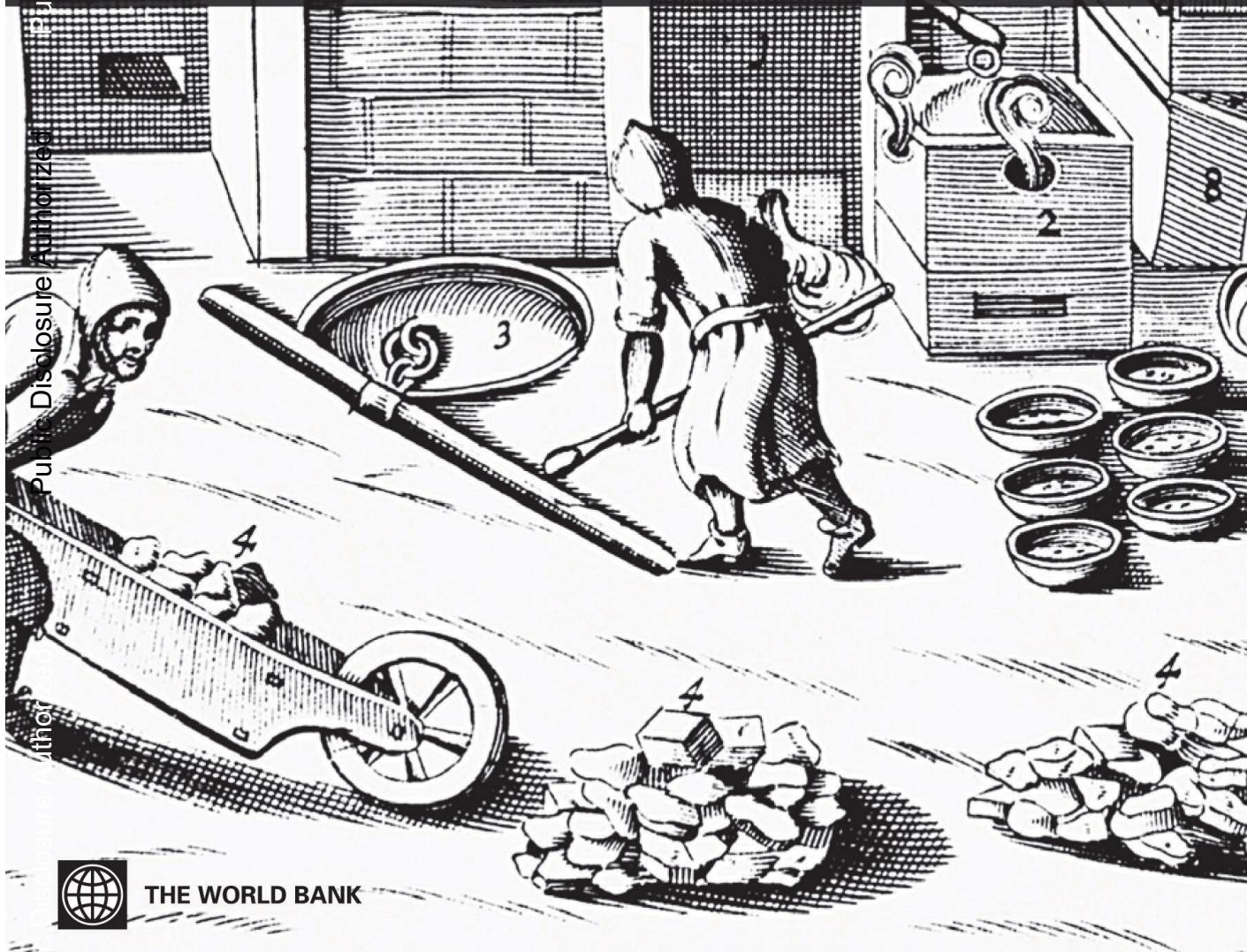


65957

Naazneen H. Barma • Kai Kaiser
Tuan Minh Le • Lorena Viñuela

Rents to Riches?

**THE POLITICAL ECONOMY OF NATURAL
RESOURCE-LED DEVELOPMENT**



Public Disclosure Authorized

Public Disclosure Authorized

Public Disclosure Authorized



THE WORLD BANK

**RENTS TO
RICHES?**

RENTS TO RICHES?

**The Political Economy of Natural
Resource–Led Development**

**NAAZNEEN H. BARMA
KAI KAISER
TUAN MINH LE
AND
LORENA VIÑUELA**



**THE WORLD BANK
Washington, D.C.**

© 2012 International Bank for Reconstruction and Development / International Development Association or
The World Bank
1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

1 2 3 4 14 13 12 11

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

For permission to reproduce any part of this work for commercial purposes, please send a request with complete information to the Copyright Clearance Center Inc., 222 Rosewood Drive, Danvers, MA 01923, USA; telephone: 978-750-8400; fax: 978-750-4470; Internet: www.copyright.com.

All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, The World Bank, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2422; e-mail: pubrights@worldbank.org.

ISBN (paper): 978-0-8213-8480-0

ISBN (electronic): 978-0-8213-8716-0

DOI: 10.1596/978-0-8213-8480-0

Library of Congress Cataloging-in-Publication Data

Rents to riches? : the political economy of natural resource led development / Naazneen Barma . . .
[et al.]

p. cm.

Includes bibliographical references and index.

ISBN 978-0-8213-8480-0 — ISBN 978-0-8213-8716-0 (electronic)

1. Natural resources—Developing countries—Management. 2. Natural resources—Government policy—Developing countries. 3. Natural resources—Taxation—Developing countries. 4. Poverty—Developing countries. I. Barma, Naazneen.

HC85.R467 2011

333.709172'4—dc23

2011032662

Cover illustration: Getty Images via Thinkstock/Photos.com

Cover design: Drew Fasick

Contents

<i>Foreword</i>	<i>ix</i>
<i>Acknowledgments</i>	<i>xiii</i>
<i>About the Authors</i>	<i>xv</i>
<i>Abbreviations</i>	<i>xvii</i>
1 Introduction: Beyond the Resource Curse	1
2 The Political Economy of the Natural Resource Paradox	39
3 Extracting Resource Wealth: The Political Economy of Sector Organization	77
4 Taxing Resource Wealth: The Political Economy of Fiscal Regimes	113
5 Investing Resource Wealth: The Political Economy of Public Infrastructure Provision	165
6 Conclusion: Collaborative Engagement to Address the Resource Paradox	217
Appendix: Resource-Dependent Countries—Basic Economic and Institutional Characteristics of Extractive Industry (EI)	237
References	241
Index	259

Boxes

1.1. Typical Paradoxes in Natural Resource Management	29
2.1. Political Dimensions of the Resource Curse	46
3.1. Mining Code Reform and Political Interference in Madagascar	89
4.1. Responses to the Mineral Price Boom	152
5.1. Transfer Programs in Resource-Dependent Countries	170
5.2. Chinese “Resource for Infrastructure” Deals	193

Figures

1.1. The Natural Resource Management Value Chain	5
1.2. The Two Key “Rent Arenas” in the Natural Resource Value Chain	11
1.3. International Oil and Mineral Prices, 1960–2010 (current and constant 2000\$)	16
1.4. Extractive Industry Rents by Income Level, 2008 (% of total rents by country category)	23
1.5. Extractive Industry Rents by Region, 2000–08 (US\$ billions)	24
1.6. Natural Resource–Led Development Trajectories	26
2.1. The State–Society–Developer Triangle	41
2.2. Institutional Quality vs. Income in Oil and Mineral Producers	44
2.3. The Two Key “Rent Arenas” in the Natural Resource Value Chain	51
2.4. Credibility of Intertemporal Commitment	60
2.5. Political Inclusiveness of the Prevailing State–Society Compact	62
2.6. Intertemporal Credibility and Political Inclusiveness	67
2.7. Intertemporal Credibility and Developmental Orientation	69
2.8. Political Inclusiveness and Developmental Orientation	70
3.1. Stylized Framework of a Rent-Capture Regime	81
4.1. Types of World Petroleum Fiscal Systems	123
4.2. Determinants of Fiscal Regimes	142
4.3. The Path to Building Credibility in Fiscal Reform	151

A4.2. Mining Effective Tax Rate	161
A4.3. Petroleum Total Government Take	162
5.1. Scope of Public Investment	168
5.2. Stylized Government Choices for Spending Resource Rents	169
5.3. A Public Investment Management Diagnostic Framework	189
5.4. Public Investment and Infrastructure Quality	195

Maps

1.1. Extractive Industry Rents, 2008	20
1.2. Extractive Industries Exports, 2006–08	21

Tables

1.1. Typology of Natural Resource–Dependent Settings	12
1.2. Examples of Tractable Interventions Across the Value Chain	31
2.1. Generating, Capturing, and Distributing Rents	53
2.2. Typology of Natural Resource–Dependent Settings	55
3.1. National Oil and Mining Company Characteristics in the Study Sample	95
3.2. Political Economy Contexts and Upstream Dynamics	100
3.3. “Good Fit” Upstream Innovation for Resource-Dependent Countries	105
A3.1. Basic Upstream Characteristics of Country Cases	111
4.1. Equivalence of Tax Instruments with Nontax Instruments	125
4.2. Economic Impacts of Alternative Tax Regimes	126
4.3. Political Economy Contexts and Fiscal Regimes	143
4.4. “Good Fit” Fiscal and Nonfiscal Instruments for Resource-Dependent Countries	153
A4.1. Royalty Practices in Select Countries	160
5.1. Key Policy Choices for Resource-Dependent Countries	175
5.2. Policy Recommendations: How Much to Spend and Where to Save	177

5.3. Policy Recommendations: Where to Allocate Investment Spending	184
5.4. Policy Recommendations: How to Invest	188
5.5. Selected Country Indicators of Public Capital Spending	194
5.6. Political Economy Contexts and Downstream Dynamics	197
5.7. “Good Fit” Downstream Interventions for Resource-Dependent Countries	201
6.1. “Good Fit” Arrangements for the Extractives Sector	222
6.2. Stakeholders in Extractives-Led Development	233

Foreword

Natural resource endowments such as oil, gas, and minerals can serve as potent drivers of development. Global demand for scarce natural resources is mounting rapidly. Industry experts argue that we are in the midst of a “super cycle” of commodity prices, driven by demand from fast-growing emerging economies. Natural resource extraction is capital-intensive, with annual global investments approaching \$1 trillion, hence offering the potential for rapid infrastructure development and structural transformation in developing economies. Riches from the sector promise to be massive, with resource rents, that is, the difference between revenues and extraction cost, estimated at about \$4 trillion annually, or 7 percent of global GDP. More than 50 World Bank client countries—representing more than 1.5 billion people and such diverse settings as Afghanistan, Brazil, Equatorial Guinea, Ghana, and Mongolia—are currently characterized as “resource-dependent.” Nonrenewable natural resources are disproportionately important to poor and fragile countries, as typically they are their main endowment and revenue source.

But a “paradox of plenty” exists in resource-rich poor countries, where recent history has demonstrated that extractive endowments, if not well managed, can disappoint. Common problems include lopsided, poorly diversified economic structures; disruptions to local economies and communities; environmental hazards; weakened accountability of the state to society; and even the risk of violent conflict. Political upheavals like the recent ones in the Middle East and North Africa can render resource-producing and -consuming countries vulnerable to extreme commodity price volatility and supply uncertainty. As representatives of the World Bank Group and the broader community of development

policy practitioners, we know much about the challenges of effective natural resource-led development strategies and technical options for mitigating some of the worst economic outcomes. A consensus is emerging that policies will be effective in leveraging natural resource-led development only when they are compatible with the level of institutional quality and the political economy context of the country in question. Consequently, the key challenge is to identify national resource management strategies that promise to benefit a country's present and future generations, including strategies for attracting the requisite investment and technology to develop the resource sector effectively in the long term.

This book provides a much-needed framework for approaching natural resource management more systematically, focusing attention on the governance and political economy dimensions of the quest to transform natural resource rents into sustainable development riches. The volume synthesizes theoretical perspectives and operational considerations by drawing on the distinguished and growing scholarship on natural resources and incorporating rich new empirical material from a series of country case studies commissioned for this work from Africa (Angola, Democratic Republic of Congo, Ghana, Niger, and Nigeria), East Asia and Pacific (Lao People's Democratic Republic, Mongolia, and Timor-Leste), and Latin America and the Caribbean (Bolivia, Chile, Ecuador, Mexico, and Trinidad and Tobago). Thus, the volume develops incentive-compatible operational insights for stakeholders inside and outside of government in natural resource-endowed countries, as well as for their international development partners.

The book serves as an important tool for policy makers and development practitioners to promote natural resource-led development. It provides insights for improving sector governance by building on the notion that the entire natural resource "value chain" must be considered. Simply getting resources out of the ground does not translate into development. Natural resource rents must be collected by government institutions and channeled through the budgetary process so that they can be transformed into productive public assets and sustainable development. Proposed options across the various steps of the extractive industry value chain must be both technically sound and yet incentive-compatible, representing "good fit" rather than "best practice." Equally, policy makers

must pay attention to the linkages across the value chain in understanding natural resource-led development as a dynamic process. These messages will resonate with developing-country policy makers seeking to craft their own path from “rents to riches.”

Successful natural resource-led development increasingly involves multiple stakeholders across society. Past analytical and practitioner engagement has focused too narrowly on the bargaining dynamics between developing-country governments and transnational extractive companies. But governments in developing countries are by no means monolithic; rather, different government actors across the value chain often have varying interests and expectations with regard to natural resource-led development. Many developing countries, in striving to capture sufficient benefits from the natural resource sector, have emphasized the role of state-owned resource companies. At the same time, a global consensus is growing that regards citizens as the ultimate owners of natural resource endowments.

Quite simply, governments have not always been the best stewards of these resources, increasing the clamor for better governance and social accountability for natural resource use. Major international companies are increasingly moving beyond narrow corporate social responsibility concerns to recognize their collective stake in promoting broad-based and sustained development in the extractive industry. Emerging international norms and standards play an equally significant role in sector governance. An important vehicle for collaborative engagement in the sector, the Extractive Industry Transparency Initiative alone has led to creation of more than 30 multi-stakeholder groups. International agencies such as the World Bank have an important role to play in convening stakeholders to consider concerted approaches in the sector.

Aid agencies face a number of challenges to engaging effectively in resource-rich settings. Countries with abundant resource rents are not necessarily seeking financial assistance. Instead, international donors are asked to support resource-dependent countries in a variety of ways: to assist with adjustments in the wake of poorly managed fiscal booms and busts, to aid in producing complementary institutional and physical infrastructure for natural resource extraction, and to provide technical assistance for improving the management of the natural resource sectors. This volume demonstrates that deploying detailed country-level

political economy analysis is essential in helping domestic reformers and development partners engage more smartly in channeling natural resources for development.

Otaviano Canuto

Vice President and Head of Network

Poverty Reduction and Economic Management Network

The World Bank

Acknowledgments

We owe debts of gratitude to numerous individuals for their generous donations of conceptual support, time, and encouragement in helping us write this volume.

The empirical value-added of this book rests on the detailed work conducted for the underlying case studies of 13 countries in Africa, East Asia and Pacific, and Latin America and the Caribbean. We are grateful to the authors of those case studies: Catherine Anderson, Joseph Ayee, Jérôme Chevallier, Christopher Finch, Verena Fritz, Alex Gboyega, Kjetl Hansen, Murray Petrie, Douglas Porter, William Rex, G. P. Shukla, Ricardo Soares de Oliveira, Tina Søreide, Helga Treichel, Steven Webb, and Robert Yungu. Our thanks also to the various World Bank country management units for their ongoing advice and support as the country cases were developed.

We also appreciate the foundational intellectual contributions from Thad Dunning, Alan Gelb, Alexandra Gillies, Nimah Mazheri, Ricardo Soares de Oliveira, and Adnan Vatansever. Additional particular thanks are due to Maks Kobonbaev for his participation in and enthusiasm for this work from the very start. Max Jira, Madeleine Chungkong, and Nancy Chaarani Meza provided crucial and cheerful administrative support.

Numerous colleagues at the World Bank and International Monetary Fund generously attended working sessions as we developed the content of this volume. We are grateful to all of them, particularly Craig Andrews, Allison Berg, Gary McMahon, Michael Stanley, and Silvana Tordo of the Oil, Gas, and Mining Group; Edouard Al-Dahdah, Michael Jarvis, and Audrey Sacks of the World Bank Institute; Phil Keefer of the Development Research Group; Lev Freinkman, Verena Fritz, Raúl Junquera-Varela,

Francesca Recanatini, Emily Sinnott, and Zahid Hasnain of the Poverty Reduction and Economic Management network; and Philip Daniels and Charles McPherson of the International Monetary Fund. Asmeen Khan, William Kingsmill, and Steve Ndegwa have also been key collaborators along the way.

The program of analytical work culminating in this book was generously funded by the Bank Netherlands Partnership Program and the Governance Partnership Facility. For their assistance, we thank Ted Dreger, Becky Hife, Helena Nkole, Lilian Samson, and Piet Van Heesewijk. Supported by this funding, the original seeds of this volume sprouted at a workshop in September 2009, in Oslo, where we spent four invigorating days discussing the country case studies with many of the individuals listed here, along with development partners including, especially, the Norwegian Agency for Development Cooperation and the Christian Michelsen Institute.

We are especially grateful to our peer reviewers, Craig Andrews, William Ascher, Philip Daniels, Alan Gelb, Raúl Junquera-Varela, Phil Keefer, Charles McPherson, Michael Ross, and Michael Stanley. Many of them, along with other individuals listed here, served graciously as an unofficial advisory committee to us along the way, and the quality of this volume is far better for their inputs and insights. We thank our colleagues at the World Bank's Office of the Publisher, especially Stephen McGroarty, Theresa Cooke, and Aziz Gökdemir, for shepherding us through the publication process, and Valerie Ziobro for copyediting the manuscript. All remaining errors are ours alone.

The volume was prepared, and the overall program of analytical work conducted, under the guidance and encouragement of our past and present sector managers and directors: Jim Brumby, Vikram Nehru, Barbara Nunberg, Anand Rajaram, Randi Ryterman, Sudhir Shetty, Linda Van Gelder, and Debbie Wetzel. We extend to them our heartfelt thanks.

As we hope these acknowledgements have made clear, creating this volume has been a collective effort and we have not lacked in generous support. To all who are listed here, once again, our deep gratitude.

*Naazneen Barma, Kai Kaiser, Tuan Le, and Lorena Viñuela
November 2011*

About the Authors

Naazneen H. Barma is Assistant Professor of National Security Affairs at the Naval Postgraduate School in Monterey, California. Her research and teaching focus on the political economy of development, natural resource governance, and international interventions in postconflict states. Prior to joining the faculty at NPS, Barma was a Young Professional and Public Sector Specialist in the East Asia and Pacific Region at the World Bank. In that capacity, she conducted political economy analysis and worked on issues of governance and institutional reform. Barma is coeditor of *The Political Economy Reader: Markets as Institutions* (New York: Routledge, 2008) and she has published peer-reviewed articles and book chapters on natural resource governance, innovation in emerging economies, institution-building in fragile states, and evolving dynamics in the international political economy.

Kai Kaiser is Senior Economist in the Public Sector Governance Group, PREM (Poverty Reduction and Economic Management) Network of the World Bank, where, as co-lead of the Decentralization and Sub-National Regional Economics Thematic Group, he focuses on public finance, intergovernmental relations, and institutional reform issues. Previously, he was based in the World Bank's Indonesia Country Office in Jakarta. His work on intergovernmental reforms and benefit sharing has led to his concentration on natural resources and development. He has played a leading role in strengthening applied political economy work in the Bank, including through his co-authorship of *Problem-Driven Governance and Political Economy Analysis: Good Practice Framework* (Washington, DC: World Bank, 2009) and *The Political Economy of*

Decentralization Reforms: Implications for Aid Effectiveness (Washington, DC: World Bank, 2010).

Tuan Minh Le is Senior Economist at the World Bank Africa Public Sector Reform and Capacity Building Unit. Prior to joining the World Bank, he worked in the Public Finance Group, Harvard Institute for International Development, Harvard University, and was Assistant Professor of Economics at Suffolk University in Boston. He has engaged in a broad range of teaching, research, policy consulting, and operations on public finance in Asia, Eastern Europe, the Middle East, and Sub-Saharan Africa. His publications focus on tax policy design, revenue administration, and analysis of development expenditures.

Lorena Viñuela is a consultant in the Public Sector Governance Group, PREM (Poverty Reduction and Economic Management) Network of the World Bank, where she conducts political economy analysis and works on decentralization, taxation of natural resources, and institution building in Africa and in East Asia and Pacific. Prior to joining the World Bank, she worked at the Maxwell School of Public Affairs of Syracuse University and the Institute for Qualitative and Multi-method Research. Previously she worked for the Inter-American Development Bank and EuropAid. Her research relates to the political economy of public policy reform, fiscal policy, intergovernmental relations, and party politics in developing countries.

Abbreviations

ACID	Africa Country Infrastructure Diagnostic
AIOC	Azerbaijan International Operating Company
BCMM	Bureau du Cadastre Minier de Madagascar (Mining Cadastre Office of Madagascar)
BRIC	Brazil–Russia–India–China
CGAC	country-level governance and anticorruption program (World Bank)
CODELCO	Corporación Nacional del Cobre de Chile (National Copper Corporation of Chile)
CoST	Construction Transparency Initiative
COW	contract of work
CPIA	Country Performance and Institutional Assessment
CY	calendar year
DfID	Department for International Development (United Kingdom)
EI	extractive industry
EITI	Extractive Industries Transparency Initiative
FDI	foreign direct investment
FY	fiscal year
GDP	gross domestic product
GIS	geographic information systems
GNI	gross national income
HIPC	Heavily Indebted Poor Countries
IFC	International Finance Corporation
IMF	International Monetary Fund
IPD	Institutional Profiles Database

MRPAM	Mineral Resources and Petroleum Authority of Mongolia
MTEF	Medium-Term Expenditure Framework
MTU	mining tax unit
NGC	National Gas Company of Trinidad & Tobago Limited
NGO	nongovernmental organization
NMC	national mining company
NNOC	Nigerian National Oil Company
NNPC	Nigerian National Petroleum Corporation
NOC	national oil company
NRM	natural resource management
NT2	Nam Theun 2 hydropower project (Lao PDR)
OECD	Organisation for Economic Co-operation and Development
O&M	operations and maintenance
OPEC	Organization of the Petroleum Exporting Countries
PDS	public distribution system
PDVSA	Petróleos de Venezuela (national petroleum company of R. B. de Venezuela)
PEFA	Public Expenditure and Financial Accountability
PEM	public expenditure management
PEMEX	Petróleos Mexicanos (national petroleum company of Mexico)
Petronas	Petroliam Nasional Berhad (national oil and gas company of Malaysia)
PETROTRIN	Petroleum Company of Trinidad & Tobago Limited
PFM	public financial management
PI Model	Permanent Income Model
PIH	Permanent Income Hypothesis
PIM	public investment management
PPA	Public Policy Attributes database
PRI	Partido Revolucionario Institucional
PRONASOL	Programa Nacional de Solidaridad (Mexico)
PRSP	Poverty Reduction Strategy Paper
RfI	resource-for-infrastructure
ROSC	Report on the Observance of Standards and Codes
RRT	resource rent tax

SNIP	Sistema Nacional de Inversión Pública (National System of Public Investment, Peru)
Sonangol	Sociedade Nacional de Combustíveis de Angola (national oil company of Angola)
SOPAMIN	Société du Patrimoine des Mines du Niger (national mining company of Niger)
StAR	Stolen Assets Recovery Initiative
SWF	sovereign wealth fund
VAT	value-added tax
VFM	value for money
WAEMU	West African Economic and Monetary Union
WEF	World Economic Forum
WGI	Worldwide Governance Indicators
YPFB	Yacimientos Petrolíferos Fiscales Bolivianos (national petroleum company of Bolivia)
ZOCA	zone of cooperation area

Introduction: Beyond the Resource Curse

[The business of mining] is perhaps the most disadvantageous lottery in the world, or the one in which the gain of those who draw the prizes bears the least proportion to the loss of those who draw the blanks.

— Adam Smith, *The Wealth of Nations* (1776)

Subsoil natural resource endowments and their associated rents—if well harnessed and managed—can be a boon to developing countries. Yet, too often the extractive industries of oil, gas, and mining have instead been associated with the “resource curse.” Although the extent and inevitability of this curse continue to be debated, it remains that nations that are more dependent on natural resource wealth tend to grow more slowly than those that are resource-poor, and they often suffer from weak accountability and institutions, poor social capital, and increased likelihood of conflict.¹ In many developing countries, natural resources are the proverbial main game in town, and the extractive industries sector is both shaped by and in turn has an influence on political, economic, societal, and institutional dynamics writ large. Understanding the political economy surrounding resource rents is therefore crucial to achieving sustainable development built on resource riches.

From the public interest perspective, many resource-dependent developing countries pursue short-sighted, suboptimal policies for extracting resources and capturing rents, and they subsequently allocate those rents in ways that often privilege elite private consumption rather than public investments that enhance growth and collective social welfare. Scholars and practitioners alike have searched in vain for workable solutions to

the resource curse in developing countries. In documenting and explaining the policy failures associated with it, the social science literature presents a grim sketch of the syndrome and tends to be pessimistic about what can be done to mitigate it. Policy advisors and industry experts, on the other hand, have generally focused on assisting the extractive process in poorly governed environments in order to generate larger resource rent streams, while paying less attention to how the rents are captured and employed by governments.

Objectives of This Volume

The goal of this volume is to develop a better understanding of the political economy dynamics resource-dependent governments are facing in order to assist them in achieving welfare-enhancing policy making and governance in the natural resource sectors. The authors seek to systematically understand the patterns through which resource-dependent governments interact with their societies and extractive industry developers in making decisions about natural resource extraction and the use of natural resource rents. This is accomplished, uniquely and for the first time, by bringing together broad insights from the scholarship on the political economy of natural resource management with practitioners' granular understanding of how the sector operates, through the lens of the natural resource value chain. The analysis identifies how political economy dynamics present obstacles to welfare-maximizing decisions at each of the discrete steps from resource extraction to rent allocation. With this focus on the details of the sector, the volume then points to feasible improvements in natural resource management, particularly for the weak institutional environments most vulnerable to the resource curse.

Greater recognition of the political economy dynamics prevalent in developing countries dependent on oil, gas, and mining will enable international development partners to better calibrate engagement and enhance the prospects of success in these settings.² Paying attention to and being able to identify the various incentives of relevant political actors can help inform dialogue aimed toward changing these incentives in ways that promise to be better aligned to promoting a resource-dependent country's development prospects. This volume identifies a series of incentive-compatible policies and capacity-building interventions to achieve

welfare-enhancing goals in three key areas of natural resource management: extraction, taxation, and investment of resource rents. For example, countries can attempt to establish more farsighted, fair, and credible contracts for resource extraction by disclosing the terms of contracts and building intertemporal flexibility into them. Revenues can be effectively mobilized if the fiscal regime of the extractive industries is better calibrated to administrative capacity. And public spending can be targeted to society's long-term benefit through careful prioritization of public investment management that first focuses on building the infrastructure necessary to attract future investment.

A Political Economy Approach

Much has been learned about the economics and associated policy options of natural resource-led growth. The commodity boom and bust cycle of the 1970s triggered concerted attention to these issues in the international development community (see Gelb and Associates 1988 for a foundational statement).

Today, historically high commodity prices and the growing importance of resource extraction in many developing countries underlie a renewed surge of interest in policy issues around natural resource-led development, and a number of measured policy options for natural resource-led growth have been advanced.³ Yet, for the most part, scholars and practitioners have fallen short of translating broad agreement on "good practice" policies into concrete steps to navigate and address the institutional and political obstacles that are associated with extracting and allocating resource rents for developmental purposes.

This volume emphasizes instead the notion of "good fit," taking the position that welfare-promoting policies, institutions, and governance must be tailored, at least in part, to a country's specific context. Adopting an approach to institutional arrangements that emphasizes local variation and innovation as much as best international practice will be central to the ability of governments and development partners to achieve salutary developmental outcomes.⁴ In this vein, the volume presents an analytical framework for assessing a country's political economy and institutional environment as it relates to natural resource management and, on that basis, it offers a substantial set of targeted prescriptions across the natural resource value chain that are technically sound *and* compatible with the identified underlying incentives.

In other words, the objective of this book is to help development practitioners unravel the political economy dynamics surrounding natural resource management in order to complement their technically grounded engagement. To this end, the analytical approach has been two-pronged. First, case studies were conducted on the political economy of the hydrocarbon and mineral value chains in 13 countries in the Africa, East Asia and Pacific, and Latin America and the Caribbean regions. Second, in light of this empirical material, the book highlights the current frontier of applied political economy analysis on resource dependence. This volume synthesizes the empirical and the theoretical with an emphasis on illuminating the implications for operational engagement in resource-dependent settings.

The Natural Resource Management Value Chain

The World Bank mandate establishes poverty reduction as its primary objective in engaging with client countries. Long-term poverty reduction is achieved through growth, diversification, effective public spending and saving, and peace and stability. It is widely recognized that higher quality institutions help to achieve better and more far-sighted policies in pursuit of these objectives and help underpin their successful implementation.⁵ A legitimate and equitable compact between the state and society, however it may be constituted, is an integral part of this trajectory. The hydrocarbon and minerals sectors are no exception: institutional quality is a crucial factor for resource-dependent countries to achieve sustainable, development-oriented policies and sector governance. Mitigating the resource curse is inherently a governance challenge: the credibility, quality, transparency, and accountability of policy-making processes, public institutions, the legal and regulatory climate, and sector governance are major determinants of how successfully countries can channel their resource wealth into sustainable development.

Natural resource management spans a great many specific and inter-related decisions on the part of government in interaction with resource developers (private and state-owned) and society. The World Bank has adopted a “value chain approach” to understanding natural resource management (NRM), with the primary objective of prescribing an integrated set of feasible policy interventions to transform natural resource potential into sustainable development outcomes. The value chain

(see figure 1.1), encompasses the institutional arrangements across five key dimensions of NRM: (1) sector organization and the award of contracts and licenses; (2) regulation and monitoring of operations; (3) collection of taxes and royalties; (4) revenue distribution and public investment management; and (5) implementation of sustainable development policies.⁶

Figure 1.1. The Natural Resource Management Value Chain



Source: Mayorga-Alba 2009.

The NRM value chain spans the key sequence of steps that a resource-dependent country must undertake in transforming its natural resource rents into developmental riches. When embedded in a political economy context, the value chain also offers the potential for a comprehensive assessment of the governance and political economy parameters that affect a resource-dependent country's ability to transform rents into riches. The framework is not strictly sequential; downstream decisions made on public investment management in any given time period will inevitably have an impact back on upstream decisions on extraction in the next time period. Understanding the dynamic feedback loops across the steps in the value chain in any given country is crucial to characterizing its domestic political economy and natural resource policy making and management.

The global study underlying this volume uses the NRM value chain as a diagnostic framework to analyze the political economy of rent extraction and allocation in a sample of resource-dependent developing countries. A standardized set of terms of reference was used to complete eight full country case studies in Africa (Angola, Democratic Republic of Congo, Ghana, Niger, and Nigeria) and East Asia and Pacific (Lao People's Democratic Republic [Lao PDR], Mongolia, and Timor-Leste),

along with a comparative synthesis of five smaller case studies in Latin America and the Caribbean (Bolivia, Chile, Ecuador, Mexico, and Trinidad and Tobago). The framework was designed to systematically assess and identify key political economy dynamics and institutional arrangements with regard to natural resource management in each country in which it was applied and to ensure the analytical leverage that comes with a consistent methodology (World Bank 2008a).⁷

The cases covered were not sampled through a rigorous research design for the purposes of making claims about causality or generalized conclusions about a broader universe of cases. They were largely initiated at the request of World Bank country teams grappling with these issues on the ground. Nevertheless, the range of cases in the global study includes countries with both oil and other mineral deposits that are at various stages in terms of both their natural resource extraction and their level of development. They thus illustrate how natural resources and political economies interact in producing outcomes with a view to articulating good-fit, sustainable interventions for resource-dependent developing countries.

Development Assistance and Targets for Intervention

Their access to significant natural resource rents makes resource-dependent countries less likely to depend on aid than their non-resource-dependent peers. Some observers of international development argue that this is a positive thing.⁸ Nonetheless, the traditional donor community, as well as emerging global players, will have pronounced interest in countries with proven and perceived resource endowments. In settings that start out with weak capacity and institutional endowments, these relationships can be asymmetric and not always in the long-term interest of the developing country. The World Bank Group's own direct engagement in the extractive industry (EI) sector has not been without controversy: the Bank announced in 2000 that it would conduct a review of its engagement in extractive industries, in large part as a response to environmental and human rights groups. The initial review group, led by a former Indonesian minister of the environment, suggested that the Bank distance itself from engagement in this sector; the final management response, however, argued that there was a continuing role for the Bank in supporting EI

“provided its involvement supports poverty reduction and sustainable development” (World Bank 2004a, iii).

Skeptics may argue that international actors will have limited leverage in shaping the behavior of policy makers in resource-dependent countries. This challenge, as always, is likely to be especially acute in settings characterized by poor quality governance. The World Bank’s experience with the Chad-Cameroon pipeline project serves as a cautionary tale. Beginning in 2000, the World Bank sought to tie the Chadian government to earmarking future oil spending to poverty reduction as part of a package to help the landlocked country develop its oil industry. Once the oil started flowing, however, the Chadian government reneged upon the agreement. More broadly, recent examples of significant debt relief (through the Heavily Indebted Poor Countries [HIPC] Debt Initiative) in such resource-dependent countries as the Republic of Congo and Nigeria raise the question of whether such measures do indeed start these countries off on a clean slate as promised, or merely set them up for another bout of resource-backed borrowing.

Nevertheless, there are crucial windows of opportunity for engagement by international development partners in resource-dependent settings. First, although the magnitude of resource rents generally far outweighs the potential financial flows from aid, absolute amounts of aid may increase in countries that have newly discovered natural resources as these countries attempt to get that sector off the ground. Second, resource-dependent countries have tended to seek support from the international community in times of adverse shocks, and development partners must be prepared to seize these opportunities for assistance and reform. Finally, domestic reformers often look to the international community to buttress their own positions; good ideas and technical support may find strong resonance under these conditions, rather than being perceived as supply-driven reform packages.

An oft-leveled critique regarding development assistance in resource-dependent countries is that leaving the resources in the ground is sometimes the best choice in poorly governed settings with weak institutional capacity. Using the NRM value chain as the analytical lens for this work assumes that the decision to extract has already been made—and the objective is to understand the political economy surrounding policy and governance in the sector in order to enhance associated developmental

interventions. Choosing not to extract certainly ought to be considered, but in many developing countries the tempting flow of resource rents for immediate spending and the promise, albeit elusive, of developmental benefits through public investment are difficult to handle with restraint. Rarely is the decision at all like that facing Saudi Arabia—whether to simply pump more oil or less. Extractive industries operate in even the most unstable and fraught environments, often with a significant risk premium (Haber, Maurer, and Razo 2003). In the Democratic Republic of Congo (DRC), for example, elites operating in a conflict environment cut short-term deals for resource extraction and used the rents to finance arms purchases. These are obviously not the conditions for transforming resource rents into sustained development riches. Yet there are significant lags in moving from discovery to extraction of resources, sometimes over one or even two decades. With this in mind, it is not unreasonable for most countries and their donors and production partners to embark down the path of extraction, with the hope that the conditions for welfare-enhancing use of rents will improve over time.

The authors' engagement with numerous country counterparts in government and otherwise has underscored the existence of a real appetite for innovative and, most importantly, tractable responses to observed weaknesses in the management of extractive resource wealth. In some cases, to be sure, elite capture of natural resource rents subverts the achievement of sustainable development outcomes. But even well-intentioned leaders often confront daunting challenges in implementing welfare-enhancing policies. While a leader today may be interested in saving resources for the future, for example, she may simply not trust her successors to later spend them well, given weak institutional checks and balances. Or, new reform-minded governments may find that vested interests and corrupt practices in the resource sector are too pervasive to be easily overcome with policy directives.

This book emphasizes actions that committed domestic agents, international development partners, and responsible stakeholders in the global extractive industries can take to enhance the prospects of a resource-dependent developing country by grounding interventions in a granular understanding of the common political economy dynamics surrounding natural resources. Dependence on natural resources

shapes state institutions and the decision-making framework and calculus facing political and economic elites, which affects the possibility of achieving the higher-order objectives that can aid in overcoming adverse outcomes, such as the need to deepen institutionalization, to bolster credibility, and to extend time horizons. Tailored operational recommendations are needed to achieve such goals, for example, measures to increase transparency in contract negotiations, enhance tax administration capacity, or improve the prioritization of public investment. And the targets of these specific forms of intervention are natural resource sector policies, institutions, and governance. Brief definitions of these concepts as used in this volume are as follows.

- **Policies** are decisions made by government officials on a specific course of action. A policy may be enacted in legislation or underpinning regulation; natural resource policies are often made explicit in a minerals law, for example. A policy may also be adopted through budget plans or pursued more informally through a government agency's day-to-day operations.
- **Institutions** are the “rules of the game” that structure political, economic, and social interactions.⁹ Formal institutions include a country’s constitutional framework and the checks and balances in place among different branches of government. With respect to natural resources, formal institutions could include legislation on the natural resource sectors or a fiscal equalization formula for transfers from resource-rich provinces to those that are resource-poor. Informal institutions encompass the unwritten rules structuring behavior; for example, there may be implicit social obligations being acted upon.
- **Governance** is the exercise of public authority with regard to society through the agencies of government—executive, legislature, judiciary—in the context of the institutional and policy framework in place. It is about the processes by which bargains between state and society are made (including policies and institutions) and how they are subsequently implemented and monitored (by organizations).
- **State capacity**, or the ability of the state to implement policy through its agencies, is an important aspect of governance. With particular relevance for governance of the natural resource sector, Karl defines state capacity as “the sum total of a state’s material ability to control,

extract, and allocate resources as well as its symbolic or political ability to create, implement, and enforce collective decisions.” (Karl 1997, 45).

Weak institutions and low-capacity public sector agencies in resource-dependent developing countries mean that the ability of the state to make policy decisions to mitigate the resource curse will be equally weak.¹⁰ Causality runs in both directions: a weak governance environment can lead to resource dependence, and high natural resource dependence can contribute to governance failures. Understanding how natural resource extraction interacts with institutions and governance to cumulate into broader political economy trajectories is crucial for elaborating potential developmental assistance. First, a country’s political economy setting must be understood in order to contextualize interventions and ensure that they are incentive-compatible so that perverse outcomes do not result instead. Furthermore, development partners may, in collaboration with reformist clients, adopt an even more transformative stance regarding institutions; again, success will hinge on a firm grasp of the political economy of natural resource dependence.

Transforming Rents into Riches

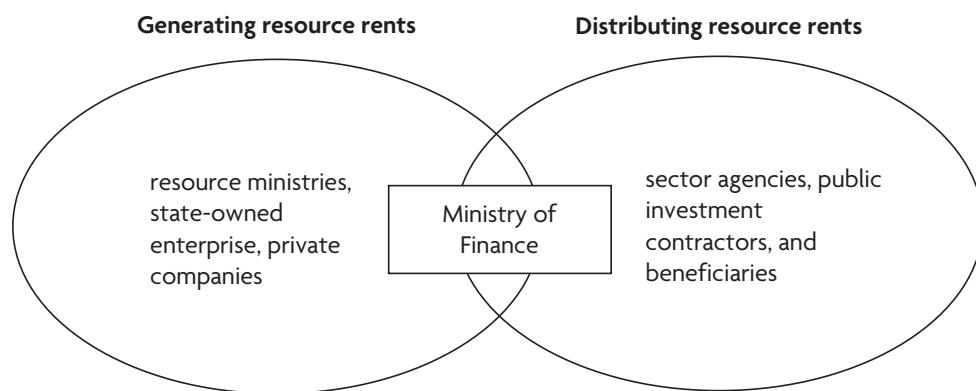
Natural resources yield “rents,” or extraordinary profits from their production, which are crucial to the political economy of resource-led development. Chapter 2 reviews the scholarship on the “rentier state” and how resource rents interact with institutions and political economy dynamics, then develops a core political economy framework for this volume that rests on understanding how rents flow through the system. Provided here is a brief overview of the analytical logic that animates this work.

The Analytical Framework

Viewed through the disaggregated lens of the NRM value chain, two key issues emerge in characterizing how a government manages its natural resources: (1) How effectively does a government generate and capture rents from the extractive industries? (2) How does the government spend

resource wealth and to what extent is it invested in a sustainable, pro-development manner? In essence, outcomes across the NRM value chain can be reduced to two core rent arenas: *generating rents* through extraction and taxation and *distributing rents* through spending and investment (figure 1.2). Many different domestic and international stakeholders are involved in natural resource policy making and extraction, and the relationships among these actors are constantly shifting across the value chain.

Figure 1.2. The Two Key “Rent Arenas” in the Natural Resource Value Chain



Source: Authors' compilation, based on Webb (2010).

Political economy scholarship often relies on regime typologies to distinguish why certain types of country settings yield certain outcomes. In order to help country counterparts and development practitioners diagnose the political economy trajectory a resource-dependent country is embarked upon, this volume advances a simple typology that is structured around two crucial dimensions:

- The *credibility of intertemporal commitment*—or the degree to which policy stability and bargains over time can be enforced and deviations from such agreements are subject to sanction; and
- The overall *political inclusiveness* of the prevailing state-society compact—or the extent to which diverse social, economic, and political viewpoints are incorporated into decision-making, and a sense of either collectivist or clientelist welfare is privileged over purely elite interests.

Although these dimensions are interdependent to some extent, positioning them against each other yields a typology of four distinct country settings (table 1.1). Characterizations of each setting, as well as unbundled components underlying each dimension, can be found in chapter 2.

Development interventions to mitigate the resource curse are aimed at assisting reform in countries such that their policy making and institutional framework across the natural resource value chain approximate those found in countries squarely within the ideal bottom-right quadrant of programmatic pluralism. In other words, natural resource rents are most reliably transformed into sustainable development riches when a government can make credible intertemporal commitments to both extractive companies and its own citizens, and when the political regime is inclusive such that the government faces incentives to use resource rents to provide public goods that enhance the collective welfare.

This typology may be used to characterize a country at a specific time, but countries also evolve dynamically, sometimes transforming from one political economy setting to another. In order to be successful, development initiatives must find mechanisms to resonate with, and eventually transform, the underlying political and institutional dynamics of resource-dependence. An assessment of a country's political economy

Table 1.1. Typology of Natural Resource-Dependent Settings

Political inclusiveness	Credibility of intertemporal commitment	
	Less credible/ weaker enforcement	More credible/ stronger enforcement
Less inclusive/ less collectively oriented	Patrimonial rule Individualized political authority built on a hierarchy of cronyism; emphasis on private (elite) goods; exploitation of public resources for private gain	Hegemonic government Institutionalized one-party regime; either predatory or benevolent; emphasis on private (elite) goods with some particularist and public goods
More inclusive/ more collectively oriented	Clientelist pluralism Political competition based on extensive use of clientelism; provision of particularist goods; low horizontal accountability	Programmatic pluralism Electoral competition based on programs geared toward collective welfare enhancement; provision of public goods; horizontal and vertical democratic accountability

Source: Adapted from Barma and Viñuela (2010).

using this typology indicates the shape of the feasible political space within which good-fit interventions must be elaborated if they are to be tractable and sustainable. The unbundled components underlying the two dimensions of intertemporal credibility and political inclusiveness (see chapter 2) offer traction in terms of developing principles for intervention.

As development practitioners and country counterparts move toward articulating good-fit interventions that are compatible with underlying incentives, the typology suggests three paths for designing these initiatives:

- Interventions primarily aimed at *extending time horizons*, thereby enhancing intertemporal credibility; for example, emphasizing a simple, rule-based process for granting resource concessions that minimizes investor uncertainty and enhances predictability.
- Reforms that emphasize *mobilizing stakeholders* to cooperate on natural resource management, thereby broadening political inclusiveness; for example, easing information asymmetries by using model contract and fiscal regimes or at least disclosing contract terms in order to empower third-party audit and oversight.
- Interventions that *enclave institutions and capacity* in natural resource management so that some, albeit limited, functionality is possible even when the wider political economy dynamics are perverse.

Intelligently designed interventions along these lines can both strengthen salutary dynamics by tapping into incentives that push in the right direction and work with counterparts on transformative interventions that could alter the underlying political economy dynamics for the better.

The thematic chapters of this volume—chapter 3 on sector organization, chapter 4 on taxation, and chapter 5 on public investment—describe the political economy incentives and dynamics at each respective point of the value chain, comparing them against the four political economy settings sketched in the typology and showing how they contribute to typical natural resource management outcomes in low-income, resource-dependent countries. Each chapter then outlines specific potential good-fit interventions that make sense within those political opportunities and constraints, describing how different

mechanisms might be incentive-compatible and, ultimately, perhaps transformative.

Distinctive Characteristics of the Extractive Industries

Practitioners in resource-dependent countries face many of the challenges of poor policy making, limited capacity, and weak institutions that are characteristic of developing countries in general. Yet, significant distinctive factors of resource-dependent settings tend to shape political economy context and condition the overall development process in specific ways: in particular, the finite nature of hydrocarbons and minerals; the super-normal profits yielded by extraction of these resources and the state's sovereign right to some portion of those rents; the fact that commodity prices are extremely volatile and, from the perspective of most developing countries, are set exogenously; and the long timeframe of the extraction or production cycle along with the uniqueness of ownership structures in the resource sectors. As discussed further in chapter 2, these distinctive qualities together make *resource rents* central to the political economy of resource-dependent countries and make the extractive industries particularly susceptible to short time horizons and the pursuit of private enrichment over public welfare.

Exhaustible, or nonrenewable, natural resources include energy sources such as oil, natural gas, coal, and uranium, and other minerals like gold, silver, copper, iron, and zinc. The amount of these resources in the ground is finite because they are formed by extended geological processes and cannot be easily replenished. Yet, what constitutes "ore" is not a given: it is a function of commodity price, technology, extraction costs, and government policy. An increase in commodity prices, improvements in exploration or processing technology, reduction in unit costs, or taxes on inputs can induce firms to lower the cutoff grades for ore, whereas lower prices would lead firms to raise the cutoff grades. Natural resources must be extracted in order to be assets; if the costs of extraction are so high that developers walk away, would-be ore is simply waste. Conversely, extraction entails the depletion of a country's assets; thus, resource rents are not, as they are sometimes mischaracterized, manna from heaven.

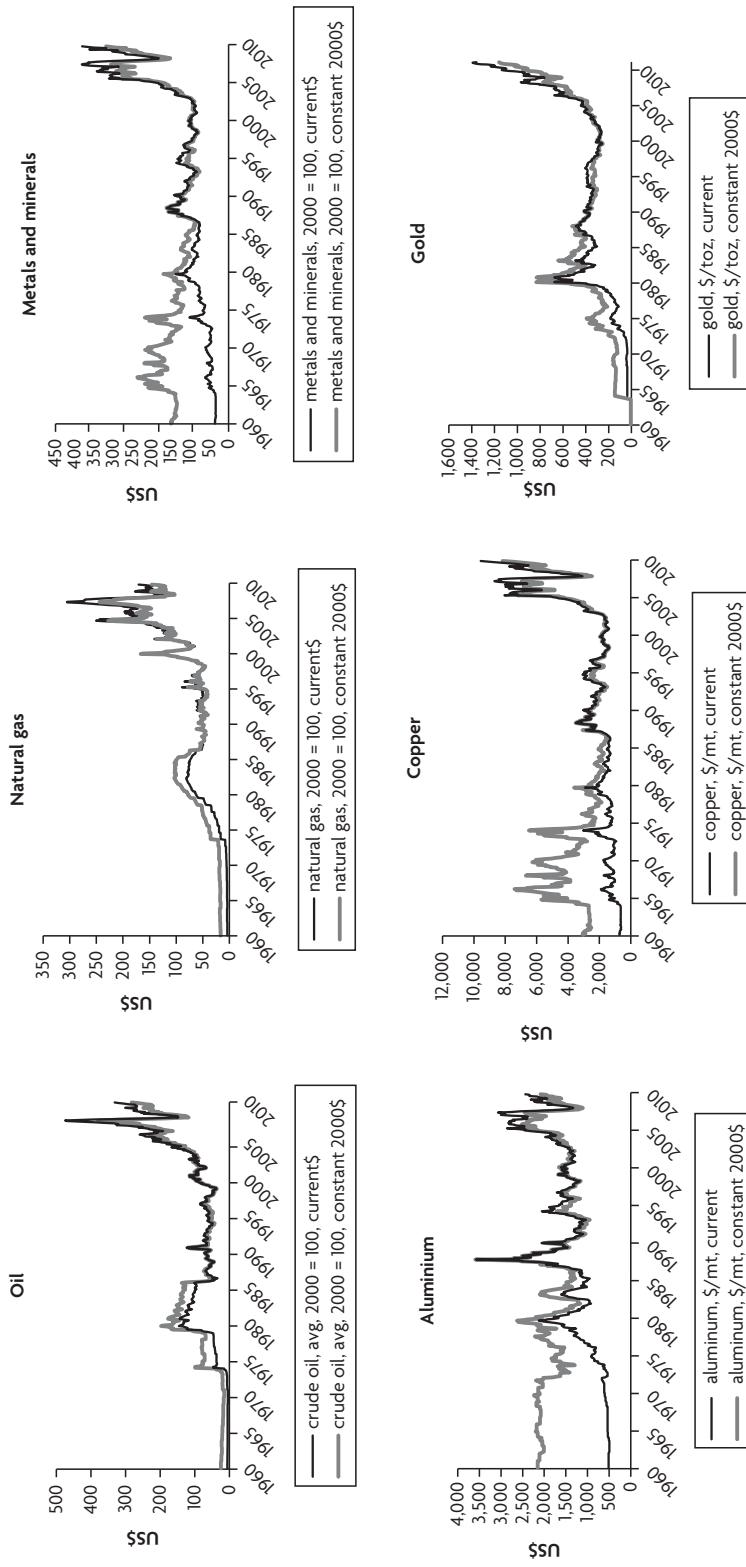
When they are extracted, oil, gas, and mineral resources often provide for super-normal profits; particularly for oil, the cost of extraction can be significantly lower than what the resource might fetch on the market at

any given point in time. In Saudi Arabia, for example, lifting costs are just over US\$2 to extract a barrel of oil valued at about US\$90 on the global market in 2011.¹¹ The extent of rents that can be captured from extraction depends on the country's geological conditions as well as on the business environment for investors. Complicating matters, extraction often occurs in remote areas, meaning in turn that the actual value of the extracted resources is less easily knowable, both to the public and to disparate government entities, than that for other economic activities.¹² This relative lack of transparency grants a great deal of power to the entity handling the resource extraction process, which can control the amount of rent reported and can hide the true amount of rent collected. Revenues from natural resources will first accrue to the state on behalf of its citizens, bringing sovereignty and property rights concerns to the fore. Because of the customary right of the state and society to some portion of resource rents, it is common for noneconomic rationales to be invoked when making decisions about resource exploitation and the use of rents. Resource nationalism is a growing phenomenon globally—pledges concerning natural resource rents are made by politicians of all stripes, from Bolivarian populists in Latin America to centrist political parties in Mongolia.

Revenue streams from extractive industries are greatly affected by mineral price cycles, which are characterized by volatility, uncertainty, and production changeability. The valuation of particular resources depends on international demand and varies a great deal across resource types.¹³ Since producing countries for the most part must accept commodity prices set on the global market, they are vulnerable to exogenous price and production shocks, which can potentially trigger distributional issues between governments and resource extraction and production companies. And—as we have witnessed viscerally in recent years—resource revenues are highly volatile because resource prices can fluctuate dramatically. Volatility translates into large, pro-cyclical fluctuations in public spending, since few developing countries are able to smooth spending across price cycles. Figure 1.3 illustrates both the upward trend in global commodity prices over the past century and the heightened volatility over the past decade.

Revenue volatility resulting from commodity price fluctuations is in and of itself one of the major political economy challenges that resource-dependent governments face. Some observers have noted that there are

Figure 1.3. International Oil and Mineral Prices, 1960–2010 (current and constant 2000\$)



Source: Global Economic Monitor Commodity Prices (World Bank 2011a).

Note: mt = metric ton; toz = troy ounce.

two quite different political economy modes in these countries: one that occurs during boom years, where stakeholders are focused on rent-seeking and the main political economy challenges are establishing medium-term planning, mustering the discipline to place money in stabilization funds, and adhering to fiscal rules; and a second mode that occurs during bust years, where the political economy is dominated by competition among public programs and their constituencies to avoid cutbacks in spending.¹⁴ Many resource-dependent developing countries are relatively new producers and, given the historically high commodity prices of the past decade, have only experienced the political economy of a boom period. Policy makers and citizens in more seasoned resource-producing countries know all too well how different the political economy landscape looks when prices collapse for a sustained period.

Another distinctive feature of the extractive sectors is that engagement requires careful intertemporal planning over the life cycle of a project by both the government and developers. From the state's perspective, moreover, sound management of the sector requires intertemporal planning in a broader, strategic sense of how the government wishes to see the national resource extraction portfolio evolve over time—an especially core challenge facing new producers, such as Lao PDR. In addition, ownership in the sector is often highly concentrated. Extracting mineral resources requires high frontloading of investments, which are irreversible and highly specific to the industry and to the particular extraction site. Extraction is also characterized by a high level of economic and technological complexity and associated economic and geological risks for investors and governments that cannot be fully foreseen while contracts are being negotiated. Significant exploration expenses are incurred long before a decision to extract minerals or produce oil can be made, and much longer before taxation of resource rents is possible. Moreover, since producers are price takers, they must take on significant risk in the context of volatile global commodity prices.¹⁵

An investor must determine not only how to combine the variable factors of production (such as labor, capital, and materials), but also the rate at which extraction should take place, that is, how quickly to run down the fixed stock of ore reserves. Quite simply, if more is extracted today, less is available tomorrow. The optimal rate of extraction will

generally be a function of the size of the resource reserves, the cost of extraction, market commodity prices, and the fiscal regime in place. Given all those factors, in other words, there exists a unique extraction profile that maximizes the net present value of the natural resource wealth, necessitating intertemporal decisions about the quantity to be extracted in each time period. The overall timeframe of exploitation plays an important role because the size of resource stock remaining in the ground changes as exploitation progresses. Increasing the rate of extraction in the present reduces the size of the ore body in the future, a cost associated with extraction known as the “user cost.” While a developer may not incur the user cost, and therefore ignores it, government and society bear this cost and can recapture part of it, along with natural resource rent streams, by imposing a tax on developers.

The countries examined in this study produce both hydrocarbons, that is, oil and gas, and also minerals, some of them producing both types. The two types of resource are different in important ways, notably as follows:¹⁶

1. Oil typically has higher rent share by gross value and it is easier to tax; relatedly, oil-rich countries tend to exhibit a higher fiscal dependence;
2. Oil production typically has a smaller physical footprint and is often wholly offshore, while mining is more likely to physically affect local communities;
3. Mining is typically associated with very high upfront investments, including those for related infrastructure, although specific extractive technology and impacts differ according to the nature of the mineral; and
4. It is more challenging to accurately measure the quantity and quality of mineral ore in comparison to petroleum.

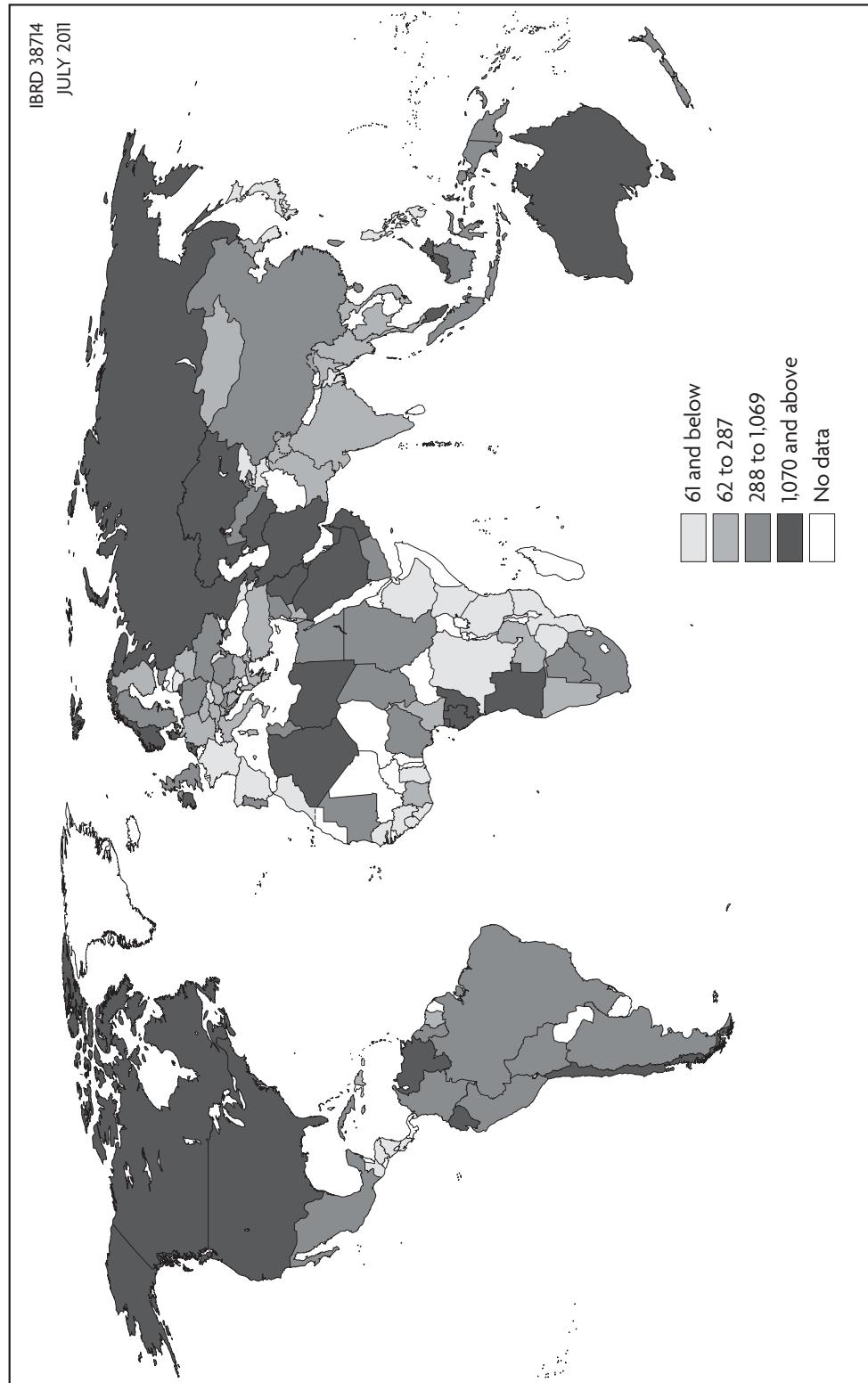
Such differences notwithstanding, the two extractive sectors share the distinctive characteristics noted above, albeit in differing degrees. Most important for the purposes of this study, the political economy associated with both sectors is shaped by how resource rents flow through the system (as discussed in chapter 2) and the challenges associated with intertemporal credibility and political inclusiveness, which means that stakeholders face similar incentives in both sectors.

Resource Endowments, Dependence, and Rent Flows

The terms “resource-rich” and “resource-dependent” are frequently used loosely and interchangeably, to the detriment of cumulative understanding of the resource curse. This study’s interest is whether economically and technologically accessible subsoil resources can be translated into greater sustained prosperity for the present and future citizens of a country. The *resource endowments* of concern here refer to available deposits of oil, gas, and minerals below the ground, which are finite and can be exhausted. Endowment potential depends on a country’s geology and what is known about it, as well as on available technology. Brazil’s much touted, recent offshore oil finds are located in ultra-deep waters (5,000–7,000 meters) and underneath a 2,000-meter layer of salt; thus, extraction is likely to be both costly and demanding in technological terms. Drawing on World Bank data on the known value of subsoil assets in 2000, Collier (2010a) finds that per square kilometer resource endowments in the OECD are worth US\$114,000 versus US\$23,000 for Africa. Since OECD countries have been extracting minerals resources for a longer period, these figures suggest that Africa, as well as Asia and Latin America, could be characterized by significant under-discovery to date, and would thus hold the potential for significant future finds, especially as world demand for energy and minerals increasingly pushes exploration into frontier regions.¹⁷ Growing resource endowments are endogenous in the sense that successful discovery and extraction begets more of the same.

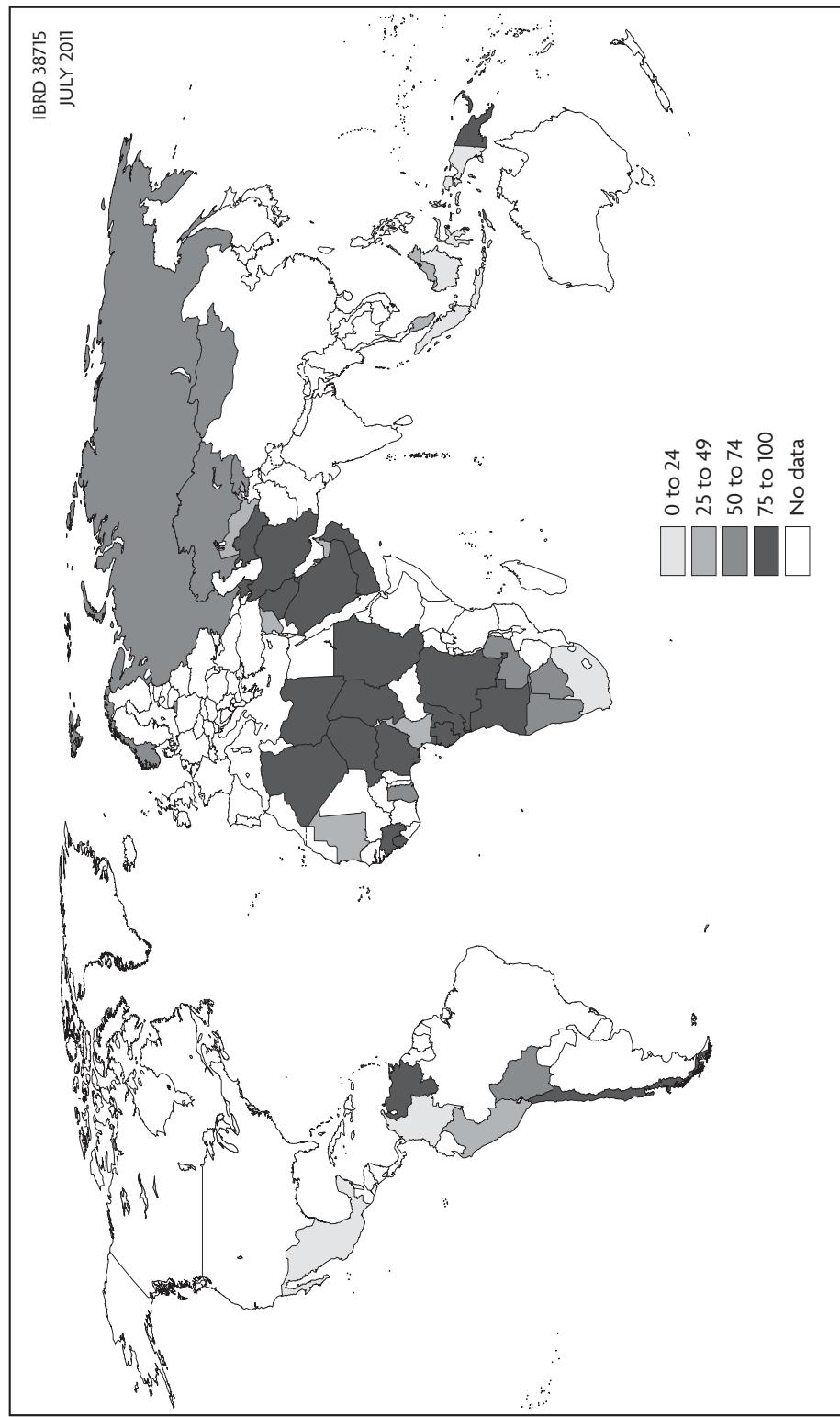
The concept of *resource dependence* captures the extent to which a country’s economy relies on resource rents. It is usually measured in proportion to gross domestic product (GDP), exports, or government revenues; hence, it is a function of absolute levels of resource extraction and rent capture in the context of other economic activity and sources of state revenue. The resource dependence observed in many developing countries is driven mainly by the fact that there are relatively few alternative forms of economic activity, as evidenced by a per capita gap in GDP, or a low level of other exports. The state’s fiscal reliance on revenues from the extractive industries also depends on the size of other revenue streams, including aid. Map 1.1 presents EI rent levels for 2008 by country; map 1.2 depicts the EI share of exports in oil- and mineral-dependent countries. The two figures together suggest that many leaders in gross resource production are also fiscally dependent, with some

**Map 1.1. Extractive Industry Rents, 2008
per capita, US\$**



Source: World Bank 2011a.

Map 1.2. Extractive Industries Exports, 2006–08
% of total exports



Source: Authors' data compilation, Article IV Consultations, 2006–08; IMF.

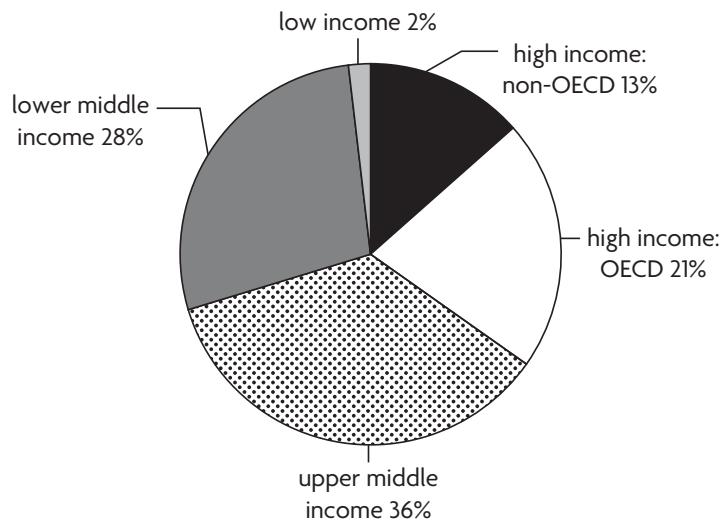
notable exceptions (Australia, Canada, China, and the United States); by contrast, many developing countries that are resource-dependent are not major producers in an absolute sense. Greater success in revenue taxation, perversely, may make countries more dependent, because the extent to which the state is able to capture rents from the sector depends on the design of the prevailing fiscal regime and administrative capacity for its implementation. The design of Ghana's and Zambia's fiscal regimes meant that they were able to capture only a small share of additional resource rents when international commodity prices recently increased.

Measures of resource dependence capture the overall magnitude of rents in the context of other economic activity, but these rents are then dissipated in various ways. They are shared between resource companies and governments in the first instance, and from then on are distributed in the form of side payments to powerful elites, as subsidies to a wider swath of society, and so on; they then finally enter the public coffers to be transformed into government saving, consumption, and investment for the public good.

The analysis in this volume emphasizes the centrality of the state's role in the management of natural resources and the associated political economy dynamics; hence, discussion will focus, in particular, on the share of resource revenues in the total revenues accruing to government. Recent data as summarized in the appendix to this volume indicate that about 50 countries are resource-dependent, with the share of resource revenues in total revenue intakes averaging over 25 percent during the period 2006–08.¹⁸ A particular caveat here is that this statistic depends crucially on the share of resource rents that actually enter state coffers; in some cases, the figure can be misleadingly low as a result of either weak design and implementation of the fiscal regime or the extent to which resource rents are captured and diverted elsewhere. This volume describes the various factors across the natural resource management value chain that shape this observable measure of resource-dependence.

As global demand for natural resources grows—and in response to historically high commodity prices—the push for new discovery and intensified extraction has increasingly moved into frontier areas in the developing world. Figure 1.4 illustrates that, although the bulk of resource rents are currently generated in higher-income settings, more

Figure 1.4. Extractive Industry Rents by Income Level, 2008 (% of total rents by country category)

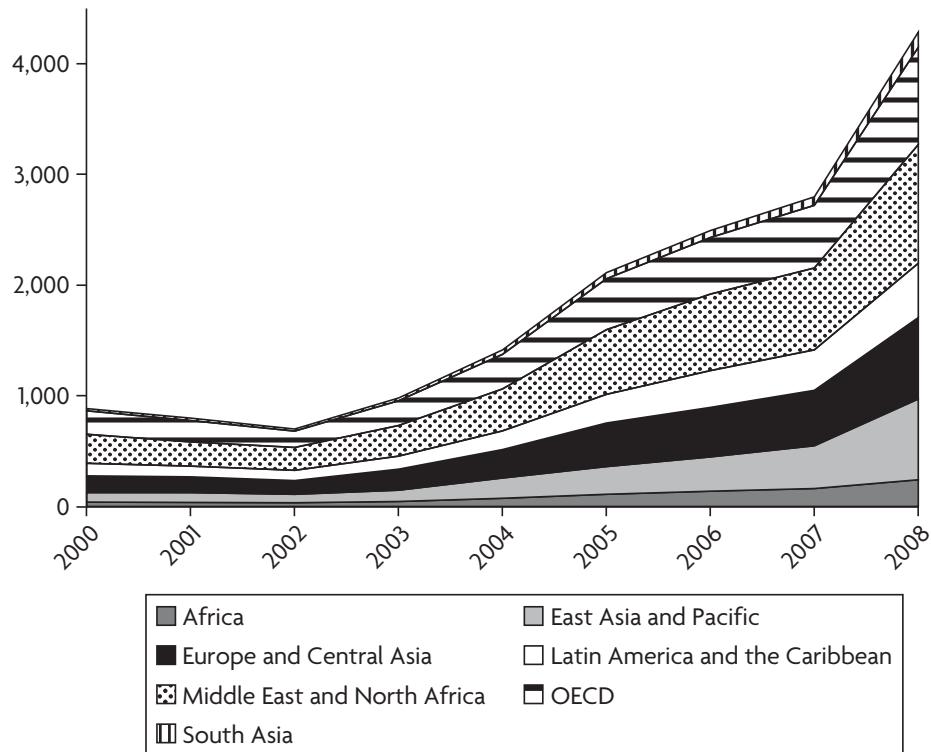


Source: Wealth of Nations Database, World Bank 2010.

than a quarter of global extractive industry rents accrue to low-income and lower-middle-income countries. A breakdown of rent flows by region (figure 1.5) shows clearly the increasing significance of the developing world's participation in the extractive industries. Although the Middle East has maintained its leading position in terms of rents derived from petroleum, its share of global rents has decreased since 2000. Conversely, East Asia and Pacific's share grew from 9 to 17 percent of total natural resource rents, with the greatest gains made in mining. In addition, between 2000 and 2008, Sub-Saharan Africa's natural resources rents increased sixfold, with oil rents representing over two-thirds of the total.

In short, rents from natural resources are becoming increasingly important in the developing world, and their impact on political economy and the prospects for sustainable development will take on at least proportionate significance.¹⁹ These newly resource-dependent countries tend to suffer from poor governance and weak institutional capacity, which exposes them in turn to a heightened vulnerability to the resource curse. The core objective of this volume is to provide country counterparts and their development partners with a political economy lens that aids them in articulating tractable natural resource management and

Figure 1.5. Extractive Industry Rents by Region, 2000–08 (US\$ billions)



Source: Wealth of Nations Database, World Bank 2010.

governance interventions for transforming resource rents into sustainable development riches.

Experiencing and Addressing the Resource Paradox

The Pacific Republic of Nauru vividly illustrates the “rags to riches and back again” story that can beset winners of the natural resource lottery (McDaniel and Gowdy 2000; Marks 2008; ADB 2007). Covering just 21 square kilometers, Nauru became independent in 1968. Phosphates were first extracted in 1907, but the country experienced a boom in extraction post-independence, during which it transitioned from being one of the world’s richest countries in per capita terms to falling back on hard times. A century of mining has stripped and devastated about 80 percent of the land mass, formerly known as Pleasant Island, leaving behind an uninhabitable moonscape. Although a share

of the financial returns was placed in the Nauru Phosphate Royalties Trust, the value of the trust is estimated to have shrunk by a factor of ten, from 1,300 million Australian dollars in 1991 to 138 million in 2002. A string of poor investments and financial swindles have been at the source of this impoverishment.

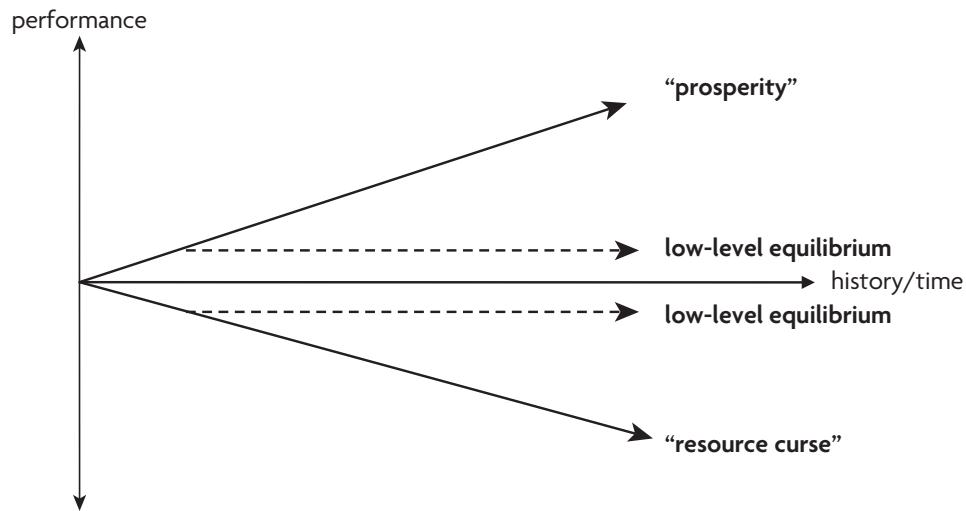
Client counterparts often ask whether their country is heading down the resource curse road, or what needs to be done to avoid the curse and ensure that rents translate into longer-term prosperity. While nuanced definitions and questions of causality are important, they are secondary for a practitioner audience. More immediately observable is a range of apparently suboptimal policies across the natural resource management value chain. Some policy makers may be focused upstream, noticing that a country is simply not attracting enough investments into exploration and exploitation of resources. Others will point to a country not receiving a fair share of rents or failing to deploy the proceeds well. Most observers will agree that stronger institutional endowments typically promote more farsighted, stable policies that promise to be in the collective best interest.

Resource-Dependent Trajectories

All countries that currently extract significant natural resource rents or have the potential to do so can be characterized as being on one of several developmental trajectories (figure 1.6). The fortunate among them, such as Botswana and Chile, appear to have worked out a path to relative prosperity. Others, such as DRC or Niger, have suffered from decades of poor governance, conflict, and impoverishment and appear to be on the downward spiral that typifies the conventional understanding of the resource curse. Countries like Nigeria have extracted vast quantities of their natural resources but are trapped in a suboptimal equilibrium and have very little developmental impact to show for this natural resource depletion.

The trajectory a country is positioned on depends on the upstream (discovery, extraction, and rent mobilization) and downstream (financial savings, consumption, and investment) management of its natural resource endowments. In low-governance environments, the challenges of sound intertemporal policy making are manifold, even as the prospect of rents coming on stream puts additional pressure on institutions.

Figure 1.6. Natural Resource–Led Development Trajectories



Source: Authors.

In turn, specific natural resource management outcomes across the value chain depend on the precise micro-political economy dynamics in play at each step. And the trajectory is clearly influenced by where in the cycle of resource extraction (early, mature, depleted) a country is and its vulnerability to the international price cycle, because these factors interact with the county's political economy and its institutional endowments.

This project's case studies and the theoretical literature together suggest that a variety of narratives are relevant in explaining these trajectories and thinking about how to move countries onto the path to prosperity.²⁰ Providing this more historical and context-specific perspective to natural resource–led development is a significant advance from the abstract knowledge that institutional quality matters in determining the developmental outcomes associated with resource dependence. The typical country counterpart, however, wants more than simply an elucidation of the political economy dynamics that seem to put their country on one trajectory or another. The key real-time concern of counterparts and development practitioners will be whether proposed actions promise to nudge a country onto a better trajectory, and promise to enhance the sustainability of apparently good management and trends. The subsequent thematic chapters seek to identify

typical challenges that emerge across the value chain, their apparent causes from a political economy perspective, and how these challenges could be addressed.

Typical Paradoxes in Natural Resource Management

A rich literature, as highlighted in chapter 2, identifies the various economic, political, and institutional mechanisms underlying and associated with the resource curse. The aim here is not to join in the debates central to this rigorous and sophisticated scholarship. Rather, we seek to demonstrate how the frontiers of this literature are relevant to stakeholders who hope to enhance the probability of greater overall and sustained prosperity from natural resource sectors in their respective countries by examining this scholarship through the lens of the empirical experiences of low-income, resource-dependent countries in managing their resource wealth. With this objective in mind, it is more useful in both analytical and practical terms to speak of a set of resource paradoxes rather than a resource curse.

A core concern of this volume is how resource rents interact with domestic political economy, in terms of both formal capture and distribution of rents through government as well as various leakages and informal uses of rent. Significant theoretical attention has been devoted to the overall rent-take by developing economies from their resources, often in the face of highly capacitated multinational firms. Equally, the ways in which a sitting regime uses resource rents to retain power with regard to its population and potential opponents, and the extent to which resource rents are diverted for private gain, often perverting the provision of public goods, remain central challenges for developing economies with a variety of institutional weaknesses.

From an operational perspective, the generation, taxation, and distribution of rent are conditioned by key choices made by governments about policies and institutions: What models of ownership are used in the sector and how are extraction rights allocated? How should tax policy be designed and what administrative instruments should be used to collect revenue? How should resource revenues be distributed to the citizenry and transformed into productive economic assets? Often, developmental advice regarding these issues is delivered on the basis of first principles designating the form and content of such policies and

institutions. The premise of this volume, building on the “good-enough governance” perspective that has gained currency in recent years, is that functionality of outcome is more important than policy or institutional form *per se*.²¹ Indeed, the empirical evidence from the case studies indicates that a number of resource-dependent developing countries have achieved significant functionality with policy and institutional forms that do not necessarily match technical first principles.

In using the NRM value chain as a micro-political economy lens—and having particularly emphasized an understanding of how resource rents flow through the value chain from extraction to taxation to public investment—this book has identified a series of typical natural resource management paradoxes that beset resource-dependent developing countries. These paradoxes are listed in box 1.1 to provide an overview of the specific types of challenges the volume identifies and addresses. The thematic chapters delve into more detail on each of these paradoxes, but cumulatively they provide a picture of the formidable tribulations that low-income countries face as they attempt to transform resource rents into sustainable development riches.

Emerging Interventions for Addressing the Resource Paradox

A political economy lens emphasizes the importance of context in determining good-fit interventions for any country. At the same time, however, a systematic approach to political economy illuminates clear patterns in terms of the way institutional frameworks shape and condition incentives and combine with stakeholder preferences to lead to fairly predictable outcomes. The case studies underpinning this work have served this dual purpose. They have grounded political economy analysis in finely grained, country-specific detail about NRM practices across the value chain in articulating operational implications in each case. At the same time, through the shared methodological prism of the value chain, they have led to more generalized emerging conclusions about the political economy of the resource paradox in developing countries as a group.

This volume focuses on the analysis and implications that carry across this group of countries. Chapters 3, 4, and 5 delve into the specifics of NRM practices, highlighting how institutions, incentives, and stakeholders combine and interact in resource extraction, taxation, and spending,

Box 1.1 Typical Paradoxes in Natural Resource Management***Extracting Resource Wealth***

The paradoxes involved in devising models of ownership and allocation of extraction rights in the natural resource sector include the following:

- The predictability of policy and the regulatory framework surrounding the natural resource sector is essential to salutary developmental outcomes, yet it is common for governments to seek to retain discretion to change the rules of the game.
- Contract negotiations in the hydrocarbon and mineral sectors are characterized by asymmetric capacity and information between the parties, but the relative bargaining power between governments and investors shifts over the lifecycle of extractive industry projects.
- Resource rents have the potential to allow governments to expand the amount of public goods they provide without imposing additional taxes; but there is tension in decision making because private and public preferences regarding resource ownership must be balanced, and this tension is intensified because of the stakes involved.

Taxing Resource Wealth

The paradoxes involved in designing tax policy and the administrative instruments used for natural resource revenue collection include the following:

- Despite having weak revenue administration governance and capacity, many low-income resource-rich countries resort, in practice, to overly complex, multirate fiscal regimes.
- Developing countries use generous tax incentives to compensate investors for high levels of risk and to attract resources to develop extractive industries; nevertheless, their inability to sustain such commitments over time further deteriorates their credibility and discourages investment in the sector.
- Mineral resources provide countries with considerable rents and relative administrative ease—since taxing these resources requires less effort than taxing other economic activities—but many resource-dependent countries neglect basic investments in revenue administration capacity that could increase public revenue and allow for more a progressive and flexible fiscal regime, precisely as a result of the incentives generated by the sector.

Investing Resource Wealth

The paradoxes involved in deciding how natural resource revenues should be distributed to the citizenry and transformed into productive economic assets include the following:

- Resource rents offer the prospect of investing heavily in physical infrastructure that would generate high returns in capital-scarce countries, but such countries often fail to invest proactively in the processes and systems needed to yield the very best projects as a result of political incentives and the features of the sector.
- Investment in public infrastructure is one of the policy tools that resource-dependent countries can use as the basis for economic diversification and reduced cyclical; nonetheless, public investment tends to be highly pro-cyclical, thus unsustainable. Failure to maintain projects generates repeated “build, neglect, rebuild” episodes.
- A benevolent national planner would ideally allocate resource rents to finance the highest-return public investment projects, regardless of their geographic location; but political economy dynamics often militate toward earmarking investments to the location of resource extraction or fragmenting them across various narrower political constituencies.

and presenting options for development interventions. Some of the emerging key principles carry across the value chain as follows:

- Separating decision-making authority across government bodies, that is, building in checks and balances in government's role, will enhance consistency and predictability at all stages of the generation and spending of rents.
- A simple, nondiscretionary legal and sector regulatory framework is crucial in ensuring that bargains (between the state and developers) and policy compacts (between the state and society) are adhered to and enforced.
- More transparency in sector regulations and management improve government credibility and mitigate the risks faced by both developers and the state.
- Targeted sectoral capacity-building that emphasizes coalition-building improves intergovernmental coordination and enhances predictability in policy making and implementation. Conversely, it may be necessary to enclave capacity-building efforts to enhance domestic technical skills; this can be complemented with contracted-in expertise to ensure functionality in key areas of natural resource management.

Each of the technical chapters also develops implications specific to the respective component of the value chain, some of which are highlighted in table 1.2. Both sets of implications, those that carry across the value chain and more targeted options for specific value chain steps, are presented in greater detail and with empirical examples in the technical chapters.

Roadmap of the Volume

The resource curse is a phenomenon at once political and economic. The concentration of mineral wealth in countries with undiversified economies is associated with poor economic and political outcomes that feed each other and are simultaneously affected by the distinctive features of these resources, as mentioned above: super-normal profits, price volatility, and the long timeframe of the production cycle and uniqueness of ownership structures in the resource sectors. As government

Table 1.2. Examples of Tractable Interventions Across the Value Chain

Extraction	Taxation	Investment
<ul style="list-style-type: none"> • Build intertemporal flexibility into contract terms • Activate third-party brokers (development partners, NGOs) to ease information asymmetry • Disclose terms of extractive contracts 	<ul style="list-style-type: none"> • Calibrate fiscal regime to administrative capacity • Use windfall taxes to protect against reneging • Provide tax incentives to investors when geological prospects are uncertain • Develop stability clauses combined with taxation instruments that allow for price adjustments 	<ul style="list-style-type: none"> • Build conscious demand for public investments • Prioritize PIM system components (“investing to invest”) • Explore alternative modalities for implementation (resource for infrastructure deals)

Source: Authors.

Note: NGO = nongovernmental organization.

officials in resource-dependent settings attest, policy decisions and institutional frameworks for their implementation are more often than not fundamentally affected by the real or perceived presence of resource wealth. The operational challenge is how to design interventions that work within the parameters of the political space to achieve desired objectives.

International development partners have a technocratic mandate, as evidenced by the World Bank’s Articles of Agreement; but this does not preclude the necessity of understanding political context in order to enhance development effectiveness. International development agencies must provide both feasible and creative support to counterparts in resource-dependent countries as they attempt to navigate the trials associated with turning resource rents into riches. Agencies like the World Bank can be important advocates of good practice by bringing to bear international experience. At the same time, it will be important to be conscious of the incentives and constraints faced by counterparts, ensuring good fit as well. What might seem like excellent measures from a normative perspective may have little upside and potentially significant downside effects for local counterparts, embedded as they are in specific political economy dynamics. A key analytical challenge is assessing the extent to which specific country context provides the basis for enabling resource-dependent countries to address the weakest links in their natural resource management value chain, and for setting them on a more promising developmental trajectory.

Deploying a systematic political economy framework helps to inform the prioritizing and sequencing of measures desirable in resource-dependent settings, emphasizing prescriptions that are both technically sound and compatible with incentives.

This chapter underscores the value of country-level lessons on natural resource management from around the world. Good practice exemplars, such as Botswana, Trinidad and Tobago, and Chile, can provide significant inspiration and act as guiding lights for counterparts in developing countries, and their historical context and experiences significantly shape their future. Policy makers in Nigeria and Mexico, at the same time, have learned their own important lessons in the repeated game of dealing with exogenous shocks in the form of global commodity price volatility. The experience, good or bad, of regional neighbors and other resource-dependent peers is particularly pertinent for engaged stakeholders, and it is often more relevant than hectoring on normative models of technical best practice. This volume hence seeks to build heavily on the empirical lessons emerging from the case studies conducted under the associated global study.

The volume provides a comprehensive treatment of issues in natural resource-led development by presenting key policy issues spanning the NRM value chain. Overall, and most important, the intention is to illustrate the value of complementing strong technical analysis with a more systematic perspective of political economy and institutional dynamics. To that end, the next chapter sets out an analytical framework for positioning countries within an operationally relevant political economy typology, and the following three thematic chapters marry an exposition of the key policy and technical choices across the value chain with a sense of the underlying political economy dynamics at each step. A brief roadmap of the volume is as follows.

Chapter 2 presents an overarching framework designed to help conceptualize key issues of political economy and institutional development in natural resource-dependent developing countries. It is designed to help practitioners and stakeholders draw on seminal scholarship and international experience in situating their own context of engagement. The chapter surveys the most relevant literature on the natural resource paradox, emphasizing that the quality of governance and institutions is a crucial factor for resource-dependent countries in

achieving sustainable, development-oriented policies and sector governance. Resource-dependent countries are on a particular set of development trajectories, and the aim here is to develop an analytical framework that enables practitioners to assess the nature of opportunities and vulnerabilities in natural resource sector policies, institutions, and governance. In this spirit, a typology of political economy settings in resource-dependent developing countries is developed, highlighting the related evidence emerging from the cross-country study. On that basis, a series of emerging principles or higher order objectives to structure interventions has been identified, depending on a country's trajectory. Assessing a resource-dependent country through this political economy analytical lens enables the articulation of good-fit targets, that is, reform goals that are welfare-enhancing in an incentive-compatible way.

Three thematic chapters then build a more granular understanding of the political economy dynamics of specific technical interventions at various steps of the natural resource value chain. Chapter 3 develops a framework for understanding the challenges facing resource-dependent countries in organizing the natural resource sector, examining in particular the relationship between the state and the extractive industries in terms of ownership and contracts. Different forms of sector organization represent mechanisms to resolve the competing political, economic, and social priorities of both governments and investors and enable them to manage the risks and uncertainties they face in the extractive industries. These choices with regard to sector organization, in turn, affect the performance of the mineral and petroleum sectors. The chapter focuses on four key dimensions of sector organization and their implications for sector governance: sector regulation, models of ownership, licensing and contracting processes, and the capacity of government agencies in regulating and monitoring the extractive industries.

Chapter 4 addresses taxing natural resources and implementing fiscal regimes in the sector, providing an analytical framework for assessing the efficiency and effectiveness of alternative fiscal regimes applicable to extractive industries. The broad criteria for evaluation of such fiscal regimes include the assignment of revenues (and associated economic risks) to the state, corruption risks, and potential tax-induced deviations from optimal exploration and production profiles, given

underlying political economy and institutional constraints. The chapter provides a conceptual guide for analyzing the gaps between best-practice theoretical models and the functioning of politically feasible fiscal policies, thereby identifying the nature and scope of good-enough tax policies in resource-dependent countries.

Chapter 5 turns to the issue of investing proceeds from natural resources into productive physical assets, both on aggregate and in those localities most directly associated with resource extraction. It contextualizes investment over three sets of policy choices: aggregate levels of spending, temporal and spatial allocation of resources, and the modalities used to produce infrastructure. Depending on the preferences of policy makers regarding the quantity and quality of public investment spending and on the administrative capacity of selected principals, governments exert various degrees of effort and approaches to enhancing the productive public capital stock versus redistributing rents for private interests. Drawing on a selected number of illustrative problems in public investment in these settings (inflated quantities, high volatility, low capability to invest efficiently, and contested subnational claims associated with resource extraction), the chapter identifies incentive-compatible measures across different political economy settings. The main challenges in institutionally weak settings are to lengthen politicians' and policy makers' time horizons and enhance their ability to credibly coordinate and effectively initiate spending efforts with longer-term benefits.

A concluding chapter articulates the key crosscutting principles for intervention that carry across the NRM value chain, reviewing emerging lessons and their consequences for strengthening interventions in the natural resource sector. In light of this analysis, the chapter then elaborates a number of commonly advanced prescriptions or mechanisms for addressing the resource curse and notes their strengths as well as potential limitations. Finally, the evolving landscape of development partner engagement is discussed, and the importance is noted of crowding-in emerging stakeholders at the global and local levels in building truly collaborative and strategic programs of reform.

Better political economy diagnostics alone will not solve the pronounced policy challenges in resource-dependent countries. The core concern of this volume, namely institutional development for enhanced

natural resource management, is a long-term endeavor. But for committed domestic reformers and their development partners, the authors hope that this book will provide a practical resource for engaging more smartly by elaborating better-fit interventions, thereby helping countries to navigate the prospective road from resource rents to sustainable development riches.

Notes

1. Sachs and Warner (1995; 2001) are credited with a seminal empirical statement of the resource curse that demonstrates this paradoxical relationship between resource dependence (measured by the raw material export share of gross domestic product) and growth. Subsequent cross-sectional empirical research indicates that the quality of existing institutions is perhaps the key factor that mediates a resource-rich country's economic outcomes; see, among others, Mehlum, Moene, and Torvik (2006); Sala-i-Martin and Subramanian (2003); Dunning (2008b); Vatansever and Gillies (2009). The last two papers were prepared as background for this volume.
2. The resource curse typically refers to the hydrocarbon (oil and gas) and mineral sectors. This study does not cover renewable resources such as fish and forestry, although these sectors are also inherently extractive and generate significant rents, and their political economy may have significant parallels with that of oil, gas, and mining.
3. See Brahmbhatt and Canuto (2010) for a recent summary of major issues. Collier, van der Ploeg, and Venables (2009) and Frankel (2010) survey recent work in this area, positioning findings in the context of how the literature on the resource curse has evolved over time. "Good practice" approaches to better harnessing extractive resources for development include Ascher (1999); Humphreys, Sachs, and Stiglitz (2007); Collier (2009; 2010a). In addition, the *Natural Resource Charter* (2010) sets out 12 good practice precepts for resource-dependent settings; a number of the good practice benchmarks can be mapped to the value chain framework adopted in this volume.
4. Rodrik (2003; 2007) has advocated this perspective eloquently.
5. See World Bank GAC Implementation Strategy (World Bank 2007); *World Development Report 1997: The State in a Changing World* (1997); and *World Development Report 2011: Conflict, Security and Development* (World Bank 2011b).
6. Mayorga-Alba (2009) provides a thorough description of the technical components embedded in the extractive industry (EI) value chain. Choosing this lens necessarily circumscribes the analysis to some extent; for example, there are other upstream issues in the extractive industries not covered in this value chain, such as the financing of resource infrastructure development, which is

particularly significant when national oil and mining companies are involved; there is also the management of foreign assistance inputs to the sector. We are grateful to William Ascher for noting the importance of these issues.

7. The methodology applied was a structured, focused diagnosis, often used in case-comparative research design in the social sciences (George and Bennett 2005).
8. Aid and resource revenues can both be considered “sovereign rents” (Knack 2008). Aid may come with a greater degree of external accountability for performance (for example, through the Millennium Development Goals). Many have highlighted, however, that traditional aid flows to governments have been associated with disappointing developmental impacts (for example, Easterly 2006).
9. This definition follows the new institutional economics. A seminal statement can be found in North (1990).
10. Perverse incentives are often the result of the enormous wealth generated by the extractive industries, which can in turn be used to avoid and discourage transparent oversight and investments in institutional capacity. See Karl (1997); Eifert and Gelb (2002); Woolcock, Pritchett, and Isham (2001); Jensen and Wantchekon (2004).
11. Reservoir characteristics (such as pressure) and the physical characteristics of crude oil are important factors that affect the cost of its production. Because these characteristics vary substantially across different geographic locations, the cost of producing oil also varies substantially. “Lifting costs” refer to the cost of bringing a barrel of oil to the surface, which ranges from under US\$4 in Central and South America, to US\$8–10 in the United States and Canada. Substantial variations are also associated with “finding costs,” ranging in 2005–07 from under US\$5 in the Middle East to ten times that much in the United States. While technological advances have made it possible to bring oil to the surface from more remote reservoirs at ever-increasing depths, such as in the deepwater Gulf of Mexico, total finding and lifting costs have increased sharply in recent years. Much of this increase is attributable to the rapid expansion of the world economy and the corresponding hunger for oil, and these increases could reverse direction due to the recent economic slowdown (U.S. Energy Information Administration, <http://www.eia.doe.gov>).
12. The authors thank William Ascher for this observation.
13. For example, gas prices tend to be more dispersed at any given time, yet more stable over time due to a smaller spot market and the prevalence of varying long-term supply agreements often linked to pipeline deals.
14. We are indebted to Michael Ross for these important insights on volatility. Karl (1997) illustrates the differences between the boom and bust political economies in the case of Venezuela.
15. Often this risk is hedged through the developer’s global portfolio, making more attractive, at least for the bigger and more successful developers, investment

prospects in certain countries or sites that might otherwise appear prohibitively risky.

16. Here are noted only a handful of meta-level differences in the structures of the two industries. The World Bank's Oil, Gas, and Mining Group is currently conducting a series of research studies that emphasize and detail similarities and differences between the two industries at a much more granular and technical level.
17. This is assuming random distribution of natural resources across the globe, although geological probability would suggest that, in reality, certain regions and countries are simply better endowed in particular or overall extractable subsoil assets. Knowledge of these assets is continually being updated; the World Bank is in the process of updating its 2000 baseline data on overall asset endowments (World Bank 2006a).
18. This follows the International Monetary Fund's method of measuring resource dependence, taking the average share of resource revenues in total revenues over the most recent three-year period. The IMF defines a country as resource-dependent if this measure is greater than 25 percent.
19. Ross (forthcoming 2012) also notes the shift of the petroleum frontier to developing countries, observing that booming oil prices over the past decade have led oil companies to find the risks of working in poor and badly governed settings increasingly counter-balanced by the enormous potential benefits of new discovery.
20. The notion of developmental trajectories that can be examined through analytic narratives has been advanced succinctly in Rodrik (2003). We are also indebted to Alan Gelb for his emphasis of this point over the course of this work.
21. The concept of "good-enough governance" is an attempt to move away from "first best" reform dictums for low-income countries. It refers to contextually grounded and feasible governance arrangements that achieve a *de minimus* degree of quality sufficient to enable a country to fulfill its developmental goals. For the original articulation of this concept and a full definition, see Grindle (2004; 2007). See also Rodrik (2007) on the significance and value of focusing on institutional function over form, and World Bank (2007), which moves toward operationalizing this perspective.