as do China and Taiwan; and the resource-rich Russian Far East faces an influx of Chinese workers while Russia continues to lose men (Radyuhin, 2003).

How will gender imbalances affect the potential for democracy in China and the evolution of democracy in India? The gender imbalances of these two countries will not remain solely their problem, as alone they comprise more than one-third of the world’s popu-

lation. The status of women in these nations could become an important factor in both domestic and international security in Asia, with possible implications for the entire international system.

The Chinese government is acting on this linkage. In July 2004, they announced their desire to normalize the birth sex ratio by the year 2010, and in January 2005, they announced programs to provide old-age pensions to parents of girls. Only time will tell if these and other interventions will achieve their desired ends. In the meantime, the horse has left the barn for at least the next 20 years, for there is no way to undo the birth sex ratios of previous years. Have these Asian nations discovered the value of female life too late? The whole world is waiting to see whether bare branches will be given the opportunity to grow again.

## Notes

1. In Russia and its former satellites, drug and alcohol abuse, as well as tuberculosis and AIDS, have dramatically increased the mortality rate for adult males—recent U.S. Census Bureau (2005) figures estimate that there are 10 million fewer men than women in Russia alone. This, in turn, has fueled female emigration, supporting not only to a vigorous “mail-order bride” business, but also increasingly sophisticated and far-flung transnational prostitution and human trafficking networks.

2. There are established ranges of normal variation in overall population sex ratios, as well as early childhood and birth sex ratios. These ratios are adjusted for country-specific circumstances such as, for example, maternal mortality rates and infant mortality rates. Using official census data, we can determine if there are fewer women than could reasonably be expected. Of course, there are perturbing variables: for example, many of the Gulf states have very abnormal sex ratios favoring males due to the high number of guest workers, predominantly male, that labor in the oil economies of these states. Once we take these types of factors into account, we find that the deficit of females in Asia is a real phenomenon (Hudson & den Boer, 2004).

3. Additional information provided by the director of the Chinese Academy of Social Sciences via e-mail, concerning the *Nando Times* article, “China Reportedly Has 20 Percent More Males Than Females,” dated January 7, 1999.

4. No data are available for North Korea.

5. Other statistics also factor into the observed gender imbalance. In the West, for example, male suicides

far outnumber female suicides. But in countries with deficits of women, female suicides outnumber male suicides. In fact, approximately 55 percent of all female suicides in the world are Chinese women of childbearing age (Murray & Lopez, 1996).

6. For more examples, please see Hudson and den Boer (2004).

7. For a more complete cultural analysis of these practices in Asia, please see Hudson and den Boer (2004), Bossen (2000), Miller (2001), and Sen (1990).

8. Note that this transition is also less likely in societies with a deficit of males; in such societies, men need not marry or form permanent attachments to obtain food, shelter, sexual services, domestic services, and so forth. In that respect, societies with too few men and societies with too many men share some characteristics. Furthermore, societies in which marriage age is generally delayed for men can also produce instability; for example, the average age at first marriage for men in Egypt is now 32 (Diane Singerman, personal communication, July 19, 2004).

## References

- Boone, James L. (1983). "Noble family structure and expansionist warfare in the Late Middle Ages." In Rada Dyson-Hudson & Michael A. Little (Eds.), *Rethinking human adaptation: Biological and cultural models* (pages 79-86). Boulder, CO: Westview.
- Boone, James L. (1986). "Parental investment and elite family structure in preindustrial states: A case study of late medieval-early modern Portuguese genealogies." *American Anthropologist* 88(4), 859-878.
- Bossen, Laurel. (2000). "Women and development." In Robert Gamer (Ed.), *Understanding contemporary China* (pages 309-330). Boulder, CO: Lynne Rienner Publishers.
- China State Statistical Bureau. (2001). *Major figures of the 2000 population census*. Beijing: China Statistics Press.
- Demick, Barbara. (2003, August 18). "N. Korea's brides of despair." *Los Angeles Times*. Retrieved November 10, 2005, from [http://www2.gol.com/users/coynerhm/n\\_koreas\\_brides\\_of\\_despair.htm](http://www2.gol.com/users/coynerhm/n_koreas_brides_of_despair.htm)
- Dickemann, Mildred. (1975). "Demographic consequences of infanticide of man." *Annual Review of Ecology and Systematics* 6, 107-137.
- Dreze, Jean, & Reetika Khera. (2000). "Crime, gender, and society in India: Insights from homicide data." *Population and Development Review* 26(2), 335-352.
- Hudson, Valerie M., & Andrea M. den Boer. (2004). *Bare branches: The security implications of Asia's surplus male population*. Cambridge, MA: MIT Press.
- India Registrar General. (2001). *Census of India, 2001, Series 1: India, Paper of 2001: Provisional population totals*. New Delhi, India: Office of the Registrar General.
- Johnson, Norris R., James G. Stemler, & Deborah Hunter. (1977). "Crowd behavior as 'risky shift': A laboratory experiment." *Sociometry* 40(2), 183-187.
- Mazur, Allan, & Joel Michalek. (1998). "Marriage, divorce, and male testosterone." *Social Forces*, 77(1), 315-330.
- McDonald, Hamish. (1991, December 26). "Unwelcome sex." *Far Eastern Economic Review* 154(52), 18-19.
- Miller, Barbara D. (2001). "Female-selective abortion in Asia: Patterns, policies, and debates." *American Anthropologist* 103(4), 1083-1095.
- Murray, Christopher J.L., & Alan D. Lopez (Eds.). (1996). *The global burden of disease: A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020*. Cambridge, MA: Harvard University Press.
- Oldenburg, Philip. (1992). "Sex ratio, son preference, and violence in India: A research note." *Economic and Political Weekly* 27(49-50), 2657-2662.
- Oster, Emily. (2005, December). "Hepatitis B and the case of the missing women." *Journal of Political Economy* 113(6), 1163-1216. Retrieved November 4, 2005, from <http://www.people.fas.harvard.edu/~eoster/hepb.pdf>
- Radyuhin, Vladamir. (2003, September 23). "A Chinese 'invasion.'" *The Hindu*. Retrieved November 7, 2005, from <http://www.worldpress.org/Asia/1651.cfm#down>
- "Shenzhen's newborn sex ratio more balanced." (2005, April 15). *Shenzhen Daily*. Retrieved November 10, 2005, from [english.people.com.cn/200504/15/eng20050415\\_181218.html](http://english.people.com.cn/200504/15/eng20050415_181218.html)
- Sen, Amartya. (1990, December 20). "More than 100 million women are missing." *New York Review of Books* 37(20), 61-66.
- South Korea National Statistics Office. (2001). *2001 report of the National Statistical Office of South Korea*. Seoul: National Statistics Office.
- United Nations Population Division. (1998). *Too young to die: Genes or gender*. New York: United Nations.
- United States Census Bureau. (2005). *International database summary demographic data for Russia*. Retrieved November 4, 2005, from <http://www.census.gov/cgi-bin/ipc/idbsum.pl?cty=RS>

## The State of the Field: Demography and War

### The Rise and Fall—and Rise—of Interest in Demography and War

At its root, the importance of the link between demography and war is the relative capacity of a given political unit's population to aid in its defense or to threaten other political units. For this reason, population increase and decrease have always been identified as vital security issues; however, the importance of raw population as an increment of state power has waxed and waned across time in response to technological innovations and broad normative social changes (de Bliokh, 1977; Mearsheimer, 2001).

Contemporary interest in population as a source of state military power has its origins in the French Revolution, which unleashed the power of the mass army on what was then a Europe ruled by monarchs in possession of highly specialized and relatively small professional armies (Posen, 1993). Thus beyond its normative implications regarding the proper basis of legitimate government, the French Revolution established demographics—including its emphasis on comparative birth rates—as an enduring interest of states, whether motivated by greed, insecurity, or aggression.

The Industrial Revolution threatened to change this relationship, as the railroad and the steamship made it possible to field and maintain mass armies, but the technology of automatic weapons and heavy artillery made it equally possible to destroy masses of soldiers with alarming alacrity. World War II confirmed the importance of machine over man, because the armored vehicle and—in particular—the strategic bomber appeared to make populations more vulnerable and at the same time less relevant to fighting power, except as logistical support in the form of factory workers and farmers.

Since the end of World War II, the importance of population as a key component of national security again began to rise after a series of colonial wars in which high-tech, capital-intensive militaries lost bitter contests to relatively low-tech, labor-intensive militaries in Asia and Africa, such as the United States in Vietnam or the Soviet Union in Afghanistan. Moreover, interstate wars between major powers—the type of conflict that had appeared to relegate population to insignificance from the 1880s to the 1940s—ceased to exist, while civil wars—in which population becomes a much more direct representative of a political unit's military capacity—became the norm for large-scale political violence.

Today, interstate wars seem poised to make a slow comeback, but the combination of cheap transportation technology, high birth rates in the so-called developing world, and pride in national identity have combined to make refugee and emigration flows a significant new factor in the security calculations of major states and indeed entire regions (Nichiporuk, 2000; Weiner & Teitelbaum, 2001).

### Demography Matters

In short, demography matters, especially because of another long-term, post-World War II trend: the increasing democratization of states, including major states such as the Russian Federation. Because the foundation of

---

Monica Duffy Toft is an associate professor of public policy at the John F. Kennedy School of Government and the assistant director of the John M. Olin Institute for Strategic Studies, Harvard University.

MONICA  
DUFFY TOFT

democracy is the principle of majority rule, states adopting democratic forms of government find themselves keenly interested in the proportions of politically active groups that inhabit their territories (Toft, 2003).

On the other hand, despite the conventional wisdom that changes in the demographic composition of states correlate with political instability and war, surprisingly little sustained scholarly research has addressed the issue. A search of the major journals devoted to war and conflict reveals that in the last 15 years only a handful of articles have sought to understand how demographic shifts contribute to large-scale violence both within states and beyond them.<sup>1</sup>

There are different ways to examine the impact of demography on war. Of the major studies in existence, two factors have received the most attention: age and sex ratios.<sup>2</sup> Age ratio studies examine whether a higher proportion of youth is associated with a higher likelihood of revolt and war (see, e.g., Huntington, 1996). The sex ratio hypothesis holds that the greater the imbalance in favor of men, the greater the likelihood of instability and war (Hudson & den Boer, 2004). Although these hypotheses have been examined, the underlying logic and empirical support for them remain speculative. Despite dire warnings about seething populations of too many young males, neither factor has yet been shown either necessary or sufficient for violence to erupt.

Differential population growth among identity groups has been less systematically studied than other demographic factors associated with conflict and war (Weiner, 1971; Toft, 2002, 2005; Strand & Urdal, 2005). However, historical wisdom holds that identity-group balances are key to the stability of multi-ethnic states. The civil war in Lebanon, for example, has largely (and accurately) been attributed to a shift in the delicate ethnic balance in that state (O'Ballance, 1998). Similar population pressure has been used to explain Israel's pullout from Gaza and parts of the West Bank, and demographic balances are key to stabilizing Iraq's government. Given that demographic balances and shifts are vital to the stability of

multi-ethnic states, and the vast majority of states on the globe are multi-ethnic, the lack of attention is surprising.

## What Causes Shifts?

The relative proportions of ethnic populations in states might shift for a variety of reasons; differential birth/fertility rates and economic immigration are just two explanations. Other reasons include deliberate state manipulation (usually in the form of monetary incentives to "desired" groups to bear more children), man-made disasters such as warfare (e.g., genocide in Rwanda and Burundi), and natural disasters such as drought (e.g., famine in Sudan and Somalia). Mass migration and resettlement, both spontaneous and forced (e.g., ethnic cleansing in the former Yugoslavia), may also cause a shift in the size of the population or shifts among key factors (e.g. sex, age, identity-group ratios).

Consider the United States: the 2000 census revealed that Latinos are growing at a far faster pace than other ethnic groups. Latinos tend to have larger families (i.e., higher fertility rates) and many immigrants—largely economic—come to the United States from Latin American countries with Hispanic populations. According to U.S. census projections, if current trends continue, Hispanics—who in 2000 constituted 13 percent of the American population—will comprise 25 percent by 2050. In his most recent book, Samuel Huntington (2004) claims that the shift from a predominately white, Protestant culture to a majority Hispanic one could potentially lead to serious discord within the American polity. Whether this discord results in conflict or violence depends on a host of factors, including whether Hispanics assimilate and American political institutions adapt to the demands of this increasing population.

## Why So Little Sustained Research?

Little research has been devoted to this important issue for two reasons. First, citizens of advanced industrial countries popularly believe



that technology trumps people. This prejudice, in most cases unfounded and in some cases positively dangerous, underpins a general lack of attention to everything from demographics and war, to the strategy and tactics of labor-intensive military organizations. Faith in technology extends across a wide array of social, economic, and political problems. Second, to put it bluntly, the study of demography and war is incredibly tough: data are often not available or reliable, and it is hard to separate out demographic determinants of conflict and war from more traditional factors.

### Data Availability and Reliability

In order to secure reliable demographic data, a country must conduct and publish regular censuses. Censuses are not only expensive, but conducting them adequately also requires proper training of field agents and analysts. Many countries simply lack the resources and knowledge to conduct censuses properly. In addition, the process of counting a state's population requires a relatively stable environment. Countries undergoing civil strife are precisely those for which we need data, but also those in which census-taking is hampered by conflict and violence.

Population figures are easy prey for political machinations. Although censuses are vital for determining how to allocate goods and services equitably among a country's population, they can also be used as the basis for restricting opportunities to members of preferred identity groups. Data on identity groups can be manipulated in at least three ways: (1) the size of identity groups might be increased or decreased; (2) groups themselves might be excluded altogether or added to the figures of other groups; or (3) entire censuses could be withheld from publication and public debate.

Under Josef Stalin, the Soviet Union used all three methods: as part of the "Sovietization" project, officials were pressured to reduce the number of groups enumerated by the census (Clem, 1986). After the 1930s, the Migrelians, Svans, Laz, and Batsbiitsky—once identified as separate nationalities—were merged with the

Georgians. In addition, when censuses in the 1930s revealed that the size of the population was not what Stalin thought it should be, the state classified the results, fearing widespread outrage had they revealed the true extent of the famine caused by the Soviet regime's collectivization efforts.

Some blame a contested census for the civil war in Lebanon, which has not conducted an official census since 1932. The "estimated" census of 1956 was largely seen as rigged, as it excluded a large number of Muslims, whose population had grown at a far faster rate than Christians (Deeb, 1980). Since political power in Lebanon is distributed among the different sectarian groups on a proportional basis, if the census revealed that the ethnic composition of the population had changed, then the distribution of power should change, too. But the Maronite Christians, who controlled the census process and data, did not want to cede any power, and as a consequence they fudged the results of the census—or at least accepted a less-than-accurate count as fact. Most outside observers agree that Christian numbers were inflated, while Muslim numbers were deflated. Although the census was discredited, it nevertheless provided the seeds of protest and grievance that subsequently led to civil war in Lebanon.

Another prominent example of how knowledge of shifts in the demographic balance can lead to instability and perhaps war is Israel, which has to adjust to demographic shifts among its Palestinian and Arab populations, as well as population differentials among Jews themselves, with Orthodox and ultra-Orthodox having population growth rates far greater than the secular Jewish population (see Fargues, 2000; Berman, 2000). Israel has pulled out of the Gaza Strip and some of the West Bank, thus ameliorating the notion of a greater Israel with a growing Palestinian population. However, Israel will still have to deal with increasing Arab and Jewish-religious populations. As in Lebanon, the nature of the Israeli political system affords these different groups political power, so as their numbers grow, so will their demands from the political system. Will Israel's



Despite the conventional wisdom that changes in the demographic composition of states correlate with political instability and war, surprisingly little sustained scholarly research has addressed the issue.

political system be resilient enough to handle these future demographic challenges without reverting to a form of apartheid, in order to hang on to large portions of the West Bank and maintain the particularly Jewish character of the state of Israel?

## Conclusions

In summary, demographics and war will continue to be an important and policy-relevant topic. Shifts in facilitating technologies—along with, in some cases, deliberate demographic strategies for attaining power and resources—continue to be under-researched and poorly understood, which leads in many cases to counterproductive or destructive aid and intervention strategies. Progress on the independent causal impact of demography on war will therefore demand careful research designs and may not be susceptible to the kind of parsimony currently so popular among social scientists in general, and political scientists in particular. Only by building a community dedicated to sustained and quality research can we redress this situation.

## Notes

1. Exceptions include Goldstone (1991), Toft (2002, 2005), and Hudson and den Boer (2004). Excellent surveys include Levy and Krebs (2001) and Cincotta, Engelman, and Anastasion (2003).
2. See commentaries in this *Report* by Sarah Staveteig on age ratio and conflict, and by Valerie Hudson and Andrea den Boer on sex ratio and conflict.

## References

- Berman, Eli. (2000). "Sect, subsidy and sacrifice: An economist's view of ultra-Orthodox Jews." *Quarterly Journal of Economics* 115(3), 905–953.
- Cincotta, Richard P., Robert Engelman, & Daniele Anastasion. (2003). *The security demographic: Population and civil conflict after the Cold War*. Washington, DC: Population Action International.
- Clem, Ralph S. (Ed). (1986). *Research guide to the Russian and Soviet censuses*. Ithaca, NY: Cornell University Press.
- de Bliokh, Ivan Stanislavovich. (1977). "Population pressure as a cause of war." *Population and Development Review* 3(1/2), 129-139. (Reprinted excerpts from Volume 5 of *The future of war from the point of view of technology, economy, and politics*, St. Petersburg, 1898, translated by Michael Bolysov).
- Deeb, Marius. (1980). *The Lebanese civil war*. New York: Praeger.
- Fargues, Philippe. (2000). "Protracted national conflict and fertility change: Palestinians and Israelis in the twentieth century." *Population and Development* 26(3), 441-482.
- Goldstone, Jack A. (1991). *Revolution and rebellion in the early modern world*. Berkeley: University of California Press.
- Hudson, Valerie, & Andrea den Boer. (2004). *Bare branches: The security implications of Asia's surplus male population*. Cambridge, MA: MIT Press.
- Huntington, Samuel P. (1996). *The clash of civilizations and the remaking of world order*. New York: Simon and Schuster.
- Huntington, Samuel P. (2004). *Who are we? The challenge to American identity*. New York: Simon and Schuster.
- Levy, Jack S., & Ronald R. Krebs. (2001). "Demographic change and sources of international conflict." In Myron Weiner and Sharon Stanton Russell (Eds.), *Demography and national security* (pages 62-105). New York: Berghahn Books.
- Mearsheimer, John. (2001). *The tragedy of great power politics*. New York: W.W. Norton.
- Nichiporuk, Brian. (2000). *The security dynamics of demographic factors*. Santa Monica, CA: RAND Corporation.
- O'Ballance, Edgar. (1998). *Civil war in Lebanon, 1975-92*. New York: St. Martin's Press.
- Posen, Barry. (1993). "Nationalism, the mass army, and military power." *International Security* 18(2), 80-124.
- Strand, Håvard, & Henrik Urdal. (2005). *Differential growth, political instability and violent conflict*. Paper presented at the International Studies Association Conference, Honolulu, Hawaii.
- Toft, Monica Duffy. (2002). "Differential demographic growth in multinational states: Israel's two-front war." *Journal of International Affairs* 56(1), 71-94.
- Toft, Monica Duffy. (2003). *The geography of ethnic violence*. Princeton, NJ: Princeton University Press.
- Toft, Monica Duffy. (2005). *Population shifts and civil war*. Manuscript in preparation.
- Weiner, Myron. (1971). "Political demography: An inquiry into the political consequences of population change." In National Academy of Sciences (Eds.), *Rapid population growth: Consequences and policy implications* (pages 567-617). Baltimore: Johns Hopkins University Press.
- Weiner, Myron, & Michael S. Teitelbaum. (2001). *Political demography and demographic engineering*. New York: Berghahn Books.