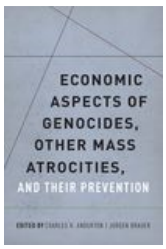

Economic Aspects of Genocides, Other Mass Atrocities, and Their Preventions

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CHAPTER

10 Development and the Risk of Mass Atrocities: An Assessment of the Empirical Literature

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Abstract

This chapter surveys large-*n* studies on the correlates of mass atrocities with an emphasis on economic explanations. Since the overwhelming majority of mass atrocities (genocides, politicides, and mass killings) happen during civil war, it is unsurprising that civil war is a robust predictor of mass atrocities. In this context, violence against civilians can be interpreted as a strategic choice, where this choice is largely determined by the availability of economic resources. If state and nonstate actors have to rely on civilian support for resources, they are less likely to commit mass atrocities. In contrast, if armed organizations have access to funding from foreign governments or from the sale of natural resources, they are less dependent on civilian support that, in turn, may make violence against the local population more likely.

Keywords: genocide, mass killing, development, income, democracy

Subject: International Economics

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10.1. Introduction

Mass atrocities have been studied from many different perspectives. Within the disciplines of psychology, sociology, anthropology, and political science a large number of case studies, comparative studies, and large-*n* statistical analyses have been undertaken. In contrast, economists have conducted few studies of mass atrocities. Many large-*n* studies of genocides and mass killings consider economic explanations, but there is little robust evidence that the level of economic development measured for the entire country is associated with the risk of mass atrocities (see chapter 24 in this volume). More recently researchers have analyzed the connection between resources and strategies in civil wars and the implication of this link for violence against civilians in wars (see chapter 19 in this volume). There is some evidence suggesting that armed groups that have access to outside finance are less reliant on support by the civilian population. In these cases the civilian population is more at risk of mass atrocities.

This chapter is structured in the following way. Section 10.2 provides general background that informs the statistical modeling of mass atrocities. This is followed in section 10.3 by a very detailed, in-depth presentation and discussion of the most common findings in large-*n* studies of mass atrocities. Civil war is one of the most robust predictors of mass atrocities, followed by a number of democracy-related and institutional variables. Evidence for the influence of economic variables on the occurrence and conduct of mass atrocities, such as income per capita, inequality, and trade, is more mixed. Section 10.4 concludes.

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10.2. Background

While there are numerous large-*n* studies on the correlates of civil war, there is a much smaller body of literature on mass atrocities. Thus, unlike the study of civil war, the study of mass atrocities has not attracted a lot of attention in the discipline of economics. Very few economists have studied the phenomenon. Notable exceptions include Easterly, Gatti, and Kurlat (2006) and Montalvo and Reynal-Querol (2008). The aim of this review is to provide an assessment of the empirical literature on economic development and the risk of mass atrocities, and for this purpose I define development broadly as a process that improves individual and social welfare. The measurement of the level of economic development is controversial; often economists focus solely on income measures. One popular alternative measure is provided by the Human Development Index (HDI), which is the average of three key dimensions of development: health, education, and income. Extensions of this measure consider inequality, poverty, human security, and empowerment. While mass atrocities have a negative impact on economic development (chapter 5 in this volume), it is less clear how economic development affects the risk of mass atrocities. Easterly, Gatti, and Kurlat (2006) suggest that the a priori relationship between economic development and mass atrocities is ambiguous. On the one hand, higher standards of living make killings more costly, and more developed societies may have designed safeguarding measures to avoid the cost of violence. In addition, a more educated society may be more tolerant toward other groups. On the other hand, more development leads to advances in technology and social organization that lower the cost of violence, thus making mass atrocities potentially more likely.

Next, I point to the discussion and definition of mass atrocities in chapters 1 through 3 in this volume, where the term *mass atrocity* is taken as an umbrella term that encompasses genocides, politicides, and other types of mass violence against noncombatants. To recap, genocides and politicides are the intentional destruction, in whole or in part, of a specific group of people. For other mass killings, perpetrators either do not intend to eliminate the group as such or victims are not limited to one or more specific groups. The perpetrators of such atrocities can be the state or nonstate actors.

Since there is no established literature on the economics of mass atrocities per se, I review the existing large-*n* studies, mainly conducted by political scientists. Many of these studies include proxies for income, wealth, and resources and examine the relative importance and interaction between economic and strategic reasons for mass atrocities. Before turning to the discussion of the results from these large-*n* studies, this section provides some background as to why there has been relatively little interest in the economic explanation of mass atrocities.

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In contrast to economists, researchers from other disciplines, for example psychologists, historians, sociologists, anthropologists, and political scientists, have a long tradition of studying violence in its many different forms. One part of this literature has a strong focus on genocide (e.g., Staub 1989; Goldhagen 1996; Valentino 2004; Waller 2007; Baum 2008). Genocide appears to be a category of violence that seems particularly difficult to understand and analyze. Pinker (2011, 386) states that "of all the varieties of violence of which our sorry species is capable, genocide stands apart, not only as the most heinous but as

the hardest to comprehend ... killing-by-category targets people for what they *are* rather than what they *do* and thus seems to flout the usual motives of gain, fear, and vengeance" (italics in original).

When genocide occurs independent of war, the phenomenon seems particularly difficult to comprehend. In peacetime, it is difficult to think of other reasons for collective actors to kill a large number of individuals other than to destroy the group (Shaw 2007). This may be the reason why many of the psychological studies concentrate on explaining genocide as a social or collective action. The development of an extreme leadership and ideology, and recruitment of individuals to "the cause," are key aspects in the understanding of genocide. However, as chapter 3 shows, the overwhelming majority of genocides occur during civil war. During these wars combatants on both sides rely on civilian support. As discussed in more detail later on, violence against civilians in civil wars can be used for different purposes: to destroy support for the opposing forces, to coerce civilian cooperation, to finance the war, to provide short-term benefits for combatants, and to settle old scores. Often the motivation does not appear to be the destruction of a group of people, but ex post these atrocities can be interpreted as such. In particular, because political violence is often organized along ethnic lines and many locations are dominated by one group, mass killings as a strategic and economic instrument are then interpreted as "genocide" even though there may not have been any prior intent. Thus, I argue that in many cases civilians are not killed because of who they are, but because of strategic and economic reasons. To summarize, since it is difficult to distinguish among the categories of genocide, politicide, and mass killings, it appears to be sensible to use a broad definition of mass atrocities that includes all of these categories. Furthermore, if the killing of civilians is motivated, in part, by strategic and economic reasons, this can in principle be tested in statistical models.

This view—that one can formulate and test distinct hypotheses regarding mass atrocities—is contradicted by an understanding of mass atrocities as a Hobbesian scenario of "war of all against all," for if people turn against and kill each other just because of who they are, we should not be able to observe any empirical patterns at all for this type of violence other than group membership. However, there is a wealth of evidence suggesting that mass atrocities are not in fact a "war of all": violence is not perpetrated by the majority of
p 233 ordinary people. ↳ Studies of mass atrocities in Bosnia and Rwanda (Mueller 2007) find that in both countries leaders found it difficult to use regular armed forces to kill civilians. Instead they recruited thugs (for example, by releasing criminals from prisons) who formed small, predatory bands that carried out "ethnic cleansing" and genocide. The analysis by Rogall (2014) suggests that the majority of the atrocities committed during the Rwandan genocide were due to a relatively small number of killers: about 10 percent of the total number of perpetrators caused 83 percent of the deaths. Other microlevel evidence also suggests that the killing of civilians can be explained by factors other than group membership. Kalyvas (2006) focuses on the local dynamics of violence against civilians. His theoretical work and case study evidence on Greece suggests that violence can be driven by combatants' desire to obtain information about the opposing side and by noncombatants' desire to gain security.

Weinstein (2007) focuses on violence against civilians perpetrated by rebel movements. He distinguishes two types of rebellion. In activist rebellions, rebels can commit to internal discipline by drawing on established norms and networks. Power within the rebel army can be decentralized without violence against civilians. In opportunistic rebellions, the rebels cannot credibly commit to nonabusive behavior and without local ties it is difficult to identify defectors. Rebels work on short-term rewards that they receive in terms of loot and violence. However, many activist rebellions turn, over time, into opportunistic rebellions as more fighters with less strong convictions join. Weinstein argues that violence against civilians in these cases can be the result of material strength, not rebel weakness. In situations of material strength, due to foreign sponsorship or income from natural resources, rebel forces have to rely less on local support. Further microlevel evidence on why civilians are killed is provided by the case study of northwestern Rwanda by André and Platteau (1998). They carried out a detailed survey before the genocide, and survivors were traced afterward. The pre-1994 survey identified only one person as Tutsi. In the genocide about 5 percent of the

local population was killed, that is, not only the one person identified as Tutsi but also a number of Hutu. The postgenocide survey reveals that the victimization of the population was not random. Many victims had previously been identified as "troublemakers," people who "aroused jealousy and hatred" and owned more land. Thus, the wave of violence offered opportunities to settle old scores and to seize land. To summarize, there is case study evidence to suggest that violence against civilians in civil war is not inexplicable and irrational. States and rebels use violence against civilians as a tactic in civil wars. For example, terror against civilians drives people away, thus restricting civilian support for the opposing side. In addition, fighters may be incentivized with short-term rewards. Furthermore, the havoc created in situations of mass atrocity opens a window of opportunity to settle old scores and to misappropriate property.

p 234 Recently collected datasets offer information on violence against civilians without relying on any assumptions of intent, that is, they are not restricted to genocides and politicides. These data are detailed and allow researchers to analyze violence by state and nonstate groups and to specify the location of the violence (see, e.g., Eck and Hultman 2005; Raleigh 2012). Since mass atrocities strongly overlap with civil war, similar approaches to the study of civil war are applied in the study of mass atrocities. However, potential economic determinants are not as systematically studied and as the following section shows, many of the variables that are robustly correlated with the risk of civil war are not found to be correlated with the risk or the magnitude of mass atrocities.

10.3. Large-*n* Studies of Mass Atrocities: An Overview

This section highlights some of the findings obtained in large-*n* studies of mass atrocities. The main focus is on models using cross-country regressions. (The burgeoning microlevel evidence is reviewed in chapter 9, and the forecasting of mass atrocities is discussed in chapter 24, respectively, in this volume. Microlevel evidence specifically in regard to refugees is reviewed in chapter 11.) Table 10.1 summarizes the findings from some of the key studies.

Table 10.1 Selected Large *n* Stud es of Mass Atroc t es

Author(s)	Civilian Atrocity Type	Unit of Analysis	Sample Scope and Time Period	General Findings and Economic Correlates
1.Rummel (1995)	Democ de, one s ded lower level atroc ty, fatal ty cr ter on not spec f ed	States, nonstate groups	Focus on reg mes w th democ des 1900 1987	Democ de s ma nly expla ned by the level of democracy, domest c rebell on, and war. GNP/cap ta, energy consumpt on, educat onal level not s gn f cant n regress ons of democ de.
2.Krain (1997)	Genoc de and pol t c de	States, nonstate groups	1949 1982	Ma n explanatory var ables of the r sk and sever ty of genoc de/pol t c de are (c v l) wars and extraconst tut onal changes; level of democracy s less robustly correlated. The percentage of a country's trade n world trade (marg nal zat on) s not s gn f cant.
3.Harff (2003)	Genoc de and pol t c de	States, nonstate groups	States w th state fa lure 1955 1997	Pr or genoc de, reg me type, deology, ethn c m nor ty leaders, and pol t cal upheaval pred ct probab l ty of a genoc de/pol t c de. Trade openness reduces the r sk. Infant mortal ty not s gn f cant.
4.Valentino, Huth, and Balch-Lindsay (2004)	Mass k ll ngs n war, over 50,000 fatal t es	States	147 wars 1945 2000	Guer lla tact cs make mass k ll ngs more l kely. The relat ve m l tary capab l ty of the guerr lla and the support for the guer lla make mass k ll ngs more l kely. Democracy only has a small effect on the probab l ty of mass k ll ngs. No econom c var ables cons dered.
5.Easterly, Gatti, and Kurlat (2006)	Mass k ll ng, fatal ty cr ter on not spec f ed	States	World 1820 1998	H gh levels of democracy and ncome make mass k ll ngs less l kely and reduce scale of k ll ngs. Wars make mass k ll ngs more l kely and larger n scale.
6. Besançon (2005)	Genoc de (State Fa lures Data Set) more than 300 fatal t es	States, nonstate groups	World 1960 2001	Nonel te representat on and h gher GDP/cap ta lower the r sk of genoc de. Econom c and human cap tal nequal ty ncrease the r sk and there s some ev dence that natural resource ncome ncreases the r sk.
7. Eck and Hultman (2007)	One s ded v olence	States, nonstate groups	World 1989 2004	Lagged dependent var able and c v l war dummy pos t ve and s gn f cant. Only some ev dence that democracy reduces r sk of v olence and number fatal t es. Trade not s gn f cant, no other econom c var ables reported.
8.Montalvo and Reynal-Querol (2008)	Genoc de (State Fa lures Data Set) more than 300 fatal t es	States, nonstate group	World 1960 1999	Ethn c polar zat on ncreases the r sk of genoc de. Weaker ev dence that h gher levels of democracy and ncome decrease the r sk. No ev dence of s gn f cant relat onsh p between natural resource ncome and genoc de r sk.

9.Esteban, Morelli, and Rohner (2015)	Mass K ll ngs, PITF data M nor t es at R sk data for group level analys s	States, nonstate group	World 1960 2007	Level of democracy not robustly correlated w th r sk of mass k ll ngs. Lagged dependent var able and c v l war are s gn f cant, as are a number of econom c var ables: GDP/cap ta ( ), o l and d amond product on ( ), and trade ( ). Group level: When groups are nvolved n a c v l confl ct the r sk of v olence aga nst c v l ans s h gh. Econom c geography measures also have a pos t ve relat onsh p w th th s r sk (so l qual ty, o l and d amond product on).

In general, very few large-*n* studies consider problems of autocorrelation, endogeneity, and simultaneity. For example, often there are cycles of violence—previous mass atrocities that increase the risk of experiencing another mass atrocity. Atrocities depress income, and the resulting economic stress could then, in turn, increase the risk of another mass atrocity. Throughout this section I therefore do not refer to *causes* of mass atrocities, but to *correlates* of mass atrocities. In contrast to the large-*n* literature, some of the case study literature has applied the method of instrumental variables in order to try to establish causality in studies of mass atrocities. One example is the study by Yanagizawa-Drott (2014), where he uses data on radio reception to trace the effect of propaganda on killings in the Rwandan genocide. Rwanda is a hilly country, and the evidence suggests that hate speech against the minority Tutsi population increased militia violence in the villages with radio reception. The resulting violence then spilled over into neighboring villages. Another example is the study by Rogall (2014). The level of violence at the village level during the genocide in Rwanda is estimated by using distance from the main road as well as levels of rainfall. This is a plausible choice of instrumental variables, because in this centrally planned mass atrocity, armed groups were sent to the villages to kill civilians and to incite other civilians to turn against the minority Tutsi population. Local roads are often impassable after heavy rainfall, and the empirical evidence
p 235 suggests that levels of violence were lower in difficult-to-reach villages. ↳

p 236 ↳

p 237 Thus, the use of geographic and weather data enables Yanagizawa-Drott (2014) and Rogall (2014) to establish why levels of violence varied across Rwanda. However, while the application of the method of instrumental variables is useful in the identification of causal relationships, it appears more difficult to find valid instruments in the broader cross-country context.

10.3.1 War and Political Upheaval

As shown in chapter 3, almost all mass atrocities committed during 1900–2013 occurred during periods of intrastate war (about 93 percent). It is therefore unsurprising that conflict variables carry a positive and statistically significant coefficient in models of mass atrocities. These include dummy variables for civil war and international war (Krain 1997; Easterly, Gatti, and Kurlat 2006; Esteban, Morelli, and Rohner 2015)[2] or measures of the severity of the war, such as the number of war deaths (Rummel 1995; Wood 2014). Interestingly, war duration does not appear to be statistically significant (Rost 2013; Wood 2014).

In her study of genocides and politicides, Harff (2003) uses the concept of "political upheaval," which includes civil war, illegitimate regime transitions, defeat in international wars, and new state formation. She terms these events "state failure" and measures the magnitude of state failure on an ordinal scale, summing up all values over the preceding fifteen years. This state failure variable is statistically significant. When comparing a country in the twenty-fifth percentile to a country in the seventy-fifth percentile, the risk of genocide occurring is 1.7 times as high. Krain (1997) also finds evidence that major changes in the

political structure create windows of opportunity. International and civil wars, extraconstitutional changes, and decolonization all are associated with a significantly higher risk of genocides and politicides.

10.3.2 Past Atrocities

One of the most robust results in the civil war literature is that countries which experienced a war in the past are more likely to experience another one. This has been referred to as the "conflict trap" (Collier et al. 2003). In the mass atrocities literature there is also considerable evidence that countries that experienced genocides and politicides or other mass killings are more likely to experience further atrocities against civilians. Harff (2003) accounts for genocides and politicides in the previous forty-five years and finds this dummy variable statistically highly significant. Specifically, countries with prior genocides and politicides are more than three times as likely to experience another atrocity as are countries without such a prior event. The study of mass killings by Esteban, Morelli, and Rohner (2015) includes a lagged dependent variable, an indicator of whether mass killings took place in the previous year. Eck and Hultman (2007)
p 238 carry out a similar regression, ↳ but in addition they explain the number of civilians killed by including a lagged dependent variable. In both studies, the coefficients of past indicators of atrocities are positive and statistically significant at the 1 percent level in all specifications.

10.3.3 Ethnicity

The importance of ethnicity has been evaluated in a number of studies. Genocides are defined as the deliberate killing of members of a specific group, including ethnic groups, and a number of studies in the mass atrocities literature have included variables capturing ethnic diversity, polarization, and discrimination. Ethnic diversity is often measured by an ethnolinguistic fractionalization index (ELF), which measures the probability that two randomly drawn citizens of one state do not speak the same language (see Alesina et al. 2003). This diversity measure has been included in regressions of mass atrocities, but the evidence is mixed. Rummel (1995), Aydin and Gates (2008), and Kim (2010) find that there is no statistically significant relationship between ELF and the risk of mass atrocities. Wood (2014) documents a positive relationship, while Querido (2009) finds a negative one in her analysis of violence against civilians by African governments. Easterly, Gatti, and Kurlat (2006) find a nonmonotonic relationship in some specifications, meaning that higher values of ELF are associated with a higher risk, but very high values of ELF are associated with a lower risk. Montalvo and Reynal-Querol (2008) investigate this relationship by using their measure of ethnic polarization and find that measure to be positive and statistically significant in all of their regressions. Their results suggest that homogenous as well as rather more heterogeneous societies face a lower risk of mass atrocities than societies characterized by ethnic polarization. The countries with the highest risk are those where large ethnic minorities face large ethnic majorities. Harff (2003) provides support for this finding. She includes a dummy variable indicating whether the political elite is based mainly or entirely on an ethnic minority. However, this is in contrast to Valentino, Huth, and Balch-Lindsay (2004), who do not find any evidence that identity-based conflicts are more likely to experience mass killings.

10.3.4 Ideology and Democracy

One of Rummel's central arguments is that "Power kills; absolute Power kills absolutely" (Rummel 1994, 1). He defines "Power," with a capital P, as government power and its holders (leaders), agencies (government departments and bureaucracies), and instruments (e.g., propaganda, armies, concentration camps). Rummel concentrates his analysis on democide, which he defines as the murder of any person or people by a government, including genocide, politicide, and mass murder. The so-defined democides overwhelmingly
p 239 take place in totalitarian regimes: 82 percent of all the deaths were caused by communist, fascist, militarist,
↳ or Islamist regimes (Rummel 1997, 367). The most murderous regimes were the USSR, China, and Nazi Germany, together committing about 75 percent of the 170 million deaths due to democides during the twentieth century (Rummel 1994, 10). Using data from a variety of sources, including the Polity dataset, Rummel constructs a measure of *Total Power* that considers, among other political measures, democracy, autocracy, totalitarianism, and communist regime types. This composite index, as well as some of the component parts, is highly correlated with the occurrence of democides, and Rummel concludes that democracy prevents democides (Rummel 1995). A number of other large-*n* studies also find evidence that the level of democracy is negatively and statistically significantly related to the risk of democide (e.g., Valentino, Huth, and Balch-Lindsay 2004; Easterly, Gatti, and Kurlat 2006; Montalvo and Reynal-Querol 2008). Harff (2003) also concludes that the probability of genocide is highest in autocratic regimes, when elites advocate an exclusionary ideology or represent an ethnic minority. Using her data on genocides, Aydin and Gates (2008) take a closer look at the institutions within political regimes. They argue that the structural relationship between mass killing and broad categorizations of political regimes is weak. Many autocratic regimes do not perpetrate mass murder, and it is unclear why some partial democracies commit atrocities while others do not. Furthermore, it is unclear which aspect of autocratic rule makes regimes more murderous. It could be due to weak or nonexistent constraints on the executive, the manner of executive recruitment, and the oppression of popular participation in the (s)election process. Aydin and Gates (2008) argue that institutional limitations on executive power are central to understanding when mass atrocities are likely to happen. Killings primarily occur in states lacking constitutional checks on the political power of the sovereign.

A number of studies do not find a strong association between the level of democracy and the risk of democide (e.g., Esteban, Morelli, and Rohner 2015). The study by Wayman and Tago (2010) examines this relationship in more detail. Their model includes a dummy variable for democracy or autocracy (based on the Polity IV data) and a yes/no dummy variable for communist regime type. The dependent variable, mass atrocities, is either (1) Rummel's democide data or (2) Harff and Gurr's data (in Harff 2003). The indicators of democracy and communist regime are statistically significant only in the regressions using Rummel's democide data. Wayman and Tago (2010) argue that Rummel's concept of mass atrocities is broader than the one developed by Harff and Gurr. The latter define genocides and politicides as "sustained policies … that are intended to destroy, in whole or in part, a communal, political, or politicized ethnic group" (Harff 2003, 58). In addition to these killings, targeted at specific groups, Rummel's definition also includes "mass murder," which he defines as "the indiscriminate killing of any person or people by government" (Rummel 1994, 31). Thus, Wayman and Tago (2010) conclude that autocratic regimes, especially communist ones, are more likely to engage in nontargeted mass murder than in targeting specific groups (genocide and politicide).

p 240 ### 10.3.5 Economy

There is sparse evidence that economic outcomes are associated with the risk and magnitude of mass atrocities. This is in contrast to the civil war literature that has identified a number of economic correlates of war, such as the level and growth of income, as well as the structure of income (for overviews, see Blattman and Miguel 2010; Hoeffler 2012).

Income could affect the risk of mass atrocities in a number of different ways. Low incomes result in economic and emotional stress, which could trigger aggression. Higher incomes of a minority group could act as an incentive to commit genocide or politicide to appropriate these higher incomes. During civil wars governments as well as the opposition rely on civilians for recruitment, supply of finance, food, shelter, transport, and information. The strategic decision of whether to coerce civilians to provide support may depend on alternative sources of finance and support.

Richer countries are also more likely to have higher state capacity. Their tax income is higher, and they are able to afford disciplined armies that do not have to rely on loot and the associated violence against civilians. Their justice system tends to be more efficient, thus avoiding the build-up of grievances and aggression. In states with well-functioning justice systems, individuals are less likely to use private means (e.g., violence) to achieve justice. Higher-income countries also have higher levels of democracy (as discussed) and more educated populations, which may be less likely to commit mass atrocities. They are also likely to be part of international organizations that provide additional scrutiny.

Thus, the level of income, its structure, and its distribution may potentially explain the risk and magnitude of mass atrocities. In addition, international trade can be interpreted as a proxy for international openness. More open countries receive more scrutiny, and mass atrocities may be less likely to occur in such countries. The following discussion of economic variables considers the empirical evidence for the relationship, if any, of income and trade with mass atrocities.

10.3.5.1. Level of Income

Skully (1997) presents a simple positive correlation between the number of people killed in mass atrocities and the level of per-capita income, but multivariate regressions show a statistically insignificant coefficient on income measures in the models that attempt to statistically explain the risk of mass atrocity (Rummel 1994, 1995; Harff 2003). Easterly, Gatti, and Kurlat (2006) examine mass killings from 1820 to 1998 and include a measure of income per capita. They draw on a number of databases to collect information on state-sponsored mass killings of civilians. They find that higher levels of income are associated with a lower likelihood of episodes of mass killings, and higher income is also associated with a lower number of civilians killed. Allowing for a nonlinear relationship by ↳ adding a squared income term, the authors show that the p 241 risk of mass killings first rises with income and then falls. Thus, intermediate levels of income are associated with a higher risk. When the sample excludes the nineteenth-century observations, the relationship between income and risk is linear: higher incomes are associated with lower risks. Qualitatively similar results are obtained when the magnitude, that is, the number of deaths, is examined.

Easterly, Gatti, and Kurlat (2006) examine the correlation of income and democracy and find that, for their sample, the correlation coefficient for the two variables is $\rho = 0.55$. When the model only accounts for democratic regimes, the income variable is statistically significant, but democracy as a regime form becomes statistically insignificant at conventional levels once income is included. The relatively high correlation between income and democracy makes it difficult to interpret the significance of income as a pure economic effect. The significance of income could, for instance, also capture aspects of state capacity. Montalvo and Reynal-Querol (2008) estimate a similar model for a shorter time period (1960–1999) and include income per capita and levels of democracy. They allow only for linear relationships and find that across a number of different specifications income is negatively, and at the level of democracy, positively related to the risk of genocides and politicides. However, the relationship of democracy seems to be more robust. Democracy is statistically significant in most specifications, whereas income is sometimes not significant at conventional levels. When Montalvo and Reynal-Querol (2008) restrict the analysis to those genocides and politicides that occur during civil wars, the partial correlation between income and risk is more robust than is the relationship between democracy and risk. This mirrors the findings in the civil war

literature, where many studies find no significant relationship between democracy and the risk of war when controlling for income (see, e.g., the discussion in Hoeffler 2012).

A number of studies provide a subnational analysis to address the question of whether higher local incomes are correlated with mass atrocities. There is insufficient subnational GDP data available to analyze atrocities in a large-*n* panel sample. Thus, various proxies have been used. Esteban, Morelli, and Rohner (2015) examine what makes ethnic groups more likely to be victimized. One variable that seems to be robustly correlated with that risk is local soil quality, which can be interpreted as a determinant of income in rural areas. Valentino, Huth, and Balch-Lindsay (2004) measure civilian support for the opposition in civil wars as a dummy variable, taking a value of one if the active support by the civilian population is high—that is, they provide supporters with food, shelter, information, transport, and other logistical aid—and zero otherwise. This could be interpreted as income for rebels. However, the statistical analysis shows that civilian support is positively correlated with the risk of mass killing. Valentino, Huth, and Balch-Lindsay (2004) discuss the problem of possible endogeneity. Civilian support may be high because past experiences
p 242 of violence may have instilled fear of ↳ future mass killings in the civilian population. It is unclear in which cases state repression diminishes civilian support and in which cases it increases the support for the opposition. Keeping these endogeneity issues in mind, Valentino, Huth, and Balch-Lindsay (2004) argue that guerilla wars are more prone to experiencing mass atrocities and that because of their tactics guerillas depend on civilian support, thus making civilians more likely to be a target for government atrocities. (For further discussion, see chapter 19 in this volume.) However, given these findings, it is impossible to decide whether civilian support should primarily be interpreted as a strategic or as an economic variable.

10.3.5.2. Structure of Income: Aid, Natural Resources, and Foreign Support

One variable that can be interpreted as income to the government is international development aid. Most aid (e.g., budget support) cannot be appropriated by the opposition, with food aid being the notable exception. Food aid can be appropriated by the opposition and used to support their fighters (see, e.g., Anderson 1999; Nunn and Qian 2014). However, over time the amount of food aid has declined to about two percent of total aid. Thus, most aid goes directly to the government. Azam and Hoeffler (2002) examine the relationship between aid and violence against civilians in Africa. They approximate this violence by the number of refugees and show that countries that receive more aid appear to experience higher levels of violence thus measured. They interpret this as evidence that government armies can terrorize civilians because they have to rely less on civilian support, due to their aid income. However, this result is open to interpretation because the authors do not address any endogeneity concerns. It may be the case that countries with mass killings are perceived as in need of aid and thus attract more donor funding in the first place. Azam and Hoeffler (2002) also assume that violence against civilians is perpetrated by the government. More recent evidence, from Raleigh (2012), suggests that in Africa opposition groups kill more civilians than do government forces and militias.

Income from natural resources has been analyzed extensively in the civil war literature. Natural resources can motivate rebellion (the "honeypot" argument in DeSoysa and Neumayer 2007) or provide a channel for rebel finance (Collier and Hoeffler 2004; Lujala, Gleditsch, and Gilmore 2005). Diffuse resources (such as alluvial diamonds) are considered to be more likely to finance rebels than point resources (such as crude oil), which require technical know-how and typically involve international companies for their exploitation. More generally, states that derive a relatively high income from natural resources suffer from severe political economy problems because these states rely less on tax income and thus are subject to less budgetary scrutiny from their populations. The revenue from natural resources is often used to provide private goods to the elite and not for redistribution to the wider population or for public goods. The
p 243 unwillingness, or incapacity, ↳ to redistribute natural resource–derived wealth may even cause grievances that motivate rebellion (see chapter 21 in this volume). Thus, Isham et al. (2005) argue that crude oil

producing countries tend to have weaker institutional capacity, which may then leave them less able to deter rebellion effectively.

Esteban, Morelli, and Rohner (2015) examine the effects of natural resources on the risk of experiencing episodes of mass killings. Using different resource measures, they find that countries with high crude oil–related income, and diamond producers as well, are prone to a higher risk of violence against civilians. In their analysis of ethnic groups, they also find that these groups are more likely to be victimized if the region in which the group lives is characterized by oil or diamond production. They interpret these findings as evidence that mass killings follow from material interests: groups are being targeted because of their wealth. This appears plausible for violence perpetrated by government because crude oil production in particular relies on international companies, which typically cooperate with governments and do not operate in rebel territories. However, Esteban, Morelli, and Rohner (2015) analyze violence against civilians perpetrated by state and nonstate actors. As much of the violence against civilians is committed by the opposition (Eck and Hultman 2007; Raleigh 2012), it is thus difficult to understand opposition-perpetrated violence on the basis of the material interest hypothesis.

Querido (2009) concentrates on violence against civilians perpetrated by African governments. She presents evidence that a higher risk of these atrocities is positively correlated with alluvial diamond deposits and with onshore and offshore crude oil production. The number of civilians killed is also higher when a country produces both diamonds and oil. Although these results are not discussed in much detail, they could be interpreted as providing evidence for the hypothesis that if governments have other options of financing war, they do not have to rely on civilian support. In the case of outside funding, atrocities against the civilian population have little consequence in financing government conflict with a rebel movement. Violence against civilians can, in these cases, also become a strategy to undermine support for the rebels, a tactic that is not open to the government when it has to rely on civilian support.

The interaction between strategy and resources in civil wars and their implication for violence against civilians perpetrated by opposition groups is examined by Wood (2014). Based on a rebel-government/dyad-year sample, he shows that even when they receive moderate levels of support, rebel groups kill civilians. Mere popular sympathy is not sufficient for recruitment, and this result indicates that rebel groups often coerce individuals to join up. However, when the relative military capability of the group increases, violence against civilians declines in situations of popular support. The interaction of military capability with external finance is statistically positive, indicating that victimization increases when outside
p 244 sponsorship is provided. In these cases, financial support substitutes for ↳ popular support. However, financing derived from natural resources, such as gemstones or illicit drugs, does not have an effect on violence against civilians: there is neither a direct effect nor an interactive effect with military capability.

Using a principal-agent model, Salehyan, Siroky, and Wood (2014) concentrate their analysis on the impact of foreign-state funding for rebel organizations on violence against civilians. Their empirical results suggest that foreign-state funding for rebel organizations greatly reduces incentives to "win the hearts and minds" of civilians because it diminishes the need to rely on the local population. In addition to this result, they show that the extent of atrocities committed against the civilian population depends on the regime type of the foreign supporter and on the number of supporters. Democracies, for example, tend to house strong human rights lobbies, and in this case the levels of violence are lower. If there are several foreign supporters, the levels of civilian abuse tend to be higher because no single state can effectively restrain the rebel organization.

10.3.5.3. Income Inequality

One of the most frequently cited causes of civil war is inequality (e.g., Sen 1973; chapter 9 in this volume), but commonly used measures of inequality are not statistically significant in civil war onset regressions. One of the most commonly used proxies for income inequality is the Gini coefficient, which captures inequality among individuals. What might matter more is the inequality between groups, and Stewart (2002) makes the distinction between "vertical" and "horizontal" inequality. Horizontal inequality is understood to be the outcome of discrimination against groups in an inequitable society. This is close to Regan's concept of "structural" poverty (Regan 2009). There is some evidence that horizontal inequality increases the risk of civil war (Østby 2008; Cederman, Gleditsch, and Buhaug 2013); correspondingly, there is no evidence that vertical inequality is associated with a higher risk of civil war.

For genocide, it may be that inequality forges a sense of "relative deprivation" that causes frustration and turns into aggression (Gurr 1970). Genocide could be motivated by the inequality between groups; inequality could cause aggression in a sufficiently large number of individuals to kill significant members of another group. However, in the mass atrocity literature there is very little testing of any statistical significance of inequality. Rost (2013) includes a qualitative measure of economic discrimination, which appears to be associated with a higher risk of genocide onset (significant at the 10 percent level), but the variable receives no discussion in the study. A more detailed analysis of political and economic discrimination is presented in Anderton and Carter (2015). They conclude that although the two measures are highly correlated, the explanatory power of economic discrimination appears to be greater. Besançon (2005) includes the Gini
p 245 index of income and finds that genocides are more likely in countries with higher ↳ economic inequality. Similarly, she uses an index of human capital inequality, showing that genocides are more likely in countries where educational opportunities are unequally distributed. Thus, there is some evidence that vertical inequality is associated with a higher risk of genocide.

However, for the study of genocide it may be of interest to investigate the impact of horizontal inequality. To my knowledge, none of the large-*n* studies have considered measures of horizontal inequality. Further investigation of the concepts of vertical and horizontal inequality and how they may relate to the risk of genocide may be useful. If societal groups are relatively small, and horizontal inequality is large, this should also manifest itself in large vertical inequality measures. The potential role of within-group inequality in genocide would also be interesting to explore. Based on the theoretical work of Esteban and Ray (2008), group heterogeneity makes collective action more difficult, but this very heterogeneity may enable a division of labor such that the poorer members of the group carry out the atrocities and the richer members provide the finances, thus making it easier to carry out mass atrocities than in a more homogenous group, which may have less opportunity to divide labor.

10.3.5.4. International Trade

The relationship between international trade and the risk of mass atrocities has been examined by Harff (2003) and Krain (1997). Trade connects countries, and these international linkages may make it less likely that countries engage in mass atrocities because trade partners may act as an external enforcer of human rights. Countries with high trade-to-GDP ratios may fear the response from their trading partner, possibly in the form of sanctions. International trade may also be closely related to memberships in other (political) international organizations. These international memberships may make (nonviolent) conflict management more likely, may provide scrutiny of one's internal affairs, and thus may make genocides and politicides less likely. Harff (2003) finds that openness to international trade is statistically significant, and negatively correlated with genocides and politicides. However, when she substitutes trade openness with memberships in international organizations, this membership variable is not statistically significant. Thus, economic openness and international memberships do not capture the same aspects of international interdependence. In Harff's (2003) study, economic interdependency appears to be more important in determining the risk of violence against civilians than the fact that it captures a country's international political connections.

Krain (1997) examines a different aspect of international trade. He analyzes whether economic marginalization makes countries more prone to experiencing mass atrocities. Economic marginalization is calculated as a country's percentage of world trade. Similar to the reasoning advanced by Harff (2003),
p 246 marginalized ↳ countries are less well connected internationally and receive less attention in any efforts to stem violence. Alternatively, following from psychological approaches, one could argue that the sense of "relative deprivation" is higher in marginalized countries, which could make more individuals frustrated and induce them to act aggressively. In any case, there is no statistical evidence that global economic marginalization has an impact on the risk of mass atrocities.

10.4. Conclusions

This chapter reviews the large-*n* literature on the correlates of mass atrocities. Psychologists have concentrated on explaining genocides, which are one form of mass atrocities. Genocides are the intentional destruction, in whole or in part, of a specific group of people. The underlying assumption is that individuals are being killed not for what they *do* but for what they *are*. In addition to these intentional destructions of groups, there are many mass killings, defined as killings where the perpetrators either do not intend to eliminate the group as such or victims do not belong to any specific group. In many cases, it is difficult to detect intention to eliminate or weaken a group; intention is usually inferred from actions and political statements (Shaw 2007). However, the overwhelming majority of mass atrocities (genocides, politicides, and mass killings) occur during a civil war. In this context, violence against civilians can be interpreted as a strategic choice. The civilian population provides fighters, food, shelter, transport, and information. States as well as rebel armed groups depend to a large extent on civilian support, and violence against civilians has received a number of different explanations. Violence against civilians can destroy this support for the opposing forces; it can also coerce a civilian population to cooperate and hand over informants. Violence against civilians also depends on how combatants are organized and funded. Many armed groups have little military discipline and are not well resourced. To provide short-term benefits, violence against civilians is encouraged, often helped by the recruitment of thugs who are driven by their individual preferences for violence and not by an overarching political aim. The instability and insecurity that civil war creates also opens up opportunities to settle old scores and to seize property. Again, these are private motivations, not aimed at destroying a specific group of people. However, ex post, these atrocities against civilians can look like genocide (i.e., like the intentional destruction of a group). Ethnic and other well-defined groups are often geographically concentrated, and if their location becomes contested territory during the war, violence in this location can look like genocide. Thus, it does not seem to be useful to categorize mass atrocities by prior intent.

A number of large-*n* studies of mass atrocities do not consider any economic variables. There is only weak evidence that countries with higher incomes are less prone to mass atrocities. There is stronger evidence
p 247 that the level of ↳ democratization is negatively correlated with mass atrocities. However, income and democracy are highly correlated, and few studies consider the consequences of this correlation for their statistical models and for the interpretation of the results. Income to an armed group, rather than the average income of the country, has been considered in some studies. Results suggest that if combatants are well funded through external support or natural resource rents, there is more violence against civilians, that is, support from civilians can be substituted by income from other sources.

Income inequality could provide a motive for violence. It has been found to be statistically significant in the literature on homicides (Fajnzylber, Lederman, and Loayza 2002), but there is almost no evidence that inequality is a driver of civil war. Surprisingly, there are very few large-*n* studies of mass atrocities that consider income inequality. The study by Besançon (2005) is a notable exception; she finds a positive relationship between the Gini coefficient and the risk of genocide. Instead, research seems to concentrate on ethnicity as a potential explanation of mass atrocities. The evidence for this is mixed, however. Using the same proxy for ethnic diversity, some researchers find no relationship with the risk of mass atrocities, while some find a negative relationship, yet others find a positive one. A measure of ethnic polarization appears to be positively correlated with the risk of mass atrocities, but is only supported by one study (Montalvo and Reynal-Querol 2008). Studies considering other measures of economic and political discrimination of groups do not provide cohesive evidence either.

Economic variables seem to be important in conjunction with strategic decisions, and the further study of this interdependence appears promising. However, since state and nonstate armed groups have different access to financial support, it is of interest to examine the violence against civilians by perpetrators (state or

nonstate). Lastly, much of this literature does not consider the possible endogeneity of some of the explanatory variables used. It is important to establish the direction of causality, in particular if these models are used for forecasting in early warning systems. The models of mass atrocities produce many false positives (e.g., Harff 2003; Goldsmith et al. 2013; Rost 2013), possibly because they show no more than that "bad things go together." For example, civil war is one of the most robust predicters of mass atrocities, but not all civil wars are characterized by mass atrocities.

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Notes

1. Further deta ls on the measurement of development can be obta ned from the UN HDI webs te: http://hdr.undp.org/en/content/human development ndex hd accessed March 30, 2015].

2. Kra n (1997) and Easterly, Gatt , and Kurlat (2006) nclude a dummy var able for c v l war and a var able for other types of war, wh ch ncludes nternat onal, extrasystem c, and colon al war. The r dumm es are based on the Correlates of War dataset. Esteban, Morell , and Rohner (2015) only nclude a c v l war dummy.

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