

A FRAMEWORK FOR BANK ENGAGEMENT IN LAGGING AREAS

Vivian Hon
with
Jeep Rojchaichaninthorn
and
Emily Schmidt

May 20, 2009

Spatial and Local Development Team
Finance, Economics and Urban (FEU) Department
Sustainable Development Network (SDN)

This paper was prepared under the guidance of Marisela Montoliu Munoz and Dana Weist, with initial inputs from Kai Kaiser and Somik Lall. We would also like to acknowledge contributions from Hyoung Gun Wang and Sou Yeon Nam. Special thanks to William Dillinger, Sudarshan Gooptu, and Alexander Kremer for their feedback as peer reviewers and discussants for the final report. Valuable comments were also received from Paul Dorosh, Baher el-Hifnawi, Edgardo Favaro, Eduardo Ley, Xubei Luo, and the participants of the seminar organized by the Spatial and Local Development team.

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

TABLE OF CONTENTS

Abbreviations and Acronyms.....	iii
Summary	iv
1. World Bank Engagement in Lagging Areas	1
2. Characterizing Lagging Areas	6
Lagging Area: A Proposed Definition	6
The Multidimensional Features of Lagging Areas	8
3. Types of Lagging Areas.....	13
Natural Resource Endowment.....	15
Market Accessibility	19
Poverty Density	23
4. Government Interventions in Lagging Areas.....	25
National Policy with Unintended Spatial Impacts	25
Broad-Based Reforms	32
Measures to Facilitate the Mobility of Labor and Goods	35
Directed Public Expenditures.....	38
Compensation for Area Unattractiveness	40
Some Lessons.....	44
5. Policy Considerations in Lagging Areas.....	47
Next Steps.....	49
Annex A. World Bank Analytical and Advisory Activities (AAA) on Regional and Spatial Development since 1975.....	50
Annex B. World Bank Projects on Regional and Spatial Development since 1980	52
Annex C. Lagging Region Seminar Presentations.....	55
Annex D. Benchmarking Regional Performance	56
The Indicators.....	56
Methodology.....	57
Annex E. Calculating Travel Time and Mapping Time to the Nearest Medium-Size City	63
Caveats	65
Maps of Settlements and Travel Time to Nearest Medium-Size City of 100,000 People	67
Annex F. Regression Results for Resource Abundance.....	75
Cross-Country and Within-Country Regression Analyses	75
References	79

TABLES

Table 1.1 Complementarities in the Frameworks of the <i>World Development Report 2009</i> and this Knowledge Review	3
Table 2.1 Selected Indicators for Lagging Areas, 2005 (or latest available year).....	7
Table 3.1 Typology and Examples of Lagging Areas	14
Table 3.2 Measures of Market Access for Lagging Areas, 2007.....	20
Table 3.3 Poverty Incidence and Poverty Density Do Not Always Overlap	24
Table 4.1 Policy Interventions	27
Table 4.2 Importance of Remittances in Lagging Areas	37
Table 4.3 Advantages and Disadvantages of the Various Incentives	41
Table D1. Selected Country Cases Completed as of June 30, 2008	57
Table F. Cross-Country and Within-Country Regression Results for Relationship between Growth and Resource Abundance	78

FIGURES

Figure 1. A Menu of Policy Instruments for Lagging Areas	vii
Figure 1.1 Roadmap for the Framework.....	5
Figure 2.1 Concentration of the Poor: Two Different Pictures.....	9
Figure 2.2 Leading Areas Are Not without Their Problems in Egypt, 2004	10
Figure 2.3 Disparities in Social Outcomes Are Greater than the Disparities in Gross State Domestic Product (GSDP) in Brazil, 2000	11
Figure 2.4 India: Growth-Poverty Trade-off for Some States but Not for Others	12
Figure 3.1 Resource Curse Linked to Poor Institutions.....	19
Figure 4.1 A Menu of Policy Instruments for Lagging Areas.....	27
Figure D1. Mexico: Relationship between Gross Domestic Product (GDP) per Capita and Poverty, 2000.....	59
Figure D2. International Comparisons of Gross Regional Domestic Product (GRDP) per Capita by Infant Mortality Rate (IMR), 2000	62
Figure D3. International Comparisons of Gross Regional Domestic Product (GRDP) per Capita by Unemployment, 2000	62

BOXES

Box 1.1 Principles for a Country Typology and Policy Responses in <i>World Development Report 2009</i>	2
Box 2.1 Advantages and Disadvantages of the Graphical Approach.....	12
Box 4.1 Rationale for Government Intervention.....	26
Box 4.2 Comprehensive Land Reform: Mexico	33
Box 4.3 Facilitating Migration in Poor Areas: Southwest China	37
Box 4.4 Innovative Solutions to Budget Constraints: Veracruz, Mexico	39
Box 4.5 Increased Revenues and Efficiency of Expenditures: Orissa.....	40
Box 5.1 The Complex Interactions between History, Institutions, and Ethnicity	48
Box D1. Key Indicators.....	57

MAPS

Map 3.1 Population in Egypt Concentrated Along the Nile, 2007	16
Map 3.2 Population Settlements in Saudi Arabia Are Concentrated along the East-West Axis of the Petroleum Clusters, 2007	16
Map 3.3 Although Market Access Is Widely Available Except for Northwest Brazil (left panel), Market Power Is Concentrated in the Southeast (right panel)	22
Map 3.4 Northeast Thailand: High Incidence and High Density in Poverty Overlap	24
Map 4.1 Zoning Policy and Manufacturing Employment in Thailand.....	45
Map 4.2 Year of Completion and Type and Size of Industrial Estate	46
Map E1. Brazil—Settlement Points and Travel Time to Nearest City of 100,000 People.....	67
Map E2. Chile—Settlement Points and Travel Time to Nearest City of 100,000 People.....	68
Map E3. China—Settlement Points and Travel Time to Nearest City of 100,000 People.....	69
Map E4. India—Settlement Points and Travel Time to Nearest City of 100,000 People	70
Map E5. Italy—Settlement Points and Travel Time to Nearest City of 100,000 People	71
Map E6. Mexico—Settlement Points and Travel Time to Nearest City of 100,000 People	72
Map E7. Pakistan—Settlement Points and Travel Time to Nearest City of 100,000 People	73
Map E8. Thailand—Settlement Points and Travel Time to Nearest City of 100,000 People	74

ABBREVIATIONS AND ACRONYMS

AAA	analytical and advisory activities
ADA	Agencia de Desenvolvimento da Amazônia
ADENE	Agencia de Desenvolvimento do Nordeste
BASA	Banco da Amazonia, SA
BNB	Banco do Nordeste do Brazil
BNDES	Banco Nacional do Desenvolvimento Economico Social
BOI	board of investment
CAS	Country Assistance Strategy
CEM	Country Economic Memorandum
CIESIN	Center for International Earth Science Information Network
CN	Concept Note
CPS	Country Partnership Strategy
EAP	East Asia and the Pacific Region
ECA	Europe and Central Asia Region
EPZ	export processing zone
ESW	Economic and sector work
EU	European Union
FDI	foreign direct investment
FINAM	Fundo de Investimentos de Amazonia (Amazon Investment Fund)
FINOR	Fundo de Investimentos de Nordeste (Northeast Investment Fund)
FUNDEF	Fund for Maintenance and Development of Education
FY	fiscal year
GDP	gross domestic product
GPW	Gridded Population of the World
GRDP	gross regional domestic product
GRUMP	Global Rural-Urban Mapping Project
GSDP	gross state domestic product
GoI	Government of India
IADB	Inter-American Development Bank
IBGE	Brazilian Institute of Geography and Statistics (Fundação Instituto Brasileiro de Geografia e Estatística)
ICA	Investment Climate Assessment
IFPRI	International Food Policy Research Institute
IMR	infant mortality rate
IPEA	Instituto de Pesquisa Economica Aplicada
LICs	low-income countries
MENA	Middle East and North Africa Region
MDG	Millennium Development Goal
MICs	middle-income countries
NESCS	North-Eastern Special Category States
NGO	non-governmental organization
NWFP	Northwest Frontier Province
OECD	Organisation for Economic Co-operation and Development
PER	Public Expenditure Review
PROCAMPO	Programas de Apoyos Directos al Campo (Program for Direct Assistance in Agriculture)
PROGRESA	Programa de Educacion, Saluda, e Alimentacion (Education, Health and Nutrition Program)
R&D	research and development
RTA	reimbursable technical assistance
SAR	South Asia Region
SOE	state-owned enterprise
SEZ	special economic zones
SME	small- and medium-size enterprises
SUDAM	Superintendencia de Desenvolvimento da Amazônia
SUDENE	Superintendencia de Desenvolvimento do Nordeste
TA	technical assistance
VAT	value-added tax
UNDP	United Nations Development Programme
USGS	United States Geological Survey
WDR 2009	<i>World Development Report 2009: Reshaping Economic Geography</i>
ZE	zonas extremas

SUMMARY¹

World Bank engagement in area development dates to the late 1970s in Malaysia, Mexico, and South Korea.² Three decades later the range of clients interested in Bank support in this area has expanded greatly, but the policy questions remain largely unchanged. Some countries are concerned about lagging areas—about their growth but also their poverty and welfare. Others are concerned about spatial concentration—congestion, social costs, and pressures on urban service delivery.

This knowledge review summarizes the findings of a year-long seminar series that discussed World Bank experience with selected studies and operations responding to client countries' concerns with lagging area issues. It is the first review of its kind. The review aims to:

- Provide an approach to benchmark area performance and characterize areas as leading or lagging using basic descriptive statistics.
- Propose a typology of lagging areas to help identify suitable policy approaches.
- Sketch a menu of instruments available to policymakers and the advantages and disadvantages of each instrument.
- Suggest questions to guide policymaking.

Although the terms have been loosely applied, the term “lagging” (or “periphery”) has been used to characterize poor performers, and “leading” (or “core”) good performers. This review defines lagging areas as those where performance on more than one indicator has lagged behind the national average and where differences have persisted over time. Conversely, leading areas are those where performance on more than one indicator has been consistently above the national average.

This review took place in parallel to the preparation of the *World Development Report 2009: Reshaping Economic Geography* (WDR 2009). The WDR 2009 offers a comprehensive policy framework for achieving geographic convergence in social welfare along with unavoidable (and desirable) geographic concentration of economic activity. Its framework deals with the diverse geographic challenges in countries classified according to the geographic distribution of their population density, the economic distance between their leading and lagging areas, and their social, ethnic, or other divisions. The report focuses on the welfare of people, regardless of where they live, and considers the comparative advantages of places only as a subsidiary. It proposes that individual welfare can be best achieved through measures that facilitate people's access to and move toward opportunity. This principle applies unless there are severe social or political divisions across areas that prevent labor mobility from performing an integrating role across areas, in which case targeted incentives for local growth should be considered. The WDR 2009 suggests that intrinsic attributes of places and, in particular, local resource endowment in mineral, agricultural, or other forms of environmental potential might not be major driving factors for geographic variations in economic activity or social welfare.

Building on the observed case studies, this knowledge review does consider more explicitly the implications of resource endowment differences. In each of the cases studied resource endowment or other specific local attributes (modulated by the national or global market

¹ Country references have been submitted to country teams for a no objection review during the period March 30 to April 28, 2009.

² Throughout this report “areas” is used instead of “regions” to avoid confusion with the six Bank operational regions.

conditions facing those resources) were perceived as playing an important role in providing opportunities for or constraints to growth, income generation, and social welfare. In addition, the natural resource market potential of a lagging area may affect the opportunities and incentives facing people, firms, and governments. The welfare of individuals remains the ultimate goal of policy, and thus the WDR 2009's policy prioritization framework remains the backdrop for this review.

This knowledge review classifies lagging areas by three determinants of growth—their *resource endowment* and remoteness (first-nature geography); *market access* (or connectedness), to reflect the extent to which infrastructure policy has helped overcome geographical remoteness (second-nature geography); and *poverty density* (addressing the core mandate of the World Bank).³ Based on the first two determinants, resource endowment and connectedness, lagging areas can be classified as follows:

- *Resource-rich connected areas* are (or once were) endowed with natural resources and are well connected to markets. Due to various reasons, these areas have been unable to adjust to the changing environment and the depleting mineral resources. This group includes high poverty-density areas such as the northeastern provinces in China and Sindh province in Pakistan, and low poverty-density areas such as the US Rust Belt that have lost their leading competitive positions. In Bihar weak governance or capacity may have limited the ability to fully exploit the natural resource potential.
- *Resource-rich remote areas* are well endowed with natural resources but are geographically distant from markets. Often, mineral-rich areas have been developed as enclaves, and infrastructure investments were made solely to serve the needs of the extractive industries. Examples include several high poverty-density areas such as the Indian state of Orissa, parts of Northeast Brazil, and the low poverty density provinces of Aceh, Kalimantan and Papua in Indonesia.
- *Resource-poor remote areas* are lacking in resources and are geographically distant from markets. These areas are devoid of productive land, favorable agroclimate conditions, and exploitable natural resources. Despite the lack of comparative advantage, agriculture has been the backbone of the local economy and will continue to be so in the medium term. High poverty-density areas such as Pakistan's Northwest Frontier Province, Northeast Thailand, Upper Egypt, and parts of Yemen are in this group.
- *Resource-poor connected areas* lack resources but benefit from the spillovers of being close to a leading area. Other things equal, governments are unlikely to invest heavily in infrastructure to link such areas. To the best of our knowledge, only the Molise province, in southern Italy but close to Rome, fits in this group. Because there are so few, we will not discuss this group at length.

Proponents of regional policy have justified government intervention as a means to redress spatial disparities. While important, merely being remote does not provide sufficient rationale for government intervention. But remoteness, coupled with resource potential and high poverty density, justifies government intervention. In particular, high poverty density adds urgency and

³ Krugman (1993) defined the term "first nature" as features that are intrinsic to the location and independent of any development that may have previously occurred, such as navigable rivers or climate. "Second nature" refers to features of a location dependent on the spatial interactions between economic agents, which might depend on previous development at the location (such as the availability of suppliers) or on the spatial structure of the economic system more generally (such as the transportation system providing access to large markets).

political weight to the problem of remoteness and may encourage decision makers to act more immediately or to consider a broader set of policy tools to revitalize the area's economic activity.

Some analysts argue that interventions in lagging areas can contribute to overall national growth due to unexploited potential (a positive sum game). Others argue that interventions can lead to trade-offs in growth between the leading and lagging areas (a zero sum game). Meanwhile, skeptics argue that interventions in lagging areas will decrease overall growth (a negative sum game).

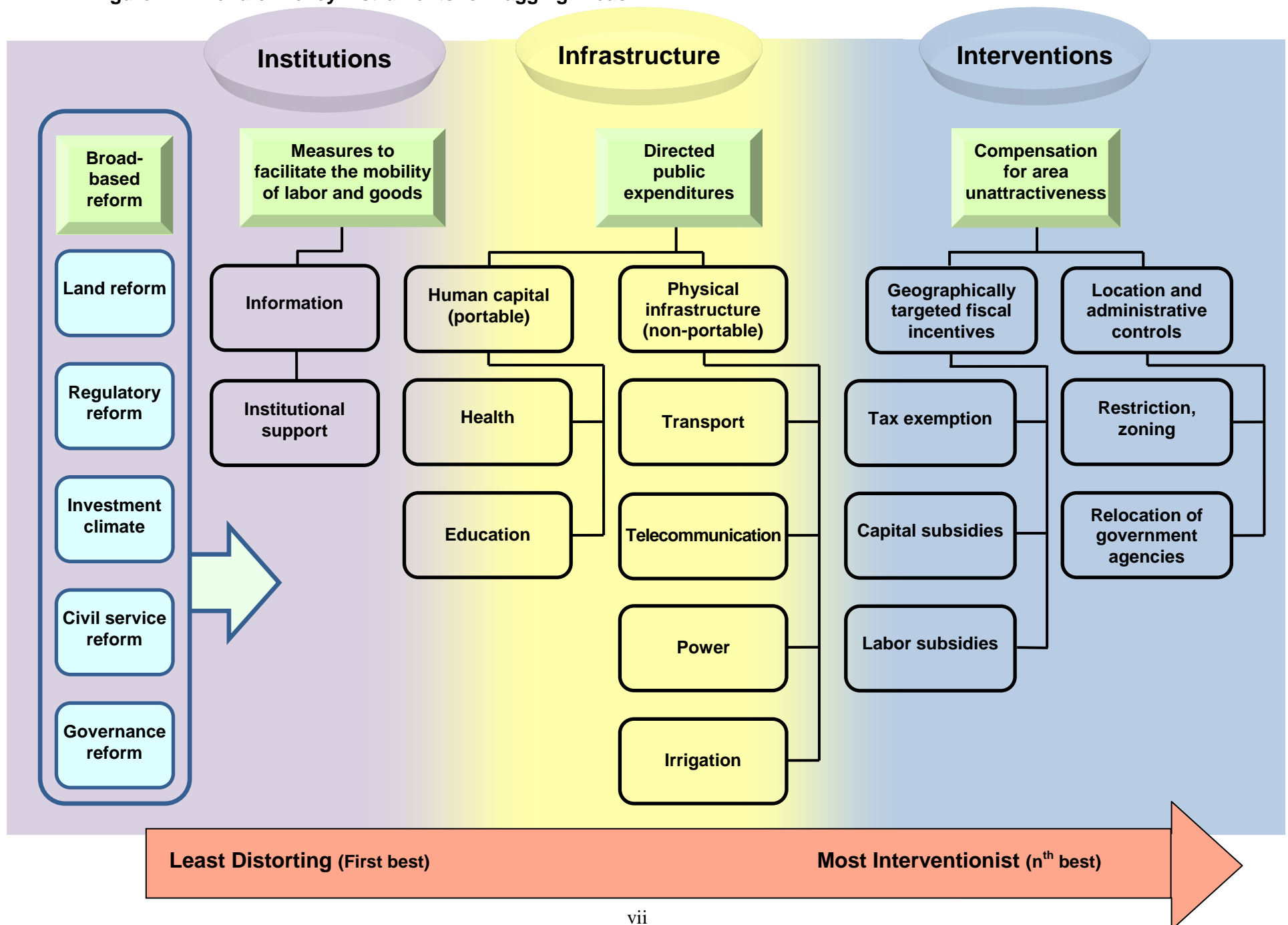
Various policy instruments have been used in lagging areas with varying success. A menu of these instruments is in figure 1, from the least interventionist (on the left) to most interventionist (on the right). There is some overlap with the three types of policy instruments highlighted in WDR 2009 (institutions, infrastructure, and interventions, or "the three I's")⁴:

- Broad-based policy reforms to establish a level playing field and intervene efficiently and effectively.
- Information and measures to address the asymmetries of information that facilitates the mobility of labor and capital.
- Directed public expenditures (in portable or non-portable assets).
- Transfers and interventions to compensate for area unattractiveness.

The review discusses the advantages and disadvantages of each instrument and presents some lessons from both international experience and the country cases. Because the challenges vary by country and type of lagging area, the study calls for a growth diagnostic approach applied at the subnational level. The review also discusses how the complex interactions between history, institutions, and ethnicity can influence, and in some cases undermine, policy objectives. Finally, it lists topics not addressed as agenda for further work. They include the spatial impact of public expenditures, natural resources beyond oil and minerals, and the case of Africa.

⁴ Institutions are "spatially blind" policies that are universal in coverage. Examples include regulation affecting land, labor and international trade, and the provision of social services—education, health and water and sanitation. Infrastructure is "spatially connective." Examples include road, railways, airports, harbors, and communication systems that facilitate the movement of goods, services, people, and ideas. Interventions are "spatially targeted" programs such as slum clearance programs, fiscal incentives for manufacturing firms offered by state governments.

Figure 1. A Menu of Policy Instruments for Lagging Areas



1. WORLD BANK ENGAGEMENT IN LAGGING AREAS

1.1 This knowledge review synthesizes the recent operational experience of seven developing countries—Brazil, Chile, China, India, Mexico, Pakistan, and Thailand—in regional policy with lagging areas,⁵ with a focus on World Bank engagement. It provides a diagnostic tool to benchmark area performance in three dimensions (section 2)⁶ and classifies areas based on three geographic determinants of growth — resource endowment, market integration, and poverty density (section 3). It reviews the various policy instruments and lessons from the various country experiences (section 4), suggests questions to guide policy considerations (section 5), and concludes with an agenda for future work.

1.2 This review took place in parallel to the preparation of the *World Development Report 2009: Reshaping Economic Geography* (WDR 2009) and builds on that report's framework. (Box 1.1 summarizes the WDR's main policy recommendations; table 1.1 lists the complementarities between this knowledge review and WDR 2009.) To classify lagging areas, it considers resource endowments and remoteness (first-nature geography); market access, to measure the extent to which infrastructure policy can overcome remoteness (second-nature geography); and poverty density (World Bank's mandate of poverty reduction).⁷ It draws on examples of Bank engagement and lessons from international experience as a guide to operationalizing WDR 2009.

1.3 Building on the momentum of WDR 2009, there are many studies and parallel efforts in various stages of completion. The list provided here is not meant to be exhaustive but rather to showcase a few key cross-country pieces. Two completed works include the Sustainable Development Network flagship that looks at the equity-efficiency tradeoffs in regional development policy and an earlier report that synthesizes the experience of the Europe and Central Asia (ECA) regions.⁸ Efforts currently under way include the Africa infrastructure flagship and an East Asia comparative study on rural-urban transformation.⁹ Recently initiated are a South Asia cross-country study of lagging areas and the Middle East and North Africa flagship, which draws on the WDR 2009 framework to look at the region's challenges and concerns, including water.¹⁰

1.4 World Bank engagement in regional development dates to the late 1970s. Early Bank assistance to Malaysia, Mexico, and South Korea consisted of reviews of spatial development strategies. The motivation behind the reviews was concerns about spatial concentration (Seoul and Mexico City) and their lagging areas (northeast peninsular Malaysia).

⁵ Throughout this report “areas” is used instead of “regions” to avoid confusion with the six Bank operational regions.

⁶ See the technical note on benchmarking in annex D for more details.

⁷ The WDR 2009 does not look at resource endowment but does consider poverty density and market access (referred to in the Report as distance).

⁸ Dillinger 2007.

⁹ The Africa effort is led by Vivien Foster, and the East Asia effort by Luc Christiansen.

¹⁰ The MENA study is led by Alex Kremer, and the South Asia study by Ejaz Ghani. This review does not attempt to address the challenges in oil-rich countries.

Box 1.1 Principles for a Country Typology and Policy Responses in *World Development Report 2009*

The principles developed in *World Development Report 2009* (WDR 2009) aim to reshape the debate on territorial or regional development. The tools of geography can help to distinguish between places that are poor—the lagging areas—and places where most of the poor live. Often, the two are not the same; indeed, the poor have the most reasons to move from poor places. Governments can tailor policies to integrate areas within nations, while reducing poverty everywhere.

Lagging areas have one thing in common—they are economically distant from places doing well. Besides this, the economic geography of different areas is not the same:

Economically distant. In some countries, such as China, lagging areas are sparsely populated. It does not make a lot of sense to spread expensive infrastructure into these places—or to give firms incentives to move to them. What makes much more sense is to provide basic services everywhere, even if it costs more to reach these distant areas. Encouraging mobility of people is the priority, and institutions that make land markets work better and provide security, schools, streets, and sanitation should be the mainstay of integration policy.

Economically distant and dense. In other countries, such as Brazil, lagging areas are densely populated. But as in China, poor people have moved in the millions from the Northeast to the Southeast. Everyone speaks the same language, and interregional mobility is not difficult. But many poor people still live in the Northeast. Encouraging mobility from the Northeast is important, but so is enabling access to markets in the dynamic southeast. In such cases institutions and infrastructure to connect the two coastal areas are necessary for economic integration.

Economically distant, dense, and divided. In a third group of countries such as India lagging areas are densely populated—almost 60 percent of India's poor live in these places—and people can find it difficult to migrate to places doing well, such as the capital area and the south. Language and cultural differences within some areas can be considerable. In such cases institutions and infrastructure could be complemented by incentives to producers to locate to these lagging states. But these incentives should be carefully designed to avoid offsetting the unifying effects of common institutions and connective infrastructure. A promising possibility is providing incentives to agriculture and allied activities that are appropriate for states that are still mostly rural.

Source: World Bank 2008e.

1.5 Since the late 1990s, interest has resurged in subnational growth and the link between poverty reduction and spatial convergence in social and economic indicators. The first requests for Bank advice in these areas came from China and Brazil.¹¹ Bank assistance to China included primarily lending to poor areas (such as the Southwest Poverty Reduction Project, Basic Education in Poor and Minority Areas, and Rural Health Services in Poor Areas). Assistance to Brazil included both lending (mainly on rural development) and diagnostic economic and sector work, such as the state economic memorandums.

1.6 More recently, the portfolio of Analytical and Advisory Activities (AAA) on area and spatial development has been expanded to include small (Ghana and Poland) and large (India and Russia) countries; low-income (Pakistan, Ghana, Mongolia), middle-income (Chile, Egypt, Mexico, Thailand, Turkey, and Ukraine), and high-income (Saudi Arabia) countries.¹² The portfolio includes sector reports, country economic memoranda, and growth studies with an explicit spatial focus, some national and some subnational. Work on Malawi and Serbia are in the early stages of dialogue (see annex A for a complete list of activities). Lending was focused

¹¹ In China the concerns were promoting greater equity between the rapidly growing coastal provinces and the less dynamic inland provinces, particularly in the southwest and northwest, and providing more and better social services in the poorer areas, especially women's health and girls' education (see World Bank 1995a). In Brazil, as Bank assistance shifted toward the non-lending states in 1997, the focus was on the poorer northeast states.

¹² The activities in Chile and Saudi Arabia were reimbursable technical assistance.

on poor areas and on rural development, particularly in Brazil. But in the last two years lending for territorial development has escalated,¹³ particularly in Europe and Central Asia (annex B).

Table 1.1 Complementarities in the Frameworks of the *World Development Report 2009* and this Knowledge Review

World Development Report 2009	Knowledge review
Addresses three spatial scales (intracountry area, country, and multicountry region).	Focuses only on the country spatial scale.
Framework (3 D's): <ul style="list-style-type: none"> • Distance. • Density (refers to population, poverty, or economic density, and mostly to the former two at the "country" spatial scale). • Division (ethnic, social, and national boundaries). 	Framework: <ul style="list-style-type: none"> • Market access (a proxy for economic distance). • Density (refers to poverty density). • Resource endowment. Elements of "division" are discussed separately
<i>Country typology</i>	<i>Lagging areas typology</i>
Three groups of countries: <ul style="list-style-type: none"> • United country with sparsely populated lagging areas. • United country with densely populated lagging areas. • Divided country with densely populated lagging areas. 	Four groups of lagging areas: <ul style="list-style-type: none"> • Resource-rich connected areas (depressed/in transition). • Resource-rich remote areas. • Resource-poor remote areas. • Resource-poor connected areas.

Source: Authors' compilation.

1.7 Countries faced persistent and in some cases rising spatial disparities, but within differing contexts. Northeast China and Sindh, Pakistan had to revitalize growth on old industrial bases. Northeast Brazil had to overcome persistent low growth and high poverty density. In the Indian states of Bihar and Orissa, the main concerns were institutional and governance reforms. Egypt's focus was to sustain growth and service delivery in its high-potential agglomerations and attend to poverty problems in the lagging areas.

1.8 For the more advanced, non-borrowing middle-income and high-income countries, the Bank's reimbursable technical assistance was more tailored. Chile requested an assessment of the preferential policies of the zonas extremas in light of today's more stable geopolitical situation in the region.¹⁴

1.9 The World Bank's Decentralization and Subnational Thematic Group¹⁵ organized a series of seminars on lagging areas in FY2007,¹⁶ with the primary objective of sharing knowledge on area development approaches across countries and regions. The presentations drew on examples from Brazil, Chile, China, India, Indonesia, Mexico, Pakistan, and Thailand in FY2005–07 (see annex C for the list of cases). The developing-country presentations were complemented by experiences from developed countries, including Ireland and Italy.¹⁷ The cases were intended not to provide a representative sample but to highlight differences in

¹³ The Organisation for Economic Co-operation and Development (OECD) defines territorial development as local economic development, which may include regional development but in most cases refers to rural development. A recently completed draft provides a framework for this approach in the ECA region.

¹⁴ The request was opportunistic and timely to inform the incoming president of the necessary reforms.

¹⁵ The Decentralization and Subnational Thematic Group is a forum for discussion and dissemination of knowledge of issues relating to fiscal policy and economic growth at the subnational level.

¹⁶ FY refers to the World Bank fiscal year, which in 2007 ran from July 1, 2006 to June 30, 2007.

¹⁷ The Ireland case has been excluded because the Irish have been creative and fluid in their definition of regions in order to maximize access to the various EU funds.

country contexts, approaches, and policy instruments. We have deliberately excluded cases from the ECA region because a recent flagship study summarized the experience there.¹⁸ Furthermore, the applicability and replicability of the ECA experience to the other operational regions are limited due to the availability of EU financing and the influence of the EU on policymaking.

1.10 Because the study draws on existing work, several caveats are needed. First, the studies have focused largely on the first and second tiers of government.¹⁹ While this report does not attempt to address the role of municipalities explicitly, it recognizes that all three levels of government provide key public services to the poor. Second, in some instances, regional aggregation provides a simplified framework of analysis for a group of states or provinces with similar characteristics. Examples include Northeast China, Northeast Brazil, Northeast Thailand, and the *Mezzogiorno*. These aggregations are not officially recognized administrative structures. As such, the policy recommendations are more relevant for the central or federal government.

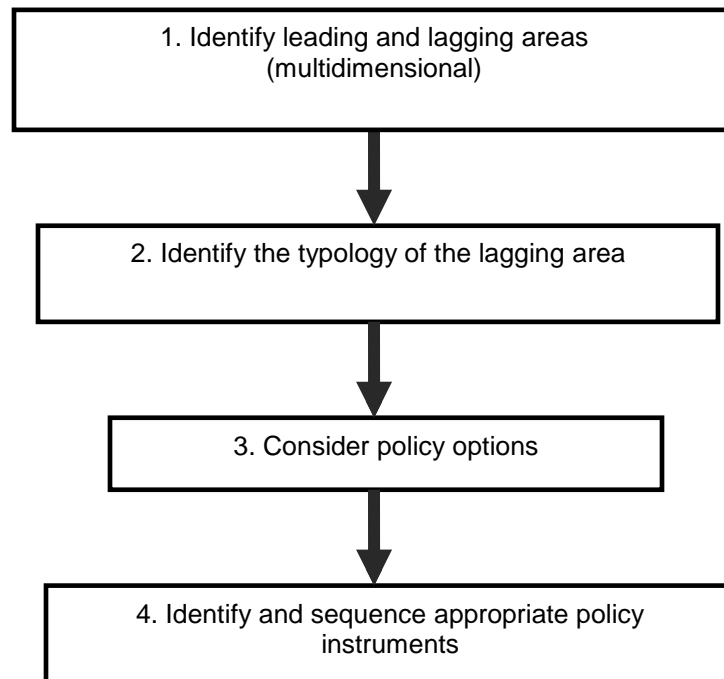
1.11 The WDR 2009 argues that the concentration of economic activity is an inevitable and desirable part of the development process. While divergences in economic activity may be necessary and desirable, disparities in social outcomes are neither necessary nor desirable. Policies that favor lagging areas over leading areas may lead to significant efficiency losses and slow overall national growth. But optimists argue that there could be gains in lagging areas with undeveloped potential (such as untapped natural resources). Since objectives may vary, the main challenge for World Bank engagement has been to assist clients in achieving their own objectives in growth, poverty reduction, and income distribution with minimal tradeoffs.

1.12 Figure 1.1 provides a roadmap for this knowledge review and for policymaking. First, section 2 provides a simple approach using basic descriptive statistics to help benchmark and classify the leading, lagging, and intermediate areas. Second, a framework for classifying the lagging areas based on geographic determinants to growth is proposed (section 3). Various policy options are presented, drawing from international experience and Bank engagement (section 4). Finally, a prioritization of policy instruments by lagging area typology is suggested (section 5).

¹⁸ Dillinger 2007.

¹⁹ First tier refers to the central government, second tier to the states or provinces, and third tier to local governments and municipalities.

Figure 1.1 Roadmap for the Framework



2. CHARACTERIZING LAGGING AREAS

2.1 The term *lagging area* (or periphery) has been used loosely to characterize poor performers. Often, these areas are lagging in more than one dimension. This section defines lagging areas as those where performance in more than one indicator has lagged behind the national average or where differentials have persisted over time. Later in the section we provide some descriptive statistics and a graphical approach to help policymakers benchmark area performance and identify their leading and lagging areas.

LAGGING AREA: A PROPOSED DEFINITION

2.2 The term lagging areas has been used loosely by policymakers to characterize poor performers. Countries preoccupied with achieving balanced growth have narrowly focused on equalizing outputs or incomes across areas, as measured by growth in gross regional domestic product (GRDP)²⁰ or income.²¹ As such, areas that are experiencing declining growth, slow growth, or no growth were labeled as the poor performers. We argue for benchmarking area performance on a broader range of indicators, given that disparities in welfare could be large in many developing countries.

2.3 Lagging areas are defined here as areas where performance has lagged in more than one indicator behind the national average or where differentials have persisted over time. Conversely, leading areas are areas where performance in more than one indicator has been consistently above the national average. Performance is measured across a range of indicators that encompass the economy, poverty, social outcomes, infrastructure or market access, access to public services, investment climate, and governance.²² Given the mandate of the Bank, poverty measures are at the forefront of our analysis. The report acknowledges, however, that data availability may be limited at the subnational level.

2.4 Table 2.1 presents some basic descriptive statistics for the seven countries and their lagging areas. With a few exceptions, a lagging area's per capita GRDP is typically below the national average, its incidence of poverty is higher, its economy less urbanized, and other social outcomes there are worse than the national average. The exceptions are Northeast China, Sindh province of Pakistan, and Chile's zonas extremas,²³ which are atypical lagging areas.

2.5 A lagging area is typically characterized by its high incidence of poverty, but poverty density may vary depending on the population density. In areas of low population density such as northeast India and western China poverty density is low despite the high incidence of poverty. The lagging area problem becomes more pronounced when the incidence of poverty and population density are both high, such that the lagging area is home to a disproportionate share of the nation's poor. Examples include Northeast Brazil, Northeast Thailand, Upper Egypt, and the southern states of Mexico.

²⁰ In some countries the term gross state domestic product (GSDP) is used instead of gross regional domestic product (GRDP). This review uses both terms interchangeably. Although GDP is often used, it does not accurately reflect spatial disparities in welfare. In measuring productive capacity (total sum of its value added), it fails to gauge the true level of per capita income if a significant share of the value added accrues to capital outside the region. This is particularly true for areas with extraction industries, which can generate significant value added in employment and household income but are modest in regional impact. Hence, the preferred measure would be income, which is often unavailable.

²¹ This is evident from the abundant literature on convergence since Barro and Sala-i-Martin (1992).

²² See annex D for a suggested list of indicators.

²³ Chile's zonas extremas were established for territorial sovereignty, national integration, and effective administration of these regions (World Bank 2005b).

Table 2.1 Selected Indicators for Lagging Areas, 2005 (or latest available year)

Country and lagging area	Area (thousand square kilometers)	Population (thousand)	Density (person per square kilometer)	Rural population (percent) ^a	GDP per capita (US\$)	Poverty headcount ratio (percent)	Infant mortality rate (per 1,000 live births)	Literacy (percent)
Brazil	8,515	183,982	22	19	3,146	22	32	90
Northeast ^b	1,554	51,028	33	31	1,434	46	52	73
Chile	756	15,117	20	13	4,922	21	11	96
Zonas extremas ^c	300	671	5	11	6,693	18	9	—
China	9,631	1,352,950	140	56	1,436	7	22	90
Northeast ^d	793	107,430	381	45	1,700	10	11	94
Northwest ^e	5,518	120,720	30	64	1,063	15	13	87
Southwest ^f	1,292	219,330	97	67	834	9	35	87
India	3,285	1,028,610	313	76	395	29	68	65
Bihar	94	82,999	881	92	95	39	73	48
Northeast ^g	262	38,858	148	85	140	34	—	—
Orissa	308	96,879	236	85	226	40	81	64
Mexico	1,880	97,483	50	25	1,469	25	24	91
Southern states ^h	169	10,439	62	52	668	51	31	78
Pakistan	882	175,312	199	67	600	34	106	45
Balochistan	347	9,894	28	76	400	32	158	36
North West Frontier Province (NWFP)	75	19,343	260	83	480	38	56	38
Sindh	141	56,849	403	51	760	22	105	49
Thailand	513	67,112	122	66	2,006	10	26	93
Northeast ⁱ	32	21,448	127	83	623	19	29	—
Southern	170	11,891	70	77	1,414	9	26	—

—Is not available.

a. Based on definition of rural-urban in respective countries, which may differ across countries.

b. Northeast Brazil includes Alagoas, Bahia, Ceara, Maranhao, Paraiba, Pernambuco, Piaui, Rio Grande do Norte, and Sergipe.

c. Zonas Extremas include Tarapaca (I), Antofagasta (II), Aisen (XI), Magallanes (XII), and Palena and Chiloe province (X).

d. Northeast China includes Heilongjiang, Jilin, and Liaoning.

e. Northwest China includes Gansu, Ningxia, Qinghai, Shaanxi, Xinjiang, and Xizang (Tibet).

f. Southwest China includes Chongqing, Guangxi, Guizhou, Sichuan, and Yunnan.

g. Northeast Special Category States (NESCS) include Arunchal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura.

h. Southern states include Chiapas, Guerrero, and Oaxaca.

i. Northeast Thailand includes the provinces of Amnat Charoen Buri Ram, Chaiphaphum, Kalasin, Khon Kaen, Loei, Maha Sarakham, Mukdahan, Nakhon Phanom, Nakhon Ratchasima, Nong Khai, Roi Et, Sakhon Nakhon, Si Sa Ket, Surin, Ubon Ratchathani, and Udon Thani.

Source: Authors' compilation from World Bank country reports (see references).

THE MULTIDIMENSIONAL FEATURES OF LAGGING AREAS

2.6 To the extent that people in lagging areas have equal access to transportation and other public services their welfare is improved because access to public services partially counterbalances the effect of low income. Hence, it is useful to consider more than one dimension when identifying lagging areas. Figure 2.1 plots the relative levels of two indicators against each other. The third variable is the proportion of the area's poor within the nation's total poor (represented by the size of the bubble).²⁴

2.7 The variables are scaled against a particular benchmark. An index is developed for the x and y axes based on the definition of a lagging area proposed above. Here, we have chosen to benchmark area performance against the national average.²⁵ Some countries may prefer to benchmark its areas against its top performer. International benchmarks may be more appropriate in others. For example, a country that is tracking its progress against the Millennium Development Goals (MDGs) may prefer to benchmark its areas against the respective MDG targets. Similarly, EU accession countries may choose to benchmark their area performance against the EU average. An index of 100 indicates that the area is performing at the national average (an observation on the dashed red line). An index above 100 indicates that the area is performing above the national average and vice versa. For example, in 2004 the Gross Regional Domestic Product (GRDP) per capita in Cairo (US\$1,820) was above the GDP for Egypt. The GRDP index for Cairo calculated using the above formula is

$$\frac{1,820}{991} * 100 = 184.$$

Thus, the GRDP per capita in Cairo is 1.8 times the GDP per capita for Egypt.

2.8 In quadrant I of figure 2.1a and 2.1b poverty incidence is lower than 100, and per capita GRDP is above 100. Any area in quadrant I is a leading area. At the other extreme, any area in quadrant IV is lagging — that is, the incidence of poverty is higher than the national average and per capita GRDP is lower. Areas in quadrant II have lower per capita GRDPs and lower incidences of poverty relative to the national average. Conversely, areas in the upper right quadrant, III, have higher incidences of poverty and higher per capita GRDPs. Areas in quadrants II and III are considered intermediate areas.

2.9 Figure 2.1 illustrates a static example using Brazil and Egypt. Egypt's leading areas (quadrant I) include the governorates of Lower Egypt, Cairo and Alexandria. The two governorates have 20 percent of the population but only 5 percent of the poor.²⁶ In contrast, the lagging governorates of Upper Egypt in quadrant IV are home to over 60 percent of the poor. According to WDR 2009, Egypt is an example where distance and density do not overlap.

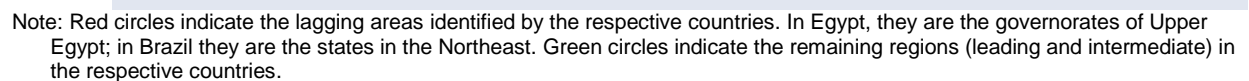
2.10 In comparison, the case of Brazil shows that both the leading areas (Sao Paulo) and the lagging (northeast states such as Bahia, Pernambuco, and Maranhao) have high incidences of poverty and are home to significant shares of the poor (figure 2.1b). The WDR characterizes Brazil as an example where there is some, but not perfect, overlap between distance and density.

²⁴ See technical note on benchmarking (annex D) for details on methodology and other examples (within and across countries).

²⁵ Due to data comparability problems, there may be advantages to benchmarking performance within a country (see box 2.1).

²⁶ Due to the low incidence of poverty, the share of poor in these governorates is low. Similar observations are found in the Bangkok metropolitan area.

a. Egypt: Concentration of the Poor in Lagging Areas, 2004



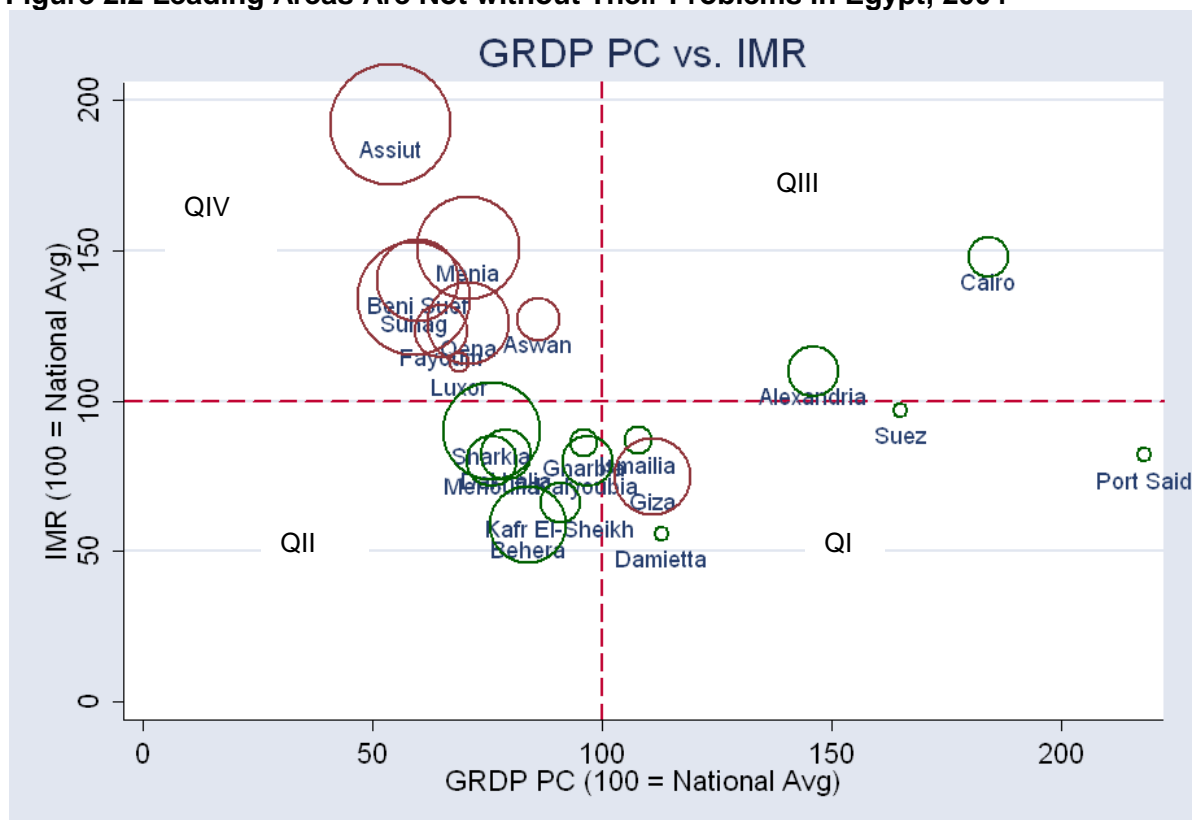
9

2.11 Leading areas, however, are not without their problems. Cairo's infant mortality rate (IMR) is 1.5 times higher than the national average (figure 2.2) while Alexandria's IMR is about the national average. In fact, Cairo's IMR is higher than most governorates with lower GSDP, including Beni Suef, one of the most lagging governorates.

2.12 The WDR 2009 argues that while disparities in incomes are inevitable and often desirable, disparities in social outcomes are not. Figure 2.3 shows that in Brazil, the disparities in IMR between the poorest and the richest state is higher than the disparities in GSDP. These disparities in social outcomes should concern policymakers, particularly if the differences have been persistent and/or are increasing.

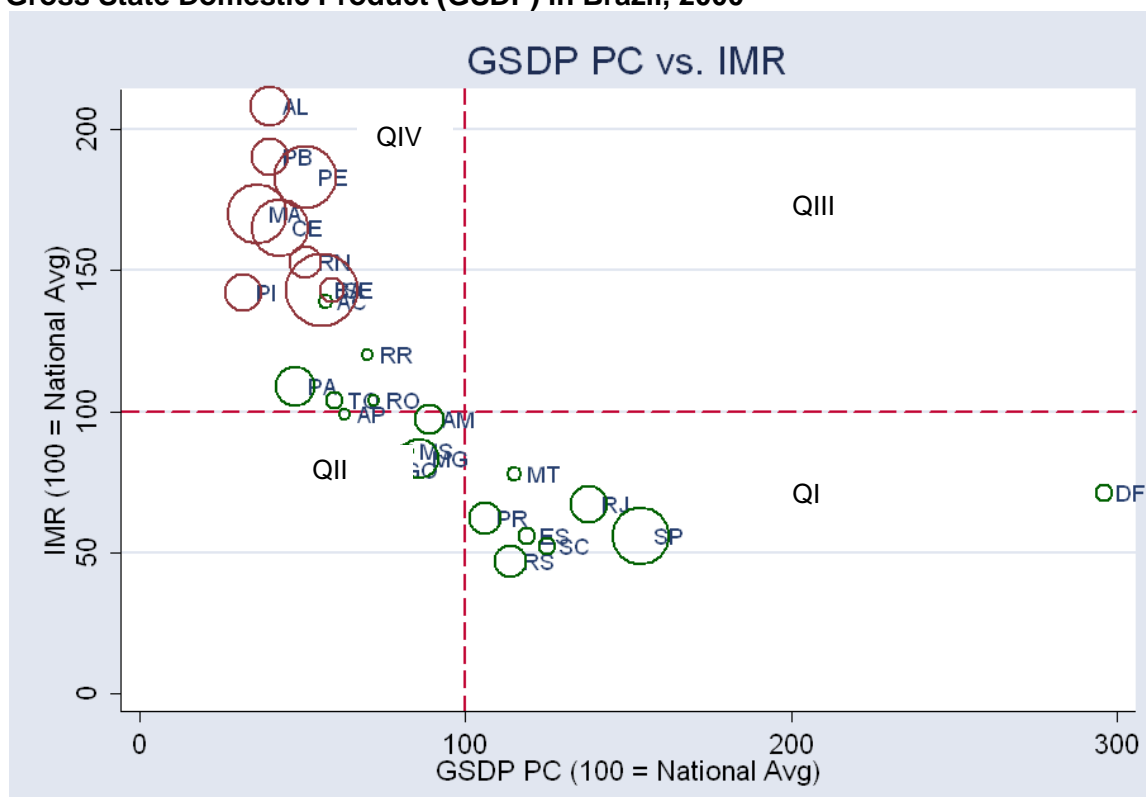
2.13 Observations from figures 2.1–2.3 allow policymakers to ask the relevant questions. For example, Brazilian policymakers may be interested in understanding why the state of Mato Grosso do Sul has the same poverty rates as Rio de Janeiro and Sao Paulo, which has twice its GSDP?

Figure 2.2 Leading Areas Are Not without Their Problems in Egypt, 2004



Note: Red circles indicate what the respective countries identified as lagging areas. Green circles indicate the remaining regions (leading and intermediate) in the respective countries.
Source: Authors' calculations based on data from UNDP.

Figure 2.3 Disparities in Social Outcomes Are Greater than the Disparities in Gross State Domestic Product (GSDP) in Brazil, 2000

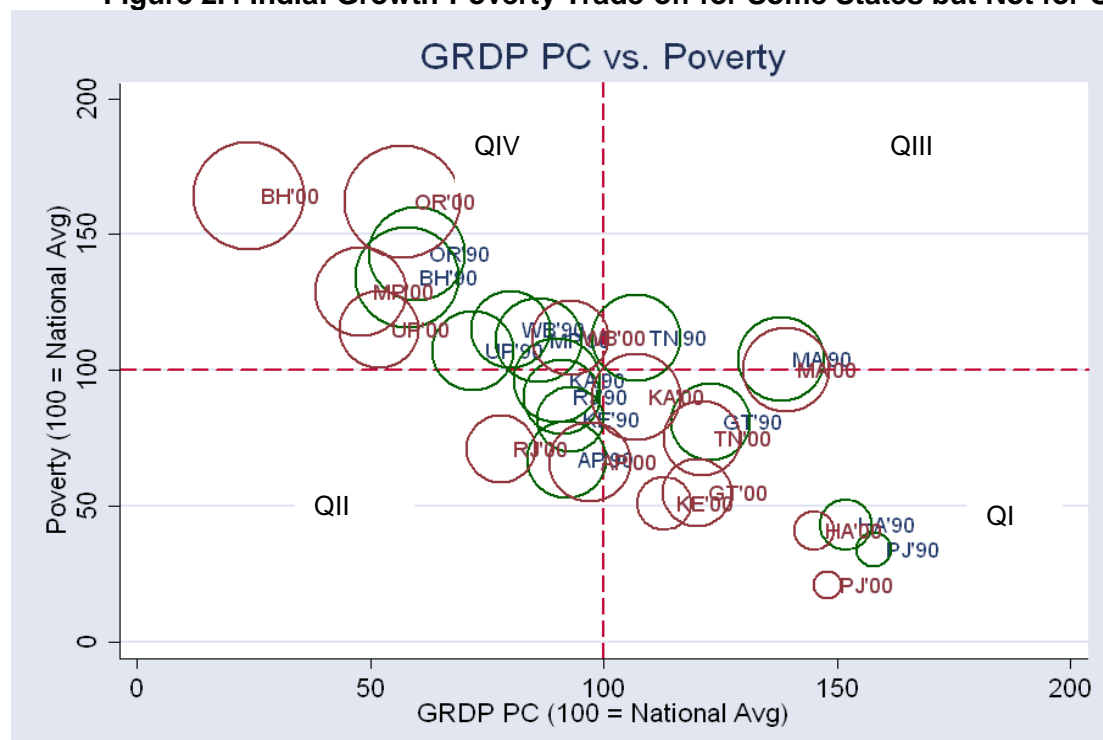


Note: Red circles indicate the lagging areas identified by the respective countries, the states in Northeast Brazil. Green circles indicate the remaining regions (leading and intermediate) in the respective countries.
AC=Acre, AL=Alagoas, AM=Amazonas, AP=Amapá, BA=Bahia, CE=Ceará, DF = Distrito Federal, ES=Espírito Santo, GO=Goiás, MA=Maranhão, MG=Minas Gerais, MS=Mato Grosso, PA=Pára, PB=Páriba, PE=Pernambuco, PI=Piauí, PR=Paraná, RJ=Rio de Janeiro, RN=Rio Grande do Norte, RO=Rondônia, RR= Roraima, RS=Rio Grande do Sul, SC=Santa Catarina, SE=Sergipe, SP=São Paulo, TO=Tocantins.

Source: Authors' calculations using IBGE data.

2.14 Figure 2.4 is a dynamic example, in this case of India, with changes in the performance of states over time. States like Haryana and Punjab have maintained their leading positions (quadrant I), while Bihar, Orissa, and Madhya Pradesh have continued to lag (quadrant IV) throughout the 1990s. The problems of the three lagging states, as well as Uttar Pradesh, are important because of their poverty densities (as shown by the bubble size). During 1990–2000, states such as Kerala, Gujarat, and Tamil Nadu moved from intermediate status (quadrants II and III) to leading. All three achieved growth alongside poverty reduction (moving in the southeast direction into quadrant I). In contrast, Bihar and Madhya Pradesh are both worse off in terms of declining GSDP and increasing poverty. Andhra Pradesh and Karnataka, not as visually obvious here, have achieved higher growth without a decrease in poverty.

Figure 2.4 India: Growth-Poverty Trade-off for Some States but Not for Others



Note: Red circles indicate data for 2000, and green circles are data for 1990.

AP=Andhra Pradesh, BH=Bihar, GT=Gujarat, HA=Haryana, KA=Karnataka, KE=Kerala, MH=Maharashtra, MP=Madhya Pradesh, OR=Orissa, PJ=Punjab RJ=Rajasthan, TN=Tamil Nadu, UP=Uttar Pradesh, WB=West Bengal.

Source: World Bank database.

2.15 A number of caveats are important when analyzing spatial disparities. First, data are typically only presented at particular levels of definition according to the administrative boundaries.²⁷ Second, care must therefore be taken to understand the degree to which interregional, compared with interpersonal, poverty would be salient. Third, particular indicators may be subject to measurement error. Fourth, area disparities increase with disaggregation. Last, the size of areas varies significantly from country to country. For example, the economy of the third largest state in Brazil, Minas Gerais, is equivalent to the economy of Peru. As with any methodologies, there are advantages and disadvantages to the graphical approach, as highlighted in box 2.1.

Box 2.1 Advantages and Disadvantages of the Graphical Approach

Multidimensional analysis is a simple, quick visual tool for first-stage diagnostics. The methodology can be applied to any variable and at any level of disaggregation. Benchmarking against the national average reduces comparability problems—as opposed to using an international benchmark, which may not be measured on the same basis. In cases where survey methodology or sample may have changed over time normalizing against the national average reduces the risk of lacking comparability across time. But for more informed policymaking, this methodology should be followed up with a second-stage analysis—to identify, for example, the constraints to growth at the regional level.

²⁷ Northeast Thailand is not an administrative boundary, but given the high number of provinces (more than 100), this regional aggregation seems more reasonable and manageable and is in line with the request of the government.

3. TYPES OF LAGGING AREAS

3.1 Based on the specific sample of lagging areas that was included in this review, this section develops a typology that allows us to make some informed judgments about the sequencing and policy mix that may suit them better.

3.2 This typology brings together the three important geographic dimensions: the first-nature geography (resource endowment), second-nature geography (defined here as the extent to which infrastructure policy can help overcome the first-nature geography constraint of remoteness through better access to markets), and poverty density.²⁸

- Natural resource endowment (first-nature geography) includes the endowment of minerals, including oil and gas and biodiversity, fertile soil, and adequate rainfall.²⁹ Areas are grouped into resource-rich or resource-poor categories, according to the importance of natural resource endowments to the area's economy. This can be measured by their contribution to the area's GDP, to fiscal revenues, and to export earnings and the percentage of labor force employed.³⁰ Areas where resource potential has been identified but remains untapped due to various reasons have been classified as resource poor.
- Market access is the extent to which second-nature geography (such as infrastructure policy and investment) can compensate for the constraints of first-nature geography (such as remoteness or landlockedness). Developed transportation networks can integrate a landlocked area with markets, as in the provinces of Northeast China. On the other hand, a coastal area could still be geographically remote if it is poorly connected to markets or ports, as is the case in the zonas extremas of Chile, the islands off Java, and the southern states of Mexico. One extreme example of remoteness is the Northeast Special Category States (NESCS)³¹ of India, an area that is hilly and forested, with only 2 percent of its borders connected to the rest of India and limited connection to surrounding countries.
- Poverty density is defined as an area's share of the total poor of a country. Although poverty incidence is often highest in the lagging areas, the poor density is higher in the leading areas, where the majority of the population resides. However, the poverty incidence in Northeast Brazil, Upper Egypt, the low-income states in India, and Northeast Thailand is the highest, and those areas are where the majority of the poor live. Policy options become limited as the density of the poor increases.

3.3 Based on the description above, the basic four groups of lagging areas represented in the observed sample as shown in table 3.1 are:

²⁸ Collier (2006) uses a stratification of resource endowments and location (coastal versus landlocked) to discuss growth prospects for African countries.

²⁹ This knowledge review does not address biodiversity resources in great detail.

³⁰ Regionally aggregated data are not available in most cases. We have used US Geological Survey (USGS) reports that provide production data (albeit sometimes incomplete), supplemented by other reports, to infer the extent to which the region is endowed with a particular natural resource.

³¹ The NESCS is Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura.

- Group 1: Resource-rich connected areas.
- Group 2: Resource-rich remote areas.
- Group 3: Resource-poor remote areas.
- Group 4: Resource-poor connected areas.

Table 3.1 Typology and Examples of Lagging Areas

		Market access ^a		
		Poverty density	Connected	Remote
Resource Endowment	Rich	Low	1. Resource-rich connected areas US Rust Belt states; ^{b,c} Sindh, Pakistan; Northeast China	2. Resource-rich remote areas Southern states of Mexico; provinces of Aceh, Kalimantan and Papua, Indonesia; ^d zonas extremas, Chile
		High	Bihar, India; Alagoas and Rio Grande do Norte, Brazil	Northeast Brazil (Bahia, Ceara, Maranhao, Paraiba, and Piau); Orissa, India; ^e Northeast Special Category States (NESCS), India ^{c,f}
	Poor	Low	4. Resource-poor connected areas Molise, Southern Italy	3. Resource-poor remote areas Balochistan, Pakistan; ^g Southern Italy
		High	None	Northeast Thailand; ^h Northeast Brazil; Northwest Frontier Province (NWFP), Pakistan; ⁱ Upper Egypt ^c

a. Areas are defined as remote if the index of travel time access is more than 100, and connected if less than 100.

b. US Rust Belt states are disproportionately concentrated in the Northeast and Midwest.

c. Included here but is not among the cases discussed in detail in the knowledge review.

d. Due to its limited refining capacity and growing domestic demand, the country is a net petroleum importer. Indonesia's oil production has been declining since 2000. New investments have been limited by problems related to regional autonomy, security, labor, taxes, regulations and infrastructure constraints.

e. Coastal but classified as remote based on travel time.

f. NESCS.

g. Reported to have iron ore reserves. Major obstacle to investment is inadequate infrastructure (USGS 2006).

h. Undiscovered copper in Province of Loei.

i. Hydroelectric potential.

Source: Authors' compilation based on World Bank country reports and USGS (2006).

3.4 The first group, resource-rich connected areas, is (or once was) endowed with natural resources and well connected to market centers. Unable to adjust their economies to the changing economic environment and facing the depletion of mineral resources, areas such as Sindh, Northeast China, and the US Rust Belt have lost their competitive positions. But they lack the typical characteristics of a lagging area. Most of their economic and social outcomes may still surpass the national average, and they are often endowed with an educated labor force that may require retraining to adapt to the changing environment. This group is commonly

known as the rust belts, or as the one-company towns in the former socialist economies.³² In others, such as Bihar, governance and capacity may have limited its ability to fully exploit its natural resource potential.

3.5 Resource-rich remote areas have resources but are geographically distant from markets.³³ In most of these cases governments developed the mineral-rich areas as enclaves; infrastructure investments were made only as they relate to the particular extractive industries. Examples include the Indian state of Orissa, Aceh, Kalimantan and Papua provinces in Indonesia, and parts of Northeast Brazil.

3.6 Resource-poor remote areas are devoid of productive land, favorable agroclimatic conditions, and exploitable natural resources and are distant from markets. Despite the lack of comparative advantage, agriculture has been the backbone of the economy and will continue to be in the medium term. For example, despite the lack of irrigated land, the Northwest Frontier Province (NWFP) continues to produce cereal—partly due to the price supports in Pakistan and the concern for subsistence—even though horticulture provides five times the income per hectare and requires five times more labor, which provides employment opportunities for landless laborers and underemployed labor from household.³⁴ Pakistan's NWFP, Northeast Thailand, Upper Egypt, and parts of Yemen fit in this group.

3.7 To the best of our knowledge, from the observed sample, only the Molise province in southern Italy fits in the last group, the connected resource-poor areas. Molise is unique in that, though resource poor, it benefits from the connectivity spillover of being close to Rome. Our hypothesis is that governments are unlikely to invest heavily in infrastructure to link areas that are resource poor, so examples of such areas are limited. Due to their unique nature, we do not discuss this group at length.

NATURAL RESOURCE ENDOWMENT

3.8 Resource endowment comprises renewable resources (land, water, and ecosystems), on which agriculture, environment service-based, and tourism activities can be built, and non-renewable resources (minerals, oil, and gas). Natural resources can provide a comparative advantage as well as a foundation to generate wealth and to develop an economy. But primary-commodity dependency can also lead to vulnerability to fluctuations in market price and weather.³⁵

3.9 Physical geography and natural resource endowment influence the spatial distribution of populations and economic activity in many countries. For example, 95 percent of Egyptians occupy 4 percent of the land along the Nile and the delta, despite costly government efforts to develop satellite cities in the desert (map 3.1). Population settlements in the Kingdom of Saudi Arabia are concentrated along the petroleum clusters on the east-west axis (map 3.2).³⁶ In contrast, population settlements are noticeably missing from harsh geographic areas, such as

³² The one-company town emerged during the socialist era in an effort to encourage regional specialization and large-scale production (Dillinger 2007).

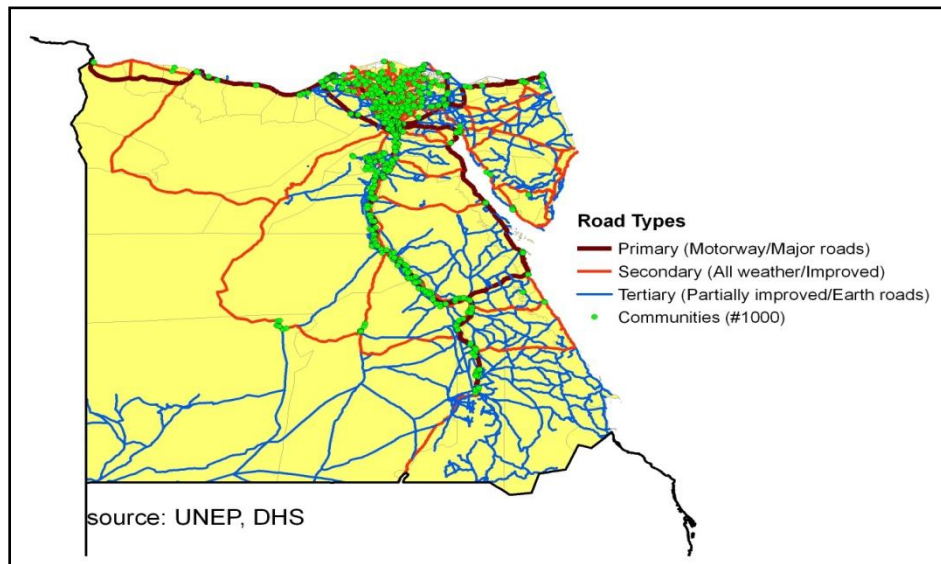
³³ This provides a different perspective from the findings in Collier (2006) that suggest location constraints can be overcome in resource-rich countries.

³⁴ The concern for subsistence is not unwarranted. NWFP produces only half of its wheat requirement and imports the remaining from other provinces (mainly Punjab) and abroad. In 2004 Punjab unilaterally imposed a ban on wheat shipment to meet its procurement target, despite the fact that wheat policy is in the federal domain.

³⁵ For more discussion on the role of agriculture in development, see the *World Development Report 2008*.

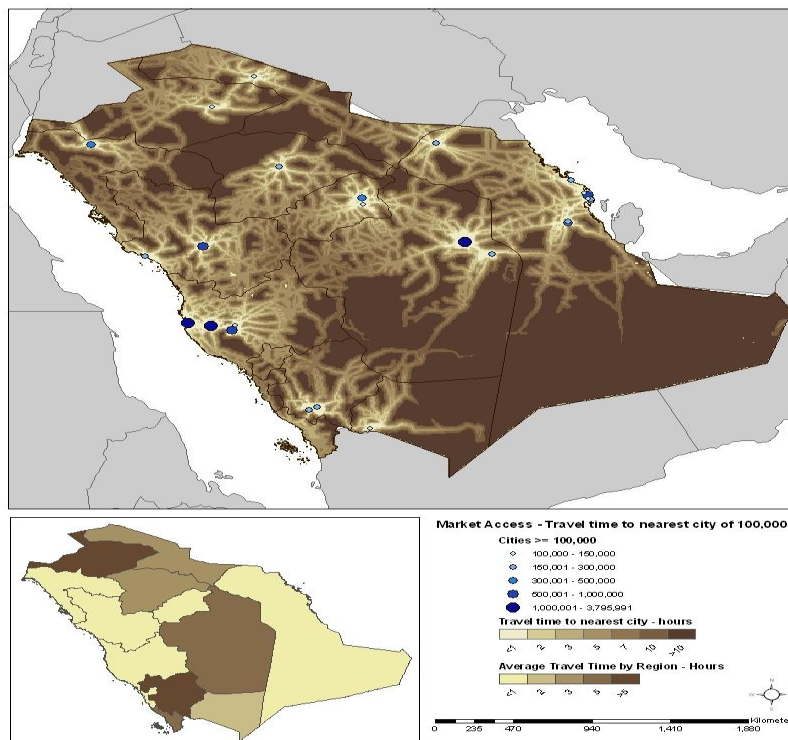
the Amazonas, parts of Pakistan, Northeast Thailand, and the western provinces of China. (These maps are available in annex E.)

Map 3.1 Population in Egypt Concentrated Along the Nile, 2007



Source: Hon 2007.

Map 3.2 Population Settlements in Saudi Arabia Are Concentrated along the East-West Axis of the Petroleum Clusters, 2007



Source: Author's calculation based on data from CIESIN.

Natural Resources: Blessing or Curse?

3.10 While this review does not address the very vast literature on the contribution of natural resources to economic growth and development, it is important to underscore a few facts. First, to understand the linkages between natural resources and growth, it is important to distinguish between renewable resources and non-renewable resources.

3.11 **A word on renewables.** Activities relying on renewable natural resources include agriculture, fisheries, forestry, and other productive or service activities relying on the environment or biodiversity resources, including tourism. One of the most important activities relying on renewable natural resources—fertile land and water—is agriculture. Agriculture’s contribution to growth is related to the productivity of land, labor, and capital used in the activity, on the one hand, and to its linkages to other aspects of the economy, through employment generation and input-output relationships with other productive sectors. The value of its contribution to GDP may be lower than that of other activities such as manufacturing and services, but the linkages to the local economy may be stronger, particularly in employment generation and complementarity with non-farm rural activities. *The World Development Report 2008: Agriculture for Development* identifies four complementary pathways out of poverty, namely:

- Smallholder farming through improved productivity.
- Wage employment in agriculture.
- Wage and self-employment in rural nonfarm.
- Migration out of rural areas.

3.12 **Mixed evidence on non-renewables.** While agriculture has the potential to develop rich linkages to the local economy, the opposite is often true for extractive industries based on non-renewable resources. There are also concerns that the development of minerals, especially where large revenue flows occur because of global market bonanza, may pose more risks than benefits to the producing region or country—dampening opportunities in other sectors or causing conflicts over the revenue flows generated. Nonetheless, successful examples include Chile’s Antofagasta region, the southwestern area of Ghana, and Shanxi province in China.³⁷

3.13 International evidence on the links between mining resources and growth is mixed. Mining resource sectors tend to have weak linkages to the rest of the economy because of capital-intensive production that uses imported inputs and generates little employment. Furthermore, mineral extraction poses considerable threats to the local environment and can have adverse social implications, which leads to increased state involvement. The size of economic rents represents an unusual challenge to government’s management and distribution responsibilities. Moreover, the mining sector in most countries may be too small to play a role in poverty reduction strategies.³⁸

3.14 Using natural resource exports as a percent of GDP to measure resource endowment, Sachs and Warner (1997; 2001) show that resource abundance leads to lower national growth. Their results have been challenged by others. Lederman and Maloney (2007), for example,

³⁷ IFC 2002.

³⁸ The mining sector can play an important role in poverty reduction strategies if the approximate share is one or all of the following (a) >5–10 percent of fiscal revenue; (b) >10–25 percent of export earnings; (c) >3–5 percent of the GDP; or (d) >10–15 percent of the industrial workforce. This applies both at the national and subnational level (see Weber-Fahr and others 2001).

show that this relationship does not hold for panel data analysis. Mehlum, Moene, and Torvik (2006) show that the resource curse phenomenon only applies to countries with inferior institutions, such as Nigeria, Uganda, and the Republic of Congo (figure 3.1).³⁹

3.15 *Evidence at the subnational level.* Our pooled analysis of eight countries and 125 observations at the subnational level shows that natural resources are significantly and negatively related to GDP growth, which appears to support Sachs and Warner's (1997; 2001) findings. Due to data constraints, we used a dummy variable of 1 to indicate natural resource abundant areas (see annex F for details of results). Besides natural resource abundance, road density was the only other variable that was significant in explaining GDP growth. In addition to the pooled analysis, we performed country-specific regressions for a select number of countries. The robustness of the results, however, is subject to question, given the very limited number of observations.

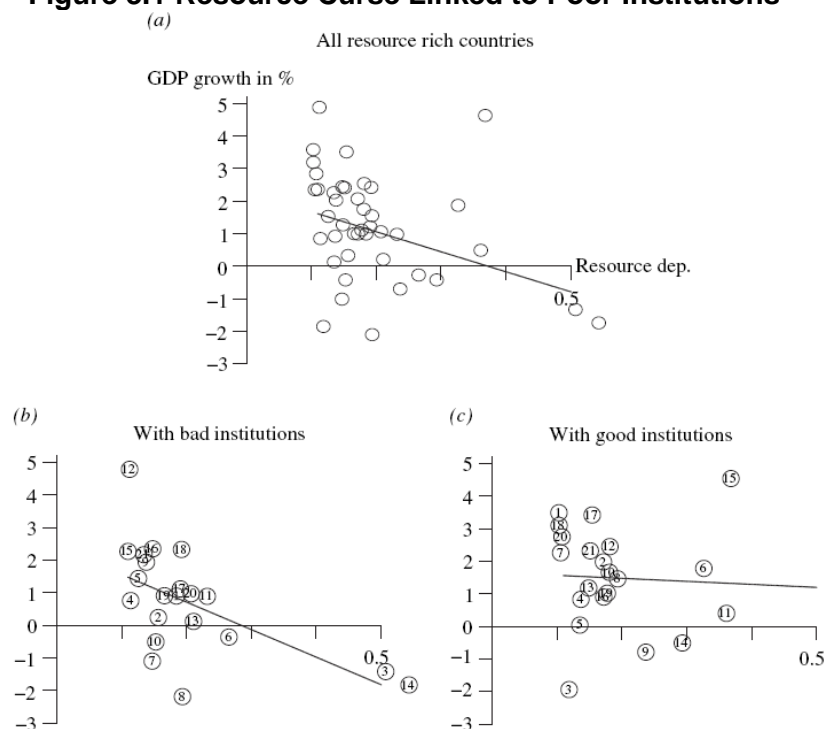
3.16 *Country experiences with mining resource wealth.* Some countries—notably Australia, Botswana, Chile, and Norway—have prudently harnessed their resource wealth to create prosperous economies. Strong, accountable institutions in Australia and Norway ensure that minerals are exploited judiciously, environmental impacts are minimized, and windfalls are used to deliver public goods and sustain broad-based development. Deep reforms in Chile have generated broad-based growth. Botswana's governance structure and fiscal rectitude promote benefit sharing through provision of infrastructure and public goods that promote investment. In contrast, the lack of fiscal discipline in Nigeria has led to squandered wealth, and revenue sharing between oil and non-oil states has led to severe political problems.

3.17 Countries rich in biodiversity and forestry are often confronted with the management of sustainable resources. Mexican environmental authorities estimate that the country loses the equivalent of a year's worth of GDP every 10 years through the loss of natural resource capital.⁴⁰ Most of the loss occurs in the southern states in the form of soil degradation and desertification, resulting in abject poverty for those who rely on the land for their livelihoods. In the case of non-renewable resources, such as oil and minerals, funds have been established in countries to share benefits and save for the future. It is unclear if a similar fund is warranted for renewable resources that are being depleted at rapid rates.

³⁹ They used an unweighted average of indexes from Political Risk Services in five areas: rule of law, bureaucratic quality, corruption in government, risk of expropriation, and government repudiation of contracts.

⁴⁰ Samaniego 2002.

Figure 3.1 Resource Curse Linked to Poor Institutions



Note: The countries included in panel (b) are, by number: 1. Bolivia, 2. El Salvador, 3. Guyana, 4. Guatemala, 5. Philippines, 6. Uganda, 7. Democratic Republic of Congo, 8. Nicaragua, 9. Nigeria, 10. Peru, 11. Honduras, 12. Indonesia, 13. Ghana, 14. Zambia, 15. Morocco, 16. Sri Lanka, 17. Togo, 18. Algeria, 19. Zimbabwe, 20. Malawi, and 21. Dominican Republic. The countries in panel (c) are: 1. Tunisia, 2. Tanzania, 3. Madagascar, 4. Jamaica, 5. Senegal, 6. Gabon, 7. Ecuador, 8. Costa Rica, 9. Venezuela, 10. Kenya, 11. Gambia, 12. Cameroon, 13. Chile, 14. Ivory Coast, 15. Malaysia, 16. South Africa, 17. Ireland, 18. Norway, 19. New Zealand, 20. Belgium, and 21. Netherlands. In (a) the regression for the total sample of 42 countries gives a correlation of $R^2=0.11$ and a significant slope of -6.15 . In (b) the regression for the 21 countries with the worst institutional quality gives an $R^2=0.35$ and a significant slope of -8.46 . In (c) the regression for the 21 countries with the best institutional quality gives an $R^2=0.0$ and an insignificant slope of -0.92 . Source: Mehlum, Moene, and Torvik 2006.

MARKET ACCESSIBILITY

3.18 Market accessibility is an important determinant of growth. It refers not only to the quality of transport networks that link different locations to markets but also the size and density of these markets. The potential for specialization and economies of scale increases with market size. Lagging areas in small countries and in large, sparsely populated areas are disadvantaged because of the limited size of the market. For example, the NWFP in Pakistan and the Northeastern Special Category States have no medium-size cities, and the western provinces of China, Tibet, and Qinghai have only one medium-size city. In contrast, Sindh has 11 medium-size cities, and Andhra Pradesh and Liaoning both have 43 (table 3.2).

3.19 Table 3.2 provides three measures of market accessibility: travel time (hours) to a medium-size city, road density per square kilometer area, and road density per 10,000 population.⁴¹ Although connective networks include rail, ports, postal, air, and

⁴¹ Using travel time provides a more accurate measure of accessibility than the computationally simple straight line distance (World Bank 2008e). We have not used the self-reported travel time from household surveys, which are often subject to measurement error (Escobal and Laszlo 2008). A region is performing above the national average if it has a shorter travel time, and a higher road density, in terms of both area and population.

telecommunications, our analysis is limited to road networks due to the lack of comparable and consistent cross-country data.⁴²

Table 3.2 Measures of Market Access for Lagging Areas, 2007

Country and region	Travel time (hours) to medium-size city ^a	Number of medium-size cities ^a	Roads (kilometer per 10,000 population)	Roads (kilometer per 100 square kilometer area)
Brazil	3.0	144	31.0	6.5
Northeast	2.4	43	21.6	7.8
Chile	2.9	23	90.8	7.5
Zonas extremas	2.1	4	72.8	4.2
China	2.1	27	9.41	7.1
Northeast	1.2	32	5.6	7.5
Southwest	3.6	16	4.8	7.0
Northwest	4.3	11	9.5	3.4
India	2.2	29	5.3	9.4
Low-income states ^b	2.0	28	3.0	9.6
Northeastern Special Category States	7.4	1	4.7	6.9
Mexico	1.8	6	24.3	21.4
Southern states	4.2	2	16.4	10.2
Pakistan	2.9	56	6.8	6.7
Northern Areas	34.6	5	21.1	4.4
Northwestern Frontier Province	5.4	0	2.7	6.9
Thailand	3.4	20	6.3	7.6
Northeastern	3.5	1	8.5	10.8
Southern	3.5	3	6.9	8.2

a. Refers to a city of 100,000 population

b. Some low-income states, such as Bihar, Orissa, and Uttar Pradesh, are well connected in terms of national highways but lag behind in village access to paved roads, which is not captured here.

Source: Authors' calculations based on Nelson 2007.

3.20 Travel time is not as widely available as road density because it requires geo-referenced data. Travel time is defined as the time it takes to travel from any point to a medium-size city within a defined area.⁴³ A medium-size city refers to a city of 500,000 people in the two largest countries, China and India, and 100,000 in all other countries. The designation of a medium-size city as a city of 100,000 is consistent with the definition used elsewhere.⁴⁴

⁴² The costs of telecommunications have declined significantly to the extent that it is becoming the most critical network in connecting remote areas.

⁴³ For further details, see the technical note on the methodology for estimating travel time in annex D.

⁴⁴ World Bank 2008e; Henderson and Wang 2007; OECD 2003.

3.21 Measures of road density can provide inconsistent results in extreme cases of sparsely populated, remote areas or densely populated, urban areas. For example, in densely populated Northeast China, road density per square kilometer area is higher than the national average, but road density taking into account the population size shows the opposite. Conversely, the road density per square kilometer in sparsely populated Northwest China is lower than the national average. Its higher road density per 10,000 population suggests that the Northwest region is better integrated to markets when in reality it is not, as shown by the travel time that is 2 to 4 times longer than the national average of 1.2 hours.

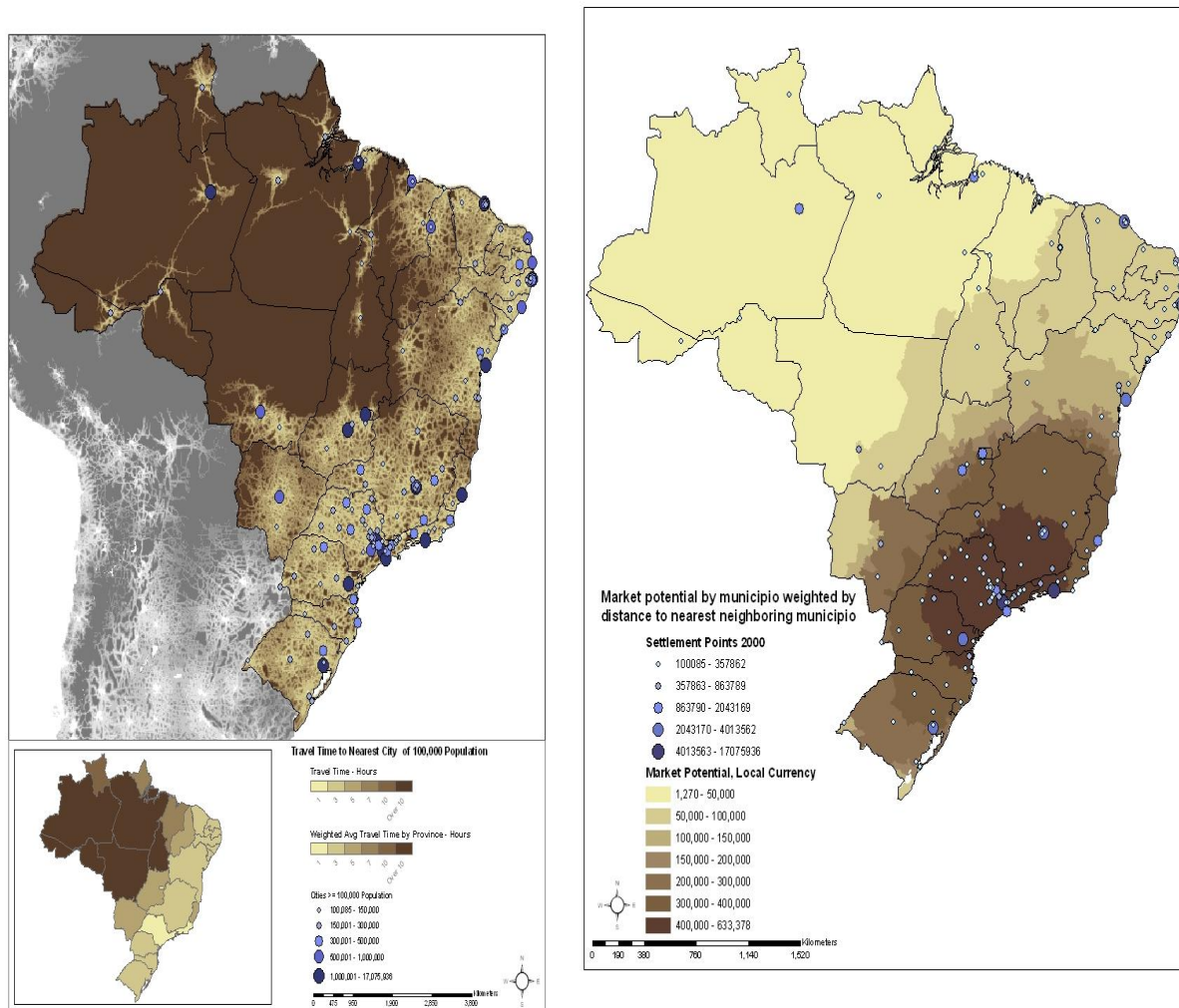
3.22 *The definition of a market may vary.* The definition of city size used here may suffice for areas producing relatively income-inelastic goods, such as agricultural products. But for areas producing differentiated goods, the purchasing power of markets may be an important consideration. Map 3.3 shows that most of Brazil, except for the north (Amazon), has reasonable market access as defined by travel time. But in the right-hand panel the density of market power, taking into account both population and income per capita, is disproportionately concentrated in the southeast. Similarly, the market for an area that produces intermediate inputs is also predetermined. For example, the petrochemical products from the state of Bahia were exported to Sao Paulo to be integrated into goods for final demand. In many industries the definition of a market may be the nation's capital city or the capital city of a state or province. Many industries view being in the center of administration as critical to their access to political influence, which would be particularly important in countries where decisionmaking is highly centralized.

3.23 Also note a few caveats regarding the methodology here. For comparability across countries, we used the global roads dataset, which has some limitations.⁴⁵ First, it does not differentiate between paved and unpaved roads. Second, assumptions on the speed of a particular type of road are uniform across countries. Third, it does not factor in delays due to excessive customs checking, which can increase logistics and transport costs. In countries like China and Iran, logistics costs are a significant proportion of total transportation costs.⁴⁶

⁴⁵ For within country analysis, the model can be calibrated for each country using more refined, country-specific data.

⁴⁶ In China improvements in road networks did not lead to increases in productivity due to logistics costs.

Map 3.3 Although Market Access Is Widely Available Except for Northwest Brazil (left panel), Market Power Is Concentrated in the Southeast (right panel)



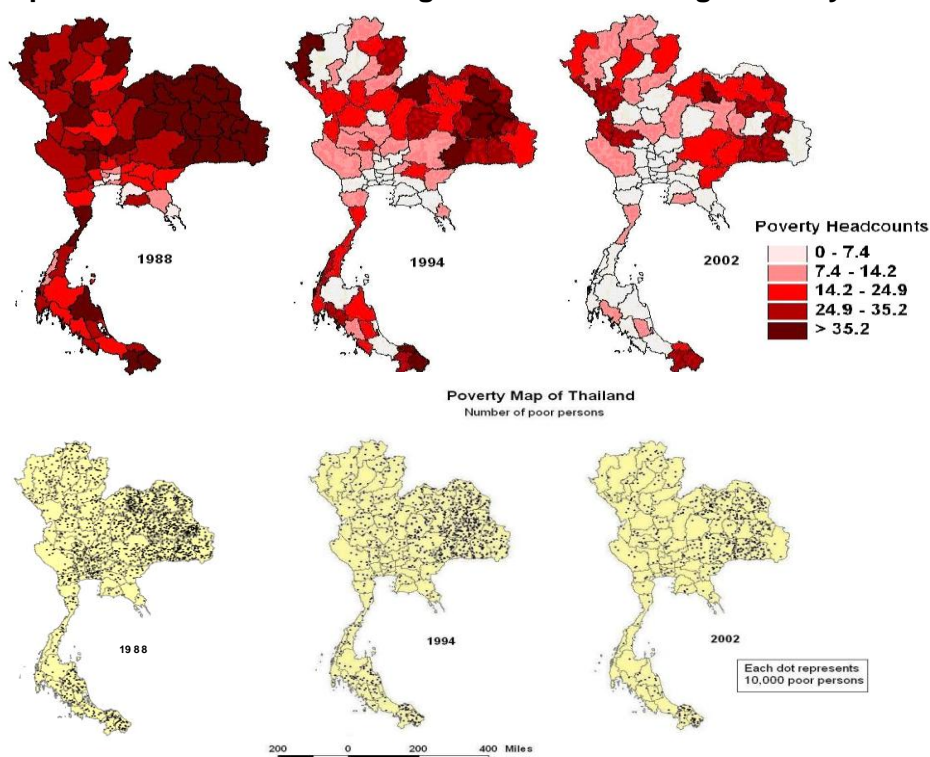
Source: Authors' creation using internal IPEA 2000 data.

POVERTY DENSITY

3.24 The incidence of poverty is often highest in the lagging areas, while typically (but not always) the greatest number of the poor are concentrated in the leading areas where population density is highest. Lagging areas that are also home to a disproportionate share of the poor can become a nagging problem for policymakers. Table 3.3 shows that poverty density is determined by poverty incidence and population density. In cases where poverty incidence and population density are low, poverty density will also be low. Similarly, when poverty incidence and population density are high, poverty density will be high. But when poverty incidence and population density do not overlap—such that when the former is high (low) and the latter is low (high)—poverty density cannot be determined a priori. In Thailand, for example, poverty reduction efforts have been most successful in reducing poverty everywhere but the remote areas of the Northeast. As a result, the majority of the poor remains concentrated in the Northeast (map 3.4).

3.25 The geographic coincidence or contrast between poverty incidence and poverty density can provide important insights into policy sequencing and prioritization. Areas with high poverty density (the bottom right quadrant in table 3.3) where a significant share of the poor live would require more immediate policy action. The challenges in these areas are likely to be more entrenched and complex but would be the most cost-effective. In contrast, intervening in areas where both poverty incidence and poverty density would seem the least urgent (top left quadrant). Interventions in these areas have often been prompted by specific political or institutional reasons, for instance, concerns with national integrity in Chile's zonas extremas. Cases in the lower left quadrant of table 3.3 would be equivalent to the simpler, "1D" type in WDR 2009, and hence should be limited to broad-based reforms. The prioritization by the type of lagging area is further explored in section 5.

Map 3.4 Northeast Thailand: High Incidence and High Density in Poverty Overlap



Source: World Bank 2005f.

Table 3.3 Poverty Incidence and Poverty Density Do Not Always Overlap

Poverty incidence	Poverty density	
	Low	High
Low	Chile: Region XI, XII Pakistan: Balochistan	Pakistan: Sindh, North West Frontier Province Vietnam: Mekong Delta and Red River Delta
High	Western provinces of China Northwest Brazil Northeast India Southern Thailand	Brazil: Northeast Upper Egypt India: Bihar, Orissa China: Southwest provinces (Yunan, Chongqing), Northeast Mexico: Southern states Philippines: Eastern provinces Thailand: Northeast

Source: Authors' compilation based on various World Bank reports.

4. GOVERNMENT INTERVENTIONS IN LAGGING AREAS

4.1 This section discusses the rationale for government interventions dealing with lagging areas and the various instruments that have been employed in countries. The policy instruments can be grouped into four categories, ranging from broad-based structural reforms, which are aimed at addressing market distortions and imperfections and are the least interventionist, to compensations for the unattractiveness of an area, which may deliberately create distortions to benefit certain population groups, activities, or location, and are the most interventionist. Moving from the least to the most interventionist, policymakers should realize that the different instruments have mixed success and associated costs. In some cases the impact of these instruments could be undermined by implicit policies that have unintended spatial consequences.

4.2 Proponents of regional policy have justified government intervention as a means to redress spatial disparities (box 4.1). In some case they have argued that interventions in lagging areas can contribute to overall growth due to unexploited potential (a positive sum game). Opponents, on the other hand, have argued that interventions can lead to trade-offs in growth between the leading and the lagging areas (a zero sum game), while skeptics argue that interventions in lagging areas will result in a decrease in overall growth (a negative sum game).

4.3 Table 4.1 provides a description of the various policy instruments that have been attempted—successfully and unsuccessfully—by various countries to address area disparities. It highlights explicit regional policies and implicit policies that have a spatial impact. Instruments that have and continue to be used to promote growth and development in the respective lagging areas can be grouped into four categories, ranging from broad-based structural reforms, first-best policies that aim to correct existing distortions, to the most interventionist policies that compensate for the areas' unattractiveness (figure 4.1).

NATIONAL POLICY WITH UNINTENDED SPATIAL IMPACTS

4.4 Some national policies that are non-spatial in intent or design may have unintended consequences on lagging areas.⁴⁷ The following are some examples of policies that may have restricted the production potential of some lagging areas while benefiting some leading areas. The differential impact is due to the geographical differences in human capital, physical capital, natural resources, and land.

4.5 Federal pricing policies, in particular the equalization of prices of raw materials (oil, gas, coal, and steel), were implemented to provide equal access to these resources nationwide. By doing so, they have effectively removed the opportunities for mineral-rich areas to exploit their comparative advantage. For example, India's Freight Equalization policy, which equalized prices of coal, steel, and cement nationwide, robbed states like Bihar, Bengal, Orissa, and Madhya Pradesh of their comparative advantage.⁴⁸ It advertently encouraged oil processing to locate outside Orissa, which weakened its backward linkages. Similarly, the prices of power and petrochemicals were fixed throughout Mexico to the disadvantage of the southern states, which are endowed with hydropower and oil. Furthermore, the structure of freight rates⁴⁹ created an incentive for industries to be located near markets (leading areas) rather than near raw

⁴⁷ This should not be confused with the term "spatially blind" policies that is used in WDR 2009 and refers to regulations and the provision of social services.

⁴⁸ Chakravorty 2000.

⁴⁹ Freight rates were based on the value of service and increased with the cost of transporting bulk commodities; they were effectively subsidizing the leading areas.

materials, which were often found in the lagging areas.⁵⁰ In China the prices of natural resources were set artificially low to support the manufacturing sector, which further favored leading areas. Although the pricing policies in these countries have been discontinued, the negative impact may be long-lasting or irreversible.

Box 4.1 Rationale for Government Intervention

Many countries have pursued regional policies as a means to reduce spatial disparities. Countries have justified government intervention for several reasons:

Government failure. The deliberate or unintentional discrimination by governments against lagging areas, either in policies, expenditures, or the provision of services, may have perpetuated the divergence between leading and lagging areas. Excessive disparities could lead to social unrest, not only for the areas but for the country as a whole, particularly when poverty density is high (Northeast Thailand and India's low-income states), or in a minority or ethnically diverse region (southern states of Mexico, India's Northeastern Special Category States, western China, and Mindanao, Philippines).

Labor market failure. In depressed areas increased unemployment coupled with a lack of migration will lead to increased spending on social benefits in the long run (Northeast China, Sindh, United Kingdom, and the US Rust Belt states).

Capital market failure. Due to the cumulative effects of agglomeration in leading areas and the underdeveloped capital markets in lagging areas, capital (including foreign direct investment) remains concentrated in capital cities and their surrounding areas.

Diseconomies of scale in major urban areas. Governments in Egypt, Korea, Mexico, and Thailand, have been preoccupied with the negative impacts of spatial concentration in their major cities, such as congestion costs and the "crime and grime" associated with the uncontrolled urban explosion.

Land market failures. Land markets are virtually non-existent in lagging areas as a result of colonialism, ethnicity, and culture. Until today, land records in landlord states like Bihar are with the original owners or are non-existent. This prevents land consolidation and leasing, discourages investment in land, and limits access to credit for farmers who are unable to collateralize their land. In tribal areas land is viewed as communal property, and because of weak property rights, these areas typically face land-related conflicts. In Balochistan, despite rich minerals, private investments are discouraged by the uncertainty of property rights.

Territorial integrity and security preservation. The zonas extremas regions in Chile were integrated after military battles with Argentina, Bolivia, and Peru and were established as a plan to unite the country. In the early 1960s China had similar concerns for national security that resulted in a significant reallocation of state investment to the interior provinces of western China to build the "third front" with massive construction of military-industrial complexes.

Source: World Bank country reports, various (see references)

Trade and Industrial Policy

4.6 Prior to the 1980s, the strategy of import substitution in many developing countries tended to encourage further concentration in leading areas. This was evident in Brazil's long-standing import substitution policy favoring the southeast, particularly Sao Paulo. Industrial policy in Korea, Malaysia, and Thailand had also favored capital-intensive industrialization concentrated in capital cities. Similarly, Mexico's integration into the North American Free Trade Agreement (NAFTA) in the late 1980s has resulted in substantial inflows of FDI and increased demand for skilled workers in the border states, but spillovers elsewhere have been extremely slow or non-existent.

⁵⁰ Scott 1982.

Figure 4.1 A Menu of Policy Instruments for Lagging Areas

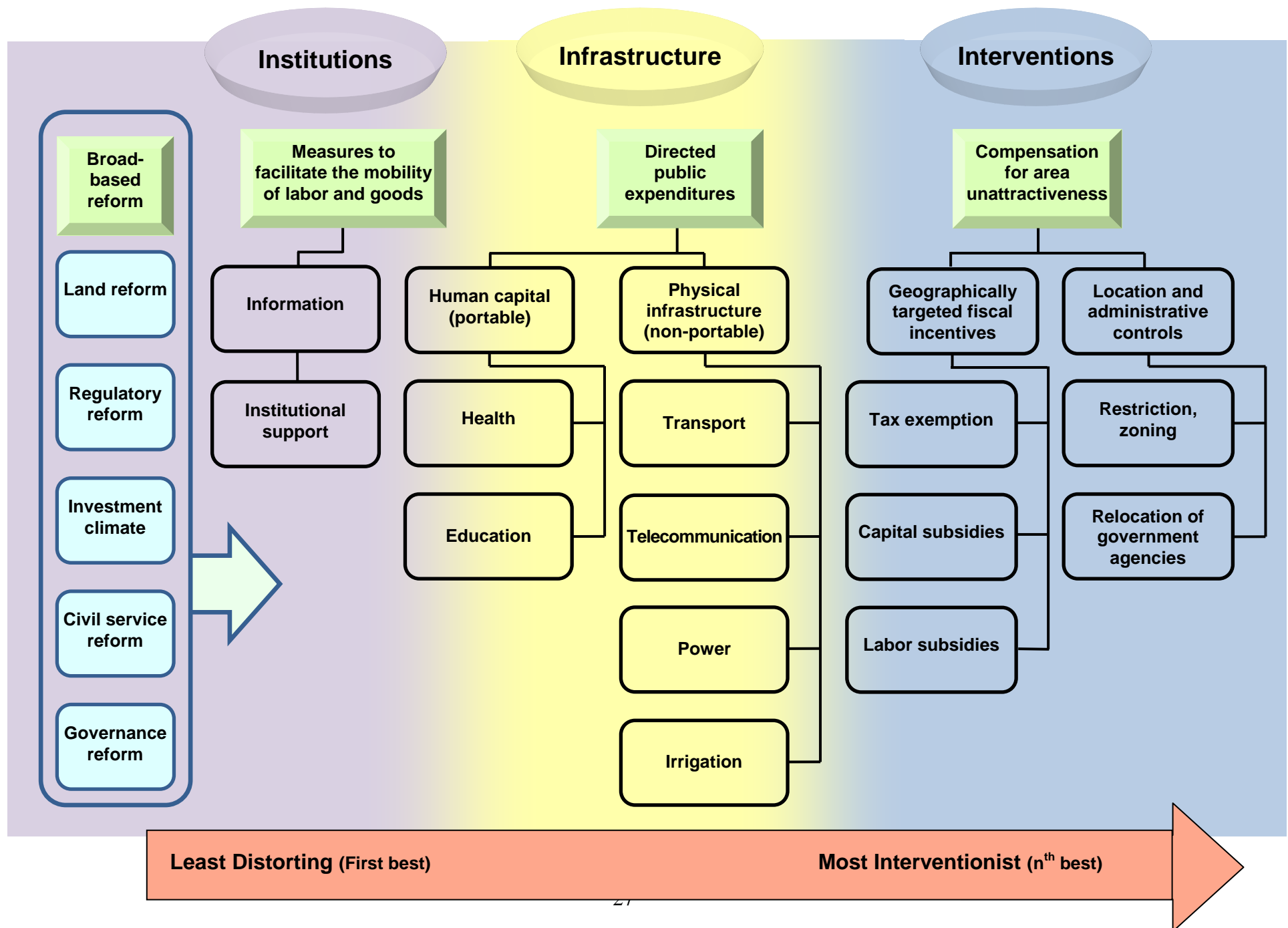


Table 4.1 Policy Interventions

Country	Broad-based reforms	Facilitate mobility of labor and goods	Directed public expenditure	Compensation for area unattractiveness
Brazil	<p>Fiscal reform</p> <ul style="list-style-type: none"> • Financing reform in education (FUNDEF) by ensuring nationwide minimum per student expenditure for grades 1–8. • Fiscal responsibility law. • Value-added tax reform (federal and some states). <p>Trade liberalization and stabilization program</p> <p>Social security reform (federal program remains problematic)</p> <p>Various land reforms</p> <ul style="list-style-type: none"> • Cedula da Terra • <i>Credito Fundario</i>, Bank-financed program on microlending to support the government's Land Bank program, but implementation problems still exist. 	<ul style="list-style-type: none"> • Federal wage legislation impedes states' ability to compete on wages. • Project on rural banks. 	<p>Infrastructure</p> <ul style="list-style-type: none"> • <i>Northeast Rural Poverty Alleviation Program</i> (Bank financed) – infrastructure in rural areas • Northwest Region Integrated Development: expand infrastructure • Sao Francisco River Transportation: aims to exploit river's water supply and northeastern dams during periods of droughts. <p>Education</p> <p>FUNDEF reform—states and municipalities must assign 15 percent of two principal revenue sources to FUNDEF account, which is reallocated to states based on enrollment.</p>	<p>Export processing zones</p> <p>Zona Franca de Manaus: create industrial, commercial, and farming zones to integrate the Amazon region. Benefits extended to western Amazon states (Acre, Rondonia, and Roraima).</p> <p>Subsidies and credits</p> <ul style="list-style-type: none"> • Exemption from federal taxes and imported equipment, exemption from tax for 10–15 years on special profit for new industrial and agricultural investments (FNE, FINOR). • Principal beneficiaries were petrochemical/metallurgy, shoes, food processing, and automotive in the form of tax exemption, subsidized land, utilities, and training. <p>Regional development authority</p> <p>Established for the Northeast (SUDENE) and for the Amazon region (SUDAM)</p> <p>Tourism growth poles</p> <p>National tourism development program (PRODETUR) to develop tourism in the Northeast (mostly, Bahia, Pernambuco and Ceara).^a</p> <p>Clusters</p> <p>Pro-Northeast Initiative was launched by Pernambuco, Bahia, and Ceara. World Bank was assisting these states to diagnose and implement development clusters.^b</p>
Chile	Trade liberalization		<p>Social programs</p> <ul style="list-style-type: none"> • Transportation. • Food and board fellowships for poor students. 	<p>Free trade zones</p> <ul style="list-style-type: none"> • Two in region I (Iquique and Arica). • Three in region XII (Punta Arenas, Navarino, and Tierra del Fuego). • One in region II (Tocopilla). <p>Subsidies and credits</p> <ul style="list-style-type: none"> • Investment tax credit (10–40 percent) in all zonas extremas regions. • Wage subsidy (17 percent) in all zonas extremas regions. • Income tax exemption for goods. • Investment grants (up to 20 percent of investments) in all zonas extremas regions.

Country	Broad-based reforms	Facilitate mobility of labor and goods	Directed public expenditure	Compensation for area unattractiveness
China	<ul style="list-style-type: none"> • Trade liberalization. • <i>Hukou</i> reform in 2000 has facilitated mobility of capital. • Series of price reform • State enterprise reform at the central and provincial (NE) level. • Rural financial reform (reorientation of the rural credit cooperative pilots). 	<ul style="list-style-type: none"> • Migration is still somewhat restricted by the <i>hukou</i> system (limits portability of pension and health insurance benefits). • Differential social insurance scheme across provinces limits labor mobility • Government provided assistance for voluntary migration through Bank-financed projects (see box 4.3) . 	Infrastructure Targeted infrastructure investments, first in the coastal special economic zones and then the Western region.	<ul style="list-style-type: none"> • Third Front Strategy (1960-70s): geo-political strategy aimed at dispersing industry away from the coast. • Special Economic Zones, open coastal cities, and Economic and Technological Development Zones (1980s) • Western Regional Development Strategy (1990s): improve access of inland localities in South-West to seaports, development of Yangtze River, and link north-west to China and Central Asia. • Northeast Revitalization (2000s): revitalize China's "rustbelts." Subsidies and credits <ul style="list-style-type: none"> • Preferential tax rates: income tax 15 percent in zones and 30 percent in the interior. • Tax holidays. • Credit matching.
India	Labor reform <ul style="list-style-type: none"> • Industrial Disputes Act 1947 (some states). Fiscal Reform <ul style="list-style-type: none"> • Fiscal responsibility legislation. • Value-added tax (some states). Civil service reform Karnataka Power sector reform Orissa Land reform Successful in Rajasthan and Orissa.	Removal of border taxes—facilitate mobility of capital and goods	Infrastructure Significant underspending in low-income states. ^c	<ul style="list-style-type: none"> • 2000: Special Economic Zones. However, its draconian labor laws apply. Sectoral caps apply to FDI. Subsidies and credits <ul style="list-style-type: none"> • Zoning restrictions. Ban industries from locating in metropolitan centers by reallocating large public sector projects in lagging areas. • GOI provides incentive package for industries in "special category states", which includes tax exemption and capital investment subsidies. • States also provide incentives to firms setting up in interiors (subsidies, concessional rate on electricity tariffs, deferment of VAT, and single clearance windows to ensure speedy approvals). North Eastern Development Council—set up to design and coordinate the implementation of the regional development strategy

Country	Broad-based reforms	Facilitate mobility of labor and goods	Directed public expenditure	Compensation for area unattractiveness
Mexico	Land reform (see box 4.2)	<ul style="list-style-type: none"> Border Industries Program: facilitate subcontracting of cheap labor by U.S. firms in border states. <p>1970s: shifted government agencies outside of capital.</p>	<ul style="list-style-type: none"> Public investment in large-scale irrigation (1940–70s) was only permitted in tenured lands and arid and semi-arid (northwest). In the absence of countervailing measures to stimulate development of rainfed agriculture elsewhere, area differences in agriculture sector were intensified. Infrastructure: Federal District received largest share. <p>Targeted regional and urban poverty alleviation programs</p> <ul style="list-style-type: none"> PRONASOL Regional Development and Employment Fund (one-third of the resources of the poverty alleviation program). Municipal Fund (Fondo de Desarrollo Social Municipal, FDSM): finances rehabilitation and construction of rural roads and maintenance of rural medical centers based on a formula taking into consideration national and state poverty indexes. Regional Fund for Indigenous Population: promotes and finances development of social infrastructure in 23 states with a high concentration of indigenous population 	<ul style="list-style-type: none"> Free zones for maquila industries located in Baja California and Sonora. No limitation on imports of items on the free zone import list. Some success in generating jobs, particularly for women, but some loss in revenues due to foreign firms not fully declaring profits. Industrial complexes without considering potential. Led to excessive dispersal. <i>Conjuntos</i> aimed at small and medium-size enterprises. Commercial centers in border cities. <p>Subsidies and credits</p> <ul style="list-style-type: none"> 1972: Promote industrial decentralization and regional development. Country divided into three zones, with varying levels of incentives. Tax exemption on import duties, sales, stamp and capital gains tax, accelerated depreciation, interest rate subsidy, technical assistance for studies, market research, and securing credit. Failed to induce industrialization beyond Zone 2 (secondary cities just outside the three major metropolitan centers, Mexico City, Guadalajara, and Monterrey). Guarantee and Development Fund: credit for small and medium-size enterprises. Limited demand from lagging states due to lack of information and marketing. Depreciation allowance for capital investments. Taxes on import duties of raw materials were already so low that they were not likely to affect location. <p>1970: relocation of government agencies outside Mexico City.</p>
Pakistan	<ul style="list-style-type: none"> Fiscal consolidation reform, national and provincial Civil service reform, national and provincial Land reform (failed, last in 1977) 	Limited mobility from NWFP and Balochistan due to division (Pashtun tribe)	<p>Infrastructure</p> <ul style="list-style-type: none"> In NWFP, no clear unified transport policy. Funding and capacities misaligned and hence infrastructure is major constraint. 	<p>Special economic zones</p> <p>Industrial estates</p> <ul style="list-style-type: none"> Tax holidays. Includes provision of electricity and water desalination plant.^d Exemption from property taxes. Tiered policy on employees' social security contribution and exemption on education tax.

Country	Broad-based reforms	Facilitate mobility of labor and goods	Directed public expenditure	Compensation for area unattractiveness
Thailand		<ul style="list-style-type: none"> • Seasonal migration. Intraregional rural-urban seems to be increasing, and interregional migration to Bangkok and its extended region seems to be slowing. • Bank of Agriculture and Agricultural Cooperatives (BAAC) extensive credit program. 		<ul style="list-style-type: none"> • Since 1987 Board of Investment location investment incentives program: objective to offer incentives to locate outside Bangkok, utilizing three spatial zones with varying levels of incentives. Failed to induce industrialization beyond the extended Bangkok region (see map 4.1)

a. See World Bank 2002b for estimates of costs and benefits.

b. See World Bank 2000.

c. See World Bank 2008c, table 4.6.

d. Due to the lack of fresh water.

Source: Authors' compilation based on World Bank country reports (see references).

Agriculture Policy

4.7 Large agriculture districts were created in the arid and semi-arid zones in Mexico, despite the southern states comparative advantage in water resources. Exemptions in water fees were granted in the northern region, which led to further overexploitation of the water supply.⁵¹ In Pakistan the federal and provincial governments maintained a minimum price for wheat, which sustained extensive wheat production and compensated for comparative disadvantages from small land holdings and costly irrigation. Similarly, the prices of sugar cane and beets are set through annual negotiations between the government of Northwest Frontier Province and the sugar mills. Prices are set by weight rather than sugar content, creating an incentive to maximize production. Technology exists to assess sugar content, and it is widely used in other countries—but not in Pakistan, which results in considerable inefficiency and waste. This is evident of elite capture with markets being manipulated by the small number of sugarcane millers.

Labor Policy

4.8 In many countries nationally imposed minimum wages and industry-wide collective bargaining practices weaken the comparative advantage of abundant unskilled labor in lagging areas. Brazilian law, for example, requires firms to offer an expensive benefits package for formal sector workers. Although many firms circumvent the system by staying informal, laws can still influence wages and benefits in the informal sector. The failure to liberalize labor laws has been one of the important factors impeding the ability of the Northeast to compete based on its abundance of unskilled labor.

BROAD-BASED REFORMS

4.9 Structural problems are more detrimental to the growth and development of lagging areas than elsewhere. For example, the absence of land markets limits the ability of the poor to migrate. State involvement in the delivery of private-sector services not only crowds out private-sector involvement but can bloat civil service and drain much-needed resources in an already fiscally constrained environment. Private-sector involvement is also limited by the weak governance and lack of regulatory framework in many lagging areas. These problems require broad-based structural reforms, which have been shown to have minimal cost and maximum traction. While ideal, these first-best interventions are often the most politically difficult to implement and can be lengthy. Hence, countries should continue to push for these reforms, even as they consider other policy options.

Land Reforms

4.10 Land reform is a contentious and politically charged issue in many developing countries. Problems faced by agriculture-based lagging areas include land fragmentation due to inheritance, land distribution, and weak property rights associated with colonialism and a tradition of communal property. Control of land becomes a salient factor in conflicts when opportunities for non-farm employment are slim. In such urban lagging areas as Karachi fragmented land markets have led to the escalation of prices and corruption.

⁵¹ OECD 2003. This is related to the fact that irrigation could only be supplied to tenured land (Scott 1982).

4.11 The Mexican experience shows that the judicial system may require swift but comprehensive reforms and creative solutions, such as out-of-court settlements (box 4.2). In contrast, the Indian case shows that the passage of a law does not always translate to implementation on the ground, where political will is lacking, and may have caused more damage to the vulnerable. In 1950 Bihar abolished the intermediaries between landlords and cultivators. Implementation was very slow, but it has been shown to protect small landholders when implemented properly. The first land ceiling act was passed in 1961, with subsequent amendments in 1973 and 1976. But only 1.5 percent of cultivable land was acquired and distributed by 1986. Of the three policies, tenancy reform has been the least successful. Efforts to provide legal protection to tenants appear to have worsened the security of tenants. Since 1963, following a series of tenancy reforms, the system of tenancy has become almost entirely concealed and informal. The majority of tenants pay half the gross output to landowners even though the law limits payment to 25 percent. Concealed tenancy has also limited tenants' ability to seek any legal recourse.

Box 4.2 Comprehensive Land Reform: Mexico

Mexico has been implementing large-scale land reforms since the 1917 revolution, which distributed more than 100 million hectares, or 50 percent of the arable area, from large farms to the *ejidos*, rural communities modeled after a combination of Soviet-style collectives and precolonial indigenous structures. Despite the achievements, the desired benefits did not materialize because of numerous restrictions on tenure security and transferability of land within the *ejido*. The Mexican government adopted a comprehensive set of reforms in 1992 that focused on legal modifications and institutional reform. The goal was not only to eliminate restrictions on the functioning of land markets but also to empower communities to choose the property rights regime most suitable to their needs, increase tenure security and investment by issuing certificates of land ownership, and deal with the backlog of land conflicts that had been inherited from the past. A large-scale program of land regularization called PROCEDE (The National Certification Program of Ejido Rights and Urban Lots) was implemented, which yielded measurable results at least in terms of the area certified.

Given that many illegal land transactions had taken place, an effective way of resolving disputes was essential. A system of 42 land courts and one appeals court was created to facilitate this process. In five years the courts dealt with nearly a half-million conflicts, helping to eliminate a huge backlog of cases. The courts were explicitly instructed to seek out-of-court settlements, and special mechanisms were put in place to ensure accessibility by the poor. A special institution was created to provide legal assistance to landholders, represent them in court dealings, perform an ombudsman function, and supervise the implementation of the regularization program. Evaluations of the program suggest that in addition to the economic benefits associated with the clarification of land rights and certificates of ownership, beneficiaries perceive the main impact to be helping them gain independence from local authorities who had long used land as a means for exercising political power.

Source: World Bank 2007b.

Governance Reform

4.12 In 2005 Orissa became the first Indian state to articulate a comprehensive anti-corruption plan. The plan has three broad goals: reforms that support better institutional transparency and accountability, particularly by developing better systems and procedures to prevent corruption; reforms that support better enforcement and serve as a deterrent to corruption; and the strengthening of sustainable preventive vigilance. The government of Orissa has made the Right to Information legislation operational across all its departments, with the aim of enhancing transparency and accountability and reducing corruption arising from asymmetric

information flows.⁵² With a reputation for competence in enforcement, the Vigilance Department of Orissa has one of the highest levels of registered cases on corruption with 1,659 cases between 1997 and 2002, lower only than Maharashtra (2,722) but higher than Karnataka (1,238) and Bihar (167). The government of Orissa, with technical support from the Bank, undertook an assessment of the strengths and weaknesses of the public procurement system and has moved rapidly toward full implementation of e-procurement, including the availability of all procurement and tender documents by key departments on the Internet.

4.13 In contrast, entrepreneurs surveyed ranked corruption as the greatest barrier to improving the investment climate of the province. Evaluations conducted by the government found widespread non-compliance by departments in procurement, site selection, and recruitment, as well as the adequacy of systems for monitoring staff absenteeism. In Sindh weak governance manifested itself in the “four Cs”: low capacity, widespread corruption, inadequate competition, and ineffective coordination.⁵³ Sustainable improvements in service delivery will therefore require a change in incentives, which in turn will depend on increasing the accountability of policymakers to citizens. The experiences of Orissa and elsewhere show that accountability can have a significant impact on increasing citizen pressures for improving services.

Civil Service Reform

4.14 For years the public sector in Orissa functioned as an employer of first resort, leading to a government work force proportionally larger than in other Indian states. The government of Orissa has already taken steps to right-size the government work force by eliminating 75 percent of vacant posts. More than 15,000 posts were abolished between 2004 and 2006. A recruitment freeze has also been in place since mid-2001, with exemptions only in cases of demonstrated need for doctors, nurses, teachers, and police.⁵⁴ The salary bill of temporary workers has been cut in half during the past two years, and staffs have been redeployed from unnecessary posts to fill critical vacancies. Going forward, a balance needs to be struck between banning recruitment of new staff and protecting and expanding staff in priority areas. A sound basis for making decisions on right-sizing requires qualitative analysis to determine staffing patterns and norms across categories and departments.

4.15 In comparison, reforms aimed at rationalizing the size of the civil service have been ineffective in Sindh, which has the second-highest number of civil servants in Pakistan relative to its population.⁵⁵ The overall size of public-sector employment in Sindh increased by 61 percent between 1988 and 2000—the highest increase among the four provinces. Most of this growth took place from the late 1980s to early 1990s, particularly in the sectors of education, health, and police.⁵⁶ With the introduction of a ban on recruitment, growth leveled off in the late 1990s. After the ban was removed in April 2005, hiring increased again, particularly for contract employees in the social sectors. As a result, differences in staffing levels between Sindh and other provinces may have widened further. There is also a geographically poor distribution of service providers, with urban areas being overstaffed and rural areas experiencing chronic shortages.

⁵² World Bank 2008b.

⁵³ World Bank 2006b.

⁵⁴ World Bank 2008b.

⁵⁵ World Bank 2006b.

⁵⁶ This period coincided with the return of democracy in Pakistan. But it also overlapped with the Social Action Program (SAP), which aimed at improving social indicators by allocating higher levels of expenditure and inputs for social sectors (World Bank 2006b).

Regulatory Reform and the Investment Climate

4.16 The government of Orissa has made important progress in improving the regulatory framework for business, including a time-bound, simplified clearance process; self-certification for compliance with provisions of industry and labor laws; and a single-window clearance system. Nineteen investment projects, costing more than Rs10 billion (US\$31 billion), has been approved by the High-Level Clearance Authority since the single-window clearance system was set up in April 2005.⁵⁷ An additional 40 proposals were cleared by the state-level Clearance Authority for investments between Rs500 million and Rs10 billion. The majority of the investments were in mineral-based industries and the power sector, although investments in information technology, tourism, and retail have also grown in recent years. An institutional needs assessment of the Orissa Pollution Control Board was undertaken with Bank support to ensure environmental due diligence and improve compliance.

4.17 In contrast to Orissa, Balochistan has been unable to exploit fully its geological potential. According to prospective surveys, Balochistan is believed to have more than half of Pakistan's minerals, yet it contributes just over a fifth to Pakistan's mining GDP and leads only in the production of coal.⁵⁸ Balochistan's development is held back by the absence of an enabling environment, good governance, and transparency.⁵⁹

MEASURES TO FACILITATE THE MOBILITY OF LABOR AND GOODS

4.18 Firms and people in lagging areas face the problem of lacking information as a result of being isolated. Governments can play an important role in facilitating this information asymmetry. This section focuses primarily on facilitating the mobility of labor. Easy Export, a new program financed by the World Bank in Peru, has shown that governments can play a similar role in linking producers in remote areas. This program has creatively used the postal system as a trade depot for small business and individual craftsmen. Results have been overwhelmingly positive, with 300 new firms participating in the program and exports valued at US\$0.5 million to over 60 countries. The program has won a Bank-wide competition for innovation and many countries have shown interest in replicating the program.

Information

4.19 Migration provides people in resource-poor areas the opportunity for better prospects.⁶⁰ But migration may prove difficult if human capital is low, poverty density is high, or a large segment of the population is a minority or tribal group. Evidence suggests that migration tends to accelerate the divergence between leading and lagging areas. But if policymakers are concerned with people rather than places, they should continue to facilitate the mobility of labor by addressing the information asymmetry facing firms and individuals. This can be done through the provision of high-quality education and skills-based training or as an information clearinghouse.

⁵⁷ World Bank 2006b.

⁵⁸ World Bank 2008a.

⁵⁹ World Bank 2008a.

⁶⁰ Refers to internal migration, which is movement of people within the borders of a country. It includes rural-urban, rural-rural, urban-rural, urban-urban, and leading-lagging and can be permanent, temporary, seasonal, or circulatory.

4.20 Labor mobility is slow and limited in many countries.⁶¹ In many MENA and ECA countries, and to some extent in the low-income states in India, migration is limited by high urban unemployment and the narrow wage differential between cities (leading areas) and rural areas (lagging areas). In southwest China, where the wage differential was high, migration was limited by market information failure.⁶² Many people resorted to using informal channels, liquidating assets, or taking on debt to finance often unsuccessful job searches, before the government stepped in to facilitate the process (box 4.3). The southwest China model illustrates the important role governments can play in facilitating labor mobility. Other factors impeding migration include relocation costs and the lack of available housing in Russia,⁶³ linguistic and cultural barriers in India,⁶⁴ generous unemployment compensation in Poland,⁶⁵ migration-restriction systems such as China's *hukou* system, and the various place-based social programs.

Institutional support

4.21 Remittances from migrants have played a key role in alleviating poverty in some sending areas (table 4.2). The size of these remittances and the extent of coverage (the share of households receiving remittances) provide insight into the sustainability of the large numbers of poor in lagging areas. Available estimates and official data cover only the remittances flowing through the formal channels and so underestimate the true level of remittances.⁶⁶ The impact of remittances in Guerrero and Oaxaca, Mexico, were estimated to be at least equivalent to the impact of government transfer programs for poverty such as *Programas de Apoyos Directos al Campo* (PROCAMPO) and *Programa de Educacion, Saluda, e Alimentacion* (PROGRESA).⁶⁷ Often, remittances are spent on consumption rather than on investments in healthcare, education, and land. Many argue that even if remittances were spent on consumption, there is a multiplier effect, particularly if they are used locally. However, remittances could play a more active role in economic development if they were channeled toward productive investments and development in human capital.

⁶¹ Dillinger (2007) provides a counter story in the case of the former Soviet Union countries, where migration spiked at the beginning of transition. The most dramatic example was the relocation of a million Russians from Siberia and the North to more central parts of Russia. Today there are nearly 13,000 ghost towns and 35,000 towns where the population has dwindled to 10 or fewer. But this exodus appears to have been a one-time phenomenon toward a steady-state equilibrium. The exodus of migrants was driven by the return of people to their ethnic homelands and the movement of workers away from the harsh, peripheral areas of employment to which they had been assigned under central planning.

⁶² Harris and Todaro (1970) explain that the propensity to migrate is determined not by wage differentials alone but by wage differentials adjusted for the probability of finding employment.

⁶³ Fallon and Lampart 1998; Yri and Guriev in Dillinger 2007.

⁶⁴ World Bank 2008c.

⁶⁵ Dillinger 2007.

⁶⁶ In Bangladesh, for example, only 46 percent flowed through the official channels, 40 percent through informal channels (Siddiqui and Abrar, quoted in Anh 2003).

⁶⁷ Wodon and others 2003. PROCAMPO is a direct subsidy to farmers who grow corn and other grains in the form of a lump sum per hectare, regardless of their outputs. PROGRESA (renamed *Oportunidades*) is a direct transfer to poor urban and rural families to enhance the eating habits and school attendance of children from poor households.

Box 4.3 Facilitating Migration in Poor Areas: Southwest China

Without significant levels of agricultural growth and rural enterprise development, the resource-poor southwestern provinces of Guangxi, Guizhou, and Yunnan seemed trapped in a poverty quagmire. Meanwhile, the wage rate differences between the poor rural areas and prosperous urban and rural areas grew from 300 percent in 1982 to about 600 percent in the mid-1990s. The large wage rate gap held the promise of large remittances as a source of cash income for households and the local economy.

A key obstacle to migration was the limited information about jobs in distant markets. Government-organized channels had, until that time, been focused on redeployment of unemployed workers from state-owned enterprises in urban areas. Many people resorted to informal labor mobility channels to find work. Some households reported liquidating assets or taking on additional debt to finance often unsuccessful job searches.

As part of an integrated approach to poverty reduction, the labor mobility component of the “Southwest Poverty Reduction Project” facilitated increased labor mobility from poor areas to more prosperous rural and rapidly growing urban areas. It addressed existing labor market imperfections with a system of “pump-priming” interventions to improve the flow of market information to poor households in project countries. This strictly voluntary program included initial orientation, skill training through an enterprise reimbursement system, a computerized demand-driven job placement system emphasizing local markets, monitoring of worker safety and living conditions, and reporting of abuses and grievances.

The labor mobility component proved to be the most effective poverty reduction measure. Total remittances were 1,590 million yuan (231.5 yuan per capita), equivalent to about 0.2 percent of the combined GDP of the three provinces.¹ Most of the funds were used for the purchase of agriculture production materials, improved housing, family medical care, education expenses, and debt repayment. An indirect effect has been the improved outlook on life and greater aspirations of the migrants, including women.

The project highlights that, while labor mobility can be facilitated through a regional development project, national policies to remove migration obstacles and protect migrants from exploitation are necessary and more cost effective. The project also improved China’s poverty-monitoring capacity and was replicated in the Qinba Mountains Project. Based on the highly successful experience of the two projects, China’s poverty reduction program for 2001–10 includes a major focus on labor mobility and vocational training. The Southwest model has also been adapted to the Northern Vietnam Mountains Poverty Reduction Project.

1. Authors’ calculations.

Source: World Bank 2004; 2005e.

4.22 High intermediation costs suggest that governments could facilitate the deepening of capital markets in lagging areas. Given the shallow capital markets, intermediation costs can be prohibitive in lagging areas; they have been estimated to be at least 15 percent of the amount remitted in Guerrero and Oaxaca. A new program by the Banco de Ahorro Nacional y Servicios Financieros and the Inter-American Development Bank to install a network of rural automated teller machines should help small and medium-size entrepreneurs access remittances and open new lines of credit.

Table 4.2 Importance of Remittances in Lagging Areas

Lagging area	Year	Share of household receiving remittances (percent)	Remittances (US\$ per year)
China	2000	—	545 per person
<i>India</i>			
Bihar	1999/2000	—	13.7 per person
<i>Mexico</i>			
Chiapas	2000	2.0 ^a	13.6 per person
Guerrero	2000	3.3 ^a	33.1 per person
Oaxaca	2000	2.8 ^a	62.7 per person
<i>Pakistan</i>			
Balochistan	2004/05	5	251 per household
NWFP	2001/02	38	243 per household
	2004/05	35	195 per household
Punjab	2004/05	17	260 per household
Sindh	2004/05	5	206 per household
<i>Thailand</i>			
Northeast	1996	46	31 percent of household income
	2002	53	32 percent of household income

— Is not available.

a. Percent of population.

Source: Authors' calculations based on data from World Bank country reports (see references).

DIRECTED PUBLIC EXPENDITURES

4.23 Governments can choose between portable investments, such as education and health, or non-portable investments, such as physical infrastructure.⁶⁸ Governments tend to direct scarce resources to high-potential areas, with the underlying assumption that growth in these areas will spill over to low-potential, lagging areas. There are compelling cases for increased investments in such lagging areas as Northeast Thailand to make up for years of underinvestment. In Bihar, India, and Sindh, Pakistan, where governance is weak and absorption capacity low, increasing public expenditure alone may not be sufficient. The most egregious case is in the Northwest Frontier Province, where the provincial government is crowding out the private sector by engaging in banking, construction, industry, infrastructure maintenance, and tourism.⁶⁹

Education and Health Investments

4.24 The growth and development of lagging areas are often constrained by poor human capital—unskilled, illiterate, and in some cases, unhealthy workers. Education will equip the population with skills to enable them to move, but it must be relevant to the market place. Some outcomes are the result of benign neglect and a history of underinvestment. From 1999 to 2003 Northeast Thailand received on average 30 percent less per capita than any other area.⁷⁰ The area has been particularly disadvantaged in terms of capital spending. While the gap in

⁶⁸ The WDR 2009 refers to portable investments as “institutions” and non-portable investments as “connecting infrastructure.”

⁶⁹ World Bank 2005d.

⁷⁰ World Bank 2005f.

recurrent spending results from Thailand's rigid budget allocation based on fixed norms, capital spending, on the other hand, has been more discretionary and subjected to political bargaining and hence has tended to favor Bangkok, the center of political power, over the rest of the country.

4.25 Veracruz, the fourth poorest state in Mexico is among the three states receiving the lowest federal transfers per capita for health, half the national average. This led Veracruz to introduce innovative efficiency-increasing institutional reforms that not only improved quality but also increased coverage in the health sector (box 4.4).

Box 4.4 Innovative Solutions to Budget Constraints: Veracruz, Mexico

In Mexico total spending and education transfers are not progressive. Like all poor states, Veracruz received transfers per person below the national average. Since decentralization in the early 1990s, Veracruz undertook some bold institutional reforms. In 1994 it integrated the parallel federal and state systems in the health and education sectors. It is one of the few states that has managed to do so successfully. In education it by-passed the formal structure and replaced union supervisors in the state system with state appointments by offering the union supervisors retirement packages. It established a state payroll tax to help increase the state's contribution to health expenditure and indirectly increase the accountability of the state in improving the delivery of health services. In 2001 the state payroll tax contributed 32 percent of total health spending, compared with 10 percent in other poor states. By 2000, it achieved the goal of universal first-level coverage and was awarded a certificate by the World Health Organization.

Early results seem to suggest improvements in infant and maternal mortality, but time and more analysis will be needed to assess the full effects of these reforms.

Source: World Bank 2003b.

Infrastructure Investments

4.26 Lack of infrastructure is one of the main constraints to growth in lagging areas. International evidence of the impact of infrastructure investments is ambiguous. Based on a cross-regional study comparing infrastructure provision in Spain and the United States, de la Fuente (2000) concludes that public infrastructure investments can contribute to productivity enhancement "at least in countries or regions where [the] saturation point has not been reached," but its impact declines thereafter.⁷¹ But there is evidence to suggest that some infrastructure investments, in particular transport infrastructure, can be a double-edged sword. While investments in intraregional transport infrastructure can facilitate agglomeration economies by reducing the transportation costs within lagging areas, investments in interregional transport can have a detrimental effect on the lagging area. Reducing transportation costs between a more prosperous and less prosperous area has the same effect as the removal of tariff barriers. The construction of highways between northern and southern Italy after World War II deprived the south of the protection it previously enjoyed and led to the deindustrialization of the south.⁷² In Brazil public investments in electricity and water led to increased private investment. But investments that increased the integration of the northeast region with the rest of the country (such as transportation and communications) had mixed effects on private investment.⁷³

4.27 Infrastructure, while necessary, is often not sufficient in lagging areas. In Indonesia Deichmann and others (2005) found that port access was highly significant in affecting the

⁷¹ de la Fuente 2003, p. 157.

⁷² Faini 1983.

⁷³ World Bank 2000.

relocation of footloose industries, such as apparel and paper products. But relocations were limited to other large cities with comparable amenities (such as Surabaya) and not to the peripheral areas. Similar efforts to relocate high-technology industries outside of Seoul failed.⁷⁴

4.28 The fiscal space to finance infrastructure investment can come from increased revenues or increased efficiency of expenditures, as shown in the case of Orissa (box 4.5). Although public-private partnerships are also increasingly common in the transportation sector, it is unclear to what extent they have worked in lagging areas.⁷⁵

Box 4.5 Increased Revenues and Efficiency of Expenditures: Orissa

Backed by real growth of 8.9 percent and a 2 percentage point increase in revenues, Orissa's fiscal reforms were phased. On the revenue side, the first phase included rationalization of rates of taxes on passenger and goods transport (2001–03). The second included administrative reforms (2004–05) and the replacement of a sales tax with value-added tax.

On the expenditure side the state reduced capital spending by almost 2.5 percentage points. The government of Orissa launched its Zero-Based Investment Review to maximize outcomes through reallocation within the existing budget. Resources were reallocated from lower priority to higher priority (those close to completion) projects. The number of bridge projects completed increased fivefold, from 19 in 2004 to more than 100 in 2006. The government of Orissa was able to deal with the problem of spreading limited resources too thinly across too many projects. The achievements became a visible success that the political leadership used to gain support.

Source: World Bank 2008b.

COMPENSATION FOR AREA UNATTRACTIVENESS

Fiscal Incentives

4.29 Fiscal incentives have been the main policy instrument used to influence the location of firms. Incentives can take the form of grants, soft loans, or tax concessions, and they may be offered singly or as a combination. Each has its own advantages and disadvantages (table 4.3). Incentives have been used in Western Europe to encourage investment in areas of high unemployment. They are also a feature in regional policies aimed at creating growth poles in the more backward areas of several developing countries.

4.30 The case for fiscal incentives, as is the case for infant industry protection, is highly controversial. Advocates for investment incentives argue that the role of increasing returns from localization and agglomeration effects in the most prosperous areas are self-perpetuating such that the returns to capital may remain higher in more highly developed areas, further inducing an ongoing spatial pattern of investment detrimental to lagging areas. So, government intervention is needed to induce firms to invest in lagging areas until such time as these areas can compete effectively for mobile capital. Conversely, the policy of imposing investment disincentives on prosperous areas can be seen as a useful measure if it diverts investment to lagging areas. These incentives are intended to be transitory, but removing them has proven difficult.

⁷⁴ World Bank 1986.

⁷⁵ These partnerships are common in the mining areas.

Table 4.3 Advantages and Disadvantages of the Various Incentives

Incentive	Advantages	Disadvantages	Implementation	
			Developed countries	Developing countries
Investment or capital grants	<ul style="list-style-type: none"> • Simple and explicit; benefits can be calculated easily and quickly and have a direct bearing on where to place new investments. • Highly flexible; can be made available on a full or partial, automatic or discretionary basis. • Practical for covering extra costs involved in a new establishment and circumventing the criticism of encouraging long-term inefficiency. • Facilitate financing of project, which may be important for small and medium-size firms and for encouraging investment in lagging areas. • Encourage new investment in building plants and machinery. 	<ul style="list-style-type: none"> • Expensive. • Bias toward capital-intensive projects. • Spread effects in the form of inflationary pressure on other areas. • Benefits may not accrue to lagging areas if owners reside elsewhere. 	<ul style="list-style-type: none"> • Belgium • Germany • Netherlands • Portugal • Sweden • United Kingdom • United States 	<ul style="list-style-type: none"> • Brazil • China • India • Mexico
“Soft,” or subsidized, loans ^a	<ul style="list-style-type: none"> • May make sense targeted to credit constrained environment, especially in developing countries. • Projects are financially evaluated by a private or public institution. • It is not necessary to mobilize large amount of capital at the outset. 	<ul style="list-style-type: none"> • Expensive. • Not particularly transparent. • Benefits may not be so easy or quick to evaluate. • Bias toward capital-intensive projects. • Spread effects in the form of inflationary pressure on other areas. 	<ul style="list-style-type: none"> • Germany • Italy 	<ul style="list-style-type: none"> • Brazil • Mexico
Tax concessions and accelerated depreciation allowance	<ul style="list-style-type: none"> • Benefits favor efficient investment. • Subsidy depends on firm's viability and thus avoids wasting public funds. 	<ul style="list-style-type: none"> • Encourages tax evasion, generating inefficiency in the assignment of revenues. • High administrative and control costs. • Allowances are part of national tax system and may have limited potential in regional policy. • Applies only when firm is profitable. 	<ul style="list-style-type: none"> • France • Germany • Italy 	<ul style="list-style-type: none"> • Brazil • Chile • India • Mexico
Employment subsidies	<ul style="list-style-type: none"> • Can create reactive labor markets in depressed areas. • Bias toward labor-intensive projects. • Implies no discrimination against existing firms. • Minimize spreading effects to other areas. • Incorporates an income transfer from rich to poor areas. 	<ul style="list-style-type: none"> • Can be costly; may be less if marginal employment subsidies are used. • Complex output and substitution effects of capital and labor need to be considered in decisionmaking. • Effects are not always obvious, that is, they may not result in increased employment. Rather, they may be reflected in increased wages or increased profits. • Large inefficiencies due to non-additionally and deadweight spending; 	<ul style="list-style-type: none"> • Belgium • Ireland • Portugal • United Kingdom • United States 	<ul style="list-style-type: none"> • Chile • Pakistan

Incentive	Advantages	Disadvantages	Implementation	
			Developed countries	Developing countries
		tendency to displace employment from adjacent areas.		

a. Soft loans are in fact closely related to capital grants, and it is fairly easy to calculate their grant equivalent. Soft or subsidized loans may be offered directly by the state or by financial intermediaries with the state as the benefactor or the guarantor. Loans are "softened" by reducing interest rates or delaying repayment of principal. In some countries investors have a choice between a grant and interest rebates.

Source: Updated from Hon and Fallon 2002.

4.31 Controversy notwithstanding, fiscal incentives continue to be popular with subnational governments. The recruitment of high-profile firms provides quick, visible results and a political cachet. Given the short life-span of their political careers, government leaders are not primarily concerned with the negative long-term impact to the area, much less to overall national growth. The question, then, is how can the incentives be designed to minimize the costs?

4.32 Investment incentives tend to be biased toward large capital-intensive firms, and therefore have limited impact on employment. Some developed countries have tried to reduce these inherent disadvantages by restricting eligibility to small firms or by encouraging job creation by requiring minimum levels of employment or setting subsidy limits for each job created.⁷⁶

4.33 Incentives may influence location decisions if they are large enough, but will not have permanent effects unless maintained indefinitely. Some studies have found that the positive impact of investment incentives is only temporary and in some circumstances may be reversed when incentives expire.⁷⁷ A study of Ceara found that only 25 percent of the firms that were recruited were actually functioning, and the employment (direct and indirect) created was only 22 percent of the target.⁷⁸

Export Processing Zones⁷⁹

4.34 Export processing zones (EPZs) are designed specifically to attract foreign investment. Most EPZ-operating countries offer a package of financial incentives, such as tax holidays, duty-free imports and exports, dedicated infrastructure, abundant and relatively cheap labor, strategic location, and market access. Administered by a zone authority, the zone offers a one-stop shop to investors, including obtaining approvals and completing procedures required to set up operation. The involvement of other government departments in zone administration varies enormously by country. Industrial parks, enterprise zones, and special economic zones are merely variants of EPZs; the discussion here applies to the broader group.⁸⁰

4.35 Many EPZ benefits for companies (from custom duties exemptions, income tax exemptions, VAT exemption) become less compelling in a liberalized economy. However, the

⁷⁶ Other, less-common restrictions can include export links, links to local firms, and the extent of foreign ownership. However, this may prove administratively difficult in many developing countries.

⁷⁷ Wren 1994.

⁷⁸ Tandler 2002.

⁷⁹ This section draws largely from Hon and Fallon (2002) and Madani (1999). The discussion here applies also to industrial parks, enterprise zones, and special economic zones.

⁸⁰ Enterprise zones are intended to revitalize distressed urban areas. Most examples are in developed countries like the United States and the United Kingdom. Special economic zones typically encompass much larger areas and accommodates various activities, including tourism and retail sales, and provide a broader set of incentives.

light regulatory framework within EPZs can still be highly attractive. Ideally, the light regulatory framework should be available nationwide as discussed previously, but in the absence of such a policy the EPZ could serve that purpose. In large countries like China or India EPZs represent a cost-effective way of providing dedicated infrastructure in a delimited area.

Limitations of Export Processing Zones

4.36 EPZs are often enclaves artificially created in diverse locations with the objective of protecting local industry (which are still in an import-substitution phase) from foreign competition. Furthermore, customs scrutiny of duty-free imports and exports is easier in a sealed zone. Zones were often created for political or other non-economic reasons without adequate feasibility studies and planning. As a result, one or more of the following situations have occurred:

- Zones failed to attract sufficient investment (there are many half-empty zones).
- They attracted the wrong kind of investment, and investors subsequently located elsewhere to find more appropriate conditions (such as skilled labor).
- There was inadequate infrastructure.
- Zones were unable to sustain investment and employment growth because their location was not economically viable.
- There were insufficient backward and forward linkages.
- There was an inadequate supporting infrastructure, such as transport services or housing to accommodate the influx of new workers.

4.37 There are few examples of successful EPZs in lagging areas. When measured against broad economic and social objectives, the results of the zone strategy are mixed. The host country spends large amounts of money on the infrastructure, maintenance, and operating costs of the zones and may well have to upgrade the facilities at a later stage. There is an opportunity cost of foregone earnings from taxes and duties and the consequent diversion of resources from other development activities. These costs will need to be balanced with the benefits generated by the zones. Backward linkages, if they could be created, would certainly help generate more indirect employment. But in most countries they are still insignificant. According to an ILO study (1996), the value of local inputs in virtually all EPZ host countries rarely exceeds 2.5 percent of total imports. Two outstanding exceptions are Mauritius, where local suppliers provide 30 percent or more of inputs for the textile and garment industries, and the Republic of Korea, where producers of electronics goods buy at least 50 percent of their components on the local market. The industry that accounts for the highest percentage of local sourcing is the food processing industry. In Mexico, for instance, about 43 percent of the food processing industry's inputs come from domestic suppliers.

Location and Administrative Controls

4.38 Some developed countries (the France, Italy, Japan, the Netherlands, Sweden, and the United Kingdom) and developing countries (India, Korea, and Mexico)—have imposed restrictions on investment in already congested areas experiencing excessive growth.⁸¹ While in principle taxes could be applied to investment, it has been more common to apply administrative

⁸¹ This section draws heavily from Hon and Fallon (2002).

controls on the location of new industrial or commercial development. Typically, controls have been administered by requiring firms to obtain licenses before creating new plant or office space. For example, in the United Kingdom manufacturing firms located in a non-assisted area such as the southeast had to apply for permission to expand their plant and buildings. These controls were eventually abolished in the Thatcher recession of the early 1980s since they were regarded as serving no useful purpose in a time of low national investment. The French measures were wider than the British. The French government was initially concerned about congestion in the Paris area and introduced a system of building permits to deal with it. The system was enforced fairly stringently in Paris but failed to prevent investors from setting up just outside the restricted area.

4.39 Location controls have several clear advantages. First, they are cost-effective because the only expenditure incurred is on administration. Second, since restrictions can be relaxed during periods of recession, they are flexible. Third, location controls appear to have been more effective than investment incentives in inducing firms to move from non-assisted areas to assisted areas.⁸² Fourth, they provide a channel of communication between the government and firms contemplating new investment projects, providing policymakers with an opportunity to explain the advantages of locating in a designated assisted area.

4.40 Critics of location controls argue that they can adversely affect the aggregate level of investment. If firms are prevented from expanding at the location of their choice, they may decide not to expand at all. Alternatively, they may move to an assisted area but reduce the size of their investment, or even invest abroad.

SOME LESSONS

4.41 If there are numerous market and institutional imperfections, first-best policy advice is unlikely to work. In such instances policy recommendations need to be more nuanced and take into account local conditions, in particular the presence of political power and self-interested parties. A customized approach based on a thorough diagnosis of an area's constraints to growth and the requisite cost-benefit analysis is needed.

4.42 Many instruments, if uncoordinated, can cancel each other out. For example, the Board of Investment in Thailand instituted a zoning policy to induce widespread industrialization beyond zone 1 (Bangkok and the center). Meanwhile, industrial estates were set up throughout the country, the majority of them in zones 1 and 2 (the Eastern Seaboard) or in the central provinces just north of Bangkok (see maps 4.1 and 4.2). Since all of the industrial estates offered similar incentives and provided links to local supplier networks, firms had no incentive to relocate to more remote areas. Similarly, incentives that were initially intended for lagging areas in the Appalachians in the United States, Puerto Rico, Mexico, and elsewhere were later extended to leading areas because of political pressures.

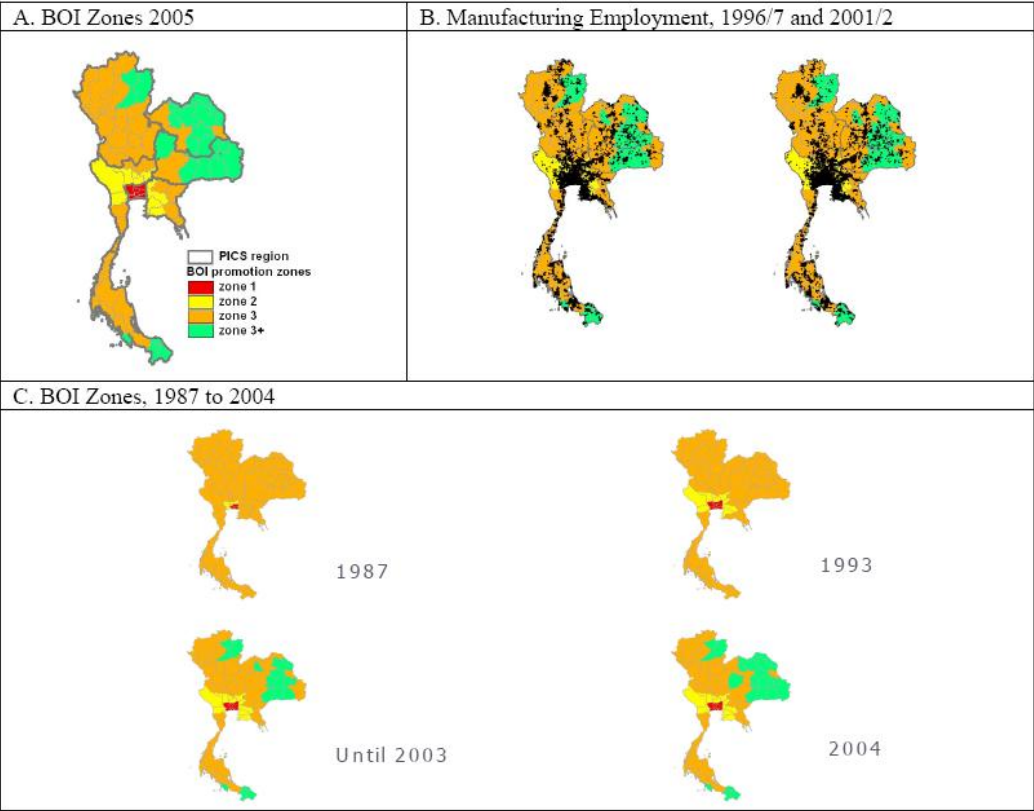
4.43 There are lessons to be learned from the depressed areas of the United States. By the mid-twentieth century, globalization—coupled with technological advances and geopolitical shifts—diminished the location advantages (access to raw materials, dense transportation networks, and proximity to markets) of the Northeast and Midwest. Today, some declining or distressed areas are still grappling with the painful legacy of severe industrial decline and population loss. Deindustrialization has left contaminated parcels of brownfields and abandoned industrial sites. Many such areas continue to be stigmatized by significant regulatory and

⁸² Twomey and Taylor 1985.

financial constraints to redevelopment. State tax foreclosure laws are often so complex and cumbersome that chronically tax delinquent properties can remain dilapidated blights for years.

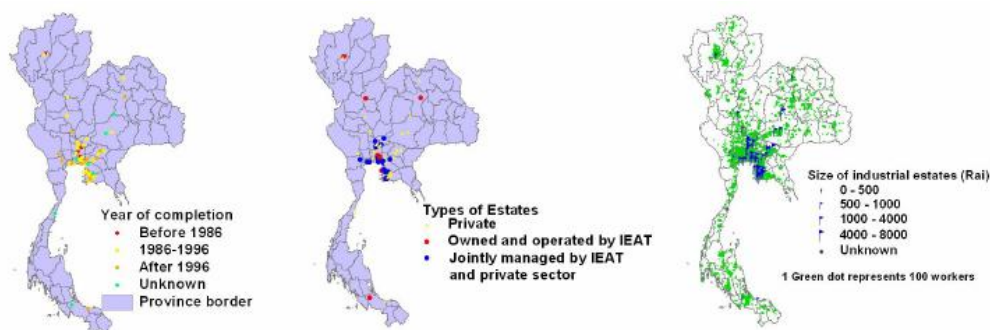
4.44 States can play a role in revitalizing declining areas. The United State’s experience over the past several decades shows that Rust Belt states have been treated with benign neglect at best, with programs and investments focused more on managing their decline than on restoring and sustaining their economic and fiscal health. Some of the Rust Belt areas have distinctive features—urban grids, historic architecture, mature albeit deteriorating infrastructure and public transit systems, established links to universities and medical facilities, and resources—that if fully leveraged could be converted into vital assets.

Map 4.1 Zoning Policy and Manufacturing Employment in Thailand



Source: World Bank 2005f.

Map 4.2 Year of Completion and Type and Size of Industrial Estate



Source: World Bank 2005f.

4.45 Several lessons emerge on fiscal incentives:

- Unconstrained and uncoordinated fiscal incentives can lead to competition between jurisdictions, such as the notorious fiscal wars in Brazil. Avoid frontloading the incentives to avoid risk that rent-seeking or footloose firms will stay only as long as the incentives exist (Brazil, Thailand).⁸³
- Fiscal incentives become obsolete with trade liberalization (Chile).⁸⁴
- Firms do not make location decisions based solely on supply-side factors. In the case of the United States and Northeast Brazil the large consumer markets were an important consideration.⁸⁵
- The impact of tax breaks depends on the laws in the investor's home country. Thus, it is to the advantage of the host country to have a complete understanding of the tax codes of the target country.⁸⁶
- Governments should not dilute the impact of bold area-based policy instruments by extending the benefits nationwide (Appalachia, Puerto Rico, Thailand).
- The target industry should complement existing local industries and, where possible, should be differentiated from efforts of neighboring states. Footloose industries should be avoided because they can relocate without much adjustment cost (Brazil, Indonesia).⁸⁷
- Footloose industries should be avoided because they can relocate without much adjustment cost (Brazil, Indonesia).⁸⁸

⁸³ World Bank 2007a and World Bank 2005f.

⁸⁴ World Bank 2005b.

⁸⁵ In the United States the increased purchasing power of the South was fueled by the location of military bases after World War I. The relative location of Northeast Brazil to the upscale markets in Europe and North America has played an important role.

⁸⁶ If the firms are subject to tax-sparing agreements, in which any tax exempted in the country is considered by the home country as having been paid in the host country, the benefits of a tax holiday accrue to the firm. On the other hand, if the home country provides the tax credit for the taxes the firms pay in the host country, reducing tax rates below those of the firm's home country levels may just lead to a net transfer from the host country treasury to the home country treasury (Madani 1999).

⁸⁷ Deichmann and others 2004.

⁸⁸ Deichmann and others 2004.

5. POLICY CONSIDERATIONS IN LAGGING AREAS

5.1 Policymakers often struggle with the question of investing in “poor places” or “poor people.” The WDR 2009 argues that policy should aim to integrate leading and lagging areas. For densely populated lagging areas *institutions* and spatially connecting *infrastructure* would be necessary. And in densely populated lagging areas where there is ethnic divide spatially targeted *interventions* would be needed in addition to institutions and infrastructure.

5.2 While important, being remote does not in itself provide a rationale for government intervention. But remoteness coupled with resource potential and high poverty density does justify government intervention. As discussed in section 3, natural resource abundance is neither necessary nor sufficient for growth. With the right institutions and the right governance structure, natural resources could provide much needed additional revenues for developing countries. Lagging areas will want to know the extent of revenue sharing they are entitled to. Policymakers will need to do the requisite cost-benefit analysis before deciding whether to go ahead.

5.3 Because the challenges vary by country, the literature argues for a customized approach to growth diagnostics developed by Hausmann, Rodrik, and Velasco (2005).⁸⁹ The growth diagnostics approach, based on identifying the comparative advantages and constraints to growth, could be adapted and applied at the subnational level.

5.4 Policymakers in resource-rich areas should ask the following questions when considering whether to follow a natural-resource-based development pattern:

- Is there a robust and growing domestic and international market?
- Is the global market crowded by producers who can produce at the same or lower costs?
- Do national policies facilitate exports? Do they provide incentives for natural-resource-based activities?
- Are there clear arrangements to define and monitor the transparent management of the resources and distribution of rents? What is the revenue-sharing for the producing area?
- What is the industry’s structure? Nationalized or privately owned? Is there artisan mining? What are the entry barriers to small producers?
- What is the enabling environment for private investment?
- How will the investment be financed? Who will pay for the costs of mine closure and social costs (resettlement, pollution, health risks)?
- What is the local government capacity? Which services will be provided by the mining companies and by local governments?

5.5 International experience shows that the complex interactions between history, institutions, and ethnicity could influence, and in some cases undermine, policy objectives. Box 5.1 provides some considerations for policymakers when designing a package of interventions.

⁸⁹ See special issue in *Finance and Development* 43 (1) and Rodrik’s website on country case studies on growth diagnostics (http://ksghome.harvard.edu/~drodrik/Growth_Diagnostics_Index.html).

Box 5.1 The Complex Interactions between History, Institutions, and Ethnicity

There is both a historical influence and institutional overhang on the development of lagging areas. When intertwined with ethnic diversity, the interaction is akin to a black box. The literature, which mostly addresses the national level, can be adapted to the subnational context to illustrate historical, institutional, and ethnic impacts on factors of production, such as land.

Colonialism has left a legacy of uneven distribution of wealth and economic development in many developing countries. In India the British adopted different strategies for assigning property rights and taxes to landlord and non-landlord states.¹ Economic development in landlord states was deliberately hindered as a way to limit the geographic mobility of tenants and laborers. In non-landlord states, the government was more willing to invest in irrigation, railways, schools, and other infrastructure because it was easier to extract rents from productivity gains. This has in essence divided India into the “haves” and “have nots.” Until today, land records in landlord states like Bihar are with the original landowners, the *Zamindars*, or are non-existent, leading to frequent disputes and sometimes violent conflicts. This prevents land consolidation and leasing, discourages investment in land, and limits access to credit for farmers unable to collateralize on their land.

Land ownership is significantly lower in areas with a disproportionate number of scheduled tribes, such as northeastern India and Pakistan and the indigenous population in the southern states of Mexico.² Land is viewed as a communal property, which results in weak property rights. Consequently, these areas typically face more land-related conflicts. Although areas like Balochistan are endowed with minerals and forestry, private investments are often discouraged by uncertain property rights. But things are beginning to change in India. Preferential rights of the private sector are now recognized for the grant of a mining lease, provided the party has carried out the actual prospecting. The Indian state of Orissa is considering the establishment of an oil revenue fund to share benefits with the local communities living around the mining belts.³

In Honduras there is a struggle for land rights for the indigenous people in the Morskitia, an important rainforest area linking Honduras and Nicaragua. The area is confronted with a fast-advancing agriculture frontier and the smuggling of timber from protected areas. The natural resources could generate sustained income if exploited in a rational way, but for this to happen the indigenous people would need to be granted legal rights to these lands.

Notes.

1. Bihar, Orissa, Madhya Pradesh, Rajasthan, Uttar Pradesh, and West Bengal are classified as landlord states. Andhra Pradesh, Assam, Gujarat, Karnataka, Kerala, Maharashtra, Punjab, and Tamil Nadu are classified as non-landlord states. In landlord states it was not uncommon for rural elites to be disassociated from the actual business since they were typically more likely to be rent collectors and preferred living in the city. This tended to weaken the political pressure on the state to deliver public services in the rural areas (Banerjee and Iyer 2005).

2. For example, in Bihar 80 percent of cultivated land by scheduled caste and tribe is leased. The size of land owned by scheduled caste and tribe is only 10 percent of that owned by non-scheduled caste and tribe.

3. Das and others (2007) “Sharing the Benefits of Mineral Wealth with Citizens: The Periphery Development Fund in Orissa” draft, July.

5.6 For various reasons, ethnically diverse areas are often discriminated against and receive fewer public services. Lagging areas with significant tribal presence are often discriminated against in government spending and lack access to complementary factors (land, education, and health), which in turn results in lower returns on their assets. Alesina, Baqir, and Easterly (1999) and Miguel (2005) show that the presence of multiple ethnic groups and conflicting preferences for public services (such as the language of instruction) can result in underprovision of public goods in the United States and in Kenya, respectively. The compromise reached can dilute the impact on a certain segment of the population or, worse yet, lead to the disenfranchisement of certain groups. But Indian states like Orissa that have pursued active policies of reserving seats in local and state legislatures for scheduled castes and tribes have managed to overcome some of these problems. They have also managed to better target safety net spending and the placement of physical and social infrastructure.

5.7 Policymakers should be guided by a sound understanding of their political economy in their decision-making. By incorporating that information, they can evaluate the economic costs and benefits and decide on the most efficient and viable option. Spatial policy may be a compromise between what is technically desirable from the national point of view and what is politically, culturally, and socially feasible.

NEXT STEPS

5.8 This knowledge review identified the following gaps for further study:

- *A better understanding of the spatial incidence of public expenditures.* Are areas lagging because they have been systematically discriminated against or because certain channels (national, regional, or local) are more efficient? How and why have these differed across areas? What has and has not worked?
- *Further study—biodiversity resources.* Due to data constraints, the link between natural resources and growth has not been thoroughly explored at the subnational level. Our analysis has been limited mostly to oil and minerals, but in many countries (India, Pakistan, and Brazil) biodiversity resources are important livelihoods for the poor. Another interesting area of study, which will be addressed in the MENA report *Understanding and Tackling Spatial Disparities in the Middle East and North Africa*, is the constraint of water resources and its impact on location.
- *A view toward Africa.* This review did not include the Africa region because of the limited number of studies that existed at the time of the lagging region seminar series. Substantial work is now emerging that will allow for a better understanding of territorial and regional development issues in Africa.

**ANNEX A. WORLD BANK ANALYTICAL AND ADVISORY ACTIVITIES (AAA) ON
REGIONAL AND SPATIAL DEVELOPMENT SINCE 1975**

Country	Fiscal year	Title	Report no. and status
Armenia	2007	Geographic Distribution of Poverty and Inequality	41181-ARM
Brazil	1987	Industrial Development Issues of the Northeast	6077-BR
	1999	Sergipe: Priorities and Strategies to Restore Economic Growth	(country)
	2000	Public Expenditures for Poverty Alleviation in Northeast Brazil: Promoting Growth and Improving Services	Mimeograph
	2001	Ceara State Economic Memorandum: Poverty Reduction and Fiscal Stability in the State of Ceara	19217-BR
	2001	Growth and Poverty Reduction in Pernambuco	20754-BR
	2002	Bahia State Economic Memorandum: Broadening the Base for Growth	21377-BR
	2002	Maranhao State Economic Memorandum	24485-BR
	2003	Alagoas SEM	(country)
	2003	Strategies for Poverty Reduction in Ceara	24500-BR
	2003	Piau State Economic Memorandum: Managing a Natural Inheritance	24484-BR
	2004	Growth and Poverty Reduction in Rio Grande do Norte	24891-BR
	2005	Regional Economic Development– (Some) Lessons from Experience	Processed
Chile	2006	Zonas Extremas Policies and Beyond: An Assessment of Costs and Impact with Recommendations of Avenues for Policy Reform	27357-CH
China	1987	Growth and Development in Gansu Province	6064-CHA
	1991	Economic Development in Jiangsu Province	9354-CHA
	2004	Promoting Growth with Equity (CEM) ^a	24169-CH
	2006	Facilitating Investment and Innovation: A Market Approach to Northeast Revitalization	34943-CH
	2007	Revitalizing the Northeast: Towards a Development Strategy	36797-CH
Congo	1984	Zaire Regional Development Problems: the Case of Kivu	4951-ZR
Croatia	2007	Living Standards Assessment	37992-HR
Egypt	2008	Growth in Upper Egypt	Ongoing
Egypt	2008	The Dynamics of Peri-Urban Areas around Greater Cairo	Ongoing
Ethiopia	2008	Unlocking the Growth Opportunities of Amhara	Ongoing
Indonesia	2006	Papua Public Expenditure Review: Regional Finance and Service Delivery in Indonesia's Most Remote Region	34046-ID
	2009	A Strategic Assessment of Spatial Planning Options for Papua Province	47678
	2009	Aceh Public Expenditure Analysis	46305-ID
India	2005	Orissa Investment Climate: Towards a High Performing State	33500-IN
	2005	Bihar: Towards a Development Strategy	32819-IN
	2007	Jharkhand: Addressing the Challenges of Inclusive Development	36437-IN
	2007	Himachal Pradesh: Accelerating Development and Sustaining Success in a Hill State	39810-IN
	2007	Development and growth in Northeast India: the Natural Resources, Water, and Environment Nexus	36397-IN
	2008	India: Accelerating Growth and Development in the Lagging Regions of India	Draft

Country	Fiscal year	Title	Report no. and status
	2009	Orissa in Transition: Challenges for 2006-2010	44612-IN
Iran	2008	Iran: Spatial Dimensions of Poverty and Economic Development	46603
Korea	1986	Korea Spatial Strategy Review	5868-KO
Malaysia	1983	Regional Development and Urbanization in the Northeast	3844-MA
Mexico	1977	Spatial Development in Mexico	1081-ME
	1981	Oil Impact on Regional Development: Case Study of the State of Tabasco	3087-ME
	2004	Southern States Development Strategy	31116-ME
Mongolia	2006	Mongolia Regional Development Policy Note	Processed
	2008	Mongolia: South Gobi Regional Development Strategy	CN stage
	2009	Mongolia: Rural Migration and Informality	Ongoing
Morocco	2005	Morocco: Strengthening Policy by Identifying the Geographic Dimensions of Poverty	28223-MOR
Pakistan	2006	North West Frontier Province (NWFP) Economic Report	32764-PK
	2006	Securing Sindh's Future: The Prospects and Challenges Ahead	35001-PK (Draft)
	2008	Balochistan Economic Report: From Periphery to Core	40345-PK
	2008	Northern Areas Economic Report	Ongoing
Peru	2006	Peru: Opportunities for All	29825-PE
Philippines	2007	Mindanao Regional Development for Peace and Growth	Ongoing
Poland	1999	Northern Poland Regional Development	19191-PL
	2005	Directions in Regional Policy	30466-PL
Saudi Arabia	2008	Saudi Arabia: Balanced Regional Development	RTA
Sri Lanka	2007	Development Forum: The Economy, Regional Disparities and Global Opportunities ^a	38388-LK
	2009	Geographically Integrating Sri Lanka	Ongoing
Thailand	2006	Northeast Economic Development Report	35353-TH
Turkey	2007	Sustaining High Growth: Selected Issues ^a (CEM)	39194-TR
Uganda	2007	Moving Beyond Recovery: Investment and Behavior Change for Growth	39221-UG
Ukraine	2002	Moving Forward on Regional Development and Regional Policy	25945-UA
Vietnam	2004	Vietnam Development Report: Poverty	27130-VN
	2009	Framework for Sustainable Urban Development	CN stage
Yemen	2009	Pathways out of Rural Poverty	Ongoing

a. Chapters focused on regional development issues.

Source: World Bank Business Warehouse, Imagebank, and Dashboard.

**ANNEX B. WORLD BANK PROJECTS ON REGIONAL AND SPATIAL
DEVELOPMENT SINCE 1980**

Country	Fiscal year	Title	Project ID	Status
Brazil	1985	Northeast Rural Development Project (Sergipe)	P006345	Closed
	1986	Second Northeast Rural Development Project (Rio Grande do Norte)	P006380	Closed
	1986	Third Northeast (Bahia) Rural Development Project	P006351	Closed
	1986	Fourth Northeast (Piauí) Rural Development Project	P006369	Closed
	1986	Fifth Northeast (Ceara) Rural Development Project	P006420	Closed
	1986	Seventh Northeast (Maranhão) Rural Development Project	P006420	Closed
	1987	Eight Northeast Rural Development Project: Alagoas	P006425	Closed
	1987	Tenth Northeast Rural Development Project: Minas Gerais	P006426	Closed
	1987	Ninth Northeast Rural Development Project: Paraíba	P006445	Closed
	1995	Northeast Rural Poverty Alleviation Program: Bahia	P035717	Closed
	1995	Northeast Rural Poverty Alleviation Program: Ceara	P038884	Closed
	1995	Northeast Rural Poverty Alleviation Program: Sergipe	P038885	Closed
	1996	Northeast Rural Poverty Alleviation Project: Pernambuco	P042566	Closed
	1997	Northeast Rural Poverty Alleviation Program: Maranhão	P051701	Closed
	1997	Northeast Rural Poverty Alleviation Project: Paraíba	P042565	Closed
	1997	Northeast Rural Poverty Alleviation Program: Piauí	P043871	Closed
	1997	Northeast Rural Poverty Alleviation Program: Rio Grande do Norte	P038896	Closed
	1998	Piauí Rural Poverty Alleviation Project	P042566	Closed
	1998	Rio Grande do Norte Rural Poverty Alleviation Project	P038896	Closed
	2000	Northeast Rural Development Program: Ceara	P006420	
	2001	Rural Poverty Reduction Project: Ceara	P050875	Active
	2001	Rural Poverty Reduction Project: Pernambuco	P050880	Active
	2004	Integrated Municipal Project: Betim Municipality	P082328	Active
	2004	Maranhão State Integrated Project – Rural Poverty	P093787	Active
	2004	Tocantins Sustainable Regional Development Project	P060573	Active
	2005	Rio Grande do Sul Integrated Regional Development	P091162	Active
	2005	Bahia Integrated Urban Development Project	P081436	Active
	2006	Sergipe State Integrated Project – Rural Poverty	P094255	Active
	2006	Bahia State Integrated Project – Rural Poverty	P110617	Active
	2006	Para Integrated Development Project	P082651	Active
	2006	Rural Poverty Reduction Project: Minas Gerais	P053356	Active
	2007	Rio Grande do Sul Integrated Municipal Development Project	P094119	Active
	2008	Ceara Regional Economic Development Project	P099369	Pipeline
Bulgaria	2007	Regional Development Project	P078384	Active
Chile	1996	Secano Rural Poverty Alleviation and Natural Resource Management Project	P006676	Closed
China	1995	Southwest Poverty Reduction Project	P003639	Closed
	1996	Gansu Hexi Corridor Project	P003594	Closed
	1996	Shanxi Poverty Alleviation Project	P003649	Closed
	1997	Qinba Mountains Poverty Reduction Project	P003590	Closed
	1999	Gansu Provincial Development Project	P003489	Closed
	1999	Gansu and Inner Mongolia Poverty Reduction Project	P046564	Closed
	2005	China - Poor Rural Communities Development Project	P071094	Active

Country	Fiscal year	Title	Project ID	Status
	2008	Rural Migrant Skills Development and Employment	P085376	Active
	2008	Gansu Cultural and Natural Heritage Protection and Development	P091949	Active
Colombia	1998	Colombia - Magdalena Medio Regional Development Project	P046031	Closed
	2002	Colombia - Second Magdalena Medio Regional Development Project	P057692	Closed
Ecuador	1992	Tungurahua Rural Development Project	P007057	Closed
Egypt	1999	Sohag Rural Development Project	P040858	Closed
Honduras	2003	Regional Development in the Copan Valley Project	P081772	Active
India	1993	Bihar Plateau Development Project	P010408	Closed
	2001	Madhya Pradesh District Poverty Initiatives Project	P059242	Closed
	2000	Andhra Pradesh District Poverty Initiatives Project	P045049	Closed
	2005	Orissa Socio Economic Development Credit/Loan Project	P081882	Closed
	2007	Bihar Rural Livelihoods Project	P090764	Active
	2007	Orissa Second Socio Economic Development Credit/Loan Project	P097036	Active
	2008	Orissa Rural Livelihoods Project	P093478	Active
	2007	Support for the Poor and Disadvantaged Areas Project	P078070	Active
Indonesia	1998	Maluku Regional Development Project	P037095	Canceled
	1998	Bengkulu Regional Development Project	P040061	Closed
Jordan	2007	Regional and Local Development Project	P070958	Active?
Kazakhstan	2007	Territorial Development TA	P090555	Active
Korea	1975	Secondary Cities Regional Development Project	P004063	Closed
	1979	Second Gwangju Regional Project	P004094	Closed
	1984	Jeongju Regional Development Project	P004113	Closed
Kosovo	1983	Kosovo Regional Development Project	P009201	Closed
Laos	2008	Khammouane Development Project	P087716	Active
Montenegro	1983	Montenegro Regional Development Project	P009201	Closed
Madagascar	2005	Integrated Growth Poles	P083351	Active
Mexico		Decentralization and Regional Development Project for the Disadvantaged States	P060577	Closed
	1995	Second Decentralization and Regional Development Project	P007702	Closed
	1997	Rural Development in Marginal Areas	P007711	Closed
	2000	Second Rural Development in Marginal Areas	P057530	Closed
	2001	Southeast Regional Development Learning and Innovation Project	P060577	Closed
	2008	Regional Development for Disadvantaged Areas	P107726	Active
Mongolia	2008	South Gobi		CN
Pakistan	2002	Sindh Structural Adjustment Credit	P075810	Closed
	2006	First Northwest Frontier Province Development Policy Credit	P090689	Closed
	2007	Second Northwest Frontier Province Development Policy Credit	P097471	Closed
Peru	2007	Sierra Rural Development Project	P037733	Active
Philippines	1995	Regional Cities Development Project	P004496	Closed
	2006	Support for Strategic Local Development and Investment Project	P064925	Active
Romania	2008	Regional and Rural Development Project	P101204	Pipeline
Serbia	2007	Bor Regional Development Project	P092999	Active

Country	Fiscal year	Title	Project ID	Status
Thailand	1980	Regional Cities Development Project	P004740	Closed
Vietnam	2002	Northern Mountains Poverty Reduction Project	P059936	Closed
	2007	Ho Chi Minh City Investment Fund for Urban Development	P104848	Active

Note: For manageability, only cross-sectoral projects focused on promoting growth or addressing poverty reduction in a particular region or area are included here. Sector-specific projects, such as infrastructure, education, and others, are not included.

Source: World Bank Business Warehouse, Imagebank, and Dashboard.

ANNEX C. LAGGING REGION SEMINAR PRESENTATIONS

Country	Seminar topic	Date	Presenter	Discussant
All (Seminar)	Policy and Economic Geography: What's New?	February 21, 2006	Philippe Martin (University of Paris, Sorbonne and Center for Economic Policy and Research)	No discussant
India	India's Pattern of Development: What Happened? What Follows?	February 21, 2006	Arvind Subramanian (IMF)	Shanta Devarajan
Italy	Promoting Subnational Development in Lagging Regions: Lessons from the European and Italian Experience	February 23, 2006	Raffaello Cervigni	William Dillinger
Indonesia	Agglomeration, Transport, and Regional Development	March 6, 2006	Uwe Deichmann, Kai Kaiser, Somik V. Lall, Zmarak Shalizi	Aniruddha Dasgupta
Brazil	Regional Economic Development: Some Lessons from Experience	March 16, 2006	Marianne Fay and Paulo Correa	Kai Kaiser
Ireland	Convergence and Economic Transformation in Ireland: What Lessons for Other Lagging Regions	March 20, 2006	Frank Barry (University College Dublin)	Lili Liu
China	Fostering the Development of Lagging Regions in China	April 3, 2006	Sudarshan Gooptu and Deepak Bhattasali	Dana Weist
Chile	Zonas Extremas and Beyond	April 18, 2006	Fernando Rojas	Kai Kaiser
Thailand	Spatial Disparity in Thailand's Emerging New Economy	May 3, 2006	Douglas Webster (Arizona State University)	Mark Sundberg
Pakistan	Securing Sindh's Future: Challenges and Prospects	June 6, 2006	Deepak Mishra	Shahrokh Fardoust
India	Dramatic Turnaround in Development Prospects: The Story of Orissa	June 22, 2006	Government of Orissa	Mark Sundberg
Italy (Seminar)	Improving Regional Development Results through Evaluation and Conditionality	July 18, 2006	Fabrizio Barca (Ministry of Economy and Finance, Italy)	No discussant

ANNEX D. BENCHMARKING REGIONAL PERFORMANCE

This annex is a technical note to the main report, *A Framework for Bank Engagement in Lagging Areas*. It describes the increasing need for benchmarking and our methodology for diagnosing lagging regions. It explains our conceptual approach—highlighting its advantages and limitations—and discusses some interesting findings from the country cases.

THE INDICATORS

Since the early 1900s policymakers in developed and developing countries have been concerned about spatially balanced development. Early examples include countries such as Canada and the United Kingdom and the former planning economies such as Russia and China. Now the list includes Brazil, Egypt, India, Indonesia, Mexico, and others. Even the European Union has been preoccupied with spatially balanced growth among its member countries.

Thus far, countries have been narrowly focused on equalizing incomes across regions (as measured by income per capita). We argue that other measures of welfare (poverty, access to social services) are more important, especially given the World Bank's mandate in developing countries.

The Bank has been increasingly asked to assist its client countries in benchmarking regional performance. Requests have come from countries in Europe and Central Asia, such as Serbia, using benchmarks to group countries according to similar characteristics for purposes of setting up regional development agencies. Others, including Guerrero State in Mexico and Saudi Arabia, are using various indicators to help reduce disparities and allocate and prioritize public investments.⁹⁰

This report presents an approach that allows policymakers to consider the multidimensionality of welfare when comparing regional performance. Box D1 lists key indicators available at the subnational level. This list is not exhaustive; it presents data that are regularly collected in most countries at the subnational level. The applicability and availability of data varies by country and is subject to measurement errors.

⁹⁰ For more information, see Kingdom of Saudi Arabia, Eight Development Plan National and Mexico Population Commission (CONAPO) Marginalization Index

Box D1. Key Indicators

Core economic indicators

Per capita gross regional domestic product (GRDP; US\$ current price, or purchasing power parity)

Population (total, urban, and rural)

Population density

Poverty measures

Poverty headcount ratio (national poverty line, US\$1 a day)

Poverty gap

Social indicators

Infant mortality rate

Adult literacy rate

School enrollment (gross and net) and attainment

Immunization rate

Market access indicators

Travel time (hours used to travel to the closest city with a population greater than 100,000)

Number of cities with population greater than 100,000 in the region

Road density

Kilometers per 10,000 people

Kilometers per 100 square kilometer area

Access to public services indicators

Water

Sanitation

Electricity

Telephone lines

Doctors per 1,000 people

Investment climate indicators

Number of days to start a business

Number of days to enforce a contract

Number of days to register a property

Public finance indicators

Revenue (own-source revenue and transfers)

Development expenditure (health, education, infrastructure)

METHODOLOGY

With real country examples or within-country and cross-country comparisons, this section illustrates our methodology. Table D1 shows the list of countries that have been completed.

Table D1. Selected Country Cases Completed as of June 30, 2008

Regional grouping	Countries
-------------------	-----------

East Asia and Pacific Region	China, Indonesia, Thailand
South Asia Region	India, Pakistan
Latin America and the Caribbean	Brazil, Chile, Mexico
Middle East and North Africa	Egypt, Saudi Arabia

Source: Authors' compilation.

Within-Country Comparisons

In the within-country comparisons the two variables along the X and Y axis are scaled against a given benchmark as follows:

$$\text{Index for per capita GRDP for region } j = \frac{GRDP_{jk}}{GDP_k} * 100$$

in which $GRDP_{jk}$ = per capita GRDP in region i of country j ,
 GDP_k = per capita GRDP in country j .⁹¹

For example, in 2004 the GRDP per capita in Cairo (US\$1,820) was above the GDP for Egypt. Using the above formula, the GRDP index for Cairo was

$$\frac{1,820}{991} * 100 = 184$$

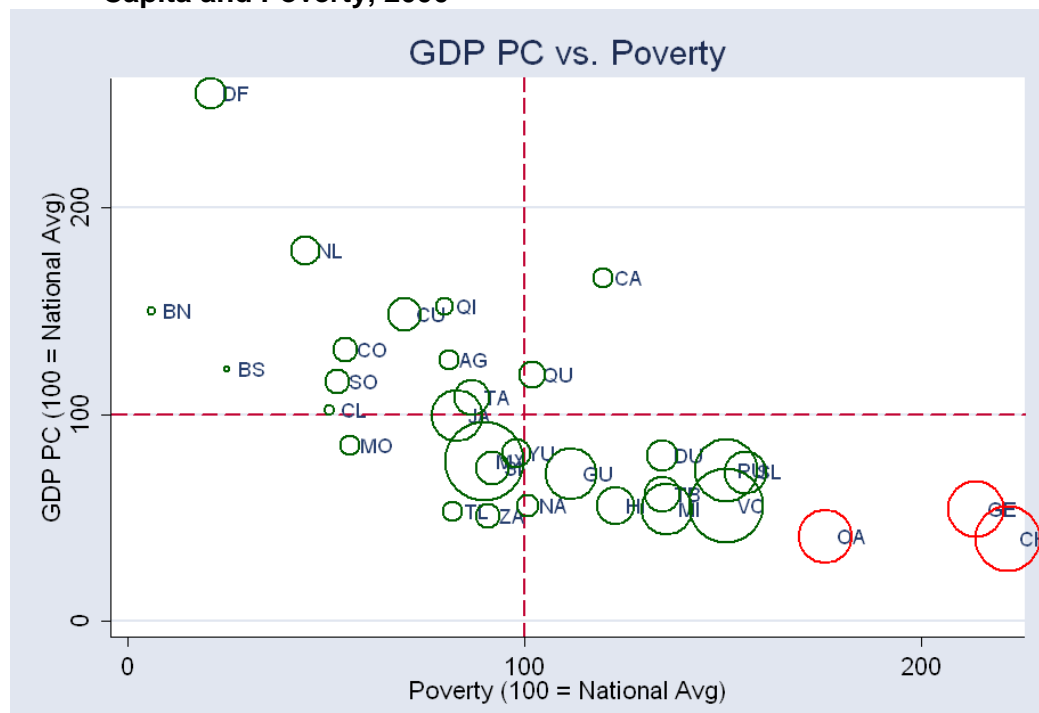
1.8 times the GRDP for Egypt.

Static example. Figure D1 measures the GRDP (in US\$) and poverty headcount ratio against the national average for various governorates. But a country tracking its progress in the Millennium Development Goals (MDGs) may prefer to choose an MDG indicator and to benchmark it against its goal. In International Development Association (IDA) countries the indicators and benchmarks selected could be aligned with the IDA eligibility criteria or a particular target that they are trying to achieve in their development plan. Figure D1 also shows our third dimension of welfare—the share of the nation's poor, represented by the size of the bubbles. In the case where poverty data at the subnational level do not exist, the proportion of total population could be used to substitute for cases where poverty data are not available or relevant.

In the main report we used the case of Brazil and Egypt to illustrate the static example using this methodology. The case of Brazil highlighted that poverty incidence where there is no perfect overlap between distance and density—that is, a large share of the poor—is found in Sao Paulo, a leading state, and the lagging states in the northeast. In contrast, the case of Egypt shows a perfect overlap between distance and density. The lagging governorates in Lower Egypt are also home to the majority share of Egypt's poor. Here, we will use the case of Mexico to highlight our methodology. The case of Mexico (figure D1) illustrates the case similar to Brazil. But in this case some lagging states such as the southern states and Veracruz-Llave, and the state of Mexico, classified as an intermediate state, all have large shares of the poor.

⁹¹ Average weighted by population.

Figure D1. Mexico: Relationship between Gross Domestic Product (GDP) per Capita and Poverty, 2000



Note: Red circles indicate the lagging areas identified by the respective countries. Green circles indicate the remaining states (leading and intermediate).

AG=Aguascalientes, BN=Baja California Norte, BS=Baja California Sur, CA=Campeche, CH=Chiapas, CL=Colima, CO=Coahuila de Zaragoza, CU=Chihuahua, DF=Distrito Federal, DU=Durango, GE=Guerrero, GU=Guanajuato, JA=Jalisco, MX=Mexico state, MI=Michoacan de Ocampo, MO=Morelos, NA=Nayarit, NL=Nuevo Leon, OA=Oaxaca, PU=Puebla, QU=Querataro de Arteaga, SI=Sinaloa, SL=San Luis Potosi, SO= Sonora, TA=Tamaulipas, TB=Tabasco, TL=Tlaxcala, VC=Veracruz-Llave, YU=Yucatan, ZA=Zacatecas.

Source: Authors.

The axes intersect at 100, the national average. As such, any observations that lie on either axis are performing at the national average. In the case of GRDP an observation with a score above 100 means the governorate is performing better than the national average, and a score below 100 means it is performing below the national average. But the opposite is true for the incidence of poverty. An index of headcount ratio above 100 means that it is performing below the national average, while an index below 100 means that the governorate is performing above the national average.⁹²

Figure D1 is divided into four quadrants. Any observation in quadrant I (northwest) is performing above the national average by both measures. For example, Distrito Federal's GRDP is about 2.5 times higher than the national average, and its incidence of poverty is about 25 percent of the national average. It is home to only a small share of Mexico's poor as measured by the size of the bubble. In contrast, the southern states of Chiapas, Guerrero and Oaxaca (shown in red) in quadrant IV (southeast) are the lagging regions. In addition, other lagging states like Veracruz-Llave also have a large share of the poor. Their GRDP per capita is below the national average, and the incidence of poverty is higher than the national average.

⁹² Depending on the variable used, an index greater than 100 may mean that a particular region is performing better or worse than the national average. We have rescaled the axis such that in all cases, the northwest quadrant is the leading region, and the southeast quadrant is the lagging region.

Any observation in quadrant II (southwest) such as the state of Mexico, has lower GRDP per capita and a lower poverty rate than the national average. In contrast, any observation in quadrant III (northeast) such as Campeche has a higher GRDP per capita and higher poverty rate than the national average. Quadrants II and III are intermediate regions, which show the trade-offs associated with GRDP per capita and poverty.

Dynamic example. Observations from multiple points in time would enrich the above analysis. See figure 2.4 and related discussion in the main report.

Advantages

- *Data consistency.* Normalizing against the national average reduces the problems with measuring data. Because the data come from the same source, measurement errors are self-correcting. In addition the survey methods or sample may have changed over time. Normalizing against the national average reduces the bias in the two data periods.

Limitations

- *Data constraint.* Lack of consistency and regularity constrained the data. Subnational data are not routinely collected in all countries. And household surveys and economic censuses vary in coverage and type of data collected.
- *Comparability problems.* Survey indicators are collected in different periods, which may cause a time discrepancy in analysis. For example, the poverty data are collected every three years, and the latest year is 2001, while the infant mortality rate is surveyed in 1999. In our study the analysis for the 2000s includes a range from 1998 to 2005, and 1989–93 for the 1993.

Cross-Country Comparisons

The cross-country estimation uses the same concept as the within-country estimation. This section benchmarks regions according to their country income group and regional groupings.

- *Income grouping comparisons.* Most of the indicators are benchmarked against the low and middle income average in the *World Development Indicators*.⁹³ For other less common indicators (such as the market access indicators) the simple averages are calculated based on the country samples included.⁹⁴
- *Regional grouping comparisons.* Most indicators are benchmarked against the average for the regional grouping (South Asia, East Asia and the Pacific, and others). Similar to the income grouping, the simple averages are calculated based on the country samples included for the less common indicators, such as the market access indicators.

Advantages

- This allows countries to benchmark their performance not only among themselves but also by international standards.

⁹³ These include the per capita GDP (current US\$), population, population density, infant mortality rate, adult literacy rate, and school enrollment (gross and net).

⁹⁴ The *World Development Indicators* compiled road density by population; however, the road measured is paved. The global roads dataset used does not distinguish between paved and unpaved but only between primary, secondary, and tertiary.

Limitations

- *Data inconsistency.* This normalization methodology is effective only if all subnational regions collect, define, and evaluate the same indicators. For example, national poverty lines differ by countries. The US\$1 a day indicator allows for cross-country comparisons, but this indicator is only available at the subnational level for very few countries.⁹⁵ So, poverty measures are excluded for cross-country comparisons. In addition, the size of subnational regions can differ significantly across countries. For example, the populations of China and India are more than 10 times the size of other countries. And the population of Bihar is larger than that of Thailand. Some caution needs to be exercised when it comes to interpretation. The travel time indicators for China and India are measured for cities with populations of 500,000, while in the other countries travel time is measured for cities with populations of 100,000.
- *Biased average values for some indicators.* For market access indicators the average values are calculated based on the country samples included. For example, in South Asia, our sample is limited to India and Pakistan. Thus, our benchmarks for these indicators are based on the averages of these two countries, which may or may not be representative of the region. For example, if the calculated average of road density per population (using only India and Pakistan) is higher than the “real” South Asia average, then the calculated benchmark will be too high. Regions that appear to be lagging may in fact not be lagging, if the “real” regional value is observed. Thus, for these indicators our regional grouping only represents the countries sampled.
- *Different time period.* Economic surveys and censuses are conducted in different years for different countries. Hence, the years compared may differ significantly.

Income Grouping Comparisons

By international standards, all regions in the Latin America and the Caribbean region (LCR) with the exception of the southern states of Mexico are leading areas in both GRDP and infant mortality rate (IMR; figure D2). The two regions in China—northeast and coastal—also fall in this group. On the other extreme, all regions in South Asia, with the exception of Kerala, India, are classified as lagging. Also worth noting is that there are no regions where the GRDP and infant mortality rate are above the international average, which seems consistent with cross-country evidence that infant mortality rate declines with economic development.

Unemployment provides a somewhat mixed picture. China’s northeast and coastal regions and Bangkok remain leading regions, while Pakistan regions remain lagging (figure D3). Although Chile has a high GRDP by international standards, its unemployment rate is also high by international standards, putting it in quadrant II. Meanwhile, most of India falls in quadrant III.

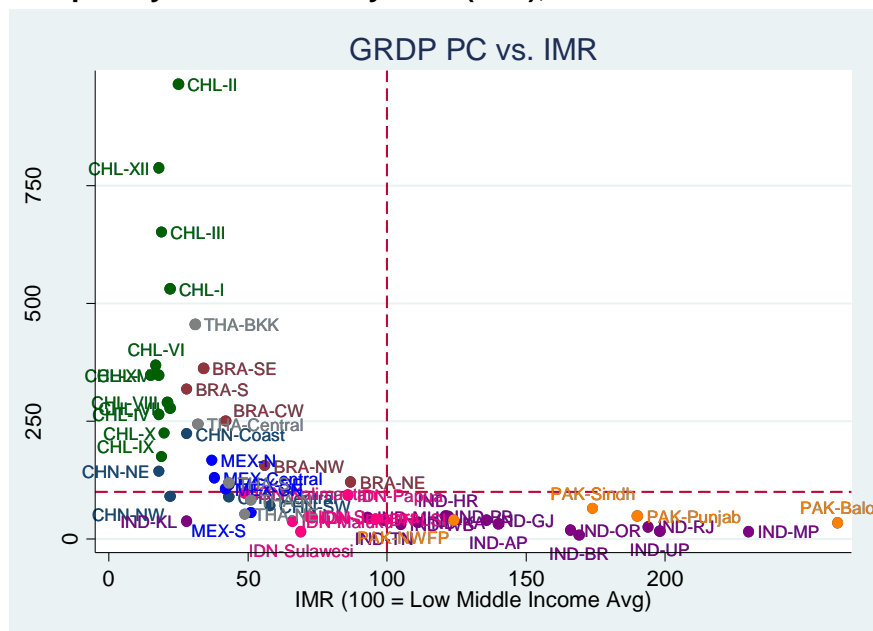
Regional Grouping Comparisons

We illustrate this using East Asian countries. In figure D2 all regions in Indonesia, with the exception of Kalimantan and Papua are lagging.⁹⁶ Southwest China is also a lagging region. It is interesting that the GRDP per capita of all Chinese regions are above or close to the East Asia average.

⁹⁵ To the best of our knowledge, the only country with available cross-country comparisons is China (see latest poverty assessment).

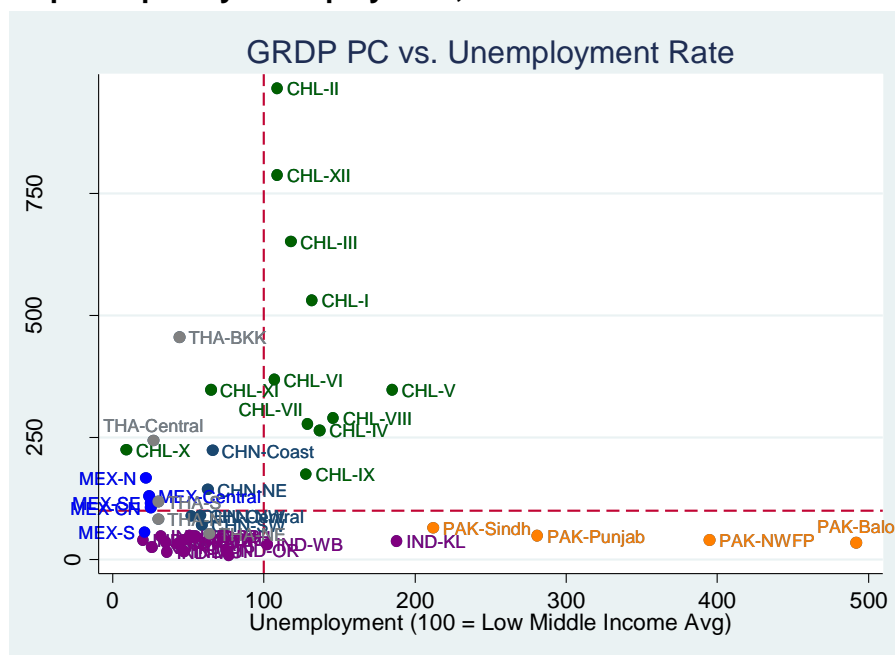
⁹⁶ GRDP per capita in Kalimantan and Papua have increased in recent years due to the revenue sharing from the high price of oil. Furthermore, population densities in these regions are very low.

Figure D2. International Comparisons of Gross Regional Domestic Product (GRDP) per Capita by Infant Mortality Rate (IMR), 2000



Note: BRA=Brazil (brown), CHL=Chile (green), CHN=China (navy), IDN=Indonesia (pink), IND=India (purple), MEX=Mexico (blue), PAK=Pakistan (orange), THA=Thailand (grey). Extensions to country names represent regions within a country.
Source: Authors calculations based on data compiled from Bank country reports (see references)

Figure D3. International Comparisons of Gross Regional Domestic Product (GRDP) per Capita by Unemployment, 2000



Note: BRA=Brazil (brown), CHL=Chile (green), CHN=China (navy), IDN=Indonesia (pink), IND=India (purple), MEX=Mexico (blue), PAK=Pakistan (orange), THA=Thailand (grey). Extensions to country names represent regions within a country.
Source: Authors calculations based on data compiled from Bank country reports (see references)

ANNEX E. CALCULATING TRAVEL TIME AND MAPPING TIME TO THE NEAREST MEDIUM-SIZE CITY

Travel time calculations are an important tool for measuring accessibility to markets and public goods and services. We measured travel time using the Nelson (2007) global one kilometer accessibility model. Accessibility is defined as the time needed to travel from a given square kilometer area (pixel) to the nearest city with a population of 100,000 or 500,000. To do this analysis, a kilometer resolution cost-distance raster—using geographic information systems (GIS) that record the minutes to travel from that pixel to the nearest target city—was used.

The cost-distance raster is based on a combination of several GIS layers that are merged into a “friction layer.” As the friction value of a pixel increases, the time to cross the pixel also increases. For example, the friction value of a pixel that has a primary, paved road on its surface would be much less than a pixel with no transportation infrastructure. We assume that if someone is traveling on a primary, paved road, they are able to travel by car or truck, compared with someone walking across a field without any transportation infrastructure in place.

The accessibility model is composed of the following GIS layers:

- SRTM30 elevation.
- Slope in degrees, derived from SRTM30 elevation.
- GLC2000 land cover.
- Urban areas from GPW3-GRUMP.
- Roads from VMAP0.
- Railways from VMAP0.
- Rivers from WDBII.
- Borders from VMAP0.
- Major water bodies from GLWD layer 1.
- Major sea routes from BBXX data.
- High seas” from GLC2000.

Each layer is allocated a friction value. For example, assuming a speed of 10 kilometers (km) per hour on water bodies, each water body pixel has a value of 6 (it takes six minutes to cross a one-square kilometer pixel). Elevation and slope affect most of the layers (a steeper slope and higher elevation cause a slower travel time) and are used as multiplying factors on the accompanying layers.

Once all of the layers have been allocated specific speeds, they are combined into a single friction layer used to run the cost-distance analysis. During this merge, layers are assigned a certain priority, which gives international borders priority over roads, roads priority over railroads, and so on. This builds a least-cost friction surface, which assumes that a traveler will take the quickest possible method of arriving at the target city, while also taking into consideration that international borders slow a traveler due to customs and paperwork.

The following speeds (or friction) were assigned to the GIS layers to calculate total travel time (Nelson 2007):

Urban areas from GPW3-GRUMP

Urban Areas 30 km/hr = 2 minutes per 1km (taking into consideration traffic and congestion, inner-city areas were given a larger friction)

Roads from Vector Map Digital Chart of the World - global roads dataset (VMAP0)

Motorways 120km/hr
Major roads 60km/hr
Tracks 10km/hr

Railways from VMAP0

Railways 40km/hr

Major rivers from Shorelines dataset (WDBII)

Navigable 20km/hr

Seas

Shipping 40km/hr
High seas 20km/hr

Borders from VMAP0

Customs 1 km/hr

Major water bodies from Global Lakes and Wetlands Database (GLWD) layer 1

Navigable 20km/hr

Global Landcover from the year 2000 (GLC2000)

Varied from 1 to 4 km/hr depending on land cover type, which was broken down into 22 different classes

**Shuttle Radar Topography Mission - topographic database (SRTM30 slope)—
multiplication factor**

The effect of slope on travel speeds is computed as follows and is based on Van Wagtenonk and Benedict (1980):

$$v = v_0 e^{-ks}$$

where

v = off road foot-based velocity over the sloping terrain,
 v_0 = the base speed of travel over flat terrain, 5km/hr in this case,
 s = slope in gradient (meters per meter), and
 k = a factor that defines the effect of slope on travel speed.

For this case we assume a base speed of 5km/hr and that k is 3.0 and constant for uphill and downhill travel. The velocities over the slope grid were computed and then converted into a friction factor by dividing the base speed by the slope speed. This was then used as a multiplier against the other friction components. Note that we applied this slope factor to both road and off road travel speeds.

Elevation from SRTM30 in meters

For elevations lower than 2,000 meters, there is no effect on travel speed. For elevations above 2,000, the following speed factor is applied:

$$f = 0.15e^{0.0007E}$$

where

f is the friction factor and

E is elevation in meters.

CAVEATS

Accounting for transportation infrastructure, cost-distance calculations provide greater insight but are not intended to precisely measure travel times between places. They indicate the degree of accessibility from a specific area to a chosen target (in this case, cities with populations greater than 100,000 or 500,000). Given that the dataset used to assess travel times was built on a global scale, speed is allocated across the globe, and assumptions are equal across all countries. Thus, this model does not capture varying speeds on a specific road surface of a given country. Other travel time grids detailed country roads datasets that allow for more accurate assessments of travel time. In this study we wanted to compare across regions and countries, so we chose a global dataset to measure the relative travel time among lagging and leading regions within a variety of countries.

Also important to consider is the availability of data and level of geographic aggregation. For this study, we used second level administrative boundaries (provincial/state level). At this level of aggregation, it is important to weight travel time by population density. For example, when calculating average travel time in the state of Amazonas in Brazil, mean travel time to a city of 500,000 people or more was 55 hours; after weighting travel time by population density, the average travel time was 12 hours. Given that Amazonas is sparsely populated and comprises dense rainforest, measuring travel time of the entire geographic surface distorts accessibility.

Understanding the demographic layout of each study country is important to understanding their level of remoteness. Population density in a country may define how one measures accessibility. For example, in India, China, and Brazil, we measured accessibility to cities of 100,000 people or more, as well as to cities greater than 500,000. Although a city of 100,000 may represent a vibrant economic market in Mexico (which comprises 106 cities of 100,000; 29 are greater than 500,000), densely populated countries such as India may define an economic market as a city of 500,000. Currently, 27 percent of Indians live on 6 percent of the land. India includes 405 cities with more than 100,000 people; and 67 with more than 500,000 (Global Rural-Urban Mapping Project (GRUMP)).

Understanding the geographic and topographic layout of the study countries also gives interesting insight into accessibility. Although the southern province of Chile is within 30–80 kilometers (measured in Euclidean distance) of five Argentinean cities of 100,000 or more, this area remains highly disconnected due to topographical (the Andes Mountains are a major obstacle for transportation) and geographic effects (North-South composition). With approximately 4.5 million people, Santiago is the largest city in Chile.⁹⁷ Outside of Santiago, there are no other cities with populations greater than 500,000. Although Santiago represents an epicenter of economic and social interaction, it is approximately 2,515 kilometers from the

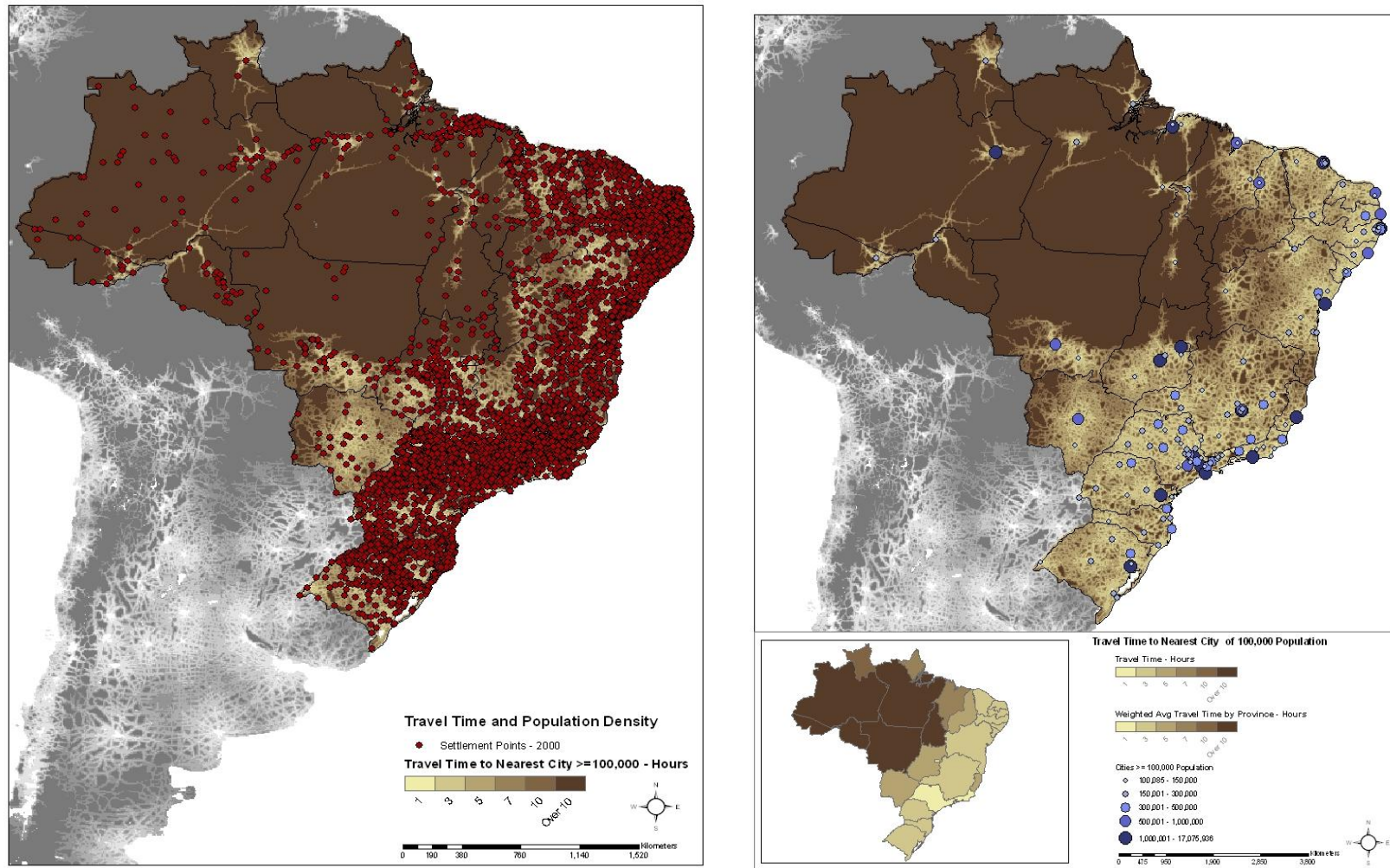
⁹⁷ CIESIN and others 2000.

southern tip of Chile, leaving the southern-most provinces disconnected from country-level trade and interaction.

The demographic, topographic, and geographic trends and layout of countries are vital to measuring travel time and remoteness. More accurate travel times would need more detailed road data, including road conditions and maintenance, seasonality, congestion and traffic data, and more accurate assessments of average travel times over each component of the friction surface. Although these travel times may not represent perfect measurements, they do represent a level of accessibility that points to regions that may be lacking, or conversely have overinvested, in important transportation infrastructure.

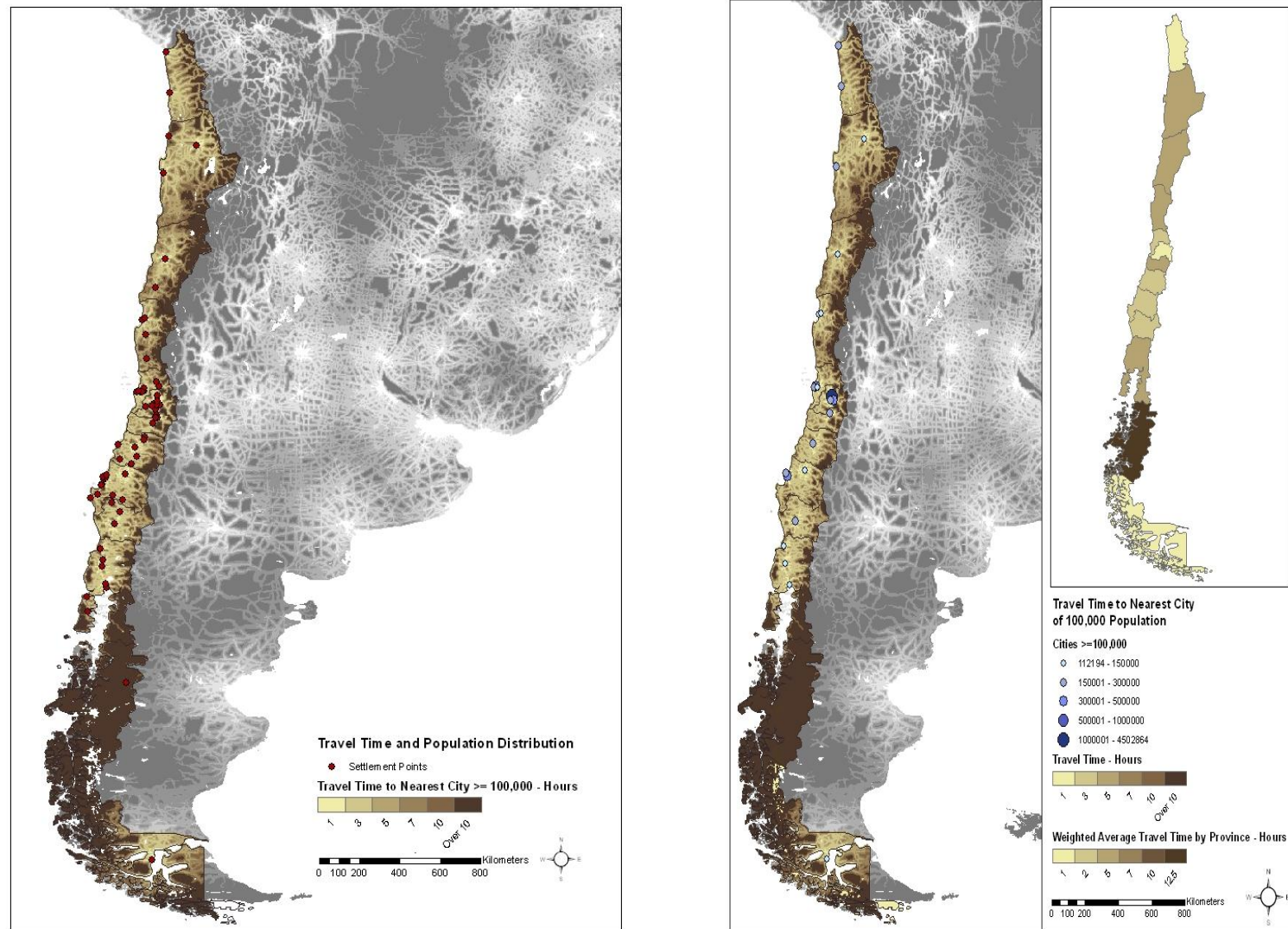
MAPS OF SETTLEMENTS AND TRAVEL TIME TO NEAREST MEDIUM-SIZE CITY OF 100,000 PEOPLE

Map E1. Brazil—Settlement Points and Travel Time to Nearest City of 100,000 People



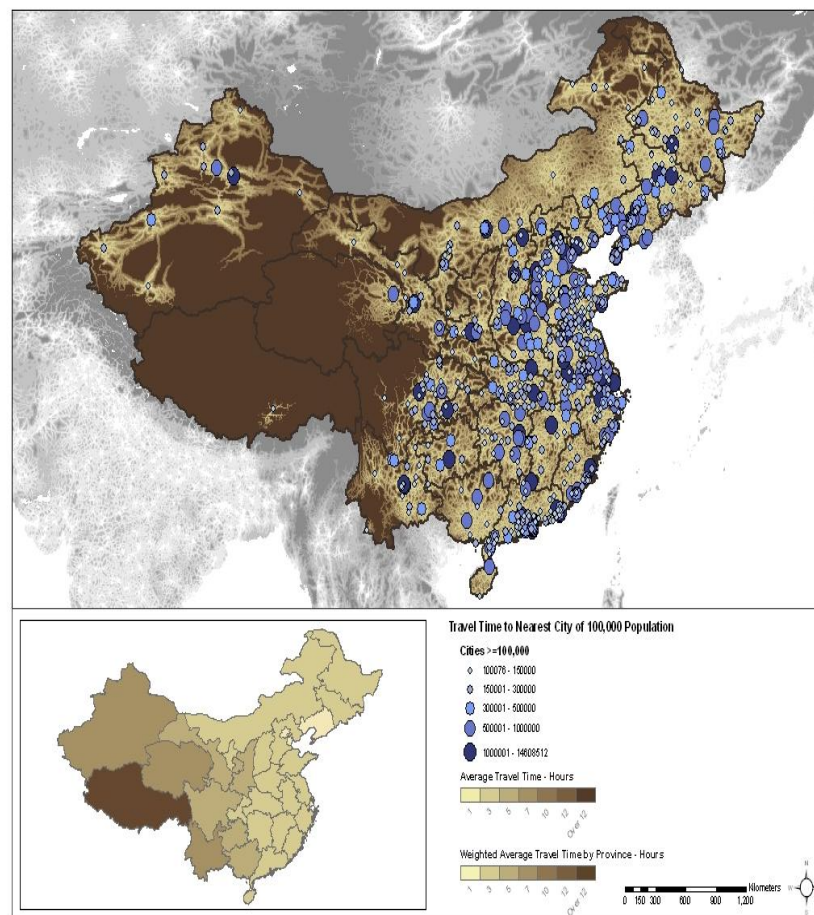
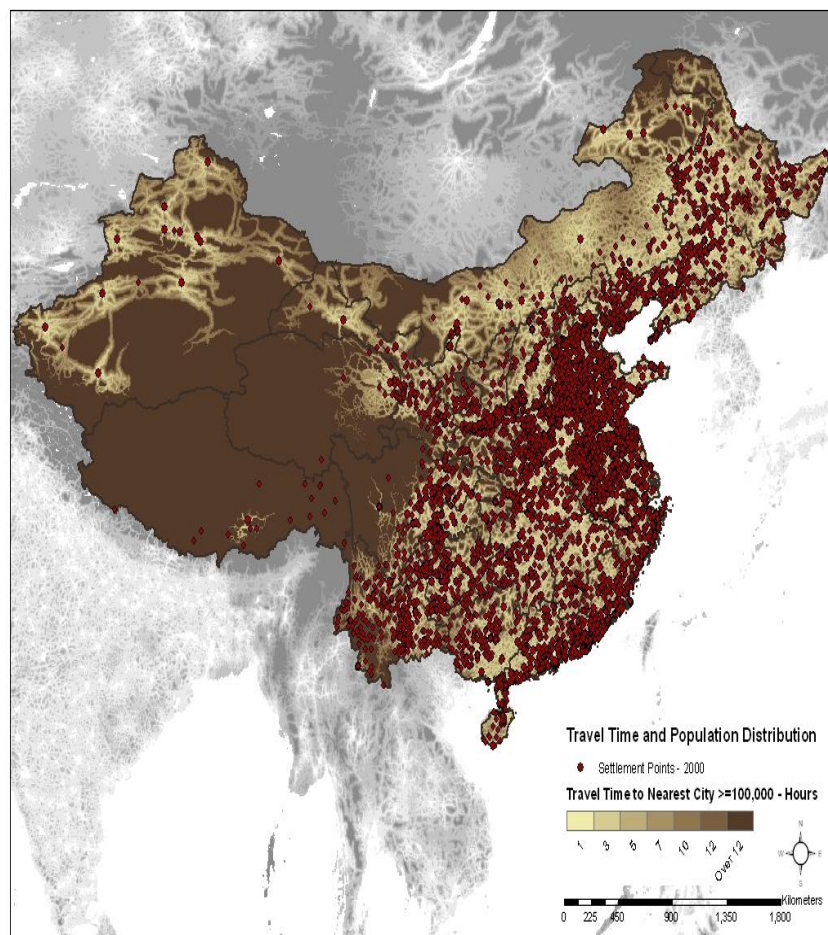
Source: World Bank database and CIESIN 2000.

Map E2. Chile—Settlement Points and Travel Time to Nearest City of 100,000 People



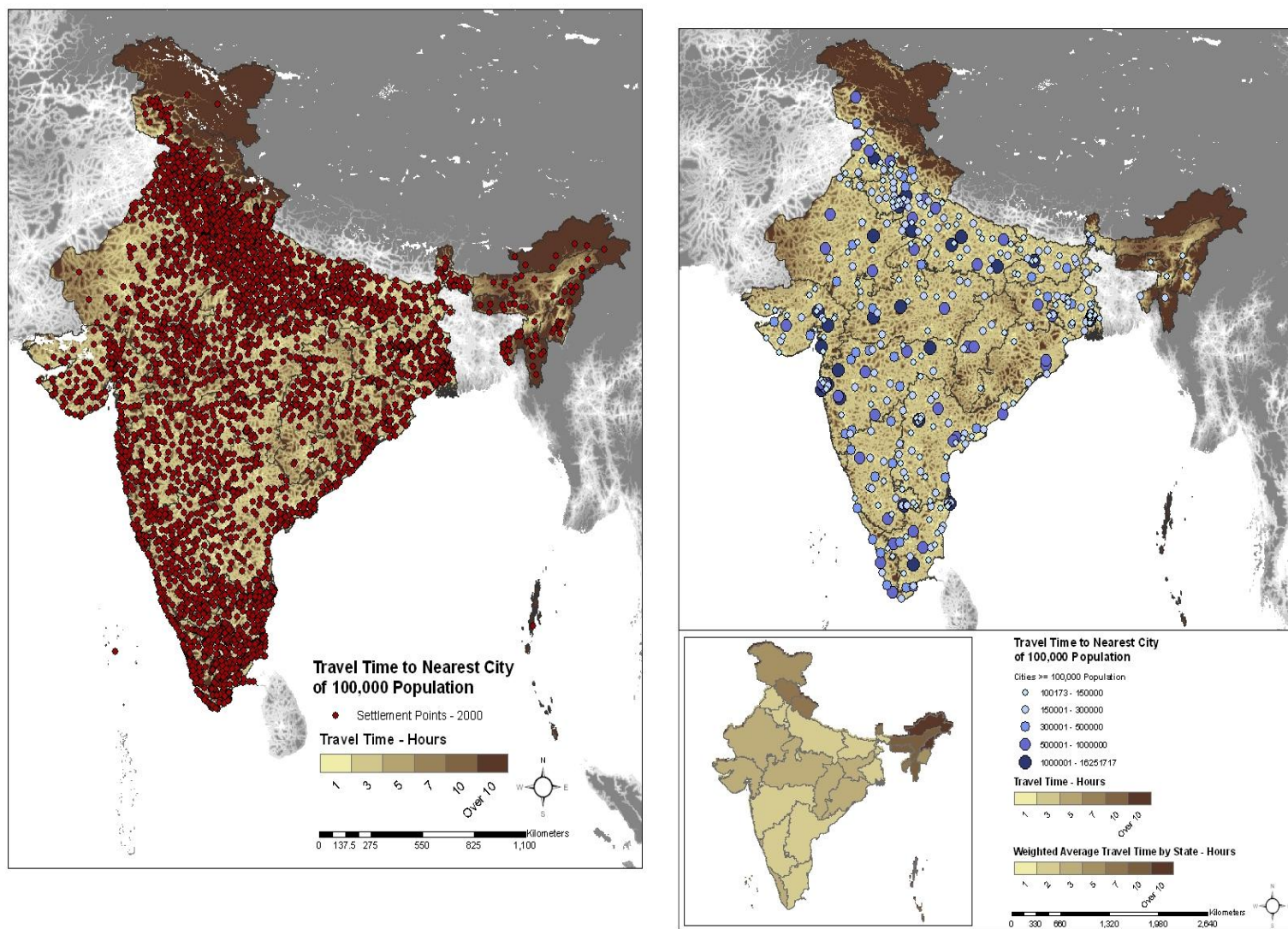
Source: World Bank database and CIESIN 2000.

Map E3. China—Settlement Points and Travel Time to Nearest City of 100,000 People



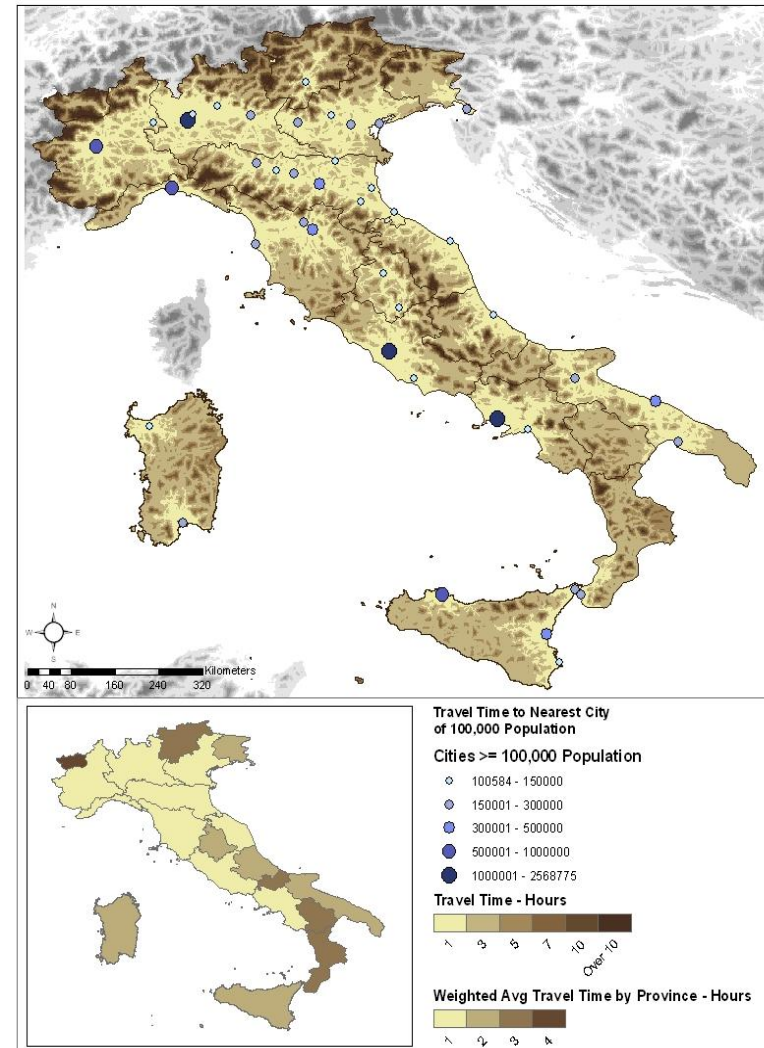
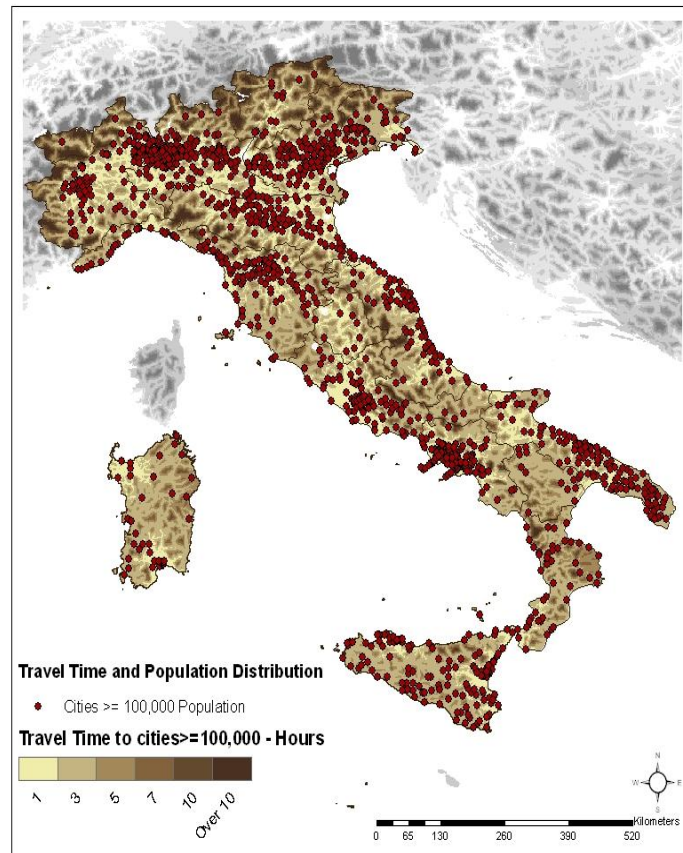
Source: World Bank database and CIESIN 2000.

Map E4. India—Settlement Points and Travel Time to Nearest City of 100,000 People



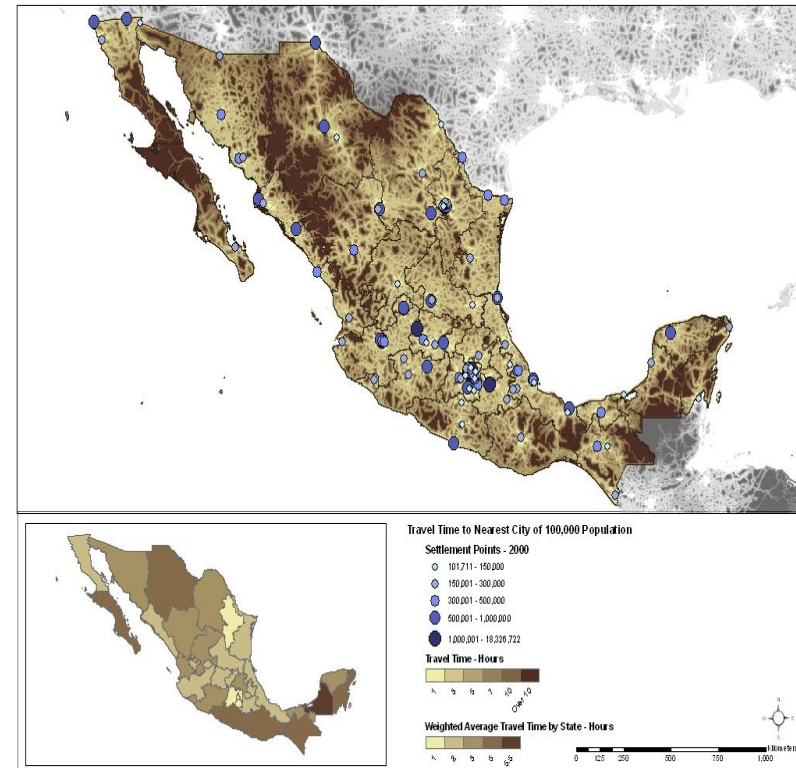
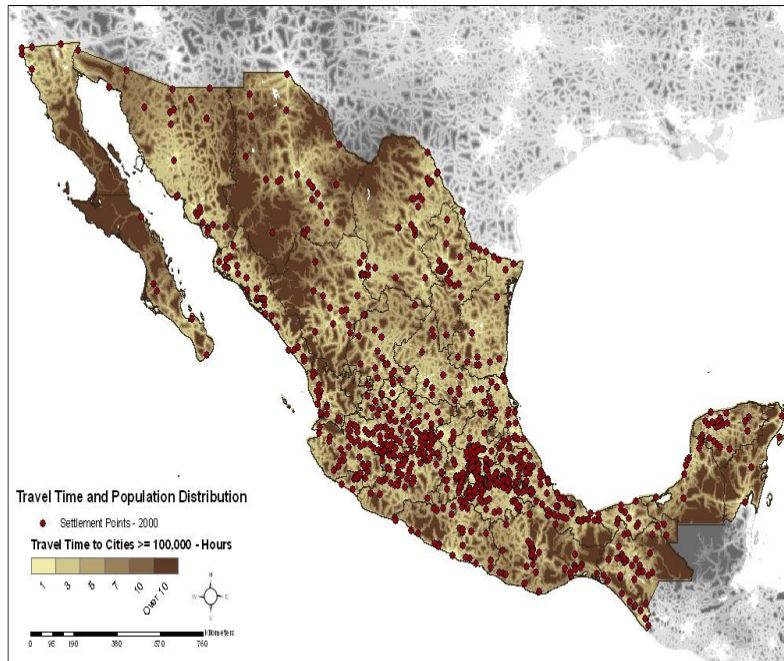
Source: World Bank database and CIESIN 2000.

Map E5. Italy—Settlement Points and Travel Time to Nearest City of 100,000 People



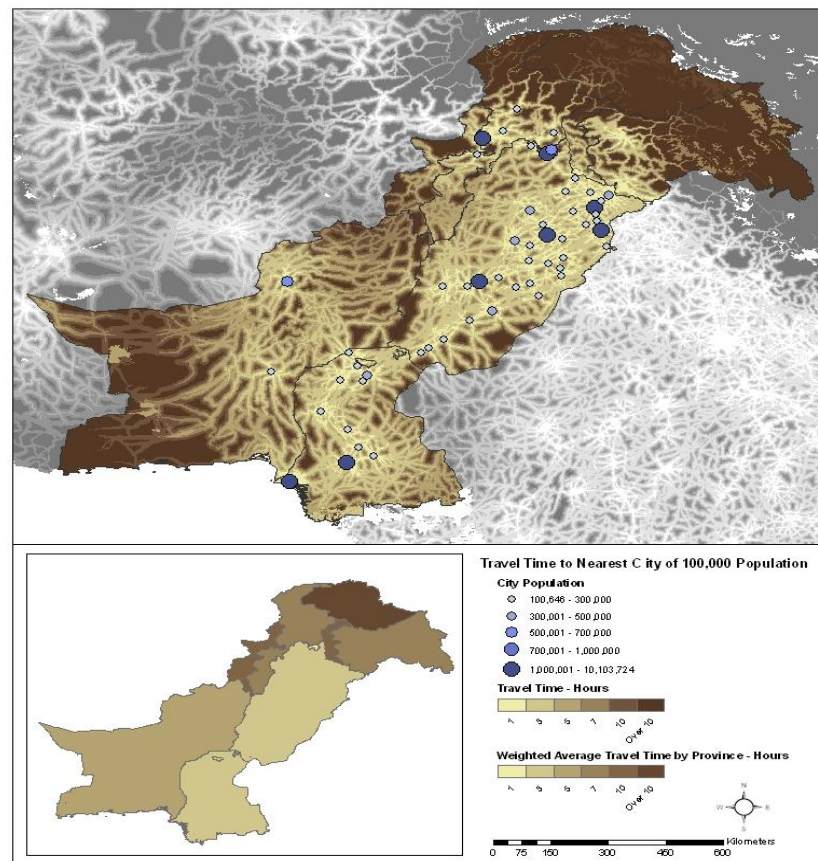
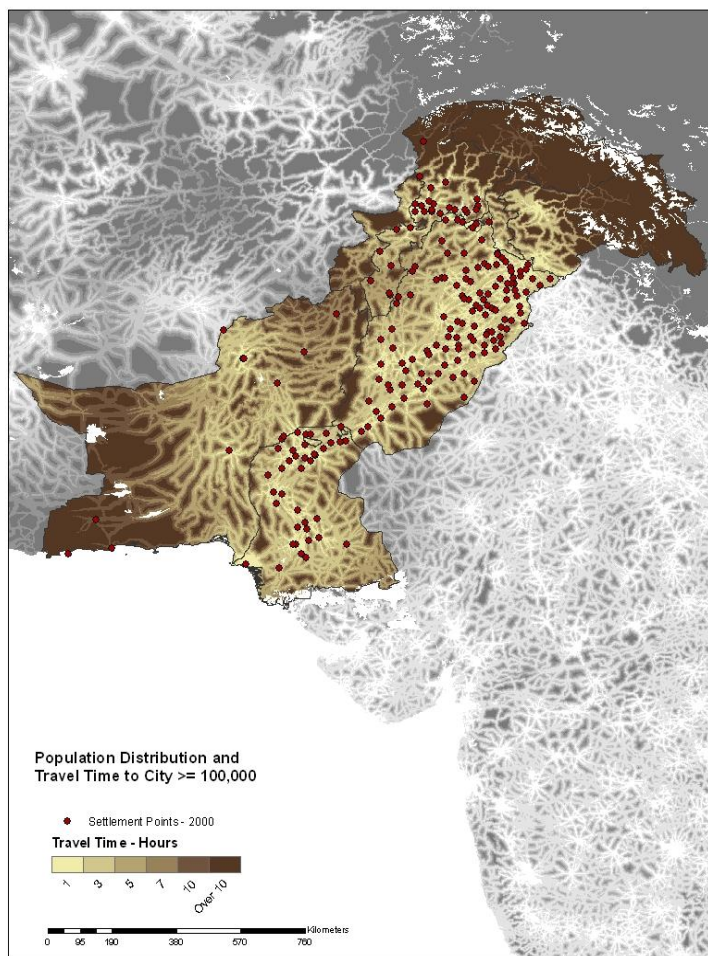
Source: World Bank database and CIESIN 2000.

Map E6. Mexico—Settlement Points and Travel Time to Nearest City of 100,000 People



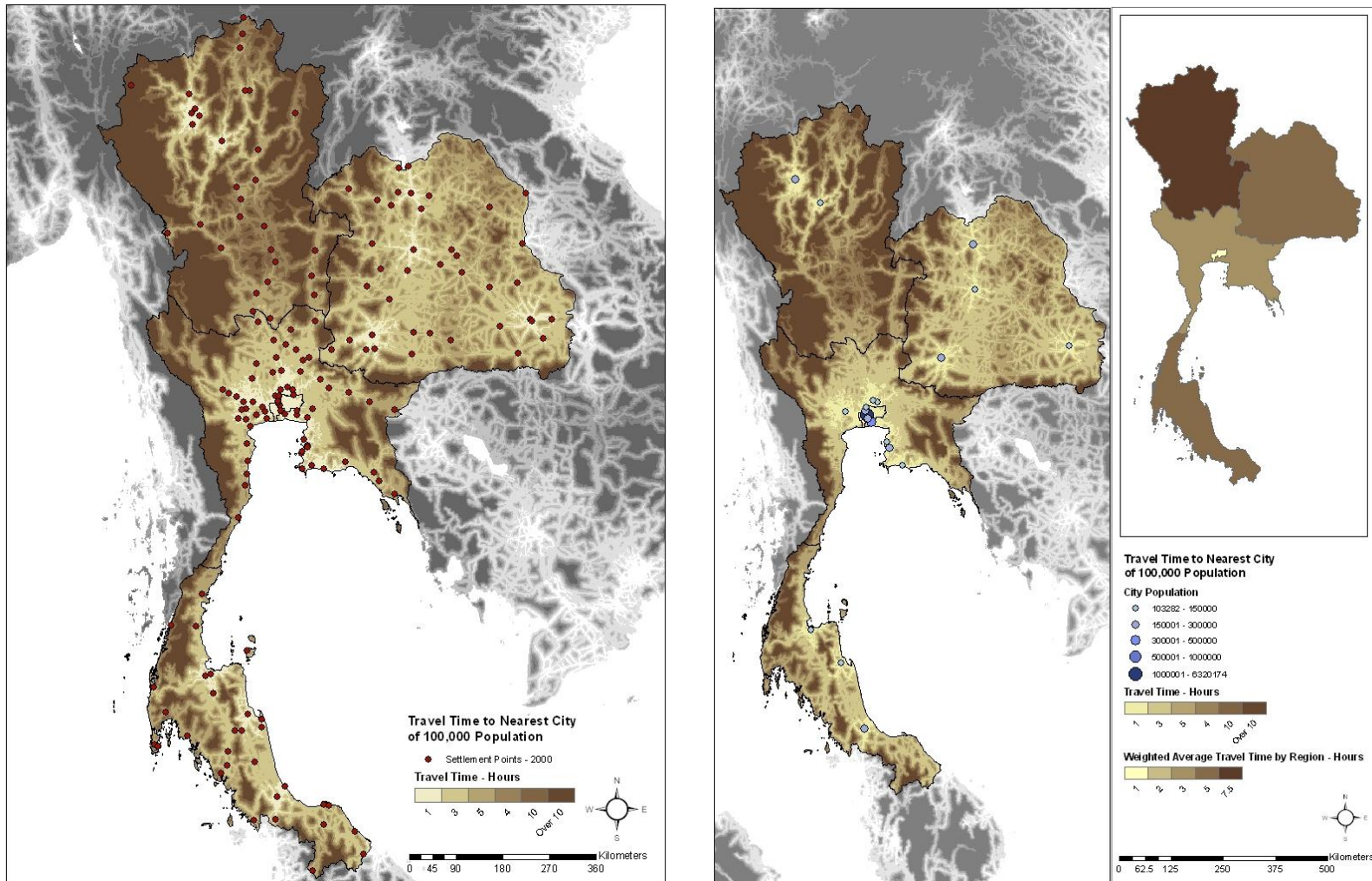
Source: World Bank database and CIESIN 2000.

Map E7. Pakistan—Settlement Points and Travel Time to Nearest City of 100,000 People



Source: World Bank database and CIESIN 2000.

Map E8. Thailand—Settlement Points and Travel Time to Nearest City of 100,000 People



Source: World Bank database and CIESIN 2000.

ANNEX F. REGRESSION RESULTS FOR RESOURCE ABUNDANCE

This annex presents the regression results for the relationship between growth and resource abundance and describes our methods for finding them.

CROSS-COUNTRY AND WITHIN-COUNTRY REGRESSION ANALYSES

The literature on the link between natural resources and growth is inconclusive. Sachs and Warner (1997, 2001) show that resource abundance is bad for a country's development. Lederman and Maloney (2007) show that there is no relationship between resource abundance and a country's development. Meanwhile, Mehlum, Moene, and Torvik (2006) argue that the relationship depends on the institutions within the country. We wanted to test the relationship between natural resource abundance and growth with our sample countries, particularly at the subnational level.

The specification our pooled model (in log form) is:

$$Y_{ij} = f(NAT_{ij}, COAST_{ij}, ROAD_{ij}, POPDEN_{ij}, TIME_{ij}, INV_{ij})$$

where

Y_{ij} = GDP growth in

country i and region j ⁹⁸ (current US\$),

NAT_{ij} = Natural resource dummy in country i and region j . Dummy = 1 if the region has a natural resource; 0 = otherwise,⁹⁹

$COAST_{ij}$ = Coastal dummy in country i and region j . Dummy = 1 if the region borders the coast,

$ROAD_{ij}$ = Road density (road length per 1,000 people) in country i and region j ,

$POPDEN_{ij}$ = Population density (person per square kilometer area) in country i and region j ,

$TIME_{ij}$ = Travel time (minutes) in country i and region j to the closest city with more than 100,000 people,¹⁰⁰ and

INV_{ij} = Investment climate variables (days to clear import customs, days to enforce contract).

The underlying hypothesis of the model is that GDP growth is determined not only by geographical factors but by second-nature geography and institutional characteristics. There were three major independent variables tested. The first can be classified as location-specific characteristics or "first nature geography" (natural resource abundance endowment and the state's coastal location); the second, second-nature geography (such as road density, travel

⁹⁸ The term region refers to the second tier government (i.e. states or provinces). The terms *regions*, *states* and *provinces* will be used interchangeably throughout this note.

⁹⁹ Mining and quarrying (excluding valuable plants) includes petroleum, natural gas, silver, gold, coal, iron, steel, copper, aluminum, tin, diamond, bauxite, and asbestos.

¹⁰⁰ Given the larger population of China and India relative to the other countries, we used the travel time to the closest city with more than 500,000 people for both countries in the cross-country regression. For the within-country regressions, we used the same criteria as the other countries.

time to the closest city and population density); and last, the investment climate used as proxies for the quality of institutions (and governance) of a region.

GDP Growth

We modeled GDP, both in real and nominal terms.¹⁰¹ GDP growth is calculated as the percentage increase in GDP between the 1990s and 2000s.¹⁰²

Road Density

Road density is measured as the total length of primary and secondary roads per 1,000 populations. This variable measures the access to markets, and the extent of market integration within that region. It is expected that higher road density would be positively correlated with GDP growth.

Population Density

Population density is measured as the number of people per square kilometer area. Population density can be a measure of potential agglomeration, and as such, we would expect to find a positive relationship with growth.

Travel Time

Although the model controls for road density, which measures the integration to markets, there are cases where travel time may be a better measure (such as in regions with elevation, lakes, or when differences in the type of roads that exist may matter). In general, one would expect that a shorter travel time would imply higher growth. But this is complicated by the fact that travel time could be slowed by other factors, such as congestion, within a major city. So, the relationship is ambiguous.

Natural Resources

Based on the literature, it is difficult to predict an a priori relationship between resource endowment and growth. Natural resources in other studies are measured as a percentage of exports. Data availability at the subnational level was scarce. We used the United States Geological Survey database, which provides detailed production data by minerals. But the measure of natural resources to regional GRDP was not readily available in most countries. Thus, we resorted to using a dummy. We identified the three most important natural resources for each region, drawing from information in other country reports and the USGS reports. A value of one is assigned if the particular region is endowed with any of the three natural resources, and zero otherwise.

Coastal Location

A coastal location is believed to benefit from trade and globalization. Here, a dummy value of one is assigned if a region borders the coast, and zero otherwise. A positive relationship is expected between a coastal location and GDP growth.

¹⁰¹ We calculated the growth rate in local currency terms, to overcome the problem of exchange rate devaluation in some countries following the crisis.

¹⁰² The year for which data are available for each of the decades varies by country. This information is available in annex D.

Investment Climate

We used the number of days it takes to clear import customs and the number of days to enforce a contract as proxies for measuring the quality of public institutions. The longer it takes to clear customs and to enforce a contract, the lower the effectiveness of public institutions. Thus, we expect to observe a negative relationship between these two variables and GDP growth. The data mainly come from the *World Bank Investment Climate* and *Doing Business* reports.¹⁰³ These data are only available at the subnational level for three countries (India, Brazil, and China). We used them only for the within-country regressions.

There are two parts to the analysis: cross-country analysis and within-country analysis. The first part aims to test the robustness of the relationship between natural resources and GDP growth across our pooled sample. The second part aims to help us identify if the relationship holds for particular countries.

The pooled dataset is based on state- or provincial-level data that were collected for eight countries: Brazil, Chile, China, India, Indonesia, Mexico, Pakistan, and Thailand, with a total of 149 observations.¹⁰⁴ The within-country analyses were limited by observations (and degrees of freedom) and were conducted only for Brazil, Chile, China, and India.

India's natural resource endowment and good governance affect level of income. On the other hand, in China the coastal locations should be a key factor driving the level of provincial income.

Because a comparison analysis of subnational performance within countries has not been conducted before, the subnational data have not been collected systematically. In addition, different countries have conducted surveys in different years. Thus, we allowed any data collection period from 1998 to 2005 to be used for our cross-sectional analyses in the 2000s.

Another data constraint stems from the limitation of institutional quality data. Usually, corruption index and quality of governments can be obtained from Transparency International, International Country Risk Guide, or Governance Indicators by Kauffman, Kray and Matruzzi. But these indices are not collected at the state or provincial level. The World Bank's Doing Business and Investment Climate Survey units have some data for select countries, but our interested variables have not been carried out in all of our country samples. In addition, it should be noted that the firm samples in the survey might not represent every firm in a country since only a few samples were used due to high sampling cost.

Table F presents the results of our analysis.

¹⁰³ A recent Independent Evaluation Group (IEG) report was very critical of the Doing Business survey. Among the lessons, the report cautions that highly ranked countries, may be inadvertently signaling that it values reduced regulatory burdens more than other development goals. For further information, see IEG (2008).

¹⁰⁴ For cross-country analysis, Thailand is the only country for which we use regional data instead of provincial data because of its small size and unitary government system.

Table F. Cross-Country and Within-Country Regression Results for Relationship between Growth and Resource Abundance

Dependent	Model 1 (real gross domestic product growth)	Model 2 (nominal gross domestic product growth)
Natural resources dummy	−0.03	−0.27*
Coastal dummy	0.01	−0.02
Road density	0.03*	0.09*
Travel time	0.03*	0.07
Population density	0.02	
Observations	145	143
R-squared	0.06	0.10

* significant at 5 percent level

Source: Authors' calculations based on data from World Bank reports and government sources.

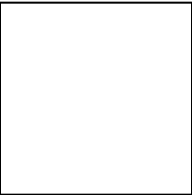
REFERENCES

- Alesina, A., R. Baqir, and W. Easterly. 1999. "Public Goods and Ethnic Divisions." *Quarterly Journal of Economics* 114 (4): 1243–84.
- Anh, D. N. 2003. "Migration and Poverty in Asia: with reference to Bangladesh, China, the Philippines and Viet Nam." Paper delivered at Ad Hoc Expert Group Meeting on Migration and Development, organized by the Economic and Social Commission for Asia and the Pacific, Bangkok, 27–29 August.
- Banerjee, A., and L. Iyer. 2005. "History, Institutions, and Economic Performance: the Legacy of Colonial Land Tenure Systems in India." *American Economic Review* 95 (4): 1190–213.
- Barca, Fabrizio. 2001. "Rethinking Partnership in Development Policies: Lessons from a European Policy Experiment." In *Exploring Policy Options for a New Rural America*, 155–76. Kansas City, MO: Federal Reserve Bank of Kansas City.
- . 2006. "European Union Evaluation between Myth and Reality: Reflections on the Italian Experience." *Regional Studies* 40 (2): 273–76.
- Barro, R.J., and X. Sala-i-Martin. 1992. "Convergence." *Journal of Political Economy* 100 (2, April): 41–55.
- Baunsgaard, T. 2001. "A Primer on Mineral Taxation." IMF Working Paper 01/139. International Monetary Fund, Washington, DC.
- Cervigni, R. 2006. "Promoting Sub-National Development in Lagging Areas: Lessons from the European and Italian Experience." Presentation at the Decentralization and Subnational TG Regional Development Seminar, World Bank, Washington, DC, 23 February.
- Chakravorthy, S. 2000 "How Does Structural Reform Affect Regional Development: Resolving Contradictory Theory with Evidence from India." *Journal of Economic Geography* 76 (4): 367–94.
- CIESIN (Center for International Earth Science Information Network), IFPRI (International Food Policy Research Institute), and WRI (World Resources Institute). 2000. *Gridded Population of the World (GPW3-GRUMP)*. Palisades, NY: Center for International Earth Science Information Network, Columbia University. <http://sedac.ciesin.columbia.edu/plue/gpw>.
- Collier, P. 2006. "Africa: Geography and Growth." In *Proceedings from the Economic Symposium on The New Economic Geography: Effects and Policy Implications*. Kansas City, MO: Federal Reserve Bank of Kansas City.
- . 2007. *The Bottom Billion: Why the Poorest Countries Are Failing and What Can Be Done About It*. London: Oxford University Press.
- CONAPO, 2004. *Clasificacion de localidades en Mexico según grado de presencia indígena. 2000* [http: www.conapo.gob.mx](http://www.conapo.gob.mx)
- Das, M., V. Ramakrishnan, and V. Marathe. 2007. "Sharing the Benefits of Mineral Wealth with Citizens: The Periphery Development Fund in Orissa." Draft. World Bank, Washington, DC.
- de la Fuente, A. 2003. "Does Cohesion Policy Work? Some General Considerations and Evidence from Spain." In B. Funck and L. Plzzati (eds.) *European Integration, Regional Policy and Growth*. Washington, DC.
- Deichmann, U., M. Fay, J. Koo, and S. Lall. 2004. "Economic Structure, Productivity and Infrastructure Quality in Southern Mexico." *Annals of Regional Science* 38 (3): 361–85.
- Deichmann, U., K. Kaiser, S. Lall, and Z. Shalizi. 2005. "Agglomeration, Transport and Regional Development in Indonesia." World Bank Policy Research Working Paper 3477. World Bank, Washington, DC.
- Dillinger, W. 2007. "Poverty and Regional Development in Eastern Europe and Central Asia." World Bank Working Paper 118. World Bank, Washington, DC.

- Donoso Clark, M., and M. Lenihan. 2008. "A Territorial Development Framework: A Space-Based Approach to Economic Integration of Lagging Regions." World Bank, Washington, DC.
- Engerman, S., and K. Sokoloff. 2005. *Colonialism, Inequality and Long-Run Paths of Development*. NBER Working Paper 11057. Cambridge, MA: National Bureau of Economic Research.
- Escobal, J., and S. Laszlo. 2008. "Measurement Error in Access to Markets." *Oxford Bulletin of Economics and Statistics* 70 (2): 209–43.
- Faini, R. 1983. "Cumulative Processes of Deindustrialization in an Open Region: The Case of Southern Italy, 1951–73." *Journal of Development Economics* 12 (3): 277–301.
- Fallon, P., and C. Lampart. 1998. "Can Backward Subnational Regions Catch Up with Advanced Ones?" Poverty Reduction and Economic Management (PREM) Notes 6 (July). World Bank, Washington, DC.
- GLC (Global Land Cover) 2000 Database. 2003. European Commission, Joint Research Centre. [www-gen.jrc.it/glc2000](http://www.gen.jrc.it/glc2000).
- Guimaraes, P., R.J. Rolfe, and D. Woodward. 1998. "Regional Incentives and Industrial Location in Puerto Rico." *International Regional Science Review* 21 (2): 119–38.
- Harris, J.R., and M.P. Todaro. 1970. "Migration, Unemployment and Development: A Two-Sector Analysis." *American Economic Review* 60 (1): 126–42.
- Hausmann, R., D. Rodrik, and A. Velasco. 2005. "Growth Diagnostics." John F. Kennedy School of Government, Harvard University, Cambridge, MA. <http://ksghome.harvard.edu/~drodrik/barcelonafinalmarch2005.pdf>.
- Henderson, J.V., and Wang H.G. 2007. "Urbanization and City Growth: The Role of Institutions." *Regional Science and Urban Economics* 37: 283–313.
- Hon, V. 2007. "Spatial Aspects of Growth, Poverty and Policy: Implications for Egypt." Presentation at the Egypt Multi-Sectoral Learning Event, Cairo. May 24.
- Hon, V. and P. Fallon. 2002. "Regional Development Policies: Theory and A Review of the Evidence." In *Maranhao State Economic Memorandum*. Washington, DC: World Bank.
- IEG (Independent Evaluation Group) 2008. *Doing Business: An Independent Evaluation: Taking the Measure of the IFC Doing Business Indicators*. Washington, DC.
- IFC (International Finance Corporation) 2002. *Treasure or Trouble? Mining in Developing Countries*. Washington, DC.
- ILO (International Labour Organization). 1996. "Export Processing Zones: The Social and Labour Issues." Paper prepared for the African Regional Workshop on the Protection of Workers' Rights and Working Conditions in EPZs and the Promotion of the Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy. Johannesburg, July.
- Kanbur, R., and A. Venables. 2004. "Introduction: Spatial Inequality and Development." *Journal of Economic Geography* 4 (2).
- Kapur, S., and S. Kim. 2006. *British Colonial Institutions and Economic Development in India*. NBER Working Paper Series 12613. Cambridge, MA: National Bureau for Economic Research.
- Kaufmann, D., A. Kray, and M. Matruzzi. 2008. "Governance Matters VII: Aggregate and Individual Governance Indicators, 1996-2007." World Bank Policy Research Working Papers no. 4654. World Bank, Washington, DC.
- Kingdom of Saudi Arabia. "Regional Development." Chapter 10 of Eight Development Plan. <http://www.mep.gov.sa/home/Home/English/8Plan/ch10.htm>
- Krugman, P. 1993. "First Nature, Second Nature, and Metropolitan Location." *Journal of Regional Science* 33 (2): 129–44.

- Lall, S. 2008. "Shrinking Distance: Identifying Priorities and Assessing Equity-Efficiency Tradeoffs with Territorial Development Policies." Draft. Sustainable Development Network (SDN) Flagship.
- Lederman, D., and W. Maloney. 2006. *Natural Resources: Neither Curse nor Destiny*. Washington, DC: World Bank.
- Lehner, B., and P. Döll. 2004. "Development and Validation of a Global Database of Lakes, Reservoirs and Wetlands (GLWD layer 1)." *Journal of Hydrology* 296 (1–4): 1–22.
- Leventhal, T. 2008. "Easy Export Brings Global Trade to Peru's Disenfranchised." *Today* 9 (December). World Bank, Washington, DC.
- Madani, D. 1999. "A Review of the Role and Impact of Export Processing Zones." Policy Research Working Paper 2238. World Bank, Washington, DC.
- Mehlum, H., K. Moene, and R. Torvik. 2006. "Institutions and the Resource Curse." *Economic Journal* 116:1–20.
- Miguel, E., and M. K. Gugerty. 2005. "Ethnic Diversity, Social Sanctions and Public Goods in Kenya." *Journal of Public Economics* 89 (11–12): 2325–68.
- Nelson, Andy. 2007. "Global 1 km Accessibility (Cost Distance) Model using Publicly Available Data." World Bank, Washington, DC.
- Organisation for Economic Co-operation and Development (OECD). 2001. *OECD Territorial Reviews: Italy*. Paris.
- . 2003. *OECD Territorial Reviews: Mexico*. Paris.
- . 2005. *Economic Surveys: Chile*. Paris.
- Sachs, J., and A. Warner. 1997. *Natural Resource Abundance and Economic Growth*. NBER Working Paper 5398. Cambridge, MA: National Bureau of Economic Research.
- . 2001. "The Curse of Natural Resources." *European Economic Review* 45 (4–6, May): 827–38.
- Samaniego, J.L. 2002. "Sustainable Natural Resource Use in the South." Background paper for the Mexican Southern States Development Strategy.
- Scott, I. 1982. *Urban and Spatial Development in Mexico*. Baltimore, MD: Johns Hopkins Press.
- Tendler, J. 2002. "The Economic Wars Between the States." Paper presented at the OECD/State Government of Ceara meeting on Foreign Direct Investment and Regional Development, Fortaleza. December.
- Twomey, S., and J. Taylor. 1985. "Regional Policy and the Interregional Movement of Manufacturing Industry in Great Britain." *Scottish Journal of Political Economy* 32 (3): 257–77.
- USGS (United States Geological Survey). 2000. "Shuttle Radar Topography Mission, 1 Arc Second scene (SRTM)." Global Land Cover Facility, University of Maryland, College Park, MD.
- . 2006. *2006 Minerals Yearbook*. Washington, DC: United States Geological Survey. <http://minerals.usgs.gov/minerals/pubs/country/>.
- van Wagtendonk, J. W., and J. M. Benedict. 1980. "Travel Time Variation on Backcountry Trails." *Journal of Leisure Research* 12 (2):99–106.
- Weber- Fahr, M.J.E. Strongman, R. Kunannayagam, G. McMahon, and C. Sheldon. 2001. "Mining." In *Poverty Reduction Strategy Paper (PRSP) Sourcebook*. Washington, DC: World Bank.
- Wodon, Q.D., D. Angel-Urdinola, G. Gonzalez-Konig, D. Ojeda Revah, and C. Siaens. 2003. "Migration in Poverty in Mexico's Southern States." Background note to the Mexico Southern States Development Strategy. World Bank, Washington, DC.
- World Bank. 1977. *Spatial Development in Mexico*. Report no. 1081-ME. Washington, DC.

- . 1980. *The Development of Regional Cities in Thailand*. Report no. 2990-TH, September. Washington, DC.
- . 1986. *Korea: Spatial Strategy Review*. Report no. 5868-KO, September. Washington, DC.
- . 1995a. China Country Assistance Strategy. Washington, DC.
- . 1995b. "Southwest China Poverty Reduction Project." World Bank, Washington, DC.
- . 2000. "The Pro Northeast Initiative: Final Report." World Bank, Washington, DC.
- . 2002a. Brazil: Maranhao State Economic Memorandum. Washington, DC.
- . 2002b. Brazil: Piau State Economic Memorandum. Washington, DC.
- . 2003a. Mexico Southern States Development Strategy. Washington, DC.
- . 2003b. Mexico: State-Level Public Expenditure Review: the Case of Veracruz-Llave. Report no. 25162-ME. Washington, DC.
- . 2004. *Vietnam Development Report: Poverty*. Report no. 27130-VN. Washington, DC.
- . 2005a. Bihar towards a Development Strategy. Washington, DC.
- . 2005b. Zonas Extremas Policies and Beyond—An Assessment of Costs and Impact with Recommendations of Avenues for Policy Reform. Washington, DC.
- . 2005c. Orissa Investment Climate Assessment—Towards High Performing State. Washington, DC.
- . 2005d. Pakistan: North West Frontier Province Economic Report. Report no. 32764-PK. Washington, DC.
- . 2005e. *Qinba Mountains Poverty Reduction Project, Implementation Completion Report*. report no. 32216. Washington, DC.
- . 2005f. *Thailand: Northeast Economic Development Report*. Report no. 35353-TH. Washington, DC.
- . 2006a. Chile towards Equality of Opportunity, 2006-2010. Washington, DC.
- . 2006b. "Pakistan: Securing Sindh's Future – The Prospects and Challenges Ahead." World Bank, Washington, DC.
- . 2006c. Thailand: Investment Climate, Firm Competitiveness and Growth. Report no. 36267-TH. Washington, DC.
- . 2007a. Revitalizing the Northeast: towards a Development Strategy. Report no. 36797-CH. Washington, DC.
- . 2007b. India: Land Policies for Growth and Poverty Reduction. Report no. 38298-IN. Washington, DC.
- . 2007c. *World Development Indicators*. Washington, DC.
- . 2007d. *World Development Report 2008: Agriculture for Development*. Washington, DC.
- . 2008a. Balochistan Economic Report: From Periphery to Core. Report no. 40345-PK. Washington, DC.
- . 2008b. "India: Second Orissa Socio-Economic Development Loan Project. Second Tranche Release." World Bank, Washington, DC.
- . 2008c. "India: Accelerating Growth and Development in the Lagging areas of India." Report no. 41101-IN (draft). World Bank, Washington, DC.
- . 2008d. "Iran: Spatial Patterns of Poverty and Economic Activity." Draft. World Bank, Washington, DC.

 . 2008e. *World Development Report 2009: Reshaping Economic Geography*. Washington, DC.

Wren, C. 1994. "Build-Up and Duration of Subsidy-Induced Employment: Evidence from U.K. Regional Policy." *Journal of Regional Science* 34: 387–410.

Zhang X., Xing L., Fan S., and X. Luo 2008. "Resource Abundance and Regional Development in China." *Economics of Transition* 16:7–29.

wb73281

C:\Documents and Settings\wb73281\My Documents\SN Lagging Region\Knowledge review\FEU Knowledge Review 10 April 09.doc

04/10/2009 11:55:00 AM