Resource Rents, Governance, and Conflict

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Case studies as well as cross-country studies suggest that countries with an abundance of natural resources are more prone to violent conflict. This collection of articles analyzes the link between natural resources and civil war in a number of different ways. So far the literature falls broadly into two camps. First, in the economics literature the well-documented "resource curse" leads to low-income growth rates and low levels of income. These in turn constitute low opportunity costs for rebellion and make civil war more likely. On the other hand, political science literature concentrates on the link between natural resources and weak institutions. States with natural resources often rely on a system of patronage and do not develop a democratic system based on electoral competition, scrutiny and civil rights. Based on further empirical evidence in this volume we conclude with a brief overview of current policy initiatives.

Keywords: *development; civil war; governance; natural resources*

1. INTRODUCTION

This collection of articles significantly advances our knowledge on the relationship between primary commodity dependence and civil war. Some of the articles nuance or indeed challenge our results, and in section 3 we address these issues, including revisiting the econometric relationship between primary commodities and conflict using new data. We investigate a pure rents effect, suggesting that though important it is indirect, running via political economy onto the failure of the growth process. We conclude with a discussion of some policy implications. However, we begin by focusing on what we regard as the most important result in the collection, which is not a nuance but an extension. This is the business of section 2.

As a preliminary, we wish to set the whole collection in context. By design, the collection focuses on *one* of our economic results—the link between primary commodity dependence and the risk of the initiation of civil conflict. Before addressing the issues raised by contributors, we wish to set this result in the broader context of our research. Our research program has extended over a range of issues concerned with civil war: its initiation, its duration, its repetition, its costs, and postconflict recovery. For each of

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these issues we have attempted to develop a quantitative empirical analysis and apply it to possible policy options. Within the issue of conflict initiation, our results cover not only economic but social, geographic, and political variables. Focusing just on our economic results, there are three of them and all have been controversial. They are that the risk of conflict increases the lower is the level of income, the lower is the rate of growth, and the greater is the dependence on primary commodities. No lesser scholar on conflict than Herschel Grossman has questioned our first result that risk is higher the lower is income. Although empirically a robust result (even allowing for the endogeneity of income to conflict), it is not readily derived from economic theories. Similarly, our second result that growth reduces the risk of conflict has been directly challenged by the world's most eminent political scientist of Africa, Robert Bates. Fortunately for us, the result has recently been substantiated specifically for Africa by Miguel, Satyanath, and Sergenti (2004) with growth instrumented by climatic shocks. Both of these results are important because of the link they imply from development to security.

2. A KEY RESULT

In our view, the key contribution in this collection is Weinstein's (2005). His article establishes an important new result, but he does not bring out its full implications. Weinstein pioneers an approach to whether primary commodity rents matter by looking not at whether they induce conflict but at how they affect the composition of rebel recruitment. This is both ingenious and important. It seems to us critical to understand the internal mechanics of the rebel organization for the simple reason that it is the existence of this organization that is the defining feature of civil war. Advocacy groups sometimes misinterpret this elementary point as "blaming the rebels."

Weinstein's (2005) key result is that *where resources permit, opportunistic rebel leaders crowd out ideological leaders*. This is an enormously important result, with an implication that Weinstein does not make explicit. He is in effect asserting an equivalent to "Gresham's Law" (that bad currency drives out good). Suppose that large natural resource rents indeed generate bad government—corrupt, detached governments concerned with looting for elites rather than providing public goods for ordinary people. These are just the conditions when "grievance" should be most rife. Yet these are also the conditions in which opportunistic rebellion is most attractive. Weinstein's killer result is that "grievance rebellion" becomes infeasible when "opportunistic rebellion" is feasible. Hence, in precisely the conditions under which we might most expect "grievance rebellion"—and indeed might even hope for it—it is least able to occur. Grievance rebellions are not suppressed by effective government; they are crowded out by other types of rebellion that contaminate the recruitment process. A rebellion started by idealists in the context of valuable natural resources becomes swamped by opportunists as it expands. This is a hypothesis based on theory and micro-level evidence on rebel organizations. It would be both interesting and useful to investigate how well it correlates with the macro-level data.

Assuming it to be correct, whether or not natural resources increase the risk of rebellion they change its intent. Opportunistic rebellions are presumably even less likely to lead to good eventual outcomes than ideologically motivated rebellions. Hence, there is a new reason for policy concern over the risk from primary commodities: they generate the worst sort of civil wars.

3. PRIMARY COMMODITIES AND THE RISK OF CONFLICT

We now turn to the link from primary commodity dependence to the risk of conflict. Primary commodity dependence is of interest to economists for two reasons: rents and shocks. Heavy reliance upon primary commodities is generally associated with a large share of location-specific "rents" in national income. In turn, rents are associated with large nontax income for the state or any other organization that can control the territory on which the rents are generated. Reliance is also associated with proneness to shocks: the global prices of primary commodities are much more volatile than other prices, and this is compounded by quantity shocks due to climate, discoveries, and exhaustion. Such shocks imply volatile growth rates, make economic management far more difficult, and are liable to confuse citizens' comprehension of government performance. Through both routes, primary commodity dependence is likely to be bad news for development. In turn, rents and shocks create multiple routes by which primary commodity dependence may be linked to the risk of conflict. It seems to us that different routes are likely to matter in different situations and we are agnostic as to which if any is generally the most important.

Large resource rents are not intrinsically a curse. They obviously have the potential to accelerate peaceful development, and this potential has occasionally been realized, as in Botswana. Hence, the search for conditioning circumstances is a key research agenda: clearly, in some circumstances resource rents induce or prolong conflict, and in others they do not. This is often the approach taken by the contributors to this volume.

One conditioning circumstance worthy of investigation is the characteristics of the commodity dependence. Our proxy measure has been the share of primary commodity exports in GDP. The main virtue of this variable is that it is available for a lot a countries over a long period. It is indeed a legacy variable from a generation of economic analysis of the growth process, in which primary commodity dependence was found to be disadvantageous. For the analysis of conflict, it may be possible to generate more pertinent variables, and this is the direction taken by most of the contributors. Does it matter whether revenue is volatile (Dunning 2005 [this issue])? Does it matter whether there are multiple commodities (Snyder and Bhavnani 2005 [this issue])? Does it matter what are the market conditions under which the commodity is produced (Lujala, Gleditsch, and Gilmore 2005 [this issue]; Snyder and Bhavnani 2005)? Does it matter whether the commodity is oil (Fearon 2005 [this issue])? Does it matter when the revenue arrives (Humphreys 2005 [this issue])?

Dunning (2005) develops a game theoretical model to examine the choice between looting resource rents and investing them for growth. Investing in diversification gen-

erates growth but the elite may loose power. Taking Botswana, Indonesia, and Zaire, he concludes that part of the explanation is differential exposure to shocks. He is surely correct to emphasize that Botswana was in a fortunate position because of its arrangements with De Beers, which included a buffer stocks guarantee. Hence, revenue was atypically stable. More generally, the link between the instability of primary commodity income and the risk of conflict seems to be worth further investigation, especially in the light of the new results by Miguel, Satyanath, and Sergenti (2004), where short-term growth shocks are found to be highly important. Snyder and Bhavnani (2005) explain essentially the same choice between looting and growth in terms of the relationship between state capacity and alluvial diamonds. State capacity depends on the market conditions of production (artisan/industrial, i.e., market/monopoly) and on the diversity of commodities (Ghana, gold; and Guinea, bauxite). While we would quibble with the specific country characterizations both of Dunning and of Snyder and Bhavnani, we support their efforts to develop political economies of resource rents. Below, however, we will suggest that their analyses omit what are probably the major influences.

Fearon (2005) suggests that the risk of primary commodities is confined to oil. The most apparently distinctive characteristic of oil relative to most other primary commodities is surely its high value relative to its costs of production. As noted above, economists are partly interested in primary commodity exports because of the associated rents. Rents—the surplus over costs and normal profit—differ between commodities. Rents on oil are obviously much larger than rents on agricultural commodities, and this may be why oil is differentially important in conflict risk. In our latest work, we have estimated the value of natural resource rents, country by country, and year by year (Collier and Hoeffler 2005).[1] The correlation between rents and our previous proxy, primary commodity exports, is .67. Hence, it is possible to distinguish between the pure rent effect of primary commodities, and their other characteristics. Unfortunately, our measure of rents is not quite as generally available as that of primary commodity exports, so there is a modest reduction in sample size and in the period of coverage. Taking a constant sample, if natural resource rents are substituted for our previous measure of primary commodities, they continue to exhibit the inverse quadratic pattern, but they are somewhat less significant. If, however, we include both measures together, primary commodities (measured in logs as proposed by Fearon) dominate the new measure of resource rents: they remain significant whereas resource rents are insignificant. This is consistent with Humphreys's (2005) result that agricultural primary commodities (which generally generate only modest rents) generate a significant risk of conflict.

1. Using data from the World Bank's adjusted savings project, we calculated the rents for each commodity by subtracting the cost from the commodity price. We multiplied the rents per unit by the amount extracted and summed across the different commodities. We then calculated the share of rents in GDP. Natural resources for which rent data were available are oil, gas, coal, lignite, bauxite, copper, iron, lead, nickel, phosphate, tin, zinc, silver, and gold. The data are available from http://lnweb18.worldbank.org/ESSD/envext.nsf/44ByDocName/GreenAccountingAdjustedNetSavings and are described in Hamilton and Clemens (1998).

$$\begin{array}{l} \text{Warstart} = -9.394 + 1.815\ \text{lnsxp} - 0.014\ \text{rents} - 0.001\ \text{rents}^2 - 0.030\ \text{secm} \\ \qquad\qquad (-2.82)\quad (3.42)\qquad (-0.25)\qquad\quad (-0.71)\qquad\quad (-2.56) \end{array}$$

$$\begin{array}{l} -0.156\ gy_{t-1} - 0.004\ \text{peace} - 3.131\ \text{geogia} + 0.953\ \text{lnpop} - 0.0003\ \text{frac} + 0.703\ \text{ethdom} \\ (-2.71)\qquad (-3.52)\qquad (-2.35)\qquad\quad (3.38)\qquad (-2.63)\qquad\quad (1.64) \end{array}$$

Logit estimates, z values in parentheses, $N = 502$, log-likelihood = –87.84, pseudo-$R^2 = .26$.

The result that the pure rent effect does not add to risk is also consistent with the effect of the other major source of the rents to sovereignty, namely, aid. We have previously investigated whether aid has effects on conflict risk. In Collier and Hoeffler (2002), we found that aid has no effect other than through its effect on growth, which was benign. However, that result was open to challenge because of our failure to correct for the endogeneity of aid. In further unpublished work, we have instrumented aid using various measures of political affinity but find the same result.

In an ingenious paper in this collection, Humphreys (2005) also investigates the pure rents effect, based on the distinction between present and prospective revenues. His intention is to test whether "greed" is an important motivation, a hypothesis he attributes to us. We should note our agnosticism as to "greed" versus other motivations for rebellion: indeed, we tend to find feasibility a more convincing explanation of the primary commodity-conflict relationship. However, our concern here is to consider whether he has indeed found a way of discerning a pure "greed" effect. His proxy for "greed" is oil yet to be exploited, as measured by proven reserves. As Humphreys's opening discussion of Chad brilliantly illustrates, there is clearly something in the notion that the prospect of oil acts as an incentive for conflict. However, he interprets his econometric results as pouring cold water on this connection. Even taken at face value, his own results in fact show that proven reserves increase the risk/duration of African conflict. However, there is a considerable problem with his proxy of future resource wealth which further weakens his conclusions. "Proven reserves" is an economic rather than a geological concept. Oil companies only go to the expense of "proving" reserves when it is useful to do so in a particular political and fiscal context. As a result, proven reserves can be a poor predictor of future oil flows. More to the point, *they can be a worse predictor than current oil flows*. To investigate this, using Humphreys's data, we regress oil flows on both proven reserves lagged ten years and on oil flows lagged ten years. Thus, for example, oil flows in 1990 are explained in terms of reserves and oil flows as of 1980. We find that while there is some incremental informational content in the reserves information, the more significant predictor is lagged oil flows themselves. Hence, even were actors motivated entirely by the greedy prospect of future oil, statistically, this would appear predominantly as a response to current oil production.

$$\begin{array}{l} \text{Production}_t = 0.107 + 0.599\ \text{Production}_{t-10} + 0.020\ \text{Reserves}_{t-10} \\ \qquad\qquad\quad (11.69)\quad (8.33)\qquad\qquad\quad (6.18) \end{array}$$

Ordinary least squares (OLS) regression, robust t-statistics in parentheses, $N = 5{,}440$, $R^2 = .63$.

Hence, neat as Humphreys's (2005) idea is, his results fall a long way short of refuting his own superb illustration of how the lure of oil can induce conflict.

Our own further work on secessions (Collier and Hoeffler, forthcoming-b) also suggests that oil has such an effect. We find that if oil is present, a rebellion is almost certain to be secessionist. A useful empirical extension of this line of research is to take the analysis down to subnational level. At present, the research here seems ambiguous. Duffy Toft (2003) finds no natural resource effect at the subnational level: conflicts are not associated with resource-rich regions. However, Lujala (2005) finds the opposite result specifically for diamonds.

4. SO DO RESOURCE RENTS MATTER?

We think that resource rents, as distinct from primary commodity dependence, do have an important effect on the risk of conflict. However, the channel of causation works via governance onto the long-term growth rate.

Let us return to the key political economy choice highlighted earlier: looting for redistribution versus investment. Looted public resources are essentially lost to the growth process. As argued by Robinson and Verdier (2002), if a patron dispenses patronage in the form of assets, his clients have no further need of him. To maintain dependence, the patron must confine his largesse to flows. Of course, individuals in receipt of flows of patronage may choose to accumulate private assets, but even this is unlikely to be growth-inducing since they have an incentive to keep such assets abroad. Hence, for growth the key issue is whether public resources are used for public investment or looted for such patronage.

Why do resource rents tend to be looted? Our own favored political economy explanation is that elites choose to loot rents rather than invest in the public good of growth in four circumstances. The most obvious, but probably the least important, is when time horizons are short, as perhaps was that of Charles Taylor in Liberia. Historically the most important circumstance is when the elite is narrowly based on a fixed and identifiable support group. The smaller is the support group, the greater the incentive to prioritize redistribution of public assets over growth. Ethnicity is the most evident basis for such a group. Hence, this hypothesis would predict that the smaller the ruling ethnic group the more damaging would autocracy be for growth. This is indeed supported by the econometric evidence (Collier 2000; Alesina and La Ferrara 2003). The third circumstance is when public assets are very valuable relative to the income of the society. The value of the asset obviously shows the gross gain from looting, but since looting sacrifices the growth of income, the initial level of income proxies its opportunity cost. This would predict looting in resource-rich, low-income societies. The fourth circumstance is when democratic electoral competition degenerates into patronage politics. We expect this to occur where there are large resource rents that both provide the finance for patronage and reduce the need for taxation, undermining checks and balances (Collier and Hoeffler 2005). These political economy considerations produce a "filter" through which resource-rich economies can be passed to determine whether they will harness their wealth for growth.

Is the society autocratic? If so, the time horizon of the autocrat becomes important. In conditions of extreme regime instability, whoever is in power will rationally loot. Even if the autocrat expects to be in power for a long time, looting might still be the preferred strategy if incomes are so low that the opportunity cost of growth foregone is small. This might, for example, characterize the Central African Republic under Bokasa and Zaire under Mobutu. Even if growth opportunities are good, if the autocrat is dependent upon a narrow ethnic minority, then looting will be chosen. This might, for example, account for Nigeria under the military regimes of 1983 to 1998.

If the society is democratic, the focus shifts to the nature of the democracy and, in particular, to the balance between electoral competition, on one hand, and "due process" and other checks and balances, on the other. Where due process is weak, patronage politics is likely to crowd out idealistic politics much as Weinstein (2005) suggests opportunistic rebels crowd out idealistic rebels. In our latest work (Collier and Hoeffler 2005), we find that normally democracies in developing countries are even worse than autocracies at harnessing resource rents for growth. Checks and balances do improve matters, but they are not inherent to democracy.

Here, then, is the catch-22 for many resource-rich low-income societies: there is no way for them through this filter. They are sufficiently ethnically diverse that in the absence of democracy, an autocrat will have a strong incentive to loot. However, while democracy overcomes the problem of the incentives a minority has to loot, it is likely merely to shift the society from the frying pan to the fire, creating different but even more powerful pressures for looting. In these circumstances, resource rents do not need to generate a direct risk of conflict to condemn the society to a high risk of conflict. For many low-income countries, harnessing resource-wealth is the only *technically* feasible option for growth to middle-income status. If it is *politically* infeasible, these countries are left with the fragile, primary-commodity-dependent, low-income, stagnant economies that we know makes them prone to conflict.

5. CONCLUSION: SOME IMPLICATIONS FOR POLICY

Where does all this leave the policy maker and NGOs? Various routes by which primary commodities can create conflict risk seem to us to be sufficiently well established that it is sensible to try to do something about them. Policy is never built solely on econometric results, but the conjunction of case studies, UN investigative panels, and econometrics probably has helped to propel international policy on natural resources. After several decades of inactivity, the past five years have seen policy initiatives that, though modest relative to the scale of the problem, are surely major advances. Three initiatives are at various stages: tracking the resource trade (Kimberley), transparency in revenues (Extractive Industries Transparency Initiative [EITI]), and smoothing shocks. These initiatives are not foolish: indeed, they are belated first steps in what we regard as a highly productive direction.

Resources can finance conflict: we know that they have done so, and Weinstein's (2005) result tells us that such conflicts will tend to be highly dysfunctional. The attempts to control the diamonds trade through the Kimberley Process, now being

extended to timber, are surely to be applauded. By making it more difficult for rebel groups to get revenue from the plundering of natural resources, they address opportunistic rebellions at their source. There is now a case for extending controls to oil: in the Delta region of Nigeria, large-scale organized crime is "bunkering" (i.e., stealing) oil from pipelines to the scale of around $1 billion per year, selling it in East Asia. There is obviously scope for this massive criminal activity to link with the political secessionists of the Delta region.

Resources can motivate conflict, especially in the form of secessions. Secessionists not only claim ownership of the resources, they also claim that the national authorities are misusing the money—that it is being embezzled by distant elites. Perhaps the best defense against such secessionist pressures is to make the secessionists look greedy. To achieve this, national governments should probably link resource revenues to some basic social service such as primary education.

Resources can induce patronage politics. The policy world is already starting to react to this problem through the EITI, which has now been picked up by the Nigerian government. The starting point is transparency in the reporting of oil revenues, to ensure that they actually flow into the budget. The obvious next step, being taken by the Nigerian government, is to make the expenditure side of the budget transparent, with some basic features of accountability such as published budgets and due process in procurement.

Resources generate shocks that are themselves a direct risk factor. The policy world has been very slow to provide adequate cushions for export price shocks. Three points of intervention are feasible and complementary. Resource extraction contracts could be written in such a way that more of the price risk was borne by companies and less by governments. International standard budget smoothing rules could be introduced—probably by the IMF—to guide governments as to how to save from favorable shocks. Third, aid donors could have automatic temporary cushioning of adverse shocks.

REFERENCES

Alesina, A., and E. La Ferrara. 2003. Ethnic diversity and economic performance. Mimeograph, University of Harvard, Cambridge, MA.

Collier, P. 2000. Ethnicity, politics and economic performance. *Economics and Politics* 12:225-45.

Collier, P., and A. Hoeffler. 2002. Aid, policy and peace. *Defence and Peace Economics* 13 (6): 435-50.

———. 2004a. Aid, policy and growth in post-conflict countries. *European Economic Review* 48:1125-45.

———. 2004b. Conflicts. In *Global crises, global solutions*, ed. B. Lomborg. Cambridge: Cambridge University Press.

———. 2004c. Greed and grievance in civil wars. *Oxford Economic Papers* 56:563-95.

———. 2005. Democracy and resource rents. Mimeograph, University of Oxford, Oxford, UK.

———. Forthcoming-a. Military expenditure in post-conflict societies. *Economics of Governance*.

———. Forthcoming-b. The political economy of secession. In *Negotiating self-determination*, ed. H. Hannum and E. F. Babbitt. Lanham, MD: Lexington Books.

Dunning, T. 2005. Resource dependence, economic performance, and political stability. *Journal of Conflict Resolution* 49 (4): 451-82.

Fearon, J. 2005. Primary commodities exports and civil war. *Journal of Conflict Resolution* 49 (4): 483-507.

Hamilton, K., and M. Clemens. 1998. Genuine saving rates in developing countries. Washington, DC: World Bank. http://lnweb18.worldbank.org/ESSD/envext.nsf/44ByDocName/GreenAccountingAdjustedNetSavings.

Humphreys, M. 2005. Natural resources, conflict, and conflict resolution: Uncovering the mechanisms. *Journal of Conflict Resolution* 49 (4): 508-37.

Lujala, P. 2005. The spoils of nature. Paper presented at the annual National Political Science Conference, January 5-7, Hurdalsjøen, Norway.

Lujala, Päivi, Nils Petter Gleditsch, and Elisabeth Gilmore. A diamond curse? Civil war and a lootable resource. *Journal of Conflict Resolution* 49 (4): 538-62.

Miguel, E., S. Satyanath, and E. Sergenti. 2004. Economic shocks and civil conflict: An instrumental variables approach. *Journal of Political Economy* 112 (4): 725-54.

Robinson, J., and T. Verdier. 2002. The political economy of clientelism. Centre for Economic Policy Research Discussion Paper 3205. London.

Snyder, R., and R. Bhavnani. 2005. Diamonds, blood, and taxes: A revenue-centered framework for explaining political order. *Journal of Conflict Resolution* 49 (4): 563-97.

Toft, M. Duffy. 2003. *The geography of ethnic violence: Identity, interests, and the indivisibility of territory.* Princeton, NJ: Princeton University Press.

Weinstein, J. 2005. Resources and the information problem in rebel recruitment. *Journal of Conflict Resolution* 49 (4): 598-624.