

**Natural Resources, Development and Conflict:  
Channels of Causation and Policy Interventions**

Paul Collier

Oxford University and the World Bank\*

April 28<sup>th</sup>, 2003

---

\* The findings, interpretations, and conclusions expressed in this paper are entirely those of the author. They do not necessarily represent the views of the World Bank, its Executive Directors, or the countries they represent.

## 1. Introduction

Natural resources are distributed randomly over the surface of the earth. As with any random distribution the outcome is unequal. Some countries have few or no valuable natural resources, and some others have many. Abundance brings opportunities for enhanced income and historically resource endowments such as coal and iron ore were often critical as triggers of development. However, at least over the past four decades, resource abundance has often been associated with problems of unfulfilled economic growth potential and high risks of large-scale violent conflict. That good fortune should be turned into a problem is evidently avoidable and recently the international community has become interested in whether there are feasible collective actions that could significantly mitigate the problem. In identifying possible ameliorating interventions, it is useful to consider the reasons why natural resource dependence might have adverse effects. Of course, the remedy for a problem need not be to address its cause; nevertheless, without understanding the causes we can have little confidence in proposed remedies.

## 2. The association between natural resources and poor outcomes

The association between natural resources and the risk of civil war has recently been explored both through econometrics and case studies. The case study evidence is more useful to identify possible causal mechanisms, and so I will defer drawing on it for the moment. The first econometric study to find a relationship between natural resources and the risk of civil war was Collier and Hoeffler (1998). In the latest version of our work (Collier and Hoeffler 2003) we analyze 54 large scale civil wars that occurred between 1965 and 1999. We find that a higher share of primary commodity exports in GDP significantly and substantially increases the risk of conflict. For example, if we compare countries with 10% and 25% of their GDP coming from natural resources, holding other characteristics constant at the mean for low-income developing countries, the risk of a civil war in the subsequent five years rises from 11% to 29%. We investigate whether there are significant differences between groups of commodities and find that oil is the only one which is distinctive. High levels of oil dependence are even more likely to be associated with conflict than similarly high levels of dependence upon other commodity exports. It should be stressed that natural resource dependence – or indeed the wider concept of primary commodity dependence – is far from being the only factor that is statistically significant in the risk of conflict. In particular, the level of per capita income strongly influences the risk of conflict. At high levels of per capita income the risk of civil war is negligible with or without natural resources. Hence, societies such as Norway and Australia, which are highly dependent upon natural resource exports but are also rich, do not face any significant risk coming from their natural resource endowments.

Several studies have investigated the relationship between natural resources and the *duration* of conflict as distinct from the risk of its initiation. Fearon and Laitin (2002) find that resource dependence increases the duration of civil war. Collier, Hoeffler and Soderbom (2003) get a similar result. Interestingly, they can distinguish between initial dependence and the effect of the world price of the commodity exports during the

conflict. The advantage of this is that the world price is almost entirely exogenous to an individual conflict and very easily observed, so it is a particularly reliable causal variable. Unsurprisingly, we find that the effect of the price depends upon the initial level of resource exports. Taking as an example a fairly high level of primary commodity exports of 30% of GDP at the start of the conflict, a subsequent and sustained increase in the world price of the export by 10% would extend the duration of the conflict by 12%.

The association between natural resource dependence and disappointing growth performance is also supported both by econometric evidence and case studies. The best known of the econometric studies is Sachs and Warner (1995) which finds that natural resources reduce growth. There are many good case study collections. A particularly good analysis of oil economies is Gelb (1989), and a very useful broader analysis is Auty (2001).

### **3. Routes from Natural Resource Dependence to Development Problems**

By their nature, these econometric studies are usually not well-suited to explain why these associations are found. In this Section I suggest six causal mechanisms, relying primarily upon a mixture of theory and case study evidence.

#### ***Rent-seeking of honeypots***

One obvious potential explanation is that natural resources constitute a valuable honeypot over which interest groups might fight. Surprisingly, the evidence for this is relatively weak. If this were an important explanation we might expect that it should also apply to aid, and indeed one economic theorist of conflict, Grossman (1992), has proposed precisely this relationship. Some governments receive very large aid inflows, and so to gain access to the aid it should be advantageous to capture the government. This has been tested (Collier and Hoeffler, 2002a) and no relationship between aid and the risk of conflict has been found. Nevertheless, it may be that natural resources are a more evident source of rent than aid.

Some case studies point to the importance of the pure rent-seeking motive in particular cases. In Fiji an attempted violent coup d'état was launched by a businessman who was the local representative of a private American company seeking a logging contract. The coup came shortly after the contract had been awarded to a different company. In Sierra Leone, the leader of the RUF rebel group was offered the Vice-Presidency of the country in a peace deal, but refused until the offer was changed to include his chairmanship of the board controlling diamond mining interests. Despite attempts in both these cases for the rebel leaders to put a different interpretation on their actions, the conclusion that rent-seeking of natural resources played a substantial part in motivating their actions is surely unavoidable.

It is often difficult to distinguish between purely criminal predation and that which is intended to fund a political objective. Sometimes, indeed, the objective can change over time. For example, the FARC began as a rural radical political movement, but is now

surely predominantly a drugs operation. Presumably, as drug revenues became increasingly central to what the organization was doing, idealists motivated by ideology became less likely to join, and criminals attracted by wealth and violence became more likely to join. Similarly, in the Delta region of Nigeria, a movement that was initially protesting against injustice and environmental degradation has relatively rapidly evolved into gang warfare between villages for the control of the right to run protection and kidnapping rackets.

### *Making secessionist movements credible*

A variant on the honeypot hypothesis for which there is much better evidence is that natural resource abundance promotes violent secession. Just as the distribution of natural resources between countries is not equal, so within favored countries some locations are favored more than others. The people living in the vicinity of the natural resource endowment have an obvious economic interest in claiming the resources for themselves to the exclusion of their fellow nationals. Since natural resources are almost everywhere treated as public rather than private property, such a claim for local public ownership is tantamount to a claim for independence. Nation states are usually recent agglomerations of previously distinct political entities, and this process of assimilation has often been contested. Hence, in many situations, natural resources will be located in regions where some political groups – albeit often on the fringe – are already claiming autonomy. The presence of natural resources enables such groups to add a credible economic argument to what is otherwise likely to be a largely romantic appeal. An example of this transformation is the (non-violent) rise of Scottish nationalism which can be precisely dated to between the 1970 and 1974 elections. At the former election, as in all previous elections, the Scottish National Party won only a tiny share of the vote and gained only a single seat in parliament. In the two 1974 elections its vote rose to 30%. The transforming event that brought about this change was surely the dramatic rise in the world oil price in late 1973 as a result of the Yom Kippur war. The oil off the shores of Scotland was suddenly seen as valuable: the party campaigned on the slogan ‘its Scotland’s oil’. Indeed, speculation at the time may well have inflated its imagined value far in excess of its true value. OPEC appeared to have the power to raise the price almost without limit, and the Shah of Iran began speaking of oil as ‘the noble fuel’, giving oil endowments an aura of unrivalled affluence. A similar oil-influenced secessionist movement, this time violent, was Biafra in Nigeria. Biafra’s move to violent secession occurred after fiscal decisions to treat oil revenue as a national asset. Although there were ethnic tensions in Nigeria, virtually all African countries have several ethnic groups. It is surely striking that the ethnic groups in Africa that have attempted to secede have usually been resource rich, such as in Biafra and Katanga.

Usually, ethnic groups in regions that are poorly endowed do not press for secession, for the obvious reason that they would be worse off. Where romantic secessionists nevertheless manage to build a politically powerful demand for secession – perhaps because they have an unusually charismatic leader – the other regions of the country may decide to grant secession peacefully since it is not worth violent opposition. Such was the

case in Czechoslovakia, where the poorer region of Slovakia was permitted by the larger and richer Czech region to secede peacefully.

Collier and Hoeffler (2002b) analyze secession statistically. First, we rely upon the political science classification of civil wars into secessionist versus ideological. This is not an immaculate distinction, depending to an extent upon the ostensible objectives of rebel groups. However, given this classification, we test whether primary commodity exports have differential effects on the risk of the two types of civil war. We find that primary commodity dependence indeed increases the risk of secessionist war more than it increases the risk of an ideological war. We then focus specifically on oil and find that if an oil exporting country experiences a civil war it is almost certain to be a secessionist war in contrast to non-oil exporters which often experience ideological civil wars.

Oil may be distinctive in its romantic connotations of affluence. For example, the GAM, the rebel movement that has been attempting to achieve secession of Aceh from Indonesia, has used the analogy of Brunei in its propaganda, claiming that the population of Aceh could be equally rich. This is a massive, and presumably deliberate exaggeration, but may well appeal to the popular imagination.

### ***Financing rebel groups***

A further way in which primary commodities in general and natural resources in particular can increase the risk of civil war is through their vulnerability to predation by rebel groups who need finance to pursue violence. Rebellion is usually expensive. Recruits are usually full time and so need to be housed, clothed and fed. More particularly, armaments are expensive and tend to wear out rapidly in combat conditions with ill-trained fighters. Most would-be rebel groups simply cannot finance their activities on a scale beyond minor acts of terrorism. Natural resource predation is by no means the only source of finance for a rebel army, but where natural resources abound in rural areas they are uniquely vulnerable because they are difficult to defend, lucrative and immobile. The task of extorting rents from rurally-based natural resource industries also requires a technology of violence that is very similar to that which rebel groups in any case need for warfare. This is in contrast to urban-based extortion rackets, where substantial levels of armaments beyond basic handguns would be an encumbrance rather than an asset.

The most spectacular examples of natural resource funded rebel groups come from diamonds. UNITA and the RUF both grew to remarkably big organizations – at one stage UNITA is believed to have had 150,000 men. Such large standing armies are hugely expensive and depend upon correspondingly large resource predation businesses. Alluvial diamonds are particularly well-suited for predation, because the extraction process is sufficiently simple that it does not require large corporations. Thousands of small individual operators are in a much weaker position to defend themselves than large companies, so that the rebel organization is easily able to intimidate and informally tax producers. Timber is also technologically suited to rebel predation, as with the Khmer Rouge in Cambodia. Where technology requires large companies, as in the case of oil,

rebel groups can still be predatory, but the nature of the predation changes. Companies are threatened with sabotage of pipelines, and their employees are kidnapped and ransomed. However, it is becoming increasingly difficult for MNCs to make such payments to large rebel groups.

A related phenomenon is 'war booty futures'. Here the rebel group actually needs a large company to which it can sell the highly risky prospect of extraction rights contingent upon subsequent rebel victory. This is reputedly how Laurent Kabila financed his march on Kinshasa.

### ***Detaching the government from the electorate***

Historically, representative government arose because states needed to raise large revenues in order to fight wars and found that conceding some degree of representation to taxpayers was the necessary price of popular compliance in taxation. A common political economy argument, applied to both natural resource revenues and aid, is that by reducing the need for taxation they also reduce popular scrutiny of government. People are less concerned about the misuse of public money if they have not been taxed in order to generate it. The power of this argument depends upon the sophistication of the electorate. In principle, the opportunity cost of misused public money is the same regardless of its source. However, governments that misuse public funds can more easily disguise the extent of natural resource revenues than they can disguise taxation. It may also be easy to co-opt the relatively small groups of informed potential critics of natural resource misuse.

To the extent that the government is more detached from electoral concerns if it has substantial natural resource revenues, this is both a bad in itself and a potential cause of rebellion, including secession. The perception that resources are being embezzled by a corrupt elite is at the least convenient for rebel groups. In practice, there is seldom a single motivation for rebellion, and the perception of government corruption can be a contributing factor even if it is not by itself a significant trigger of violence.

### ***Dutch disease***

Thirty years ago the academic economics community made much of the problem of Dutch disease – the tendency for natural resource exports to appreciate the real exchange rate and so make the production of other tradable goods less competitive. As described, the response is simply an efficient resource reallocation – resources move into the non-tradable sector, producing the goods that the now-richer society demands but that cannot be supplied through imports. To be a 'disease' one or other of two additions are commonly invoked. The first is that the real appreciation is temporary but that the implied inter-temporal path of relative prices is insufficiently recognized by private agents. As a result, resources are lured into the non-tradable sector, where they are subsequently marooned once prices revert. Excessive adjustment costs are incurred. The second addition is to suppose that externalities such as some learning-by-doing are more substantial in the non-natural resource tradable sector, so that growth rates can be reduced.

The same critique is sometimes made of aid, since indeed it has the same effect of appreciating the real exchange rate. The effect of aid on growth has been extensively debated. Collier and Dollar (2002) use a reduced-form approach which controls for policy, and so in principle controls for the ‘detachment’ effect that both aid and natural resources are also likely to have in common. They find that there are diminishing returns to aid that in turn depend upon policy. They term the point at which the effect on growth turns negative the ‘*saturation point*’. When policies are reasonable, aid contributes to growth up to levels of around 20-30% of GDP. When policies are poor, the saturation point occurs when aid is around 10-15% of GDP. Since natural resource revenues are closely analogous to aid, at least for a given policy environment, we would expect that this range of absorptive capacity would apply to both aid and natural resource revenues. The diminishing returns that drive the economy to the saturation point, beyond which aid – and by implication natural resources - actually reduces growth, might well reflect Dutch disease. That is, such resources might have a beneficial effect which is subject to the normal process of diminishing returns, and an adverse effect – Dutch disease – which eventually becomes preponderant. Many resource-abundant countries are indeed likely to breach the ‘saturation point’, being in the range over which at the margin natural resource revenues have a net adverse effect. This is partly because revenues are sometimes very high - in excess of 30% or even 40% of GDP, as in Nigeria. However, it is also because policies are often very poor, perhaps because of the ‘detachment’ effect, so that the saturation point sets in at relatively low levels of revenue. Indeed, dynamically there may be a trap. With poor policies and high levels of natural resource revenue, the non-natural resource part of the economy is likely to have slow or even negative growth, and so diminish relative to the natural resource component. It is then in a weak position to lobby for reform. Such for example has been the fate of the Nigerian economy, where the non-oil economy has been virtually stagnant for a long period. Hence, whether Dutch disease is a problem warranting attention is likely to depend on both the scale of the resource revenues, and on the policy environment.

### ***Exposure to shocks***

The final route by which natural resources, and indeed other primary commodities, can be problematic for development is due to their exposure of the economy to price shocks. Large negative shocks tend to produce episodes of severe economic contraction which compound the direct loss of income. Such episodes directly increase poverty due to the fall in export income. They also tend to reduce the growth rates of output over the medium term (Collier and Dehn, 2001). Over and above the income and output losses, Hoeffler and I find that episodes of rapid economic decline substantially increase the risk of civil war. Even positive shocks sometimes destabilize economic management and so are missed opportunities. The subject is taken up further in the companion paper by Patrick Guillaumont.

#### **4. International Policy Responses to these Problems**

The six routes reviewed in Section 3 whereby the contribution of natural resource endowments to development might be disappointing may not all apply in any one particular context, but that are each likely to apply in sufficient contexts to be a cause for international concern. Yet they are very different one from another. Evidently, no single policy intervention will address all six routes simultaneously. Therefore, if all are indeed credible routes, as seems likely, what will be required is a package of interventions which collectively addresses all of the routes. In the absence of a package, interventions that address only a single routes may have limited effect. If one adverse channel is closed, this may increase the opportunities for the other channels to take effect.

I now consider the components of a feasible package. They are addressed in more detail in Collier *et al.* (2003) and Bannon and Collier (2003). Although there are six routes, some interventions address more than one of them, so that I think an effective package need have only four components. These are: revenue transparency; expenditure scrutiny; commodity tracking; and reduced exposure to price shocks. I now consider the first three in turn, the fourth being dealt with by Patrick Guillaumont.

##### ***Revenue Transparency***

Revenue transparency is useful in several respects. First, it is evidently a necessary input into scrutiny of expenditures – unless revenues are known, it is pointless to ask how they are used. A corollary of this is that secrecy of revenues will dampen efforts to scrutinize expenditures. In terms of the six routes discussed above, transparency is necessary to address the problem of ‘detachment’. In addition, transparency can reduce the problem of secessionist pressure. Recall from the example of the GAM in Aceh that rebel movements will deliberately attempt to exaggerate the value of natural resource revenues. Far from keeping the population quiescent, secrecy is likely to facilitate such exaggeration. Transparency alone is not sufficient to counter such propaganda, for many governments of developing countries are not trusted by their populations to provide accurate information, especially on such contested matters. The obvious counter of a rebel group such as the GAM to government information campaigns showing lower oil revenues than the group has implied, is simply to accuse the government of embezzlement. Hence, any system of transparency must also be credible to the domestic population.

The NGO Global Witness has led efforts to encourage transparency, arguing for reporting by individual resource extraction companies on a compulsory basis. While this has some attractions, it also has disadvantages. First, it is politically difficult to achieve international action on the basis of compulsion: some companies may see it as a breach of confidentiality, and the governments that receive natural resource revenues may see it as yet another developed country insinuation that they are corrupt. Secondly, if companies were to report using different accounting years, or different concepts of revenue, it would be impossible to arrive at a credible aggregate figure: individual reporting alone could, by providing too much disaggregated information, paradoxically provide too little

information for effective scrutiny. An alternative approach, which has been suggested by the UK government, is for companies to be required by the government of the natural resource-rich country to report on a confidential basis to the World Bank, which would then publish aggregate information. This has several advantages. First, the host government would have the choice as to whether to make reporting a requirement or not. Hence, it would not itself be the subject of compulsion but would rather be a critical participant in producing transparency. Once a 'template' for revenue reporting is established, governments which required companies to report along the lines suggested in the template would be signaling their commitment to honest governance. This ability to signal would itself be most useful to governments that face a problem of poor reputation – it provides a mechanism whereby they can live down the past. Secondly, the government would require all companies, including national companies, to report. This would avoid the problem that were the reporting requirement to come from OECD countries, it would apply only to some companies and so would disadvantage them – in turn making OECD countries reluctant to impose such discriminatory requirements. Third, by introducing an informed intermediary, such as the World Bank, the reported data can be required to conform to some standard concepts. This can reduce the problem of misleading reporting, and can also facilitate meaningful aggregation. The intermediary can then in turn report the aggregated data in a form which is sufficiently non-technical to meet the spirit as well as the letter of transparency. Finally, because the government of the natural resource exporting country would be triggering the reporting process, it would be natural for the corporate reporting to be accompanied by government disclosure of revenues received, so that claimed payments could be reconciled with claimed receipts.

### *Scrutiny*

Transparency of revenues is itself an input into the scrutiny of expenditures. Without transparency of revenues scrutiny of expenditures loses much of its point, but transparency is not in itself scrutiny. Scrutiny is predominantly a domestic process: this is because citizens and their representatives are the legitimate beneficiaries of public revenues. The donor community may also have a legitimate interest in scrutiny, to the extent that it is putting resources into the country, but this is distinctly secondary to the domestic interest. While ever scrutiny depends solely upon the complaints of foreign governments and international agencies it will be easy for offending governments to deflect the exposure using the tried and tested defensive strategy of nationalism.

The purpose of the scrutiny is to establish how natural resource revenues are spent. Since revenues are fungible, this can only be done through scrutiny of the entire budgetary process. In most resource-rich developing countries the institutions that would normally undertake such scrutiny – parliamentary committees, allied with an auditor-general office and an investigative press – are currently insufficiently effective. Building the capacity for scrutiny depends partly upon training, and partly upon a change on the part of the government towards toleration, and even encouragement of investigation. Again, the proximate reward for such a change in behavior is greatest for those governments burdened by a poor reputation – whether with their own electorates or with foreign investors.

In some contexts institutions of scrutiny need to be established from scratch. For example, in Chad as a result of the Chad-Cameroon pipeline new government institutions were established, along with an ad hoc group including civil society and foreign companies. Experience to date suggests that even this ad hoc approach has been quite effective. The precise architecture of scrutiny would need to differ, country-by-country, depending upon what is already in place.

Between them, transparency and scrutiny would address three of the six routes by which natural resources cause development problems. First, they would curtail the contest for 'honeypots' because they would curtail the ability to divert resources to illegitimate uses. Secondly, they would reduce the incentive for secession. Secessionist groups would no longer be able to exaggerate the scale of revenues, nor would they be able to contrast the prospect of local accrual of revenues with embezzlement at the national level. The best defense against secession is likely to be credible evidence that revenues are being used for nationally equitable expenditures such as primary education. Third, transparency and scrutiny provide at least some counter to the problem of 'detachment'. Gradually, the population may come to recognize that natural resource revenues are indeed owned by the nation, so that how they are used is a core issue of domestic politics.

### ***Commodity Tracking***

Commodity tracking has recently been pioneered through the Kimberley process for tracking diamonds. The process is still in its infancy and there is a need to establish how effective it is. However, if it is effective it could be scaled up to cover other commodities such as timber and coltan. The primary purpose of commodity tracking is to make it more difficult for rebel groups to profit from looting valuable natural resources. Since major rebel groups, such as UNITA, the RUF and the Khmer Rouge have used this as their primary source of revenue, there is considerable scope for using commodity tracking to curtail rebel finance. The objective is not literally to keep rebel-looted commodities off the market, but rather to make them only salable at a deep price discount. The appropriate assessment of whether tracking is effective is therefore simply to observe the price discount that rebels need to offer. While this is not public information, it is fairly readily available from informed participants in the industry, and so it is far easier to monitor than the actual quantity of an illicit commodity coming onto the market.

The physical tracking of commodities can also usefully be combined with information on the financial transactions that are the counterpart of their physical movement. Such integration of financial reporting systems, for which banks are responsible, and physical consignments, which are reported by customs authorities, would be relatively straightforward with modern information technology, and would greatly augment information on transparency. At present, the reporting requirements of banks are being considerably increased as a counter to corruption and international terrorism, and the reporting requirements for the physical movement of commodities are being increased, but the two have not been combined.

These tracking strategies primarily address the problem that natural resources have historically been used to finance rebel movements. By improving transparency, they also address the problems of secession and ‘detachment’ – the government is seen to be attempting to curtail the illicit use of revenues.

### ***Reduced exposure to shocks***

This part of the package is dealt with more thoroughly in the companion paper by Patrick Guillaumont. The broad strategies for reducing the exposure to price shocks are cushioning through public or private insurance, export diversification, and most ambitiously, to reduce the price shocks themselves.

Private insurance can be done through hedging on international commodity markets. Governments have seldom attempted such hedging and it is itself a risky process. A major disincentive is that hedging is politically very exposed – the strategy has an approximately 50% chance of losing money, at least in the short term, and in this event political opponents will criticize the decision taker. It is risky because making contracts in derivatives markets is a complex form of gambling, and if public officials are permitted to engage in it they will sometimes be tempted to take risks instead of reducing them. Supervising such staff is difficult and expensive. It may, however, be possible for the World Bank to take on the management of hedging contracts – not itself entering the market, but acting on behalf of client governments, and bearing the risk of staff supervision. The Bank already manages the foreign exchange positions for some developing countries and so the management of commodity hedges appears to pose no issues of principle.

There are several options for public insurance. The Fund or the Bank could introduce concessional lending facilities, triggered by sharp declines in export prices. The donor community could channel aid in response to price shocks in the same way that it currently does for more photogenic shocks such as earthquakes and droughts. Finally, the Bank is a major creditor to both commodity exporting countries and commodity importing countries. The most important commodity here is oil. Currently, debt service to the Bank by oil exporters is around \$6 billion per year, and debt service by oil importers is around \$12 billion per year. Hence, there is at least in principle the potential for these two payments streams to move in a precisely offsetting fashion, conditioned on the oil price. When oil prices were high, oil exporters would take over some of the debt service obligations of oil importers and vice versa. The Bank would gain by reducing its default risk, and both oil exporters and oil importers would gain from less volatile net incomes.

Both diversification and the reduction in price volatility itself could be assisted by changes in OECD trade policies. At present, tariff escalation by OECD countries reduces the profitability of processing commodities in developing countries relative to resource extraction. Setting agricultural subsidies that are contingent on the world price has the effect of widening price swings. For example, when world cotton prices fell, the US government increased subsidies to its cotton farmers. This further lowered the world price to cotton farmers in the Central African Republic.

Directly, such strategies obviously address the problem of price volatility. However, in combination with transparency and scrutiny they also have the effect of reducing the problem of Dutch disease. Recall that Dutch disease is best thought of in terms of absorptive capacity – how much natural resource revenue can the government use productively. In turn, absorptive capacity is dependent upon the quality of the policy environment. By reducing economic fluctuations and improving the effectiveness of public expenditure absorptive capacity is increased, so that fewer countries would find themselves in the range in which real exchange rate appreciation becomes the dominant consideration.

## **5. Conclusion**

Development agencies are now focusing on ‘aid effectiveness’ and ‘policy coherence’. By aid effectiveness is meant the need to increase the impact of aid on growth and poverty reduction; by policy coherence is meant the attempt to align apparently disparate policies such as aid and trade, to make them all supportive of development. Natural resource revenues accruing to developing countries are far larger than aid flows, but they are analytically similar. Policy coherence demands that the international community should pay attention to raising the returns to natural resource revenues, just as it has struggled to raise the returns on aid. Indeed, the pay-off to raising the returns on natural resource revenues dwarfs the effects of raising the returns on aid. Some of the actions required are similar – such as domestic scrutiny – some are very different. But the prolonged international debate on aid effectiveness contrasts with the neglect that has prevailed until recently on international policy towards natural resources.

## References

- Auty, Richard M., ed. (2001) "The Political Economy of Resource-Driven Growth, *European Economic Review* 45(4-6): 839-46.
- Bannon, Ian and Paul Collier, eds. (2003) *Natural Resources and Violent Conflict: Actions and Options*, World Bank.
- Collier, Paul, et al. (2003) *Breaking the Conflict Trap: Civil War and Development Policy*, Oxford University Press for World Bank.
- Collier, Paul and David Dollar, (2002) 'Aid Allocation and Poverty Reduction', *European Economic Review* 46(8):1475-1500.
- Collier, Paul and Jan Dehn (2001) 'Aid, Shocks and Growth', Policy Research Working Paper 2688, World Bank.
- Collier, Paul and Anke Hoeffler (1998) 'On the Economic Causes of Civil War', *Oxford Economic Papers* 50(4):563-73.
- \_\_\_\_\_ (2002a) 'Aid, Policy and Peace: Reducing the Risks of Civil Conflict', *Defence and Peace Economics* 13(6): 435-50.
- \_\_\_\_\_ (2002b) 'The Political Economy of Secession', mimeo, CSAE, Oxford.
- \_\_\_\_\_ (2003) 'Greed and Grievance in Civil War', mimeo, World Bank.
- Collier, Paul, Anke Hoeffler and Mans Soderbom, (2003) 'On the Duration of Civil War', mimeo, CSAE, Oxford.
- Fearon, James, and David Laitin (2003) 'Ethnicity, Insurgency and Civil War', *The American Political Science Review* 97(1):75-90.
- Gelb, Alan (1989) *Oil Windfalls: Blessing or Curse?*, Oxford University Press.
- Grossman, Herschel (1992) 'Foreign Aid and Insurrection', *Defence Economics* 3(4): 275-88.
- Sachs, Jeffrey, and Warner (1995) "Natural Resource Abundance and Economic Growth," Harvard Institute for International Development, Development Discussion Paper No. 517a.