Public Disclosure Authorized

Report No. 67188-LR

Liberia
Inclusive Growth Diagnostics

February 24, 2012

Poverty Reduction and Economic Management 4
Africa Region

Public Disclosure
Public Disclosure Authorized
Public Disclosure Authorized



Document of the World Bank

Government Fiscal Year
July 1–June 30

Currency Equivalents

Currency Unit	=	Liberian Dollar (LD)
USD 1,00	=	LD 73.0

Weights and Measures
Metric System

Abbreviations and Acronyms

ANS	Adjusted Net Savings
COMTRADE	Commodity Trade Statistics Database
CPIA	Country Policy and Institutional Assessment
CSR	Country Status Report
CWIQ	Core Welfare Indicator Questionnaire
EFA-FTI	Education for All Fast Track Initiative
EPAG	Economic Empowerment of Adolescent Girls
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
GIFF	Growth Identification and Facilitation Framework
HRV	Hausmann Rodrik Velasco
ILO	International Labour Organization
LFS	Labor Force Survey
LIC	Lower Income Country
LISGIS	Liberian Institute of Statistics and Geo-Information Services
MAMS	Maquette for MDG Simulations
MDGs	Millennium Development Goals
MoPEA	Ministry of Planning and Economic Affairs
NPV	Net Present Value
ODA	Overseas Development Assistance
PPI	Public-Private Investment
PPP	Parity Purchasing Power
PRS	Poverty Reduction Strategy
RCA	Revealed Comparative Advantage
REER	Real Effective Exchange Rate
SITC	Standard International Trade Classification
SME	Small and Medium-Size Enterprises
SSA	Sub-Saharan Africa
TFP	Total Factor Productivity
TVET	Technical and Vocational Education and Training
WDI	World Development Indicators
WGI	Worldwide Governance Indicators

Vice President	=	Makhtar Diop
Country Director	=	Yusupha B. Crookes
Sector Director	=	Marcelo Giugale
Sector Manager	=	Miria Pigato
Task Team Leader	=	Errol George Graham

PREFACE

A central goal of the Government of Liberia is for the country to become a middle income nation by 2030. As stated in its vision document, Liberia 2030, the Government aims to "embrace a strategy of broad participation and inclusive growth," which will allow Liberia "to build the human resource capability it needs while forging a stronger sense of citizenship, national cohesion, and responsive governance."

This Inclusive Growth Diagnostic report is one of several integrated analytical pieces prepared by the World Bank that support the Government in formulating a comprehensive medium-term strategy aimed at achieving some key medium-term objectives towards its central goal. The other analytical pieces look at Developing Public-Private Partnerships, Prioritizing Investments for Economic Diversification and Leveraging Investments by Natural Resource Concessionaires. Together they comprise an evidence-based strategic approach to moving the country toward the goals established by the Government.

ACKNOWLEDGEMENTS

This Inclusive Growth Diagnostic Report is the product of a collaborative effort between the World Bank and the Ministry of Planning and Economic Affairs of the Government of Liberia. The report was prepared by a core team consisting of Errol Graham (Task Team Leader), Leonardo Garrido (Consultant WB), and Anna Kristiina Karjanlahti (Consultant WB).

The Country Director is Yusupha B. Crookes, the Sector Manager is Miria Pigato, and the Sector Director is Marcelo Guigale.

The team has benefited from the interaction with and the insightful comments from the Sector Manager, Miria Pigato, the Lead Economist, Sebastien Dessus as well as the three peer reviewers, Dino Leonardo Merotto, Hannah Sibylle Nielsen and Praveen Kumar. Glaucia Reis Ferreira, Paula Joachim White and Deborah Davis contributed significantly to the production of the Report.

The team would like to express its sincere thanks to the Government of the Republic of Liberia for the cooperation provided throughout the Inclusive Growth Diagnostic process. In particular, the team would like to thank Hon. Amara Konneh, Minister of Finance and Planning, Hon. Sebastian Muah, Deputy Minister of Finance and Planning, Hon. James Kollie, Deputy Minister of Finance and planning as well as the many technical staff of the Ministry of Planning and Economic Affairs with whom the team interacted.

The team would also like to thank the many representatives of the private sector, development partners, NGOs and civil society who shared their perspectives, knowledge and plans with the team. Finally, the team would like to thank Charles not only for his services as a diligent driver but also for sharing his experience of the conflict and his journey to the city of Monrovia in search of opportunities to improve the welfare of his family.

A NOTE ON METHODOLOGY:

The Use of Anecdotal Evidence in Inclusive Growth Diagnostics

This Inclusive Growth Diagnostic constitutes a truly collaborative exercise between representatives of Liberia's Ministry of Planning and Economic Affairs (MoPEA), and the PREM team in the Africa Region of the World Bank. This team of technical experts and senior policy makers engaged in a process of open and frank communication and information sharing over a period of six months to better understand the binding constraints to inclusive growth in Liberia. The collaboration included discussion of empirical methods and modeling approaches, and of various hypotheses about what economic, social or institutional characteristics of the Liberian economy constitute binding constraints. Preliminary findings have been shared with key policy makers from Government as well as participants in a high level economic forum and their insights have been incorporated in this final report. The findings of this and other analytical work will feed into the preparation of the final Liberia 2030 strategy documents, including the Government's second Poverty Reduction Strategy, currently under preparation.

On lack of data and the use of anecdotal evidence. Growth Diagnostics are data-intensive exercises that attempt to gather as much quantitative information as possible to assess the extent to which candidate constraints may be binding on economic activity. They do so by calculating implicit shadow prices, the intensity with which agents try to overcome constraints, and correlations between movements in those constraints and growth; and by identifying attributes of the growing sectors vis-à-vis stagnant activities. More often than not, however, data tend to be scarce or unreliable in poor economies. This is the case for Liberia, where years of civil war disrupted the routine process of socioeconomic data collection, and indeed, destroyed much of the country's institutional capacity for producing reliable data for policy analysis. In order to (partially) compensate for these circumstances, researchers have traditionally relied more heavily on anecdotal evidence, which can provide important information on binding constraints. As explained by Hausmann et al. (2008): "Some of the evidence of agents bypassing binding constraints can be found in hard data sources, but many examples will be qualitative and anecdotal, gleaned from in-country research and interviews, as well as stories in the popular press. The idea is to incorporate the widest and most varied set of indicators and signals possible, while always remembering what is a reasonable counter-factual."

Data and anecdotal evidence in Liberia. In the process of undertaking this Inclusive Growth Diagnostic, the authors analyzed as much data as were available from different sources (government, development partners, private sector, etc.); reviewed relevant theoretical and empirical literature; and conducted extensive interviews with more than 30 groups of representatives from public sector, private sector, development partners, NGOs, and the civil society. Public representatives provided an overview of historical events, discussed current plans and policy goals, and pointed to information critical for the analytical exercise. Private sector representatives contributed their views on socioeconomic issues, and shared their expectations, plans, and concerns about the development process. Development partners shared their experiences, plans, and knowledge from projects. NGOs and civil society groups also shared their experiences, expectations, frustrations and hopes. All of these groups presented anecdotal evidence to illustrate or enhance our understanding of Liberia's development process. This evidence is presented throughout the report, with the necessary caveats.

LIBERIA
GROWTH DIAGNOSTICS FOR INCLUSIVE GROWTH

TABLE OF CONTENTS

PREFACE ..... **IV**

ACKNOWLEDGEMENTS ..... **V**

EXECUTIVE SUMMARY **1**

CHAPTER 1. LIBERIA'S VISION OF GROWTH WITH DEVELOPMENT*: MOVING TOWARD MIDDLE-INCOME STATUS* **6**

A. STRIVING FOR GROWTH WITH DEVELOPMENT: GROWTH (1960S), COLLAPSE (1970S-1990S) AND REBIRTH (2000S) **6**
B. INCLUSIVE GROWTH DIAGNOSTICS **10**
C. LIBERIA RISING 2030: GOALS AND EXPECTATIONS **13**

CHAPTER 2. CHARACTERIZING THE GROWTH PROCESS **16**

A. GROWTH ACCOUNTING AND "POTENTIAL" **16**
B. PATTERNS OF GROWTH (SHAPLEY DECOMPOSITION) **18**

CHAPTER 3. GROWTH DIAGNOSTICS: *GOING DOWN THE TREE* **22**

A. WHAT IS MEANT BY "LOW INVESTMENT" IN GROWTH DIAGNOSTICS? **22**
B. SOCIAL RETURNS TO ECONOMIC ACTIVITY **24**
Geography *26*
Infrastructure *27*
Human Capital *31*
C. APPROPRIABILITY OF SOCIAL RETURNS **37**
Government Failures: Macro Risks *37*
Government Failures: Micro Risks *40*
Market Failures: Information Externalities *45*
Market Failures: Coordination Externalities *51*
D. FINANCE **54**
Access to Finance *55*
Intermediation *57*

REFERENCES **74**

List of Tables:

TABLE 1.1 : LIBERIA INCOME DISTRIBUTION IN 1970 8
TABLE 2.1 : LIBERIA—GROWTH ACCOUNTING AND DECOMPOSITION, 1970-2030 17
TABLE 2.2 : LIBERIA—DECOMPOSITION OF CHANGES IN PER CAPITA GDP IN COMPONENTS 19
TABLE 2.3 : LIBERIA DECOMPOSITION OF CHANGES IN PER CAPITA GDP IN COMPONENTS 21
TABLE 2.4 : LIBERIA EMPLOYMENT AND GDP BY SECTORS 21
TABLE 3.1 : INDICATORS OF ARABLE AND AGRICULTURAL LAND 27
TABLE 3.2 : LIBERIA—ILLUSTRATIVE INVESTMENT TARGETS FOR INFRASTRUCTURE 29

TABLE 3.3 : LIBERIA—INDICATIVE INFRASTRUCTURE SPENDING NEEDS (2006 -2015) 29
TABLE 3.4 : REDUCTION IN POWER AND TRANSPORT COST INPUTS FOR THE URBAN ECONOMY 30
TABLE 3.5 : LIBERIA—CLASSIFICATION OF EXPORTS ACCORDING TO EVOLUTION....50
TABLE 3.6 : DIAGNOSTIC MATRIX 58

List of Figures:

FIGURE 1.1 : KEY EVENTS AND REAL PER CAPITA GDP....10
FIGURE 1.2 : THE GROWTH DIAGNOSTICS TREE....12
FIGURE 1.3 : POPULATION AND LABOR FORCE GROWTH RATE 15
FIGURE 2.1 : SHARE OF EMPLOYMENT AND GDP BY MAIN ECONOMIC ACTIVITIES 18
FIGURE 2.2 : LIBERIA—AVERAGE PRODUCTIVITY OF LABOR 20
FIGURE 2.3 : COMPOSITION OF EMPLOYMENT BY SECTORS OF ECONOMIC ACTIVITY 21
FIGURE 3.1 : INVESTMENT AND GDP....22
FIGURE 3.2 : RATIO OF GROSS FIXED CAPITAL FORMATION TO GDP (1970-2009) 23
FIGURE 3.3 : LIBERIA-CAPITAL STOCK PER CAPITA (1970-2009)....23
FIGURE 3.4 : LIBERIA—RATE OF RETURN TO CAPITA (1991-2009) 25
FIGURE 3.5 : LIBERIA- PRICE INDEX OF SELECTED COMMODITIES (1960-2010) 26
FIGURE 3.6 : LIBERIA—LITERACY RATES BY AGE COHORT....32
FIGURE 3.7 : LIBERIA 1980-2010, AVERAGE YEARS OF SCHOOLING 32
FIGURE 3.8 : SSA COUNTRIES 2010 AVERAGE YEARS OF SCHOOLING....33
FIGURE 3.9 : SCHOOL COMPLETION RATIOS FOR SELECTED COUNTRIES (PERCENT OF POPULATION OVER 15 YEARS) 33
FIGURE 3.10: POPULATION DEMOGRAPHICS 2010, AND ESTIMATES FOR 2030....34
FIGURE 3.11: DEMOGRAPHIC TRENDS AND PROJECTIONS ON FERTILITY, ...34
FIGURE 3.12: PER STUDENT SPENDING ON PRIMARY EDUCATION, SELECTED WEST AFRICAN AND POST-CONFLICT COUNTRIES (PERCENT OF GDP PER CAPITA) 37
FIGURE 3.13: LIBERIA REAL EFFECTIVE EXCHANGE RATE MOVEMENTS 38
FIGURE 3.14: GOVERNANCE INDICATORS—LIBERIA AND BOTSWANA....41
FIGURE 3.15: LIBERIA DOING BUSINESS RANKING 42
FIGURE 3.16: LIBERIA SCORES ON WORLDWIDE GOVERNANCE INDICATORS 1998, 2004, 2009 43
FIGURE 3.17: INCOME VALUE OF EXPORT BASKET FOR LIBERIA AND SELECTED COMPARATORS....48
FIGURE 3.18: LIBERIA—INCOME VALUE OF SELECTED PRODUCTS (PRODY) 48
FIGURE 3.19: HERFINDAHL-HIRSCHMANN INDEX OF EXPORT DIVERSIFICATION 49
FIGURE 3.20: HERFINDAHL-HIRSCHMANN INDEX OF EXPORT DIVERSIFICATION FOR SSA....49
FIGURE 3.21: PROCURING COMPLEMENTARY FACTORS OF PRODUCTION 53
FIGURE 3.22: LIBERIA ACTUAL FOREIGN AID VERSUS SATURATION POINT 56
FIGURE 3.23: FDI, NET TRANSFER AND NET FOREIGN INCOME-LIBERIA AND SELECTED COMPARATORS 56

List of Boxes:

Box 1.1 : The Resource Curse 7
Box 1.2 : Accounting for Natural Wealth 9
Box 1.3 : Calls for inclusiveness in Liberia 12
Box 1.4 : Liberia Rising 2030: Main Development Targets 14
Box 3.1 : Capital Formation and (Dis) Incentives to Accumulate 24
Box 3.2 : Empowering Young Women to Take Part in Liberia's Economic Growth 36
Box 3.3 : A View on Industrial Policy for the 21st Century 54

List of Appendixes:

Appendix 1 : Main Development Targets of Liberia Rising 2030 60
Appendix 2 : Assessing Necessary Growth Rates to Reach the Target Income Level 61
Appendix 3 : Extended Growth Accounting Decomposition 63
Appendix 4 : Estimating the Rate of Return to Capital at the Macro Level 69
Appendix 5 : Principles of Differential Diagnostics 70
Appendix 6 : Estimating Real Effective Exchange Rates Based on Cross-Country Data 71
Appendix 7 : Export Diversification and Export Sophistication Indicators 72

EXECUTIVE SUMMARY

Liberia aims to achieve middle-income status by 2030 through broad participation and inclusive growth. The Government's growth strategy aims to accelerate growth through the exploitation of natural resources, while maintaining sound macroeconomic policies, improving the business environment, and prudently allocating aid and commodity-based financing resources to expand infrastructure and formal sector employment. However, Liberia's experience with rapid growth in the 1960s and 1970s—that benefited a small percentage of the population, followed by economic collapse, widespread poverty and social unrest, and civil war—has made policymakers acutely aware that the *quality* of the growth process is at least as important as the *rate* of growth.

Now that peace has been established and growth is once again on an upward trend—with the reactivation of the iron ore and agriculture sectors, and prospects for oil, promising opportunities for significant growth in the medium to long term—the Government wants to ensure that Liberia's growth over the next two decades will be sustainable and equitable. A key objective of the growth strategy is to avoid the traps posed by dependence on primary resources while creating the basis for economic diversification and employment generation, and providing opportunities and training so that individuals across the country can partake in the growth process. This diagnostic aims to support that strategy by identifying the factors in Liberia's economy that act as binding constraints to inclusive growth.

Diagnosing constraints to *inclusive growth* is more complicated than diagnosing general constraints to economic activity, which in Liberia are already well understood—infrastructure gaps, lack of access to finance, land tenure issues, and weak institutional capacity. Liberia is seen as a post-conflict, fragile state in which output was significantly diminished and institutional capital was substantially damaged as a consequence of many years of conflict and economic disruption. Further, its natural resource-based traditional sectors continue to generate most of the output, foreign exchange, and fiscal revenues, but provide little spillover to the rest of the economy in terms of technology transfer, stimulus of economic activity, and employment. Liberia's reliance on few export commodities and on imported food and oil means that it remains susceptible to external shocks and risks of Dutch disease. Finally, the traditional economic sectors do not create enough jobs, and domestic markets do not generate sufficient demand, for Liberia to break out of its low economic activity trap.

This enumeration of structural weaknesses, however, reveals little about the way economic activity is dynamically bound in the country, or about the long-term policy leverages that are necessary to change this dynamic. To illuminate these issues, the study uses the Inclusive Growth Diagnostic framework developed by Hausmann et al. (2004, 2005, and 2008) to look at other binding constraints that are rarely considered. These are the constraints that affect otherwise potentially employable and entrepreneurial individuals, leaving them unable to participate in profitable economic activities—that is, the obstacles that keep those in the labor force from having access to resources and to opportunities. In this sense, the inclusive growth diagnostic approach also has inductive, bottom-up analytical features. This is of

particular relevance in the case of Liberia, where many in the labor force lack the education and skills to take advantage of the economic opportunities that are presented to them.

This growth diagnostic is guided by two key principles, based on learning from the growth experiences of other resource-rich African countries—first, that inclusive growth does not happen as a matter of course, but requires intensive efforts toward economic diversification and human capital formation; and second, that these efforts require strong policy coordination and implementation capacity. These principles, together with extensive data analysis and consultations with key stakeholders from government, development partners, and the private sector, have led to the following insights:

- **There exists a vicious circle in Liberia that prevents both the emergence of potentially attractive new economic activities,** and the expansion of activities by small and medium enterprises (SMEs)—with negative consequences for formal sector employment and income generation. This vicious circle arises from the interaction of three main factors: (i) *lack of information* about what sectors could emerge and contribute substantially to job creation; (ii) *lack of coordination* among government agencies, between government and private sector actors, and between government and development partners; and, due to the first two factors, (iii) *inefficient allocation of* the country's relatively scarce financial resources to build up the human and physical capital necessary for investment and growth.

- **Human capital formation is a necessary condition for inclusive growth,** and the failure to strengthen human capital will not only exclude the majority of Liberians from the benefits of the growth process, but also jeopardize the sustainability of the current resource-based growth. A human capital strategy aimed at increasing the employability of working-age Liberians needs to involve, in the shorter term, a careful, targeted mix of education, skill building and social protection policies; and in the longer term, a focus on education and skill building that matches the needs of a growing and diversifying economy. Further, this human capital strategy needs to be underpinned by the provision of basic health resources, particularly to address issues of child malnutrition and childhood disease, which erode the productive capacity of the population.

- **An almost complete lack of credit for SMEs and individual entrepreneurs severely limits the possibility of many low-income Liberians undertaking potentially profitable economic activities.** This is a complex issue that touches on many areas, including financial sector development, an enabling business environment, corruption and governance, and property and land rights. Land tenure issues are of particular interest from an inclusive growth analytical perspective. As noted in Liberia's Poverty Reduction Strategy (Government of Liberia 2008), "Poverty, land and the environment are inextricably linked. The rural poor of Liberia depend almost entirely upon land and other natural resources for their livelihoods. Unequal access to and ownership of land and other resources have contributed significantly to economic and political inequities throughout Liberia's history, and have exacerbated tensions and conflict." Weak governance of land resources increases the risk of instability in the future, particularly when large new concession areas are granted without proper verification of land ownership.

At the heart of the diagnostic exercise is the need to understand why these factors persist and investment is not able to grow at a much faster pace. To evaluate the potential causes of low investment and lack of entrepreneurship in the country, the diagnostic framework uses a tree configuration to test the hypothesis that low growth results either from low return to investment, or where returns exist, from the fact that they cannot be appropriated as a consequence of some market or government failure.

A key reason for low return to investment is the lack of qualified labor. There is a serious mismatch between the supply of and demand for skills, and this mismatch, in the context of low levels of human capital is a binding constraint to inclusive growth. Liberia's human capital was substantially depleted during the prolonged period of war. More than a million people (some 60 percent of the labor force) have not completed primary school, and literacy rates are well below regional averages. Aware that the human capital constraint is likely to become stronger in the near future, when recent concessions in the natural resource sectors are activated, the Government has been making a concerted effort to rebuild the education system and increase the skill level of the population. However, only 13 percent of the population has some technical or vocational education training (TVET); 60 percent has no schooling; and the quality of education remains a challenge. There is already an excess of labor in the market, but a mismatch of skills is preventing the private sector from finding qualified employees. The demand for skilled and, in some cases, even manual labor cannot be met in the current labor market, and both the public and private sectors rely on expensive foreign labor. The concessions will create an estimated 90,000 direct jobs over the next 10 years, but with the mismatch of labor supply and demand, it is likely that the labor for these jobs will be imported. Technical and vocational education and training (TVET) will need to be rapidly scaled up, in cooperation with the private sector, to prepare the labor force to benefit from the employment opportunities arising from increasing investment. There is also immediate need for a system to identify needed competencies and increase coordination between firms and training institutions. As a short-term measure, large investors in each sector (mining, tree crops, forestry) could be encouraged to come together to contribute to quickly setting up large-scale public-private training institutes to ensure the supply of necessary skills to meet their demand.

The problem of qualified labor is compounded by the fact that the potential benefits from undertaking activities cannot be ascertained by entrepreneurs, as a result of some form of market failure, either from difficulties of ascertaining comparative advantage of new activities *ex ante* (self-discovery problems), or because, even when they know what activities are profitable, they are unable by themselves to line up all the necessary elements to make production possible (coordination problems). In the latter case, all relevant groups of stakeholders may be aware of what needs to be done on every front for a mutually beneficial activity to occur; yet the lack of some coordinating mechanism prevents that from happening, thereby locking the system in a sub-optimal situation of unemployment.

Further, governance failures are constraining the development of small and medium-size enterprises, in both rural and urban areas, while larger companies, most of which operate through concessions contracts, are able to get around some of challenges related to land tenure, property rights, and licensing that are a heavier burden on the SME sector. Governance failures are not a binding constraint to inclusive growth in Liberia at the present time. They may become binding, however, if they continue to hinder the development of the SME sector and increase the risk of mismanagement of natural resource rents.

Low capacity, weak public institutions, corruption, and a dysfunctional justice system also continue to hinder the growth of SMEs. Liberia is among the worst performers in the world in terms of property rights. To register property in Liberia requires 10 procedures, takes an average of 50 days, and costs 13.2 percent of the property value. However, there have been recent improvements in both property rights and contract enforcement. A separate Commercial Court has been established to help clear the backlog of cases and improve contract enforcement. The legal and regulatory framework for land tenure and property rights is in the process of modernization, with oversight by the newly established Land Commission.

Land occupation and land security are among the most sensitive and important policy issues for achieving rapid inclusive and sustainable growth, and for consolidating peace and security. The legal and regulatory framework for land tenure is particularly weak. The Land Law combines a customary and a civil system, with no clear distinction between public and communal land, and very little institutional capacity for land management and administration or dispute resolution. Land policy issues are complex, as they are intertwined with issues related to concessions (i.e., agriculture vs. mining), and, as noted in the PRS, will have important consequences for maintaining peace and stability, poverty reduction, employment and output generation, and inclusive growth (Government of Liberia 2008). Liberia is in the process of devising a comprehensive national strategy on land allocation and use, which will cover private use, community use, concessions, and government-owned land. Coordination and cooperation among the different ministries and agencies (Agriculture; Lands, Mines and Energy; Internal Affairs; Public Works; Justice; Environmental Protection Agency; and Forestry Development Authority), as well as with private sector actors, local governments, and communities will be necessary to ensure the peaceful resolution of overlapping and conflicting claims.

The Government is cognizant of the issue, and has established a Land Commission to spearhead the legal and regulatory reforms and ensure that they promote equal access to land resources. The Commission is also developing management and administrative systems for land issues; dispute resolution mechanisms to improve security of tenure; an inventory of current land use; and a land registry system to support a viable land market.

Part of the analytical work currently being conducted in support of Government policy aims at understanding the resource needs and necessary linkages between government and the private sector, and also among private entrepreneurs, in key areas of the economy. Coordination problems extend to every part of the inclusive growth diagnostic tree. The lack of coordination in human capital

accumulation, in infrastructure development, in government policy, and among donors—these constraints can interact, reinforce each other, and prevent new employment-generating, growth-enhancing, technology-pushing activities from flourishing.

Increased attention to the complementary factors of production (physical and human capital) would make it possible to introduce new activities or scale up and increase productivity in traditional, existing sectors; and to identify profitable economic activities. Furthermore, coordination among government, entrepreneurs, and the financial sector would increase the willingness to invest in new ventures and in skills development and training.

As the Government of Liberia moves forward with the preparation and implementation of its Poverty Reduction strategy many questions will be raised regarding which policies or programs to prioritize in order to achieve the goals of the broader vision as well as the medium-term objectives. On the inclusive growth agenda, this diagnostic has provided a coherent storyline of Liberia's growth performance as well as expanded the knowledge base on key constraints to inclusive growth. Consequently, it is anticipated that this diagnostic will help provide focus to the growth strategies and the prioritization of policies.

CHAPTER 1. LIBERIA'S VISION OF GROWTH WITH DEVELOPMENT*:* *MOVING TOWARD MIDDLE-INCOME STATUS*

1.1. Liberia is the third poorest country in the world.[1] Its social, political and economic history since the 1960s offers an example of the potentially grim consequences of a process that the World Bank used to refer to as "growth without development," or what is now more accurately understood to be "lack of inclusive growth."

1.2. Liberia's growth spells of the 1960s did not bring about significant improvements in the standard of living of most Liberians or a diversification of economic activity, but instead led to a commodity price-triggered economic downturn, which exposed latent social frustrations, fueled political unrest, and ultimately resulted in open civil war. With peace having been restored in 2003, and a new Government having stabilized Liberia's macro environment and regained the confidence of the international community, that dark chapter in the country's history now serves as poignant reminder of the challenges ahead. Economic growth has picked up in the 2000s, and abundant natural resources, particularly extractive resources, continue to be a rich source of foreign exchange, fiscal revenues, and to some extent, employment growth. However, given the Government's ambition of achieving middle-income country (MIC) status in the next two decades, it becomes paramount to keep in mind the lessons of the past. This implies avoiding the traps posed by dependence on primary resources (see Box 1.1), while creating the basis for economic diversification and employment generation, and providing opportunities and training so that individuals across the country can partake in the growth process. Even though Liberians have shown a willingness to break with their past and embrace a better future, the country's extremely low levels of human capital, weak governance structures, limited access to financial resources (compared to needs), and limited opportunities to participate and benefit from growth continue to pose risks to peace and stability in the country.

A. STRIVING FOR GROWTH WITH DEVELOPMENT: GROWTH (1960S), COLLAPSE (1970S-1990S)AND REBIRTH (2000S)

1.3. Liberia's economic history shows rapid rates of economic growth in the sixties and the early part of the seventies that appeared to be propelling the country towards becoming a middle-income country. On closer examination, and with the benefit of hindsight, one realizes that the rapid growth was not enough. Back in the 1970s, the World Bank pointed to the urgent need to shift to a strategy of "Growth with Development" (World Bank 1975) in order to guarantee the sustainability of the growth process

[1] According to World Bank data, in 2009 Liberia was the third poorest country in the world, after Burundi and the Democratic Republic of Congo This ranking is maintained when proxies of individual welfare such as per capita GDP (measured in either current US$ or in constant Parity Purchasing Power US$) or per capita GNI (World Bank Atlas method, in current US$) are used. For instance, according to World Bank data, per capita GNI in current US$ (Atlas method) in 2009 was US$160. Using IMF (2010) projected growth rates in real GDP for 2010 and 2011, Liberia's current per capita GDP in US$ at the end of those years would be US$165 and US$172, respectively, using a population growth rate of 3.5 percent a year.

and enable the majority of Liberians to benefit from the seemingly rapid increase in the standard of living. Nowadays, the literature refers to lack of "inclusive growth" as one of the main causes of increased social conflict during that period.

1.4. **Inequitable growth**. It is true that Liberia's growth record was remarkable, in excess of 7 percent per year, for the period 1955-1975 (World Bank 1975), with per capital GDP peaking at US$840 (constant 2000) in 1972. Growth had been driven largely by the enclave sectors of iron ore and cash crops since the end of the Second World War. During the 1970s, iron ore accounted for 30 percent of GDP and three quarters of all exports; while rubber and other monetary crops accounted for 15 percent of the economy's value added.

1.5. This period of growth, however, masked serious problems of poverty and inequality—characteristic effects of the classical "resource curse" (Box 1.1).

Box 1.1 : The Resource Curse

Liberia, like many other countries with an abundance of natural resources, has experienced periods of high growth based on rents from enclave sectors, followed by fast decline, large income inequalities, corruption, and conflict. All of these are effects of the resource curse, also known as Dutch disease—a condition in which an economy's over-dependence on rents from a few natural resource sectors leads to reduced competitiveness of the more labor-intensive non-extractive sectors, increased unemployment, and challenges in macroeconomic management due to volatility in commodity prices. These difficulties are typically compounded by inefficient management of extractive sector, corruption, and conflict over allocation and management of rents, which the government often uses to finance unsustainable current consumption rather than productive investment (OECD 2009, World Bank 2006).

There is ongoing debate about whether the resource curse actually exists. In contrast to previous findings that natural resource abundance has a negative effect on a country's long-term growth (e.g., Sachs and Warner 1995), some recent studies have found that large natural resource endowments have a positive effect on growth (e.g., Lederman and Maloney 2007). Others, however (e.g., Collier and Goderis 2007), find that long-run negative growth effects are concentrated in countries where mineral resources are combined with weak institutions and governance, which means less capacity for macroeconomic management or good economic policies, and larger risks for misallocation and mismanagement of revenues. Indeed, the availability of human capital is found to have a significant impact on the growth effects of natural resources (Bravo-Ortega and de Gregorio 2007). Therefore, combining human capital with natural resources appears to be the solution for slow-growth natural resource-based economies.

1.6. By 1974, per capita GDP in the traditional economy, which supported 60 percent of the population, was less than US$120, compared to almost US$900 in the monetary economy and an estimated US$2,400 in the concessions sector (World Bank 1978). Only 15 percent of the active labor force was employed in formal modern sectors, while 75 percent continued working in rural agriculture and the remaining 10 percent as unskilled workers in the informal urban sector. A mere 3.9 percent of the population controlled more than 60 percent of the income (Table 1.1), and a large share of the benefits from enclave sectors (i.e., sectors not integrated with the rest of the economy) was repatriated by foreign investors. Human capital levels were extremely low; only 25 percent of the labor force (above age 15) was considered literate (World Bank 1975), with an average of 1.3 years of schooling (Barro and Lee 2010).

Table 1.1 : Liberia Income Distribution in 1970

Work categories, rural and urban	Number of people ('000)	Population share (% tot.pop)	Income per capita (US$/ year)	Total income (US$/ year)	Income share (% tot.inc)
Rural, agriculture	**1,123**	**73.7%**	**70**	**78,610**	**24.6%**
Urban	**400**	**26.3%**	**603**	**241,248**	**75.4%**
Unskilled, no job	52	3.4%	75	3,900	1.2%
Concessions	109	7.2%	100	10,900	3.4%
Unskilled, job	52	3.4%	150	7,800	2.4%
Skilled	128	8.4%	200	25,600	8.0%
Managerial, Professional & Other	59	3.9%	3,272	193,048	60.4%
Total	1,523	100.0%	210	319,858	100.0%

GINI=0.63

Source: World Bank 1975

1.7. **The Growth with Development Strategy, and the path to decline and civil war**. In the mid-1970s, as the risks of commodity dependence and of rising income inequality became more apparent, the Government, following the Bank's recommendation, launched its first Four-Year Development Plan (1976-1980[2]. The plan focused on: (a) economic diversification, mainly through development of the agriculture sector; (b) more equitable distribution of the benefits of growth; and (c) distribution of sustainable socioeconomic activities throughout the country. Despite the growth achieved in the agriculture sector during that decade, however, the diversification efforts were not enough to help the economy survive the global decline in demand for commodities. After peaking in 1972, real per capita GDP went into a long-term decline (Figure 1.1). This was accompanied by a further weakening of public finances and the external debt situation. The large amounts spent on public investment programs did not create the basis for growth, as they were not allocated following basic cost-benefit principles and contributed little to boosting overall productivity. This posed a burden for the budget as the expected revenue flows from natural resource rents failed to materialize. Instead of achieving the ambitious objectives of the Growth with Development Strategy, therefore, the country experienced a deterioration of its fiscal position in the 1970s in the face of negative external shocks in commodity prices. The inability of the Government to deliver basic public services during this period significantly contributed to a violent military coup in 1980. Continued poor economic mismanagement and deterioration of living standards after the coup pushed the country into civil conflict, leaving Liberia the third poorest country in the world, with a GDP per capita of US$148 in 2009. By the end of the conflict period, the exploitation of a substantial fraction of the country's wealth had done little to improve the lives of the majority of the population (Box 1.2).

[2] See reference to the plan in: World Bank (1978). *Current Economic Position and Prospects of Liberia*.

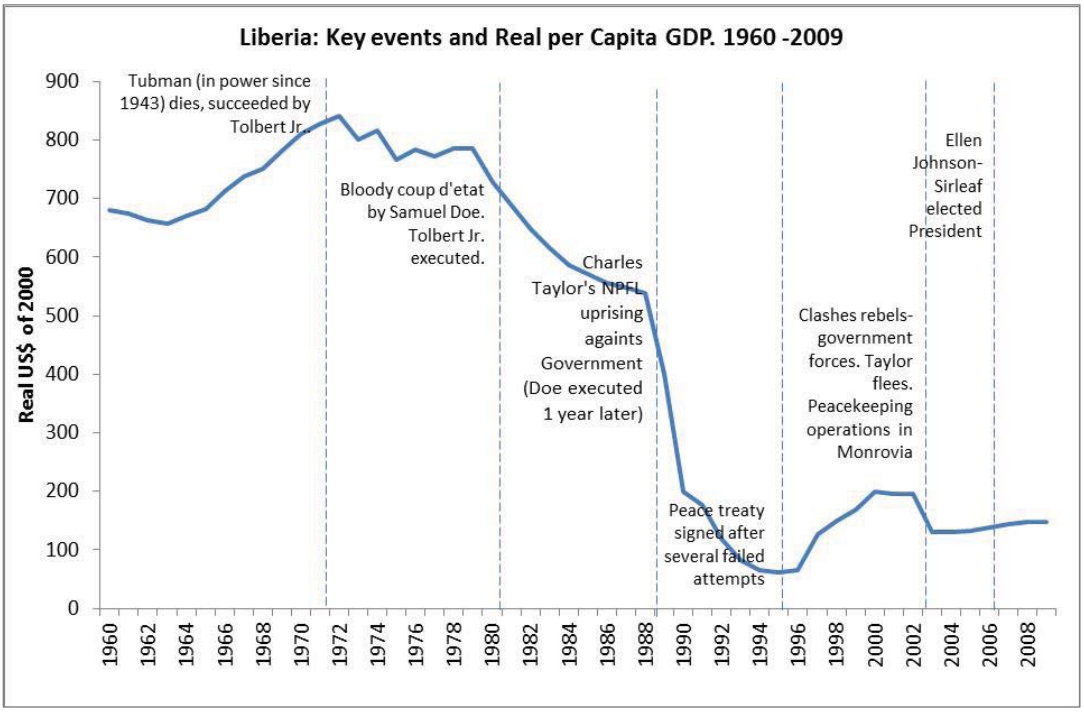
Box 1.2 : Accounting for Natural Wealth

Liberia's path to sustainable growth will depend on it investing its resource rents in a manner that compensates for the depletion of those resources, in order to maintain national wealth. This means not only increasing traditional measures of capital (produced and human), but including natural capital such as land, forest, and sub-soil assets as key inputs to sustained growth. As GDP does not measure the depreciation of assets, it is widely argued that it may not be the most relevant summary of aggregate economic performance, especially in economies where growth depends largely on natural resource depletion. A long-term view of natural resource depletion and savings is necessary to ensure that future generations will have at least the same level of welfare. According to the Hartwick Rule on the sustainability of natural resource-based economies, the depletion of natural resource stock and the degree of environmental damage, should not exceed the investment in productive capital (human and physical) (Hartwick 1977, World Bank 2011). Hamilton and Ley (2010) suggest that for countries with significant extractive resources and important foreign investor presence, adjusted net national income (*a*NNI), could be used to complement GDP when assessing economic progress. This includes adding net foreign factor income to GDP and subtracting a charge to net national income for the depletion of natural resources and depreciation of fixed capital. [Net national income (NNI) = GDP + [Net foreign factor income] – [Depreciation of fixed capital]. Adjusted net national income (aNNI) = NNI- Depreciation of natural capital.]

To obtain a more realistic picture of the sustainability of growth and measure *genuine savings* in the economy, an adjusted net savings (ANS) can be calculated to monitor the changes in per capita wealth over time. Compared to the "normal" savings ratio, which measures the country's provision for the future but only focuses on the part of produced output that is not consumed, ANS recognizes that resource depletion and environmental degradation are types of depreciation, and reclassifies education expenditures as investment in human capital rather than consumption. ANS is measured by taking the gross savings ratio and deducting the depletion of natural resources, fixed capital, and pollution damage, and adding investment in education (World Bank 2006, 2010, 2011). Adjusted net savings (ANS) = aNNI – [Consumption] + [Foreign transfers] + [Education expenditures]. Given that "what gets measured gets managed," there is a strong case for adopting aNNI—and its related measure of adjusted net savings to monitor economic performance—especially in low-income but resource-rich economies. According to Hamilton and Ley (2010), most resource-rich countries in Sub- Saharan Africa have had small or negative adjusted net savings even in recent boom times. Further, between 1990 and 2007 the total net wealth creation was effectively zero, while the population grew by 60 percent during that period.

1.8. Following the 2003 Accra Peace Accord the country has been growing steadily and is now at a point where reactivation of the iron ore and agriculture sectors, and prospects for oil, promise opportunities for significant growth in the medium to long term. Liberia again has the chance to achieve middle-income status—provided that the right policies are in place to address the persistent economic fragility, subsistence-level incomes, high aid dependence, narrow economic base, and reliance on imported food and other basic goods, which leaves the country susceptible to external shocks.

Figure 1.1 : Key Events and Real per Capita GDP



Source: Data from World Bank, World Development Indicators (WDI).

B. INCLUSIVE GROWTH DIAGNOSTICS

1.9. In the face of these challenges, and the fact that nearly two-thirds of Liberians live in poverty, it will critical for the Government to find a growth path that breaks through the country's dual economy and creates opportunities for a majority of the population. The study therefore uses the Inclusive Growth Diagnostic Framework developed by Hausmann et al. (2004, 2005, 2008)[3] to assess the full range of binding constraints to economic activity in Liberia. In addition to the traditional top-down firm-level analysis of most growth diagnostics, the Inclusive Growth Diagnostic framework also looks at binding constraints that affect otherwise potentially employable individuals, leaving them unable to participate in profitable economic activities.

1.10. ***The Inclusive Growth Diagnostic explains why growth is a necessary but not sufficient condition for poverty reduction.*** Implicit in the development of any analytical framework aimed at promoting an understanding of growth dynamics is the overarching idea that a rapid rate of growth is necessary for welfare gains and substantial poverty reduction, especially in poor countries. The empirical record shows that growth of an aggregate welfare indicator (income, consumption) constitutes the main channel for poverty reduction. Dollar and Kraay (2001), for instance, indicate that average incomes of the poorest percentiles rise across countries proportionately with average incomes; Lopez and Serven (2004) provide empirical evidence that the poorer the country, the more important

[3] The 2004 version of the paper provides technical details on theoretical and mathematical elements that supported the framework. The 2005 and 2008 versions are lighter on technical content and provide more examples to promote an intuitive understanding of the approach.

growth is in explaining poverty reduction.[4] Furthermore, a report by the Commission on Growth and Development[5] (2008) establishes that long spells of growth bite deeply into poverty, and "in some cases eliminate extreme poverty entirely." For (non-comprehensive) literature reviews on poverty and growth, also see, for instance, Ianchovichina and Lundstrom (2009) and Ravallion (2004).

1.11. ***It may not always be the case, however, that growth spells are accompanied by substantial poverty reduction.*** As Ravallion (2001) finds, based on cross-country household data, the poor typically share in the benefits of rising affluence, but there is a sizeable variance around these "typical" outcomes. Such heterogeneity can be partially attributed to differences in initial inequality (i.e., in human capital), with some people having the ability to take advantage of the opportunities from an expanding economy—and so add to its expansion—but other people not able to do so. The Commission on Growth and Development also points out that, in whatever way growth starts, sustaining it will usually require mass job creation, raising the scarcity value of labor; as a result, wages rise, spreading the process of growth more widely. However, such spells can be truncated by a failure to be inclusive. In fact, sustained growth may *fail* to lead to a decrease in poverty precisely because a lack of *inclusiveness* prevents this from happening. There is a feedback process whereby a virtuous circle of growth and poverty reduction occurs as long as some initial improvements in economic activity allow for increased participation of the labor force, which is then able to increase its wealth because of access to opportunities.

1.12. ***For growth to be sustainable in the long run, it needs to be broad-based across sectors and inclusive of a large part of the country's labor force.*** Inclusiveness encompasses equal access to opportunities and resources. As discussed in the Commission on Growth and Development report (2008), systematic inequality of opportunities is "toxic," and derails the growth process through political channels (the inequitable distribution of opportunities and resources) or conflict (fight for access to opportunities and resources). It is the equitable access to opportunities, resources and markets, together with an unbiased political and regulatory environment, that is will create the conditions necessary for sustainable growth and a countrywide improvement in living standards. See Box 1.3 on supporting policies for inclusive growth in Liberia.

[4] Researchers and practitioners of development economics became increasingly interested in the issue of "pro-poor growth" in the 1980s and early 1990s. Essama-Nssah (2005) defines pro-poor growth as economic growth that is favorable to the poor, and provides two basic interpretations of the term *favorable:* In the relative sense, growth is pro-poor if the change in inequality associated with the growth process is such that the incomes of the poor grow faster than those of the non-poor. In the absolute sense, growth is pro-poor if it leads to a reduction in one or more poverty measures. See also Ravallion (2004) and World Bank (2005).

[5] http://www.growthcommission.org The Commission on Growth and Development consisted of a group of leading practitioners from government, business and the policymaking arenas, mostly from the developing world, who jointly attempted to understand what policies and strategies underlie rapid and sustained economic growth and poverty reduction. Its discussions were facilitated by the World Bank.

Box 1.3 : Calls for inclusiveness in Liberia

"The National Visioning Exercise will lay out a set of programs for building a reconciled and unified nation with citizens who have a strong sense of shared identity and community, a commitment to ethical governance, and a sense of partnership with government in pursuit of national development goals…[it will] chart Liberia's long-term growth and development trajectory, providing medium and long-term planning frameworks to guide public investment programs, and ensuring inclusive growth designed to reduce marginalization and build human, social and physical capital."

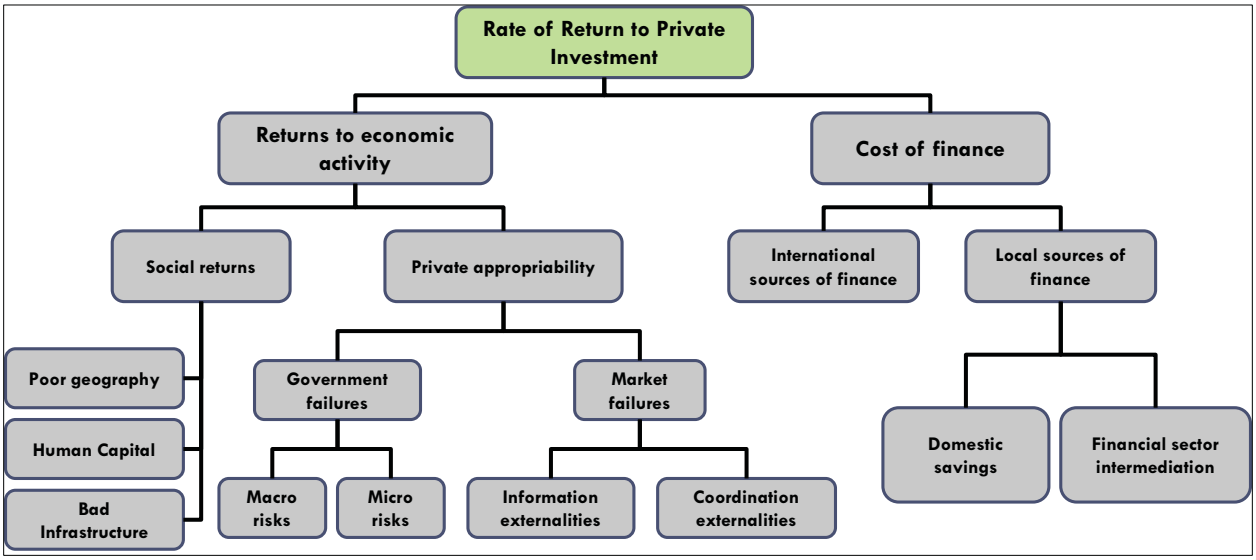
Concept Paper, Liberia Rising 2030. Government of Liberia. August 5th, 2010

"As we renew our resolve in the year 2010, we must recognize the need for inclusive economic growth. We need rapid, stable and sustained growth that creates jobs, especially for the youth and in sectors that benefit the poor and expand opportunities for women."

Hon. Ellen Johnson Sirleaf, President of Liberia, and first elected female President in Africa, at UN MDG Summit, September 2010

1.13. ***Using the Inclusive Growth Diagnostic framework*** developed by Hausmann et al. (2004, 2005, 2008), this report attempts to understand the main obstacles to private capital formation and entrepreneurship from the perspective of firms—i.e., from the top down—and identify priorities for policy, given the (likely) limited political capital for reform. The approach has come to be associated with a growth diagnostics *tree* (Hausmann et al. 2005), which constitutes a simplification of the proposed framework (Figure 1.2). The tree identifies two likely causes of low private investment, from the firms' point of view: (a) *low returns to economic activity,* resulting from the lack of necessary factors of production or from the existence of obstacles to appropriating such returns; and (b) *financing constraints,* due to limited resources for financing profitable endeavors or to inadequate intermediation of existing resources.

Figure 1.2 : The Growth Diagnostics Tree



Source: Hausmann et al. (2005).

1.14. ***A traditional firm-based growth diagnostic*** takes into consideration indigenous social and economic attributes and circumstances in the effort to identify binding constraints to growth from among several candidate hypotheses. In the case of Liberia, the framework has typically focused on the following factors:

- **Liberia is a post-conflict, fragile economy** in which output was significantly diminished and institutional capital was substantially damaged as a consequence of many years of conflict and economic disruption. Pre- versus post-conflict data will be compared to assess recent changes in capabilities and outcomes[6];

- **Liberia's dual economy is one of the most enclaved economic systems in recent world history.** Its natural resource-based traditional sectors generate most of the output, foreign exchange, and fiscal revenues, with little spillover to the rest of the economy in terms of technology transfer, stimulus of economic activity, and employment generation;

- **The traditional economic sectors do not create enough jobs, and domestic markets do not generate sufficient demand, for Liberia to break out of its low economic activity trap**. For growth to be inclusive and sustainable, therefore, it will need to be based increasingly on non-traditional sectors. Such a strategy implies the need for gains in competitiveness, to make Liberian products increasingly attractive to the rest of the world;

- **Liberia's reliance on few export commodities and on imported food and oil,** makes it susceptible to external shocks, and risks of Dutch disease (Box 1.1).

1.15. ***This approach, however, pays relatively little attention to issues of employability and access to opportunities for most of the labor force.*** We thus refer to *Inclusive* Growth Diagnostics as a "*Growth Diagnostics plus*" analytical framework that also attempts to identify binding constraints that prevent otherwise potentially *employable individuals* from participating in or benefiting from profitable economic activities—that is, the obstacles that keep those in the labor force from having access to resources and to opportunities. In this sense, the Inclusive Growth Diagnostic approach also has inductive, bottom-up analytical features. As discussed below, this is of particular relevance in the case of Liberia, where many in the labor force lack the education and necessary skills to be able to take advantage of the economic opportunities that are presented to them.

C. LIBERIA RISING 2030: GOALS AND EXPECTATIONS

1.16. ***The Inclusive Growth Diagnostic is one of several integrated pieces of analytical work*** aimed at supporting the Government's vision document, Liberia Rising 2030, currently under preparation by the Ministry of Planning and Economic Affairs. The concept document (Government of Liberia 2010b) states that Liberia—intends to transform itself from the third poorest country in the world in 2009 (see fn. 1) to a middle-income nation by 2030. It will accomplish this by "embracing a strategy of broad

[6] See Appendix 1 for a discussion on data issues and the use of anecdotal evidence.

participation and inclusive growth" and "building the human resource capability it needs while forging a stronger sense of citizenship, national cohesion, and responsive governance." The development targets point to improvements in many dimensions of individual wellbeing, reduced inequality, social cohesion, prosperity and peace (Box 1.4).

Box 1.4 : Liberia Rising 2030: Main Development Targets

The Government envisions that by 2030, Liberia will achieve:

- A strong sense of national identity and shared community;
- An eradication of gender inequities, and strength in its cultural, social and religious diversity;
- Sustainable growth;
- Equitable distribution of income, with no one living in abject poverty and robust social safety nets;
- A strong system of education and skills development;
- Improved health status and life expectancy, reducing to the minimum the burden of infectious disease;
- A modern, technologically enabled agricultural sector that ensures national food security;
- A vibrant, globally competitive manufacturing sector that contributes significantly to GDP;
- National self-reliance in power generation;
- Development of a strong middle class, through increased entrepreneurship and formal employment;
- An adequate transport system;
- Adequate physical infrastructure and services that are cost effective and socially sustainable;
- Appropriate management of water resources, and adequate collection and safe disposal of wastewater;
- Modernization of its technological and telecommunications Infrastructure.

Source: Ministry of Planning and Economic Affairs (2010b).

1.17. To achieve these objectives, the Government has proposed a two-pronged National Visioning Exercise during 2011/12. The objective is to lay out two complementary sets of programs.

- The first, aimed at ***building a unified nation***, will include programs to ***consolidate transparent, accountable, just, and democratic governance.***
- The second, aimed at ***providing the foundation for long-term growth and development,*** will develop a ***framework to guide public investment and ensure inclusive growth,*** so as to "reduce marginalization, and build human, social and physical capital."

1.18. ***The precise growth rate required to meet the 2030 targets will depend on the new welfare indicators being developed by the Liberian Statistical Office*** (see Appendix 2).[7] When these indicators are ready, it will make sense to try to operationalize the 2030 targets by defining some end-of-period (and perhaps mid-term) numerical and benchmark values, to provide a more tangible idea of the challenges ahead.

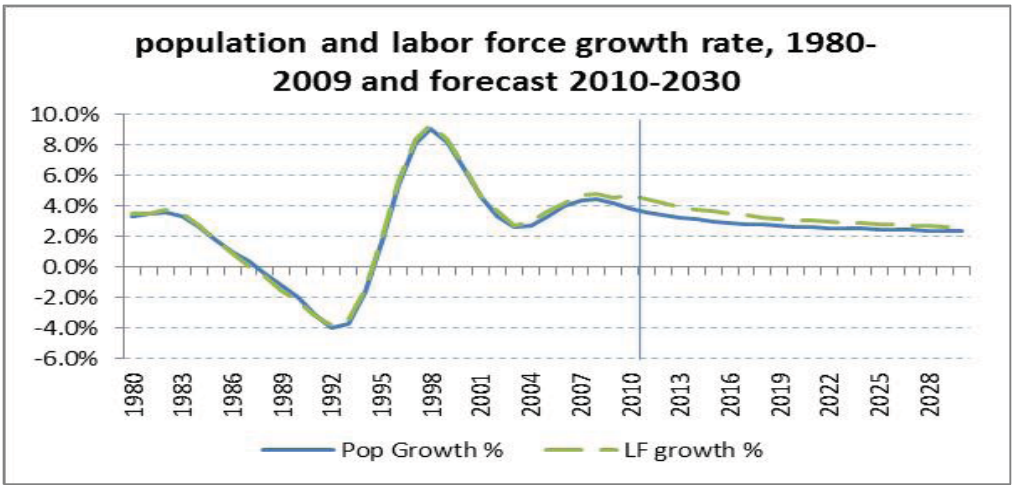
1.19. The effort devoted to improving the quality of statistics in Liberia is not a trivial one. Obviously, Liberians will feel no richer or poorer whether per capita figures are revised upward or downward. However, the newly agreed-upon level of per capita income will determine the per capita growth rate required for Liberia to achieve lower-middle income status by 2030. Another element that needs to be

[7] The Liberian Statistical Office, LISGIS, with technical assistance from the World Bank and IMF, recently embarked on an ambitious process of revising, updating and improving the country's National Account statistics, as well as building LISGIS' technical capacity to provide sound data for policymaking.

considered is the threshold separating low income from lower-middle income countries. Currently, the World Bank uses its Atlas classification for allocating countries based on per capita income. The Atlas method uses a transformation of per capita GNI, measured in current US$, to separate countries into four groups: Low Income, Lower-Middle Income, Upper-Middle Income and High Income. Currently, the threshold separating low income from lower-middle income countries is US$975. Given Liberia's 2009 per capita GNI of US$160, the country will need to grow at an average per capita rate of 8.6 percent in order to reach, in 2030, the minimum income level of what *today* is considered a lower middle income country. If a revision of national account data yields a per capita GNI of, say, US$400 for 2009, which is possible, the required per capita growth rate would be reduced by more than half, to 4.2 percent per year.[8]

1.20. Once the required *per capita* growth rate is resolved, one still needs an expected population growth rate in order to measure the total GDP growth and size of the economy implied by the Liberia 2030 targets. As demographic-related variables (such as fertility and mortality rates, and local and international migration patterns) cease to be influenced by war and conflict, and Liberia makes progress toward long-term growth, an imminent demographic transition could substantially lower the population growth rate, from more than 4 percent per year in the late 2000s to less than 2.4 percent by 2030 (Figure 1.3).[9] For a scenario of an average population growth rate of 2.8 percent during the period 2010-2030, the total GDP growth rate implied by the Liberia Rising targets would be 11.4 percent, and the size of the economy (measured by total annual GDP in current US$) would be US$6.9 billion.

Figure 1.3 : Population and Labor Force Growth Rate



Source: World Bank, WDI and authors' estimates.

[8] See Appendix 3 for methodological notes for computing time to reach given income targets at defined growth rates or, alternatively, necessary growth rates to reach income target given a time period.

[9] Liberia, like most developing countries, is experiencing a demographic transition, mainly from reduced fertility and increased life expectancy, which will translate into substantial changes in the age structure of population, and in the growth rates of the population and the working age population. Similarly, changes in education outcomes and in people's opportunities to obtain jobs are considered, as they have implications for labor participation rates and the evolution of the work force.

CHAPTER 2. CHARACTERIZING THE GROWTH PROCESS

2.1 To estimate what it would it take to achieve the per capita income targets defined in Liberia Rising 2030, we utilize an extended growth accounting decomposition framework, mainly as an organizational device to observe historical trends of proximate determinants of growth. We also introduce a Shapley decomposition of per capita income, to observe issues of structural transformation in the decades ahead and arrive at hypothetical trends of productivity in the main economic sectors.

A. GROWTH ACCOUNTING AND "POTENTIAL"

2.2 We extend the traditional growth accounting decomposition to take into consideration demographic and labor force dynamics and saving constraints at the macro level, using historical data covering the four decades between 1970 and 2010. The data are loosely divided into three sub-periods: 1970-1988, the years of economic growth, growth deceleration and pre-war economic decline; 1988-2003, the conflict years; and 2003-2010, the post-conflict and recovery years.

2.3 Our approach differs from a typical growth accounting decomposition, in which most demographic and labor force changes (see fn. 15) are ignored, and their effects end up as part of that residual variable referred to as total factor productivity (TFP). We consider those dynamics. We also consider that, from a national accounts perspective, the total amount of investment, public and private, must be identical to the gross national savings, which means that growth targets that are associated with factor accumulation and improvements in TFP demand a certain amount of financing, given expectations on domestic savings and net income from abroad (from firms and individuals).

2.4 **"Potential" growth**. We have produced a growth accounting scenario for the period 2010-2030, based on assumptions for the dynamic behavior of factor inputs; these assumptions, in turn, are based on observed historical trends and targets for human and physical capital variables (Table 2.1). Assumptions for TFP growth are based on observed behavior of such variables in post-conflict, growing economies.

2.5 **From the historical point of view**, Liberia's growth accounting decomposition shows three major trends (also see graphs for relevant variables in Appendix 4):

- First, for periods of high output volatility, fluctuations in real GDP growth rate are highly associated with changes in TFP. This is a perhaps obvious, by-construction result, since—based on the way factor inputs are defined—changes in capacity utilization (of workers and physical assets) end up being reflected in TFP. Furthermore, changes in factor remuneration, depreciation, and inaccuracies in measuring relevant variables included in the decomposition may also be picked up only by the residual. Liberia experienced such volatility prior to and during the years of crisis. For the period 1975-2003, the standard deviation of output growth was almost 4 times higher than its mean, compared to a ratio of less than 0.8 for the period 2003-2010.

- Second, prior to entering into conflict, both physical assets and labor contributed in similar magnitudes to real GDP growth. But as social and political instability increased and civil war began to take hold, public and private investment plummeted. This, coupled with the depreciation and destruction of existing assets, yielded a sharp decline in capital stock. Labor accumulation contributed to output between 1988 and 2003, but mostly as a result of the incorporation of young people into the labor force as subsistence, informal workers in the devastated economy.[10]

- Third, human capital showed only a modest contribution to growth prior to 2003. Since then, such contribution has increased as education outcomes, measured by the average years of education, improved in the second part of the 2000s.[11]

Table 2.1 : Liberia—Growth Accounting and Decomposition, 1970-2030

Period	GDP Growth	Physical Capital	Human Capital	Labor	TFP	Per capita GDP	Pop growth
1970-1972	4.5%	2.3%	0.3%	2.0%	-0.1%	1.8%	2.7%
1972-1988	-0.3%	1.4%	0.3%	1.9%	-3.9%	-2.7%	2.5%
1988-2003	-6.9%	-1.1%	0.2%	1.7%	-7.8%	-9.0%	2.3%
2003-2010	6.1%	-0.3%	0.7%	2.9%	2.9%	2.1%	3.9%
2010-2030 *	7.0%	1.2%	0.5%	2.2%	3.2%	4.1%	2.8%
(*) Forecast potential.							

Source: Authors' calculations, based on World Bank, WDI data.

2.6 For the period 2010-2030, the exercise indicates that—for a moderately optimistic scenario on the behavior of factor inputs, based on historical trends and targets for capital formation that could be financed by internal and external savings—a growth rate of around 7 percent (4.1 percent per capita) could, *at this point*, be expected for the next two decades. Again, this is illustrative, based on current economic circumstances. However, there are many factors, both known and unknown that could lead to a shift in perception about what is feasible for Liberia in terms of potential growth. Among the known factors are the prices and availability of key renewable and non-renewable commodities; the ability of government to adequately manage financial resources for growth, including by promoting the development of non-traditional activities; and the sustainability of the peace process.

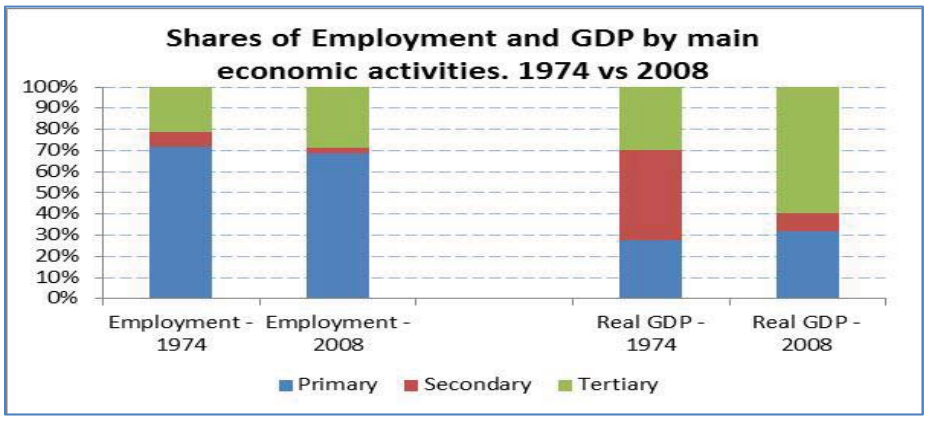
[10] The comparison of labor contribution to GDP growth for the period 1988-2003 also hides different intra-period trends. For instance, between 1988 and 1994, the size of the labor force actually fell a cumulative 14 percent, as a result of lower participation and of massive emigration as conflict became widespread throughout Liberia.

[11] We are quite skeptical, however, about the way the contribution of human capital to growth is defined under any growth accounting exercise. Although years of education is used as a proxy for human capital accumulation in this type of exercise, in reality it is likely that any relevant increase in the ability of individuals to generate more output for given levels of other inputs is determined by several other elements in addition to education.

B. PATTERNS OF GROWTH (SHAPLEY DECOMPOSITION)

2.7 ***The pattern of growth is as important for Liberia as the pace of growth.*** The ability of an economy to accelerate and sustain high growth rates has come to be associated with its inclusiveness, which, in turn, has been linked to its potential for diversification and structural transformation. While the exploitation of primary resources (agricultural and mineral) will constitute the country's economic backbone in years to come, and will be a primary source of employment generation and fiscal and foreign exchange revenues,[12] Liberia's growth strategy aims to diversify the economy by developing a competitive manufacturing sector and modern services. In 1974 and 2008,[13] primary activities accounted for around 70 percent of employment and a third of value added (Figure 2.1). Between those years, secondary activities, including manufacturing, construction, electricity and water, and mining and quarrying shrank substantially, with the bulk of the labor force and output being absorbed mostly by informal service activities, mainly around Monrovia.

Figure 2.1 : Share of Employment and GDP by Main Economic Activities



Source: Bank Staff calculations from ILO and Liberian Statistical Institute (LISGIS) data.

2.8 To understand the implications of achieving certain growth targets, in terms of both *employment by main economic activity*, and *hypothetical changes in average productivity of labor*, we have performed another decomposition of per capita GDP growth, this time considering the distribution of employment and output by sector of economic activity.[14] Such analysis allows the allocation of changes in average per capita GDP to (a) changes in average productivity of labor; (b) changes in levels of employment; and (c) inter-sectoral shifts in employment. The exercise was carried out with data for the period 1974-2008.[15] As shown in Table 2.2 below, the annual GDP growth per capita (-4.9 percent)

[12] See Liberia Rising concept document (Government of Liberia 2010b), and Liberia Poverty Reduction Strategy (Government of Liberia 2008).

[13] We refer to the period for which we have data on both GDP and employment by main economic activity. The actual period may be longer.

[14] This is sometimes called a Shapley decomposition of growth.

[15] There is very limited historical data available on employment by economic sector, which is necessary to perform a Shapley decomposition. We have used employment data from ILO (http://laborsta.ilo.org) for the year 1974 and data from the Labor Force Survey for 2010 (Government of Liberia 2010). Ideally, one should attempt to perform

equals the sum of changes in GDP per worker (-5.0 percent) plus the effect of changes in participation rate (0 percent) and the ratio of working age population to total population (0.1 percent)—much as it was described in the extended growth accounting decomposition above and further explained in Appendix 4.[16] With changes in output per worker broken down by sector of economic activity (last column in the table), the contributions of primary, secondary and tertiary activities are -1.2 percent, -2.5 percent and -1.2 percent, respectively. The differentially higher impact of the collapse on secondary activities as a result of conflict (-0.7 percent in mining, and -0.7 per in manufacturing) is notable. The results of secondary activities are further decomposed into four main sub-sectors, revealing the high negative effect of the fall in mining activities. Moreover, the contribution of each sector and sub-sector can be broken down, by means of a counter-factual exercise, by changes in output per worker, level of employment, and sector composition of employment (Table 2.2). For each factor, the calculations are made *as if* the other two are held constant.[17]

Table 2.2 : Liberia—Decomposition of Changes in Per Capita GDP in Components points Per Year). 1974-2008

	Contributions from changes in:			
	Output per worker	Level Employment	Sectoral composition of employment	Total
Change in Per Capita GDP:				**-4.9**
Sectoral Contribution	**-4.7**	**0.2**	**-0.5**	**-5.0**
Primary	-1.3	0.0	0.1	-1.2
Secondary	-1.8	-0.1	-0.7	-2.5
-Mining and Quarrying	-1.1	-0.1	-0.7	-1.9
-Manufacturing	-0.2	0.0	-0.1	-0.3
-Electricity, Gas and Water	-0.5	0.0	0.4	-0.1
-Construction	-0.3	0.0	0.1	-0.2
Services	-1.7	0.3	0.1	-1.2
Participation rate				**0.0**
Pop1564/Population				**0.1**

Source: Staff Calculations.

2.9 A Shapley decomposition exercise is carried out for the period 2008-2030[18], using the same scenario presented in the extended growth accounting decomposition (see fn. 16). The intention is to observe the employment implications of achieving the growth targets—both overall, by selected sectors of economic activity, and for given targets of labor productivity. The following further assumptions are made:

---

such decomposition for the same period for which a growth accounting decomposition is performed, to be able to further understand the proximate sources of changes in TFP. This was not possible for the exercise in Liberia.

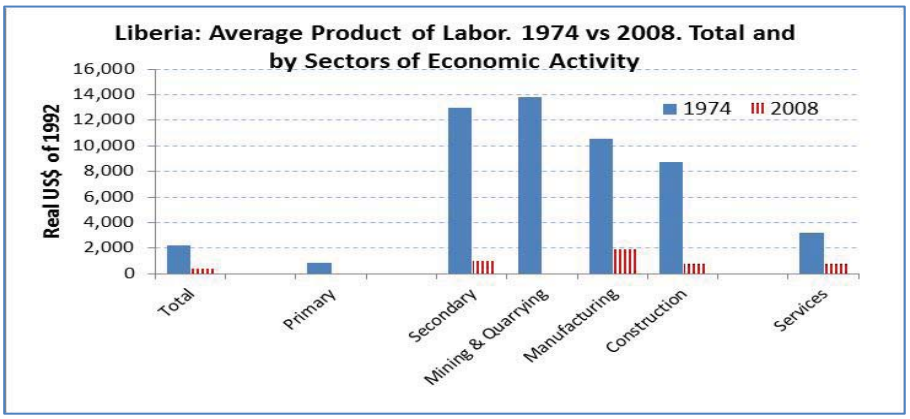
[16] Appendix 4 presents methodological issues and a graphical visualization of the relations among included variables. This is probably best interpreted as an organizational framework (it is not really a model, as there is no single behavioral equation included and no attempt to determine cause and effect).

[17] For instance, a decrease in output per worker in the service sector of 1.7 percent per year between 1974 and 2008 assumes that employment levels and the composition of employment are constant during the period. Also, notice that the contribution of an *increase (decrease)* in the share of employment in one sector during the analyzed period will be *positive (negative)* only if the average product of labor in that sector is *higher (lower)* than the average for the economy, pointing to a shift of workers from *less (more)* to *more (less)* productive activities.

[18] To maintain consistency with other analytical pieces being produced in support of the Government's strategy, this exercise uses growth rates for primary and secondary activities from the macro-modeling, computable general equilibrium exercise carried on under Lofgren (2011)

- Liberia will approach, by 2030, the average productivity of labor (real GDP divided by labor employment) observed in early 1970s. Figure 2.2 compares that variable for the years 1974 and 2008 (the base year for the projections) by main sector of economic activity.
- Employment, average productivity of labor, and real GDP growth in tertiary activities are obtained as residuals.

Figure 2.2 : Liberia—Average Productivity of Labor



Source: Authors' calculations based on World Bank and LISGIS data.

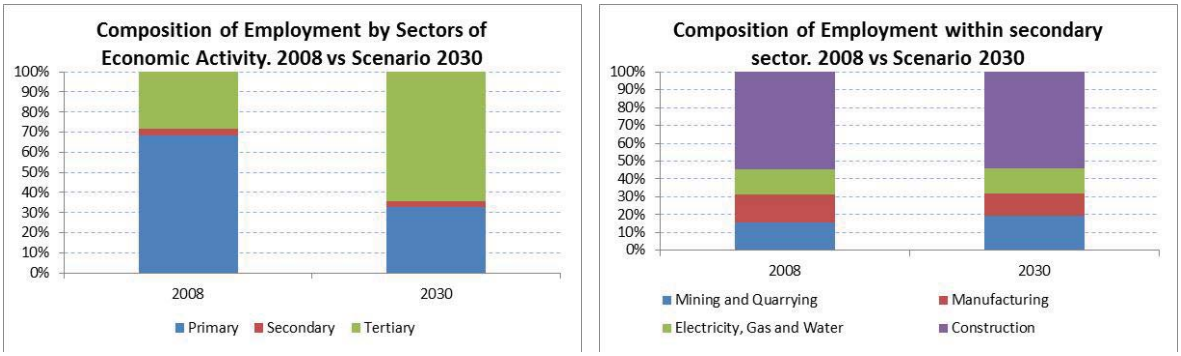
2.10 The changes in GDP per capita and per unit of labor from the decomposition are consistent with those generated from the extended accounting exercise projected through 2030 (Table 2.3). In turn, assumptions for the evolution of average productivity of labor, together with growth rates by sector of economic activity generated under a general equilibrium model, permit the observation of changes in the level and structure of employment by sector, as well as the contribution of each sector to growth in output per worker (Figure 2.3 and Table 2.4). Under this loosely defined scenario, there is a shift in employment from primary to tertiary activities over the next two decades, with the secondary sector still providing only a small contribution to employment and output generation.

Table 2.3 : Liberia Decomposition of Changes in Per Capita GDP in Components

	Contributions from changes in:			
	Output per worker	Level Employment	Sectoral composition of employment	Total
Change in Per Capita GDP:				**3.8**
Sectoral Contribution	**1.7**	**0.1**	**1.6**	**3.3**
Primary	1.1	-1.6	0.8	0.3
Secondary	0.1	0.0	0.0	0.0
-Mining and Quarrying	0.0	0.0	0.0	0.0
-Manufacturing	0.0	0.0	0.0	0.0
-Electricity, Gas and Water	0.0	0.0	0.0	0.0
-Construction	0.0	0.0	0.0	0.0
Services	0.4	1.7	0.8	2.9
Participation rate				**0.2**
Pop1564/Population				**0.2**

Source: Staff Calculations.

Figure 2.3 : Composition of Employment by Sectors of Economic Activity



Source: Authors' calculations based on ILO, World Bank and Labor Force Survey 2010 data.

Table 2.4 : Liberia Employment and GDP by Sectors

	2,008	2,030	% Change per year
Employment	**1,426,461**	**3,025,525**	**3.5%**
Primary	976,204	995,846	0.1%
Secondary	44,547	80,508	2.7%
-Mining and Quarrying	6,965	15,667	3.8%
-Manufacturing	7,028	9,940	1.6%
-Electricity, Gas and Water	6,254	11,238	2.7%
-Construction	24,299	43,663	2.7%
Services	405,710	1,949,171	7.4%
Real Value Added GDP*	**520,136**	**2,233,871**	**6.8%**
Primary	165,726	423,238	4.4%
Secondary	43,852	105,456	4.1%
-Mining and Quarrying	1,232	3,938	5.4%
-Manufacturing	13,473	27,081	3.2%
-Electricity, Gas and Water	10,200	26,049	4.4%
-Construction	18,947	48,387	4.4%
Services	310,558	1,705,176	8.0%

Source: Authors' calculations based on ILO, World Bank and Labor Force Survey 2010 data.

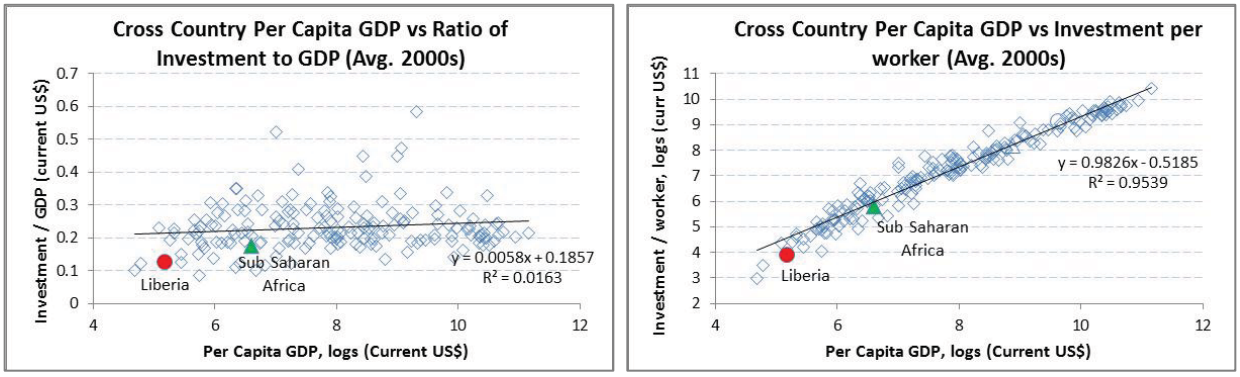
CHAPTER 3. GROWTH DIAGNOSTICS: *GOING DOWN THE TREE*

3.1 At the heart of the diagnostic exercise is the need to understand the main reasons why investment is not able to grow at a much faster pace. Issues of inclusiveness are considered in order to ensure that the (mainly private sector-driven) growth process is broad based and provides opportunities for most Liberians.

A. WHAT IS MEANT BY "LOW INVESTMENT" IN GROWTH DIAGNOSTICS?

3.2 As discussed above, a growth diagnostic exercise attempts to identify the most binding constraints to investment and entrepreneurship in a country. It is important to clarify that the shorthand expression "low private investment" in growth diagnostics parlance does not refer to the ratio of private investment to GDP, as has sometimes been assumed.[19] Rather, a "low investment" country is one in which the growth rate of capital formation per capita (equal, *on steady state*, to the growth rate of per capita consumption) is low (or zero, or negative). See Figure 3.1.

Figure 3.1 : Investment and GDP



Source: Authors' calculations, based on World Bank, WDI data.

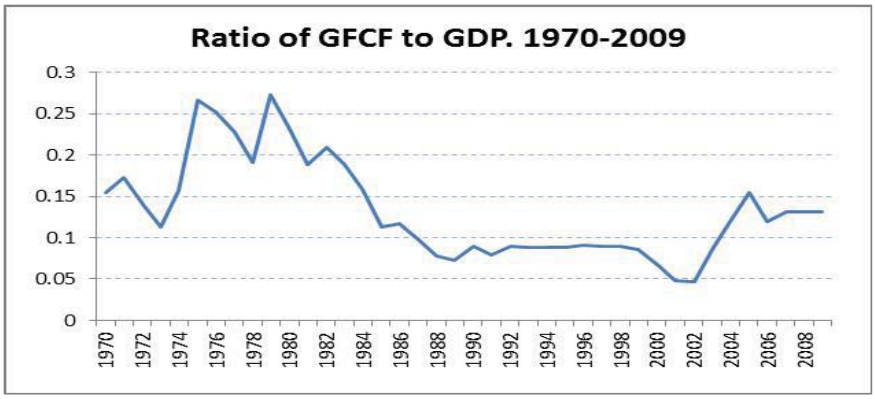
3.3 **Is Liberia a low investment country?** Liberia's private and public investment began to lose dynamism and deteriorate in the early 1970s, as signs of social discontent and political and economic instability emerged in the country. Prior to the death of President William Tubman in 1971, real investment per worker grew at rates in excess of 2 percent per year. That rate fell to 1.4 percent in the period 1973-1980 as a latent social divide between the governing class and indigenous groups began to grow, fueled by a worsening of the terms of trade and growing inability of government to deliver for the excluded majority. Capital formation per worker began to fall in earnest after the bloody *coup d'etat* of April 1980, and further deteriorated with failures of governance and economic instability that led to

[19] It is also not true, as often assumed, that as one moves from poorer to richer countries (in per capita terms), the ratio of investment to GDP tends to significantly increase. This is because, at the aggregate level, different countries are intensive in different factors of production for generating value added.

outright civil war in 1989. Total capital formation recovered slightly after 2003, but its growth rate remained still negative on a per worker basis (-0.3 percent) between 2003 and 2010.

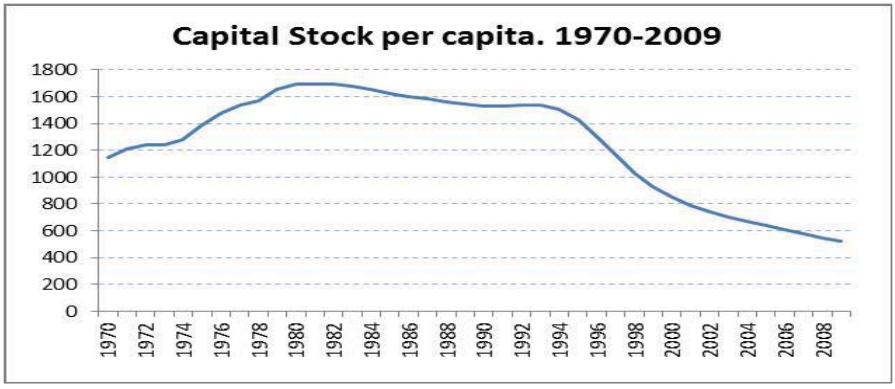
3.4 **Decreasing availability of capital for producing output**. As a result of substantially diminished investment, lack of maintenance of assets, and destruction of public and private infrastructure, the value of the capital stock per unit of labor substantially declined over the past three decades (Figure 3.2). Currently, the average Liberian worker has about one quarter of the capital available to undertake economic activities that he/she had prior to 1980 (Figure 3.3).[20]

Figure 3.2 : Ratio of Gross Fixed Capital Formation to GDP (1970-2009)



Source: Authors' calculations, based on World Bank, WDI data.

Figure 3.3 : Liberia-Capital Stock per Capita (1970-2009)



Source: Authors' calculations, based on World Bank, WDI data.

3.5 Disincentives to accumulate. The reduction in people's willingness to invest for the future is a complex socio-economic phenomenon connected to factors that reach beyond limited financial resources (from aid, remittances, savings) and lower expected returns to big economic players. Rather, it relates to the scars left by the many years of conflict. Over the years, Liberians saved and invested less as their incomes diminished almost to subsistence levels and their expectations fell amid growing conflict. Their confidence in concepts such as ownership, property rights, and long planning horizons

[20] Capital stocks have been estimated from investment and consumption of fixed capital data using the perpetual inventory method. See methodological notes in Appendix 5.

was substantially damaged, leading to what is now known as the "hand-to-mouth approach," whereby people try to maximize present consumption and realize immediate gains regardless of the objective attractiveness of alternative opportunities. Having a "permanent job" is a concept alien to many Liberians. Quite often, people (especially from the Monrovia area) claim to be jobless, and when asked how they make ends meet, they simply respond they do whatever they can "to provide for the day."

Box 3.1 : Capital Formation and (Dis) Incentives to Accumulate

The anecdotal evidence: Charles on capital formation and (dis)incentives to accumulate

Charles was the team's local human resource. In the process of gathering information for this report, the authors had the privilege and pleasure of being driven around Monrovia by Charles, a 50+ (he wouldn't say) native from a tribe in the southeastern part of the country. He had been a small-holder farmer who moved to the city in search of better opportunities to provide for his wife and two high-school age daughters. At the height of the conflict, he had been forced to scavenge for food. Twice he was threatened with execution by rebel militia. As we traveled around Monrovia, we had many conversations. As the days passed, we came to appreciate his insights about the difficulties of life in his country. These are presented (with his permission) throughout the report as a complement to other information in this Inclusive Growth Diagnostic.

Charles told us that the war had decimated Liberia's livestock. Most of it was killed and eaten by rebels and others, including owners who could no longer engage in the business of raising animals and needed a minimum sustenance. Incentives for raising livestock disappeared along with impunity to violating property rights. Most livestock is now imported from neighboring countries, such as The Gambia, but at a cost that is prohibitively high for the average Liberian.

According to Charles. "A cow, a goat and a couple of piglets can be purchased at prices of US$1,000, US$35 and US$70, respectively. Prices are lower in Mali and The Gambia but people would still need to get transportation. A similar problem happens in the agriculture sector. In the 1970s, small farmers had access to cocoa and coffee seeds and young plants. They also had access to technical advice in the form of periodic visits from experts who conducted workshops and training programs in the villages and communities. They would also bring seeds and materials. Follow-up visits were frequent to check that people understood the techniques and were adopting adequate methods of cultivation." Today, Charles does not have the seeds, young plants, technological support, or know-how he needs to go back to cultivating his land.

B. Social Returns to Economic Activity

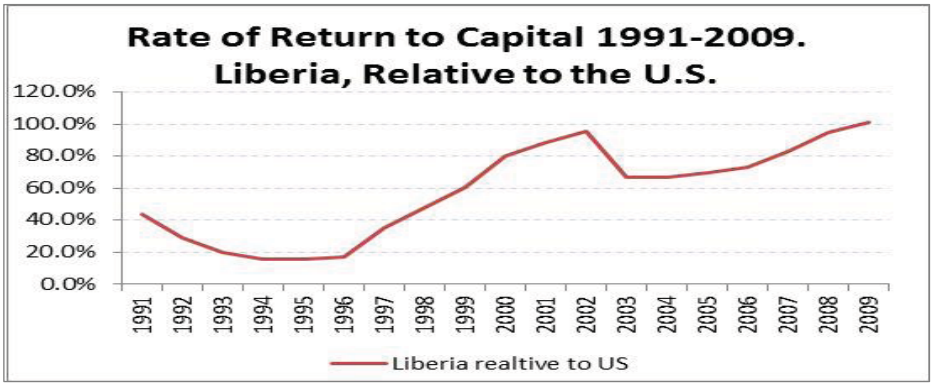
3.6 **Assessing social returns in growth diagnostics**. To systematically and comprehensively evaluate the potential causes of low investment and entrepreneurship in a country, the Inclusive Growth Diagnostics framework uses a tree configuration to test the hypothesis that low growth results from a lack of profitable business opportunities—whether due to low social returns or to the fact that where returns exist, they cannot be appropriated as a consequence of some market or government failure.

3.7 **Assessing social returns in Liberia.** Two sets of elements are examined in assessing social returns in Liberia—the existence of (a) profitable opportunities; and of (b) key complementary factors of production necessary for entrepreneurs to be available to exploit such opportunities. The latter group includes human capital, infrastructure, the availability of economically exploitable land, and other geographic characteristics. As explained above, this inclusive diagnostic assesses the extent to which the absence of any of these elements may constrain economic activities in some or all of the country's traditional and nontraditional sectors.

3.8 **Profitable opportunities**. It is not an overstatement to refer to a burgeoning optimism of private investors about potentially profitable business opportunities in Liberia. The anecdotal evidence is overwhelming. Private financial institutions are positioning themselves in the economy, holding large amount of liquid resources, "getting ready for what is to come," even though, today, there is still a perception of significant credit rationing. International air traffic is increasing and expected to increase further, as leading carriers devise plans for scaling up operations in the country. Liberia's business registry maintains records of a high inflow of entrepreneurs who are taking advantage of the improved, faster bureaucratic process and perceive profitable opportunities in various sectors. Moreover, there is no shortage of firms bidding for concessions in the traditional sectors. As explained below, efforts are underway to improve roads, increase connectivity and improve people expectations about their ability to reap benefits from undertaking activities.

3.9 **Returns on capital at macro level**. Returns to capital are properly calculated from financial statements at the firm level. At a higher level of aggregation, by sector of economic activity, estimations can be made based on firm survey data. Perhaps more controversial is the estimation of returns to capital based on national accounts data. Such estimates relative to the USA are presented in Figure 3.4, using historical data on value added, real GDP growth, and capital formation.[21] But even if there is doubt about the return to capital over time, there should be little doubt about the long-term increasing trend in the international prices of commodities (Figure 3.5), including those in which Liberia is rich or potentially rich, and the positive impact on expected profitability.

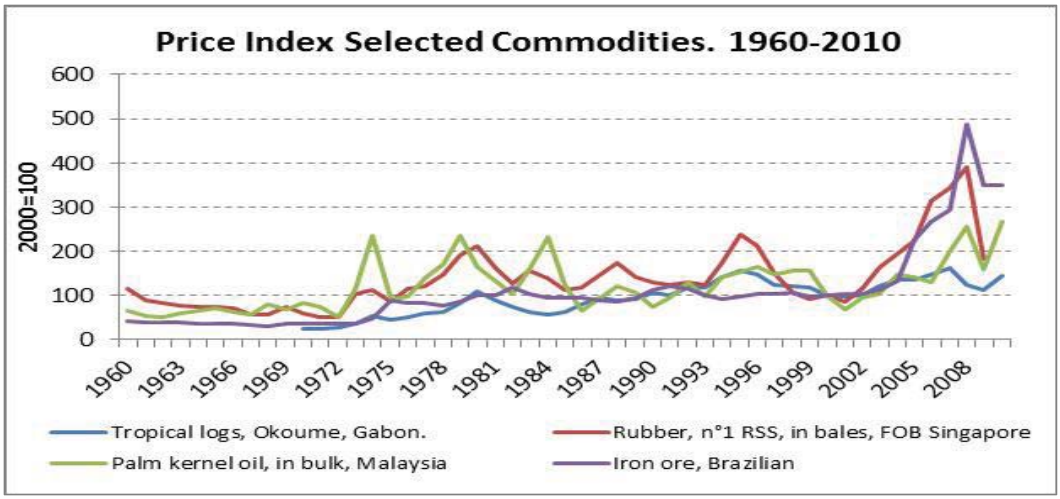
Figure 3.4 : Liberia—Rate of Return to Capita (1991-2009)



Source: Authors' calculations, based on World Bank, WDI data.

[21] See Appendix 5 for methodological notes.

Figure 3.5 : Liberia- Price Index of Selected Commodities (1960-2010)



Geography

3.10 **Geographic features are not binding constraints in Liberia.** The country is well endowed with natural resources, renewable and non-renewable. Its climate is ideally suitable for agricultural activities, with fertile land and sufficient water resources for irrigation and consumption.[22] The amount of agricultural land is relatively smaller in Liberia than elsewhere in Sub-Saharan Africa (Table 3.1) due to the relatively high fraction of forests (areas with high density in trees), but this gives the country a high potential for forestry products. The country faces the Atlantic Ocean and has four ports—Monrovia, Buchanan, Greenville and Harper—of which only the first two are operational and connected by land to the country's main activity centers, Monrovia and Buchanan.[23] The terrain is mostly flat, with coastal plains rising to rolling plateaus and low mountains in the northeast. Land availability, defined as the existence of that resource for primary activities, is not an issue in Liberia. But defined as the ability of the people to have access to such resource for production under conditions of well-defined property rights, land availability does constitute a serious problem in Liberia. This issue will be analyzed as part of assessment of appropriability of social returns.

[22] Agricultural land is defined as land suitable for the production of either crops or livestock. According to the standard classification used by the Food and Agriculture Organization of the United Nations (FAO) agricultural land is divided into the following components: arable land (land under annual crops, such as cereals and cotton, and technical crops, such as potatoes, vegetables, melons, etc.); orchards and vineyards (land under permanent crops (such as fruit plantations and other tree crops); and meadows and pastures (areas for natural grasses and grazing of livestock). The amount of agricultural land is relatively smaller in Liberia than elsewhere in Sub-Saharan Africa due to the relatively high fraction of forests (areas with high density in trees), which gives the country its high potential for forestry products.

[23] The problems regarding the condition of the ports, and their ability to provide services for maintaining and scaling up traffic linked to accelerated economic activity, are discussed in the sub-section on infrastructure.

Table 3.1 : Indicators of Arable and Agricultural Land

	Liberia	LICs avg	SSA
Arable land (% of land area)	3.97	8.51	8.04
Arable land (hectares per person)	0.11	0.17	0.25
Agricultural land (% of land area)	27.0	37.4	44.0
Agricultural land per capita (sq km/pop)	7.6	12.7	13.6
Population density (people/sq km.)	35.9	58.5	32.3
Source: World Bank, WDI			

3.11 **Available natural resources for growth.** Liberia has a vast amount of exploitable natural resources available to support growth. The Government's Development Corridor Desk Study (2011) provides an excellent overview of such resources, and attempts to provide insights for a strategy of diversified development "along clearly identified corridors and around growth poles," with the aim of overcoming major constraints to investment.[24] In addition, the World Bank's (2008) comprehensive diagnostic trade integration study for Liberia analyzes potential returns from scaling up commercial exploitation of key resources, such as tree crops and other agricultural products, mining and petroleum, wood and fisheries, as well as from their value chains. In sum, resources are plentiful. However, there are concerns about the availability of infrastructure and of an adequate, skilled labor force to exploit such resources; about political and economic stability and the risk that conflict will reemerge; about potential downturns in international prices for key commodities such as rubber, palm oil, wood, iron ore, etc.; and about the inclusiveness of the growth process. But the point remains that growth in Liberia is not constrained by the availability of resources or by geographical conditions.

Infrastructure

3.12 **Infrastructure gaps have traditionally been seen as the main binding constraint to economic activity.** Recent empirical studies have found that Liberia's infrastructure gaps (mainly in access to transport and electricity services) are **the** most binding constraint to accelerating growth.[25] As the Africa Infrastructure Country Diagnostic Report on Liberia (World Bank 2010a) explains:

"*In terms of infrastructure, Liberia has yet to develop full national backbones of paved roads, power transmission and fiber optic cable….As a result, it is not yet in a position to connect fully with broader regional networks….The main road artery in terms of traffic is the route inland from Monrovia towards the frontier with Guinea and Cote d'Ivoire, plus a relatively short coastal section on either side of Monrovia. Elsewhere on the network, traffic is sparse. Road network condition is quite patchy… GSM coverage is largely concentrated around Monrovia….Liberia is not connected to the SAT3 submarine cable that skirts the West African coastline….There are a few pockets of irrigated farmland, most of*

[24] The study argues that development corridors are "the best way to accomplish the goal of accelerating growth, reduce unemployment, make peace sustainable and reduce poverty… because they focus investment where it produces best results. Without such planning, the logistics constraint often obstructs an otherwise viable investment opportunity, which cannot, on its own, service the enormous cost for the non-existent infrastructure (transport, power, water, etc.)."

[25] For instance, IMF (2010); World Bank (2008); World Bank (2009); in addition to Government of Liberia (2011).

which lie along the northerly land barrier….Powers tariffs are, by far, the highest in SSA and coverage extends to less than 2 percent of the population."

3.13 The rehabilitation of basic infrastructure is one of the four main pillars of Liberia's Poverty Reduction Strategy (PRS) for 2008-2011 (Government of Liberia 2008). The other pillars are the expansion of peace and security, revitalization of the economy and, strengthening of governance and the rule of law.

3.14 **Staggering amounts of resources are needed.** As World Bank (2010a) continues, infrastructure spending needs are a "staggering" 70 percent of GDP per year over the next decade under a base scenario, and 40 percent under a "pragmatic" scenario (which is overly optimistic in terms of resources invested compared to benchmark Sub-Saharan African countries). Power and transport absorb about one third each, in either scenario. The only other country in Africa that has a comparable burden of infrastructure spending is the Democratic Republic of Congo, which needs an estimated 60 percent of GDP. In order to produce these numbers in Liberia, illustrative infrastructure investment targets and needs were identified (Table 3.2). A baseline and pragmatic scenarios (corresponding to alternative construction standards for meeting similar infrastructure targets) were constructed. Even for the "pragmatic" scenario, expenditure needs exceed the 20 percent of GDP spent by China in infrastructure during the mid-2000s. The report where these results are summarized (World Bank 2010a) notes that between 2004 and 2008, Liberia spent, on average, US$90 million per year (just over 10 percent of annual GDP) on infrastructure, of which 80 percent was devoted to capital expenditures and financed by development partners,[26] while the remaining 20 percent was paid by own budgetary resources. The need to scale up infrastructure investment (Table 3.3) presents Liberian authorities with a significant challenge, considering the lack of capacity to effectively manage substantially larger financial resources—which also raises issues of transparency, coordination, and the macro impact from incoming resources. These issues are addressed below, in the sections covering micro risks, macro risks, and coordination externalities.

[26] Development assistance in Liberia has been provided by OECD and non-OECD countries and through public-private investment (PPI).

Table 3.2 : Liberia—Illustrative Investment Targets for Infrastructure

Area	Economic Target	Social Target
ICT	Install fiber optic links to neighboring capitals and submarine cable	Provide universal access to GSM signal and public broadcast facilities
Irrigation	Develop additional 21 hectares of economically viable small-scale irrigation	n.a
Power	Develop 258 MW inter-connections (no-trade scenario). Could be replaced under trade expansion with 369 MW of generation capacity	Raise electrification access to 6% (100 urban and 6% rural)
Transport	Achieve regional (national) connectivity with good quality 2-lane (1-lane) paved road	Provide rural road access to 66% of the highest value agricultural land, and urban road access within 500 meters.
Water Supply and Sanitation	n.a	Achieve MDGs, clear sector rehabilitation backlog

Source: World Bank (2010a) n.a= not applicable

Table 3.3 : Liberia—Indicative Infrastructure Spending Needs (2006 -2015)

	Base Scenario			Pragmatic Scenario		
	Capital Expend.	Oper. & Maint.	Total Costs	Capital Expend.	Oper. & Maint.	Total Costs
ICT	31	14	45	31	14	45
Irrigation	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Power	233	18	251	79	43	122
Transport	157	40	197	61	39	100
Water Supply & Sanit.	82	40	122	51	26	77
Total	503	112	615	222	122	344

Source: World Bank (2010a) quoting other sources n.a = not specified

3.15 **Economic impact from infrastructure spending**. If infrastructure investment under the (very optimistic) pragmatic scenario is realized, the impact on economic activity, basic prices, and fiscal sustainability will be quite large. IMF (2010a) uses figures from the pragmatic scenario to compute financing gaps for several additional scenarios (linked to different profiles of concession revenues from iron ore and palm oil). Under the baseline case for natural resources exploitation, fiscal results would deteriorate at a level equivalent to 4 points of GDP per year between 2011 and 2020, leading to a deterioration of the net present value (NPV) of debt from 15.1 percent of GDP in 2011 to 50.4 percent in 2020. Here we introduce some figures and a discussion about the way in which the sheer lack of complementary factors of production (in this case, from insufficient or inadequate power services) bind economic activity, and how such constraints come as result of interactions with other constraints identified in HRV's (2004, 2005) diagnostic tree.

Table 3.4 : Reduction in Power and Transport Cost Inputs for the Urban Economy

	At Peace Accord	End PRS2 (upper bound)	End PRS2 (lower bound)	Beyond PRS2	Overall reduction
Power cost (US$/kWh)	0.32	0.17	0.12	0.08	-75%
	At Peace Accord	End PRS1	End PRS2	Beyond PRS2	Overall reduction
Transport cost (US$)	10,600	10,416	9,236	8,465	-20%

Source: Romo 2011.

3.16 **Liberia's power tariffs are among the highest in Africa—**at US$0.43 kWh, about three times higher than the SSA average. The high costs are a consequence of the nearly complete destruction of power generation and transmission capacity in the country during the civil war. In addition, the available facilities for importing more cost-effective heavy fuel oil were also destroyed, leading to low levels of energy production by means of relatively higher-cost diesel generators. More than 97 percent of firms claim to generate their own electricity, compared to 26 percent in SSA.[27] Even with the extraordinary high cost of energy, the tariffs charged are still below production costs, which are estimated at US$0.77 per kWh, of which US$0.66 are operating costs.

3.17 During the period corresponding to the first PRS (2008-2011), relatively little investment (about US$ 6 million) was made in the power sector, mainly in the construction of four small power stations in areas in or around Monrovia, as part of a donor-funded Emergency Power Program. The Government has an ambitious investment plan for the sector of US$526 million for the next PRS period (2012-2017). However, full restoration of pre-war energy capability requires another US$ 1,299 million. According to World Bank estimates (World Bank 2011d), these investments would bring the cost of power to about US$0.17 kWh in the shorter term, and eventually to US$0.12 kWh (Table 3.4). Investment in the power sector is estimated to have a strong impact on especially the urban economy, with potential to expand annual output from all economic activities by US$30-70 million. Direct returns from the most critical power investments are estimated at 12-24 percent. Compared to investment in roads, the power sector is more attractive in terms of economic returns and contribution to improve productive diversification (World Bank 2011e).

3.18 **Previous attempts to kick-start investment in the energy sector have faced several major challenges.** The Ministry of Land and Mines and Energy has very limited technical capacity in the area of energy, and exhibits a high turnover in key managerial positions. A medium-term strategy for building an efficient, sustainable energy generation system is lacking, with the authorities focused on temporary, expensive solutions, such as those included in the Emergency Power Program. There is little coordination among relevant institutions and the Liberia Electricity Corporation for the design of such a

[27] Based on Investment Climate Assessment data, which in Liberia corresponds to the year 2009 (World Bank 2009). See www.enterprisesurveys.org.

strategy. Further, there are coordination problems even in continuing to import electricity from unreliable external sources such as Cote d'Ivoire. Overall, there is a perception that very little attention is being paid to the energy problem in comparison, for instance, to the road building program—which seems at odds with the apparent much higher return to investment in the energy sector relative to alternative investment opportunities. The Government needs to address this issue to bring about more inclusive growth. Traditional sectors may be able to continue and even scale up production of basic commodities under the current energy situation; however, the development of employment-generating downstream activities, especially in the manufacturing sector, requires affordable energy if products are to be competitive in international markets. Several private entrepreneurs interviewed for this study claim to have been deterred from or delayed in undertaking manufacturing ventures due to the prohibitive costs of electricity. A potentially large-scale investor in the cocoa sector claims to be ready to initiate linked value-added, employment-generating agro-business activities "as soon as [he] observes a steady supply of electricity at a reasonable cost."

3.19 **Geography is not an impediment to building a power structure network**. For example, up to 800 MW of electricity could be generated by a hydropower plant that could be built in the St. Paul river basin between Liberia and Guinea. Such an undertaking would require a strong champion within the Government.

Human Capital

3.20 In natural resource-based economies such as Liberia's, human capital is a decisive factor for sustainable long-term growth, provided that human capital levels are above a minimum threshold. Where there is a serious mismatch between the supply of and demand for skills, however, this mismatch may lead to a decline in the growth rate.[28]

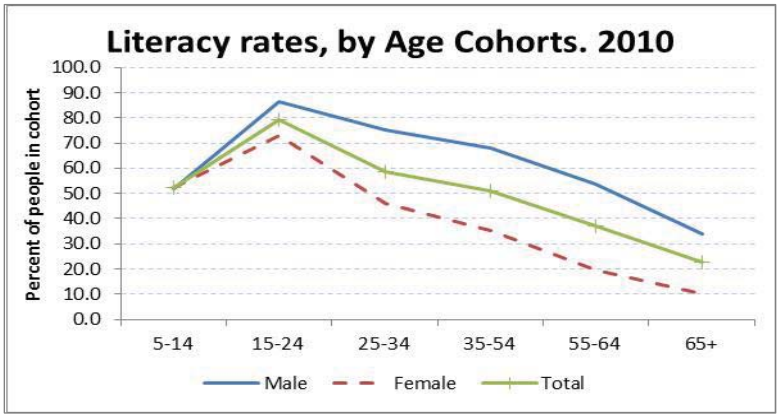
3.21 The analysis shows that in Liberia, this mismatch, in the context of low overall human capital levels, is a binding constraint to inclusive growth. Liberia's human capital was substantially depleted during the prolonged period of war. More than a million people (some 60 percent of the labor force) have not completed primary school, and literacy rates are well below regional averages. In 2010, 56 percent of the working age population was literate, compared to a SSA average of 62 percent (Government of Liberia 2010a, World Bank 2010g). Female literacy ratio in Liberia was even further behind at 44.8 percent, compared to a 53 percent average in SSA.

3.22 Aware that the human capital constraint is likely to become stronger in the near future, when investments in natural resource sectors are reactivated, the Government has been making a concerted effort to rebuild the education system and increase the skill level of the population. The 2008 Population

[28]Bravo-Ortega and de Gregorio (2007) find a connection between human capital levels and the growth effects of natural resources, such that when resource-rich countries have very low levels of human capital, this may lead to a decline the growth rate. From a diagnostic perspective, human capital is binding when (a) we observe high returns to skills and education; (b) there is demand for skilled, educated foreigners who come to work in the country; and (c) firms are willing to develop in-house training programs. All these factors are widely observed in Liberia.

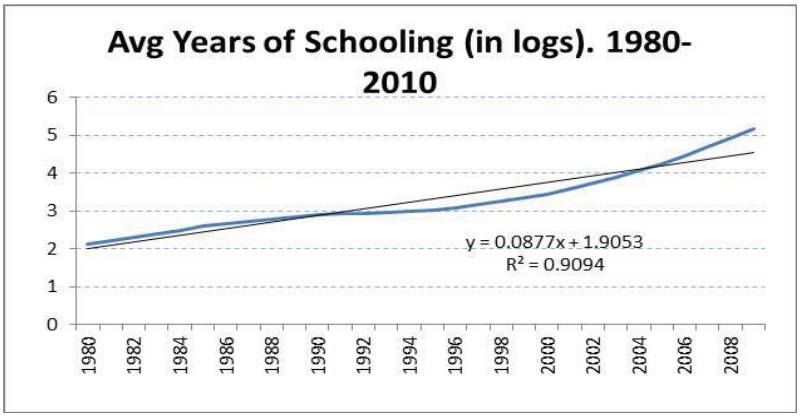
and Housing Census (Government of Liberia 2008) shows a 73 percent literacy rate among the younger working age population (15 to 29 years), compared to only 25.8 percent among older workers (60 to 64 years). The average years of schooling of Liberians over the age of 15 has more than doubled between 1980 and 2010, and is not far from the SSA average (figures 3.6 – 3.8).

Figure 3.6 : Liberia—Literacy Rates by Age Cohort



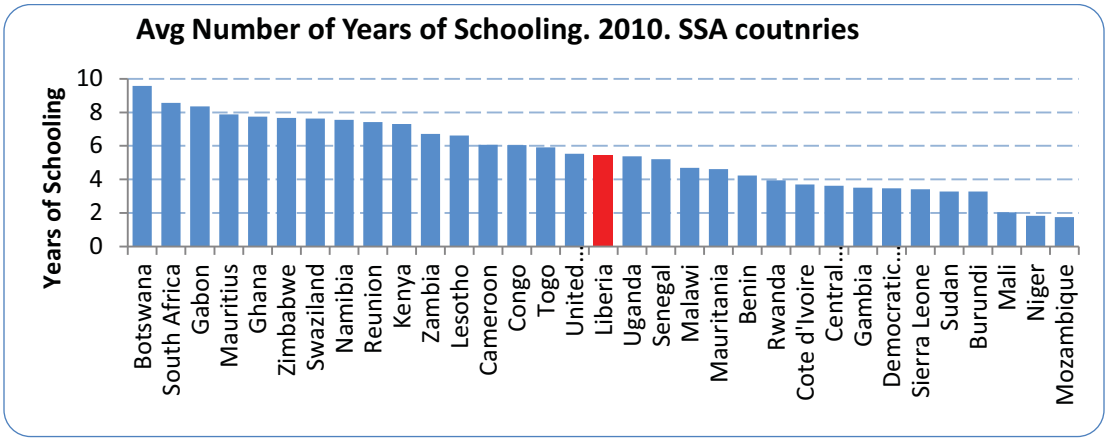
Source: Government of Liberia, Population and Housing Census 2008.

Figure 3.7 : Liberia 1980-2010, Average Years of Schooling



Source: Barro and Lee 2010.

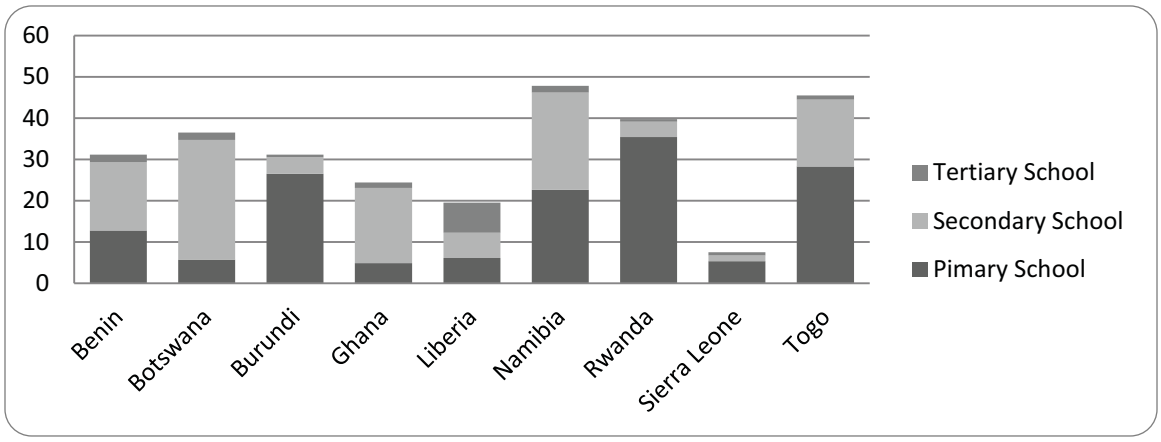
Figure 3.8 : SSA Countries 2010 Average Years of Schooling



Source: World Bank, WDI.

3.23 **However, the quality of education remains a challenge.** Most schools are in need of reconstruction, and the latest available data shows a teacher-to-pupil ratio of 1 to 40.5, with only 40 percent of the teachers having training (Government of Liberia, Ministry of Education 2010). Comparing completion ratios of primary, secondary, and tertiary education, Liberia's results are significantly lower than those for regional and other post-conflict benchmark countries (Figure 3.9).

Figure 3.9 : School Completion Ratios for Selected Countries (percent of population over 15 years)



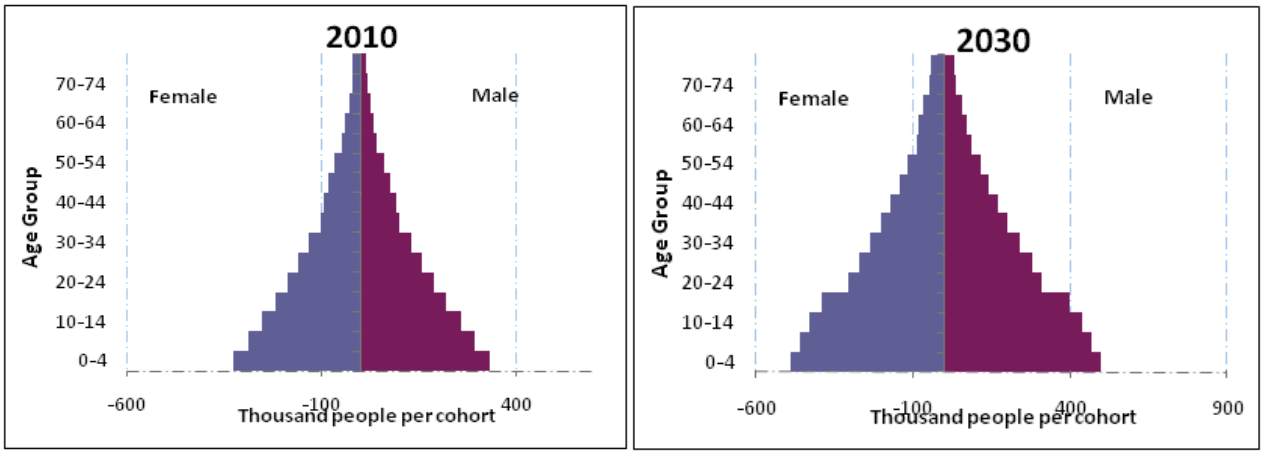
Source: Barro and Lee 2010.

3.24 With regard to human capital formation, Liberia's labor supply will increase rapidly in the short and medium term, as young people reach working age. However, the expected demographic transformation (see above) implies smaller growth in the labor force and a decreasing dependency ratio. Currently, 70 percent of the population in Liberia is below age 30 (Government of Liberia 2008), out of which the "war generation," a group between 15 and 30 years, grew up during the years of civil conflict practically without educational services.[29] Less than 13 percent of the total labor force, estimated at

[29] This cohort did not have formal schooling, yet the data show that 70 percent are literate. This is hard to reconcile, and the issue may need more study.

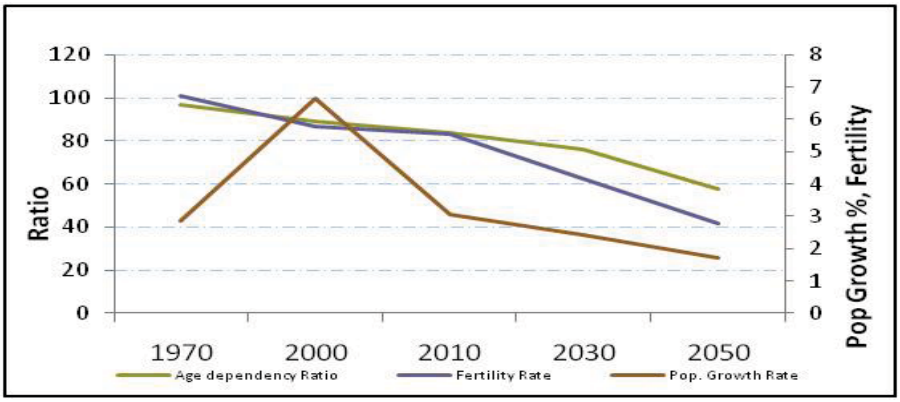
1.13 million,[30] has some vocational training, and 60 percent have not attended any school (Government of Liberia, 2008). Labor market pressures will increase as an estimated 50,000 youth join the labor force every year and the population increases by an expected 50 percent or more by 2030 (figures 3.10 and 3.11).

Figure 3.10: Population Demographics 2010, and Estimates for 2030



Source: Authors' calculations, based on World Bank, HDN data.

Figure 3.11: Demographic Trends and Projections on Fertility, Dependency Ratio and Population Growth in Liberia



Source: Authors calculations, based on World Bank, HDN data

3.25 With a growing labor force, there is already an excess of labor in the market, but a mismatch of skills is preventing the private sector from finding qualified employees. The demand for skilled and, in some cases, even manual labor cannot be met in the current labor market, and both the public and private sectors rely on foreign skills, which are highly remunerated. Since the Peace Agreement in 2003, Liberia has signed more than 30 concession contracts in the mining, commercial and agricultural sectors. Representatives of the National Investment Commission estimate that these concessions will create

[30] The estimates on the size of the labor force from the Employment and Pro-poor Growth paper (World Bank 2010d), using the CWIQ 2007 survey results, are 1.5 million.

some 90,000 direct jobs over the next 10 years.[31] This will not be enough to absorb the growing supply. Further, with the mismatch of labor supply and demand, it is likely that the labor for these jobs will be imported (IMF 2010, Brierley 2010).

3.26 The available data on salaries per level of education in Liberia is limited. However, the measure of weekly wages by the recent Labor Force Survey (Government of Liberia and LISGIS 2010) shows large differences across income groups, implying high returns for higher levels of education. The top 10 percent of paid employees earn more than US$ 500 per week, accounting for 72 percent of all cash earnings, while the bottom 70 percent earn less than US$15 a week. This result is confirmed by anecdotal evidence from firms, development agencies, and government ministries. Some firms report that even labor for simple non-technical tasks is hard to find in the domestic labor market. Many firms have brought in expatriate staff to take over management positions; public agencies are often staffed with donor-funded foreign advisors; and the Government offers special remuneration packages to attract qualified staff from the Diaspora.

3.27 With large expected increases in foreign direct investment (FDI) over the medium term, the private sector is concerned about the availability of even low-skilled manual labor. Some firms are already importing low-skilled labor from other countries in the region, and expect to have to continue this practice if the local supply of low-skilled labor does not increase. The private sector has expressed an interest in providing vocational skills training to ensure a future supply of needed skilled labor.

3.28 Technical and vocational education and training (TVET) will need to be rapidly scaled up, in cooperation with the private sector, to prepare the labor force to benefit from the employment opportunities arising from increasing investment. Since the Peace Agreement, there have been efforts to provide vocational training; however, fragmentation, poor quality, and lack of relevance have resulted in poor outcomes. One exception is the Economic Empowerment of Adolescent Girls (EPAG) initiative (Box 3.2). According to the Labor Force Survey, 255,000 people, representing 14 percent of those aged 15 and over (19 percent of males and 10 percent of females), have had some formal vocational training. The most common fields include computer training (13 percent); tailoring (11 percent); auto mechanics (9 percent); and carpentry (8 percent). According to a TVET tracer study by the International Labour Organization (ILO 2008) 93 percent of TVET institutions in Liberia offer poor quality education; 69 percent of the sample said the training was not relevant; and only 19 percent of graduates had found full time employment. Reasons for unemployment included inadequate training; lack of standardization, certification recognition, and targeted training; and the inability of TVET graduates to apply the skills acquired.

3.29 Governance and management for TVET are inadequate at both the institutional and central government levels, resulting in disconnect between training and labor market needs. There is an immediate need for a system to identify needed competencies and increase coordination between firms and training institutions. As a short-term measure, large investors in each sector (mining, tree crops,

[31] From interviews. No supporting documentation was obtained.

forestry) could be encouraged to come together to contribute to quickly setting up large-scale public-private training institutes to ensure the supply of necessary skills to meet their demand.

Box 3.2 : Empowering Young Women to Take Part in Liberia's Economic Growth

Skills, confidence and connections, is what it has taken to provide an opportunity for Liberian young women to participate in the economic development of their country.

Economic Empowerment of Adolescent Girls (EPAG) is a training program designed jointly by the Government of Liberia, the Nike Foundation, the World Bank, and DANIDA to provide participants with the means to create a sustainable livelihood by equipping them with marketable skills. In addition to the technical skills related a specific profession or running a business, the young women have been learning life skills and have supported in making the transition to productive employment.

Today, 85 percent of the 1,131 girls who completed the six-month training are either working for the private sector or running their own small businesses. Job skills trainees are presently employed at stores, hotels, offices, and other businesses across Greater Monrovia and Kakata, and most of business skills trainees are now running small businesses.

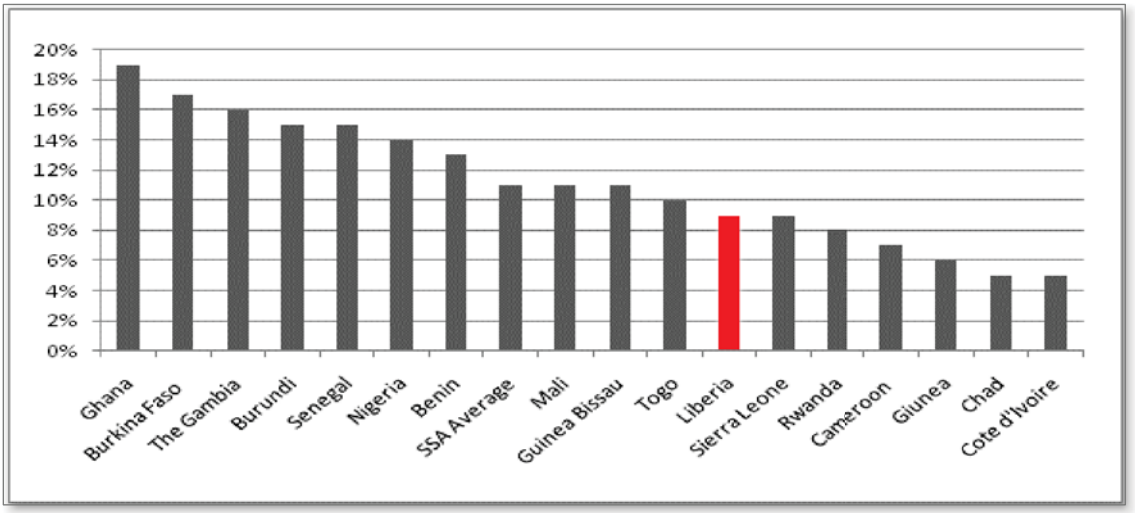
Both Falemah and Loisa have taken their lives into their own hand and have big plans for the future:

Felemah is now a security guard, after completing the EPAG security guard training. Increasing investment in an unsecure environment ensures the demand for qualified, trustworthy guards all over the country. She is a strong young lady with a clear vision. Her plan is to finance her way through university by working as a security guard, study criminal justice, and become the Chief of Police.

Luisa has the skills to benefit from the construction boom after taking the EPAG course in house painting. She is a professional painter and has created a small business with 14 of her classmates. Her teams of painters use their mobile phones to organize business and go around to the many constructions sites in Monrovia, marketing their services. Once the business grows, Luisa and her colleagues are going to establish an office and expand their operations.

3.30 **Over the longer term,** to build the human capacities necessary for Liberia to achieve inclusive growth, the Government and donors will need to increase their focus on the education sector. The Government spent 13.2 percent of recurrent expenditure on education in 2005, which is well below the EFA-FTI (Education for All Fast Track Initiative) benchmark of 20 percent (Government of Liberia, Ministry of Education, 2010). Overall, Liberia's education expenditure was approximately 2.9 percent of GDP per capita, which is below other post-conflict African countries such as Burundi (5.1 percent in 2005), Rwanda (3.8 percent in 2005), Mozambique (3.7 percent in 2004), and Sierra Leone (3.8 percent in 2005). Liberia also lags SSA in terms of per-student spending as a percentage of GDP per capita (Liberia, Country Status Report 2010) (see Figure 3.12).

Figure 3.12: Per Student Spending on Primary Education, Selected West African and Post-Conflict Countries (percent of GDP per capita)



Source: Liberia Education Country Status Report, December 2010.

C. APPROPRIABILITY OF SOCIAL RETURNS

3.31 As explained above, the realization of expected returns from potentially attractive investments can be hindered by a government's inability to provide the necessary macroeconomic stability or business environment suitable for entrepreneurial activity. Furthermore, it may be the case that potential benefits from undertaking activities cannot be *ascertained* by entrepreneurs, as a result of some form of market failure, either from difficulties of ascertaining comparative advantage of new activities *ex ante* (self-discovery problems), or because, even when they know what activities are profitable, they are unable by themselves to line up all the necessary elements to make production possible (coordination problems). In the latter case, all relevant groups of stakeholders may be aware of what needs to be done on every front for a mutually beneficially activity to occur; yet the lack of some coordinating mechanism prevents that from happening, thereby locking the system in a sub-optimal situation of unemployment.

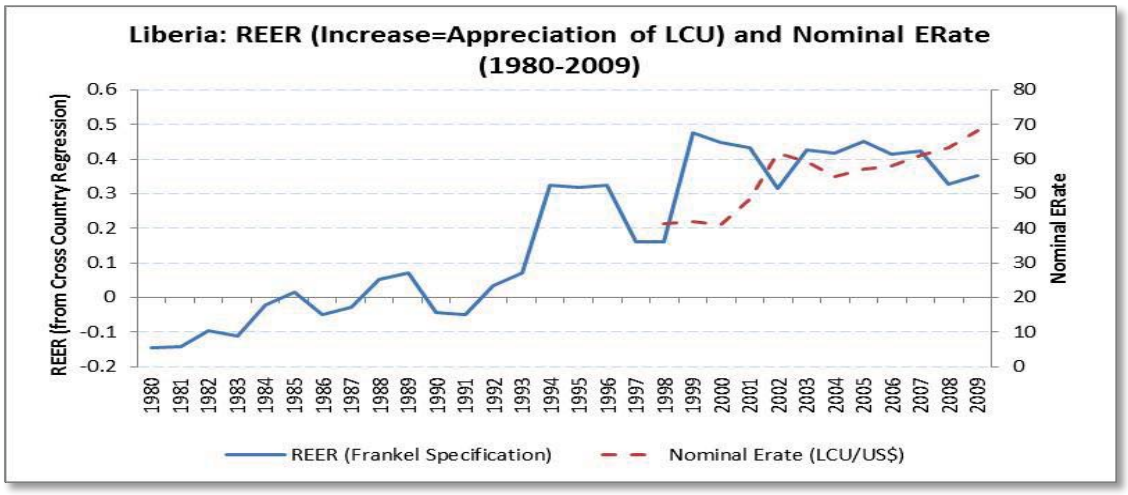
Government Failures: Macro Risks

3.32 **Liberia's post-conflict macro stabilization is completed, but substantial vulnerabilities and challenges remain** (IMF 2010b). Liberia met the HIPC Completion Point requirements in June 2010 (World Bank 2010b), leaving post-Completion Point public debt at just 9 percent of GDP[32] and the country at a low risk of debt distress. Overall growth in the period 2003-2010 has been robust, with reduced variability, compared to the 1990s, averaging 6.1 percent per year (2.1 percent in per capita terms). Recovery has been led by agriculture, with the help of strong prices for the main commodity exports. Terms of trade have evolved favorably, despite upward pressures on international prices for oil and food imports. Increased foreign exchange inflows from aid and FDI have helped stabilize the

[32] Assuming that HIPC terms are offered by remaining non-Paris Club creditors.

exchange rate, and allowed for a modest increase in foreign reserves, despite the increase in the import bill, linked principally to oil and food price rises and to purchases of machinery and equipment. Government revenues have been elastic to output generation, helping maintain a balanced budget despite a hike in current and capital expenditures. Overall inflation appears to be on a decelerating trend and stabilizing around single digit figures, though it remains higher for non-enclave than for enclave sectors. Concerns remain about an appreciating trend in the real effective exchange rate (REER) since 2008 (Figure 3.13), with monetary policy succeeding at reducing the volatility of the nominal exchange rate by means of exchange auction sales. Liquidity monitoring remains important and the banking sector remains highly liquid, with plenty of vault cash and excess required reserves.

Figure 3.13: Liberia Real Effective Exchange Rate Movements



Source: Authors estimations, based on World Bank, WDI data.

3.33 **Liberian authorities have made substantial progress on broad reforms since 2003**. Far-reaching institutional and legal changes have been instituted in public financial management, debt management, the budget process, tax policy, and tax administration. In the financial sector, several legal and regulatory improvements have aimed at strengthening the sector's stability, increasing intermediation, and expanding access to financial services. The legislature also approved a new Commercial Code, the Commercial Courts Act, and a revised Public Procurement and Concession Act. Changes to the Revenue Code were also made in 2009, and other changes are pending. The concession agenda remains quite active, especially in the iron ore and palm oil sectors, and for management of the port in Monrovia. Furthermore, exploration rights have been sold to major foreign oil companies, raising expectations of discovery, especially in light of successful results in neighboring countries. Donors continue to provide technical assistance, leading to improvements in the capacity of public servants. The central bank maintains a conservative, independent yet collaborative stance, and is vigilant regarding developments in prices, exchange rates, and the financial sector.[33] Efforts continue in trade facilitation and in

[33] Yet, the scope for an active monetary policy remains limited due to high levels of dollarization and the lack of monetary instruments. Flexibility of the exchange rate has helped in dealing with shocks, but this has been to the detriment of people who earn and hold local currency, mainly those in the lowest income brackets. The Government's planned introduction of Treasury Bills is expected to ignite a money market development.

advancing multilateral and regional trade arrangements. In the view of the IMF, implementation of a three-year extended credit arrangement is "broadly on track" (IMF, 2010b).[34]

3.34 **Anecdotal evidence points to prudent macroeconomic management.** Representatives from key large private financial and non-financial corporations concur in praising the Government's efforts to stabilize the economy and provide clear signals regarding fiscal, monetary, exchange rate, and trade policy.

3.35 **Despite commendable advances in the macro arena, there is much more to be done.** Next on the reform agenda is implementation of the Public Financial Management Act. A Treasury Bill program is expected to be launched in 2012; regional and multilateral trade negotiations continue to advance; and the national statistics system continues to improve, with ongoing support from the World Bank. Medium-term prospects remain favorable, although they are heavily dependent on the commencement of production from iron ore and timber concessions.

3.36 **Many challenges and macro risks remain**. *First,* the Government needs to play a careful balancing act in implementing its ambitious infrastructure investment program. On the one hand, implementation capacity (including for infrastructure projects) remains a concern, and the limited availability of resources will require careful choices among investment projects. On the other hand, successful infrastructure projects may attract a significant inflow of foreign resources and increase the relative price of non-tradables, with a consequent loss of competitiveness of tradables in the traditional and non-traditional sectors. *Second,* the economy remains highly exposed to external price changes—for both main exports and imported oil and staple foods (primarily rice).[35] *Third,* the Government has yet to make decisions regarding its exchange rate arrangement. The current dual system (a highly dollarized economy) reduces the scope for changes in the exchange rate to promote external stability and competitiveness of the tradable sector, while having the potential (if the Liberian dollar depreciates) to negatively affect people in the lower income brackets, who mostly use the Liberian dollar. If the Government were to decide to enhance the trust in and use of local currency, this would add degrees of freedom to monetary policy to counteract external shocks.

3.37 **There is a major risk of Dutch disease***.* The Government's *fourth* challenge is to incorporate concepts of wealth accounting into its financial programming exercises when measuring the economic and fiscal impact of the concessions to exploit the country's vast stock of natural resources. There is a

[34] On March, 2008, the Executive Board of the International Monetary Fund (IMF) approved a range of measures to complete the steps necessary for Liberia to fully normalize financial relations after more than two decades of protracted arrears to the IMF. The Board's decisions also enabled it to commit financial support amounting to a combined SDR 582 million (about US$952 million), and to agree in principle to designate Liberia as a Decision Point country under the enhanced Heavily Indebted Poor Countries (HIPC) Initiative. Financial support approved by the Executive Board included a three-year, SDR 239.02 million (about US$391 million) arrangement under the Poverty Reduction and Growth Facility (PRGF), and a SDR 342.77 million (about US$561 million) arrangement under the Extended Fund Facility (EFF) in support of the Liberia Government's economic program for 2008-10.

[35] Not to be forgotten is the igniting effect that a proposed increase in the subsidized price of rice, in April 1979, had on events leading to the *coup d'etat* and assassination of President William Tolbert Jr. in April 1980.

serious potential for Dutch disease if large inflows of foreign resources linked to concessions are not managed according to good governance principles.

Government Failures: Micro Risks

3.38 **What are micro risks?** Micro risks encompass a variety of factors that may arise as a result of either actions or failure to act on the part of any level of government. These risks include corruption of government officials; widespread crime, theft, and disorder; lack of enforcement of property rights; general lack of rule of law; failure to provide effective public services; and lack of or excessive regulation.

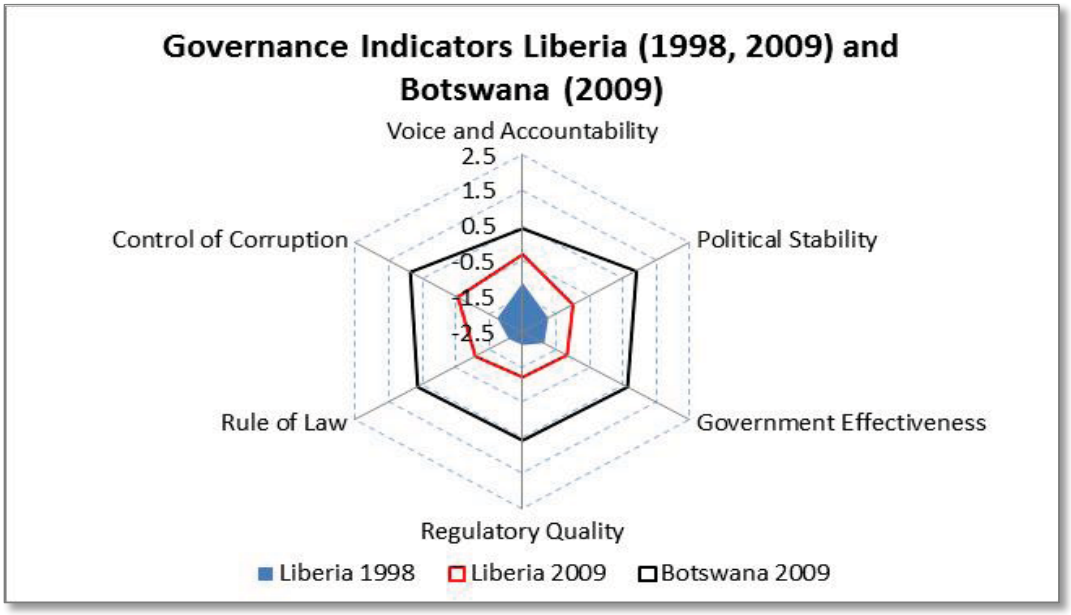
3.39 **Micro risks are a second-order concern**. Liberia ranks 152nd out of 183 countries in the Doing Business Survey (World Bank 2010e).[36] However, this figure says nothing about the sensitivity of investment to changes in the business environment, which could also be associated with government failures. Following the principles for differential diagnosis (Hausmann et al. 2008; also see Appendix 5), what matters for assessing whether a particular constraint is binding is its shadow price, the sensitivity of the analyzed variable to changes in that constraint, the behavior of agents relative to that constraint, or its intensity in successful activities. Notwithstanding, several issues are worth noting. *First,* Liberia's overall Doing Business ranking is better than its relative position in, say, the 2010 Human Development Index or in the 2010 ranking of countries by per capita income level.[37] In fact, in areas of Starting a Business and Paying Taxes, Liberia ranks in the top 50 percent (World Bank 2010e). *Second,* and quite importantly, investors do *not* consider business environment variables as the principal deterrent to undertaking most activities in Liberia. They appear to consider business environment issues to be of secondary importance, but note that some may become of primary concern once some other pressing issues are resolved. Moreover, the business environment has already significantly improved over the last few years. Most notable is the establishment of the Liberia Business Registry, a one-stop service that reduces to two days, in most cases, the time it takes to obtain all necessary documentation for registering a business.

3.40 Governance has significantly improved, but governance failures are still constraining the development of small and medium-size enterprises, in both rural and urban areas. Weak governance structures and widespread corruption have historically been a constraint to development in Liberia. Following the current Government's reform efforts, the six key dimensions of governance (voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption) have been improving (Figure 3.14).[38] However, these improvements have had an asymmetric effect, and have mainly benefited larger enterprises, most of which are focused on the natural resource sectors (mining, tree crops, forestry). These companies operate largely through

[36] Other potential cross-country rankings that provide an idea of the relative ease of doing business and competitiveness, such as the Competitiveness Report (World Economic Forum), do not include data for Liberia.
[37] See World Bank (2010e) and Human Development Index data at http://www.hdi.org.
[38] See http://info.worldbank.org/governance/wgi/index.asp for methodological notes in constructing governance indicators. See also Hausmann et al. (2008) for words of caution about the use of international survey data in growth diagnostics.

concessions contracts, which allow them to get around some of challenges related to land tenure, property rights, and licensing that are a heavier burden on the SME sector. The ability to benefit from economies of scale also gives larger companies an advantage in managing constraints posed by the business environment.

Figure 3.14: Governance Indicators—Liberia and Botswana



Source: World Bank, Governance Indicators, based on Kauffman, Kraay and Mastruzzi 2010.

3.41 At the same time, low capacity, weak public institutions, corruption, and a dysfunctional justice system continue to hinder the growth of SMEs, which are essential for inclusive growth. Although significant improvements have been made in the ease of starting a business,[39] weaker performance is observed in the areas of contract enforcement and property registration. Most interviews with private sector leaders brought up the serious challenges of contract enforcement. This is supported by a low score in Doing Business 2011, where Liberia is ranked 166th out of 183 countries in contract enforcement. The process from filing a claim, through trial and enforcement of a judgment, takes an average of 1,280 days and involves a total 41 steps (World Bank 2011b).

3.42 In terms of property rights, Liberia is among the worst performers in the world. The 2011 Doing Business survey ranks Liberia 176th out of 183 countries in terms of property registration (Figure 3.15). To register property in Liberia requires 10 procedures, takes an average of 50 days, and costs 13.2 percent of the property value. However, there have been recent improvements in both property rights and contract enforcement. A separate Commercial Court has been established to help clear the backlog of cases and improve contract enforcement. The legal and regulatory framework for land tenure and property rights is in the process of modernization, with oversight by the newly established Land Commission.

[39] Between 2008 and 2010, the number of days to start a business fell from 68 in to 20 days and the costs were reduced from 450 percent of per capita income to 53 percent.

Figure 3.15: Liberia Doing Business Ranking



Source: World Bank 2011.

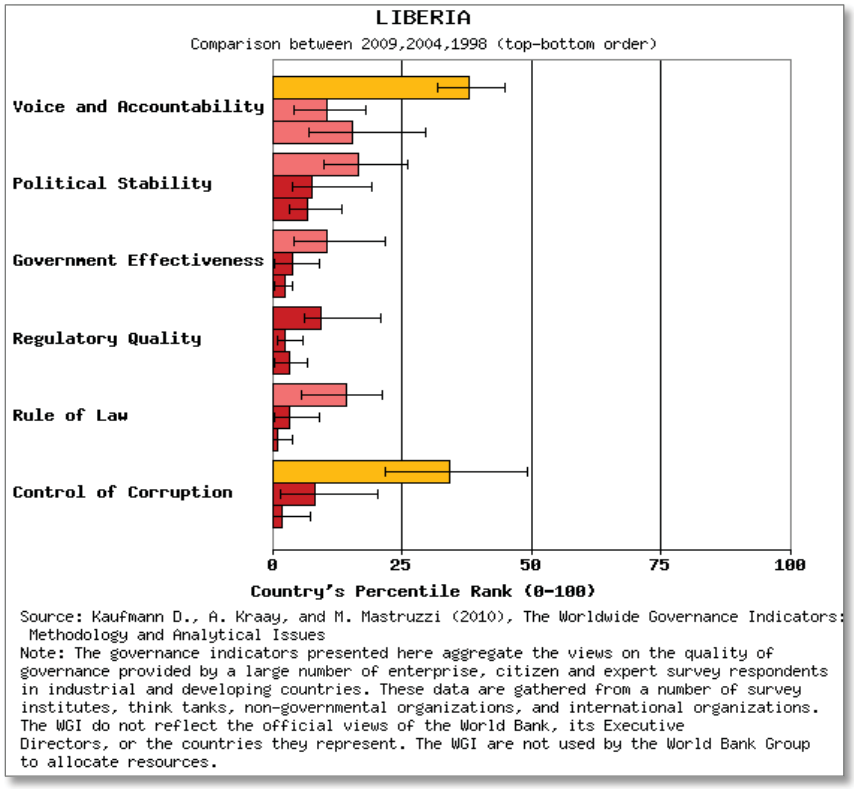
3.43 According to the sustainable economic opportunities indicator in the Mo Ibrahim Index for African Governance,[40] Liberia is one of the worst performers in Africa, ranking 48th out of 53, ahead of only Central African Republic (CAR), Democratic Republic of Congo (DRC), Eritrea, Zimbabwe, and Somalia. Sustainable economic opportunities are measured based on public management, infrastructure, rural development, and environmental sustainability. All of these areas except public management were found to be major weaknesses. Liberia's support for development of the rural economy—specifically, financial services and public resources for agricultural inputs and produce markets—was ranked one of the worst in Africa.

3.44 **There has been progress in controlling corruption; however, governance effectiveness, rule of law, and political stability still pose challenges.** As natural resource rents start to flow, it will be critical for the Government to further strengthen transparency and accountability mechanisms, as well as the capacity to manage public investments.

- Liberia's score on Transparency International's Corruption Perceptions Index increased from 2.4 out of 10 in 2008 to 3.1 in 2009 to 3.3 in 2010. It has made even larger improvements in the Worldwide Governance Indicators (WGI) control of corruption indicator, rising above the SSA average of 34.4 percent in 2009, from just 8.3 percentile in 2004.
- Liberia still scores very low on most other international governance indicators. Compared to the WGI averages for SSA, Liberia lags behind in governance effectiveness, rule of law, regulatory quality, and political stability (Figure 3.16). In the World Bank's Country Policy and Institutional Assessment (CPIA) of 2009 (World Bank 2010f), Liberia ranked 62nd out of 77 IDA countries, with an overall score of 2.9 out of 6. In the Mo Ibrahim Index for African Governance 2008/09, Liberia ranked 38th out of 53 African countries, up from 50th in 2003/04.

[40] The index measures countries' performance according to four broad categories: safety and rule of law; participation and human rights; sustainable economic opportunity, and human development.

Figure 3.16: Liberia Scores on Worldwide Governance Indicators 1998, 2004, 2009



Source: Kaufmann, Kraay and Mastruzzi 2010.

3.45 **Governance failure is not a binding constraint for growth in Liberia at the present time.** If reform efforts are not sustained, however, it may become binding for inclusive growth by hindering development of the SME sector and increasing the risk of mismanagement of natural resource rents.[41]

3.46 **Land tenure issues are of particular interest from an inclusive growth analytical perspective.** As noted in Liberia's Poverty Reduction Strategy (Government of Liberia 2008), "Poverty, land and the environment are inextricably linked. The rural poor of Liberia depend almost entirely upon land and other natural resources for their livelihoods. Unequal access to and ownership of land and other resources have contributed significantly to economic and political inequities throughout Liberia's history, and have exacerbated tensions and conflict." Weak governance of land resources increases the risk of instability in the future, particularly when large new concession areas are granted without proper verification of land ownership.

[41] Collier and Goderis (2007) find strong evidence of a resource curse, with commodity booms having positive short-term effects on output, but adverse long-term effects. The long-term effects are confined to "high-rent," non-agricultural commodities. Within this group, we find that the resource curse is avoided by countries with sufficiently good institutions. The recent presidential elections (October 2011), held in a peaceful environment under widely agreed conditions of fairness and transparency, constitute a re-affirmation of investor's perceptions about renewed political stability in the country. Under these circumstances, Liberia will have the opportunity to build a governance structure that catalyzes inclusive growth in years to come.

3.47 According to the PRS: "The existing systems of land acquisition favor the wealthy and the elite. Women, in particular, have had limited land and resource rights—16 percent of women compared to 33 percent of men own land. Smallholder farmers, who make up the majority of Liberia's rural population, require access and security of tenure to move beyond subsistence farming into more profitable and sustainable livelihoods that will achieve food security and increase export crop production." More than 60 percent of the working rural population (close to 50 percent of the total, urban and rural) claim that primary activities—crop farming, livestock/poultry raising, forestry/ logging, and fishing—constitute their main source of income (World Bank 2010d), which clearly requires having access to land, forests, and coastal waters. Nearly all of these workers are in the informal sector. Based on data from the Comprehensive Food Security and Nutrition Survey (2006), as quoted by (World Bank, 2010d), 66 percent of the sample reported having access to land, but 41 percent of those respondents "reported that farm sizes were smaller than what they had prior to the war. In terms of security of tenure, the majority of households (67 percent) did not have deeds for the land to which they currently have access." The majority of agricultural households have reported lack of seeds, tools, and financial capital in general as the main constraints to undertaking or scaling up their activities. In turn, the inability to finance the acquisition of inputs directly relates, in many cases, precisely to not having property rights (which can be used as collateral for loans) over the land they work.

3.48 **Land occupation and land security are among the most sensitive and important policy issues for achieving rapid inclusive and sustainable growth, and for consolidating peace and security**. The legal and regulatory framework for land tenure is particularly weak. The Land Law combines a customary and a civil system, with no clear distinction between public and communal land, and very little institutional capacity for land management and administration or dispute resolution. Land policy issues are complex, as they are intertwined with issues related to concessions (i.e., agriculture vs. mining), and, as noted in the PRS, will have important consequences for maintaining peace and stability, poverty reduction, employment and output generation, and inclusive growth (Government of Liberia 2008). Liberia is in the process of devising a comprehensive national strategy on land allocation and use, which will cover private use, community use, concessions, and government-owned land. Coordination and cooperation among the different ministries and agencies (Agriculture; Lands, Mines and Energy; Internal Affairs; Public Works; Justice; Environmental Protection Agency; and Forestry Development Authority), as well as with private sector actors, local governments, and communities will be necessary to ensure the peaceful resolution of overlapping and conflicting claims.

3.49 Concession areas, currently allocated under the Eminent Doman Law, now cover 40 percent of Liberia's territory, which is double the historical 20 percent (World Bank 2011c, IMF 2010a). The Government is cognizant of the issue, and has established a Land Commission to spearhead the legal and regulatory reforms and ensure that they promote equal access to land resources. The Commission is also developing management and administrative systems for land issues; dispute resolution mechanisms to improve security of tenure; an inventory of current land use; and a land registry system to support a viable land market.

Market Failures: Information Externalities

3.50 **The problem of self-discovery**. Hausmann and Rodrik (2002) introduce the term "self-discovery" to refer to the process whereby a product, technology, or service that is known and economically exploited elsewhere in the world is successfully introduced or adapted in the analyzed country. Such a process is prone to information (negative) externalities, leading to non-laissez faire outcomes, as too little investment and entrepreneurship may arise ex ante. This may be so because some necessary non-tradable inputs are, in all likelihood, not available (or there is no knowledge on how to use them in the production process), so the entrepreneurs/innovators have to incur "discovery" costs to find out how to make such production viable in the country. As the discovery process takes place, new entrants can benefit from the information spillover, reducing the expected benefits to the innovator by not allowing for the recovery of costs. Thus, people may not know what a country could be good at producing, or having such knowledge, may not be willing to invest.

3.51 **It is hard to find evidence on problems of self-discovery**. In attempting to understand whether information externalities from self-discoveries constitute a main binding constraint to economic activity, we are referring to activities *that are not there*, precisely because, as some non-tradable inputs (human skills, services, or other) are not available, data on products that would use these inputs do not exist. Since the product is not there, there is no demand for it, which leads to further "chicken and egg" or coordination problems (to which we refer in the next sub-section). Nevertheless, an empirical approach has been proposed to assess the extent to which self-discovery issues are binding, based on cross-country goods export data, and using export diversification analysis tools. Quoting Hausmann et al. (2008):

3.52 "It is possible to have a sense of how serious these [self-discovery] problems might be in a given context by noting that the supply of non-tradable inputs determines the areas in which a country can express its comparative advantage. Countries with a limited set of these inputs or capabilities will have comparative advantage in few, relatively simple products [that are also] exported by other poor countries. By contrast, if a country has an ample set of these non-tradable inputs, it will have comparative advantage in more complex products. One possible measure of the sophistication of a country's comparative advantage is the GDP per capita of its competitors on a product-by-product basis." This measure, proposed in Hausmann, Hwang and Rodrik (2005) (called EXPY), calculates the weighted average of the GDP per capita of a product's exporters and then averages it for the export basket of a country. Their paper shows that a country's GDP per capita tends to converge towards its EXPY. Countries with a low EXPY for its level of income tend to grow more slowly.

3.53 **Revealed comparative advantage**. Export data can also be used to ascertain the "revealed comparative advantage" (RCA) of products or groups of products, as defined by Balassa (1965).[42] A country is said to have RCA in a given product if the country's world share of exports of such product is

[42] Balassa's (1965) measure of relative export performance by country and industry is defined as a country's share of world exports of a good divided by its share of total world exports. The index for country i good j is RCAij = 100(Xij /Xwj)/(Xit /Xwt) where Xab is exports by country (w=world) of good b (t=total for all goods).

"z" times or higher (normally z=1) than the country's total export share in world exports. RCA can be analyzed for different periods of time. This way, the following classification can be established:

- If a country exhibits RCA (z≥1) for a product or group of products in an initial period of time (say, the decade of the 1970s) and also exhibits RCA for the next period (say, the decade of 2000s), the product is considered to be a "classic" product. The country sustains RCA over long periods of time.

- A product with RCA in the initial period of time and no RCA in the next period of time is called a "disappearing" product. For some reason (exhaustion of some necessary input, loss of competitiveness, etc.), the country is unable to keep up in producing the product compared to the rest of the world.

- A product with no RCA in either the initial or the next period of time is called a "marginal" product. The country has never been a "player" (in relative terms) in the world supply of the product.

- A product with no RCA in the initial period and RCA in the next period is called an "emerging" product. As will be explained, this is the type of product that is seen more in a country that self-discovers what it is good at producing.

3.54 **Export data and self-discovery**. The concept of RCA and the classification suggested above are useful for empirically assessing issues of self-discovery. A country in which problems of self-discovery are not binding would tend to exhibit an increasing number of products with RCA over time, as an economy diversifies and moves to new, hopefully higher value-added products. Hausmann et al. (2005) offer empirical evidence that favors the hypothesis that moving from products that are purchased by low-income countries to products purchased by high-income countries—that is, from low to high EXPY baskets—is positive for output growth.

3.55 **Results for Liberia**. We have conducted an export sophistication analysis based on COMTRADE mirror data,[43] using SITC 3-digit level information on products,[44] and generated time series of exports and related concepts, such as PRODY, EXPY, RCAs, and the Herfindahl-Hirschmann Index of Export Diversification.[45] Results are shown below in figures 3.17–3.20 and Table 3.5. The top five exported products represent more than three-quarters of Liberia's exports during the analyzed period (1978-2009). These are products of an implicit low income value (as expressed by their PRODY), leading to an historical low value of Liberia's income basket (EXPY). Figure 3.18 compares the PRODY of selected primary products that, based on available resources, constitute Liberia's main exportable products (such as natural rubber, wood, iron ore) or have the potential to become leading exportable products (cocoa,

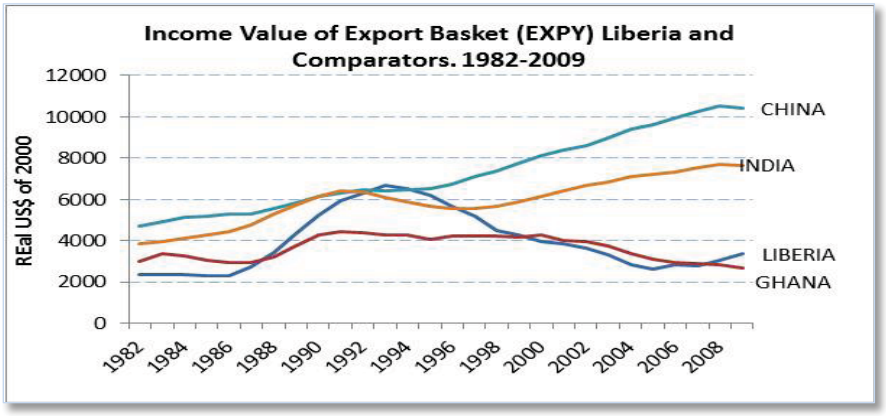
[43] http://comtrade.un.org/ Mirror data means that, instead of using exports of products recorded by each country by time period, one aggregates what the rest of the world claims to have imported from the analyzed economy, by product and year. This is based on the idea that import data tend to be more reliable than export information.
[44] http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=14.
[45] See Appendix 8 for methodological notes.

coffee). Figure 3.18 also shows the PRODY of value-added products that use these products as the main input (chocolate from cocoa, furniture from wood, tires from natural rubber, and so on). The latter are products of implicitly much higher income value. Based on empirical findings from Hausmann et al. (2005), this means that, by specializing in such products, Liberia has had the opportunity to push forward its technological frontier and move onto a faster growth path towards a hypothetically higher steady state of per capita income. This has not been the case, however. As shown in Table 3.5, Liberia has not developed "new" products with RCA. An evident candidate explanation for these results is the lack of complementary factors of production, mainly infrastructure and skilled labor. For instance, products such as iron bars and chocolate cannot be produced without a reliable electricity supply, which is lacking in Liberia. And, as explained in the section on human capital, firms have expressed disappointment over their inability to find local skilled workers to employ in higher value-added activities. Producers of primary products may perceive it as advantageous to ship these products abroad, where downstream, value-added products can be manufactured on more competitive terms.

3.56 On closer examination, many impediments to developing value-added sectors connected to natural resources could be solved with better coordination among key players, including government, producers of primary products, and other private stakeholders. At this point, it is not easy to discern how much of the failure to profitably undertake the development of new products is derived from the inability of individual firms to procure skills and infrastructure services; how much from fears of entrepreneurs of not being able to recoup initial costs or of seeing their benefits eroded from competition; and how much from "simple" lack of coordination for the development of potentially attractive new activities. These issues will be discussed further in the next sub-section.

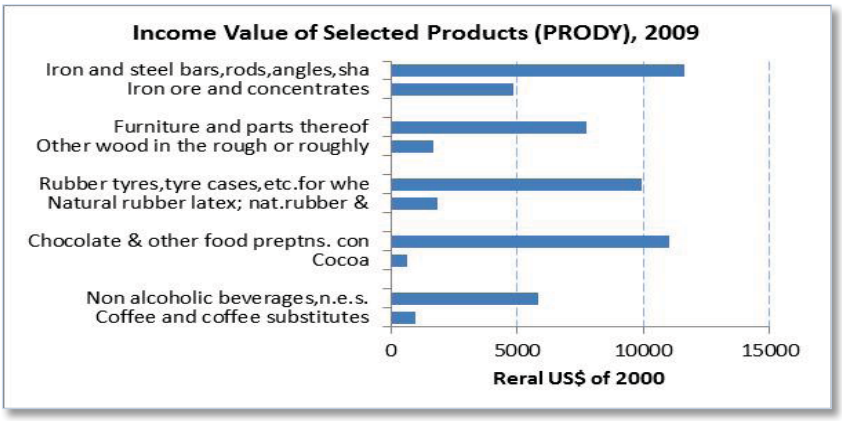
3.57 On the issue of information externalities, the almost absolute lack of new export discoveries (emerging products) in Liberia over the past few decades argues for the consideration of public policy for promoting the development of new economic activities. But in order to avoid the much-feared practice of "picking winners" (which opens the door to issues of cronyism and rent seeking), several technically driven criteria should be applied. This is, admittedly, not an easy task. The export-data based analysis of export sophistication (Hausmann et al. 2005) together with the analysis of the product space (Hidalgo et al. 2007); and the Growth Identification and Facilitation Framework, GIFF (World Bank 2011a) constitute two such technical approaches. (See Appendix 8 for a discussion on export sophistication and the product space.) The GIFF operationalizes key insights of the New Structural Economics (Lin 2010) "by developing a methodology for identifying sectors where the country may have a latent comparative advantage, and removing binding constraints to facilitate private firms' entry into those industries." This analytical framework links the identification of potentially attractive sectors and activities (in terms of growth) and their binding constraints, and should be considered as a candidate for furthering the macro work on binding constraints presented here.

Figure 3.17: Income Value of Export Basket for Liberia and Selected Comparators



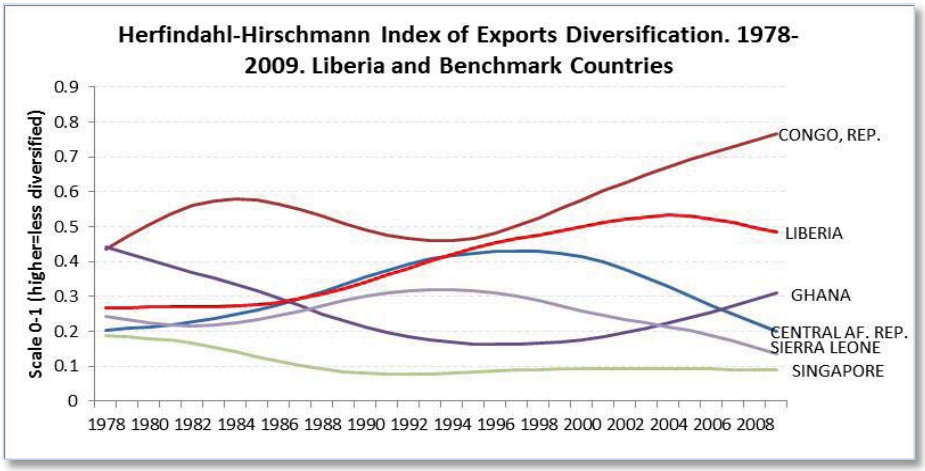
Source: Authors' calculations, based on COMTRADE data.

Figure 3.18: Liberia—Income Value of Selected Products (PRODY)



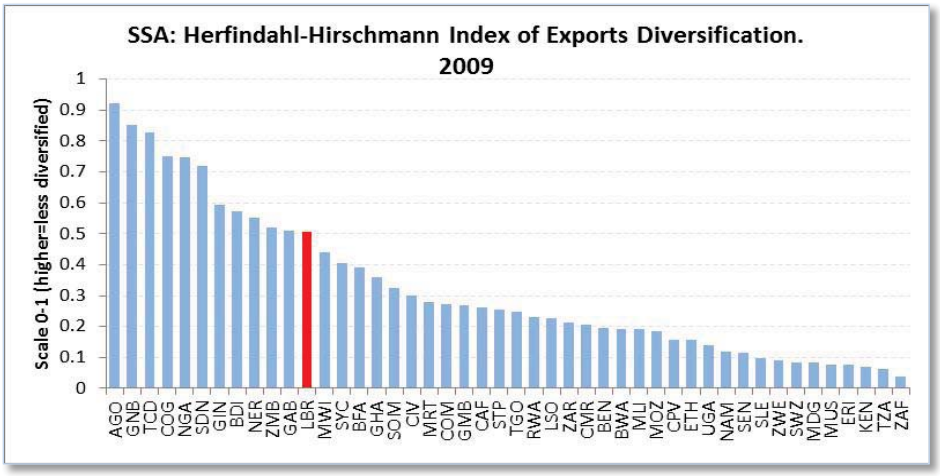
Source: Authors' calculations, based on COMTRADE data.

Figure 3.19: Herfindahl-Hirschmann Index of Export Diversification



Source: Authors calculations, based on COMTRADE data.

Figure 3.20: Herfindahl-Hirschmann Index of Export Diversification for SSA



Source: Authors calculations based on COMTRADE data.

Table 3.5 : Liberia—Classification of Exports According to Evolution Of their relative comparative advantages in the 2000s vs 1970s

"Classic" Products Groups		
SITC 3-digit code	SITC Group Name	Share on Exports in 2000-09
72	Cocoa	1.2%
232	Natural rubber latex; nat.rubber &	42.9%
247	Other wood in the rough or roughly	12.6%
281	Iron ore and concentrates	1.8%
667	Pearls,precious& semi-prec.stones,u	3.4%
Total share, "Classics"		**61.9%**
"Emerging" Products Groups		
SITC 3-digit code	SITC Group Name	Share on Exports in 2000-09
233	Synth.rubb.lat.;synth.rubb.& reclai	0.5%
282	Waste and scrap metal of iron or st	1.9%
Total share, Emerging"		**2.5%**
"Disappearing" Products Groups		
SITC 3-digit code	SITC Group Name	Share on Exports in 2000-09
36	Crustaceans and molluscs,fresh,chil	0.0%
71	Coffee and coffee substitutes	0.1%
246	Pulpwood (including chips and wood	0.1%
248	Wood,simply worked,and railway slee	0.6%
277	Natural abrasives,n.e.s (incl.indus	0.0%
424	Other fixed vegetable oils,fluid or	0.1%
572	Explosives and pyrotechnic products	0.0%
941	Animals,live,n.e.s.,incl. zoo-anima	0.0%
Total share, Disappearances		**0.9%**
"Marginal" Producs Group (Each with share>0.1% exports)		
SITC 3-digit code	SITC Group Name	Share on Exports in 2000-09
263	Cotton	0.4%
288	Non-ferrous base metal waste and sc	0.4%
333	Petrol.oils,crude,& c.o.obtain.from	21.1%
334	Petroleum products,refined	4.5%
562	Fertilizers,manufactured	1.1%
971	Gold,non-monetary	1.0%
Total share, Disappearances		**28.5%**
Marginals (Each with share<0.1% exports)		
SITC 3-digit code	SITC Group Name	Share on Exports in 2000-09
204 product groups with share on total exports		**6.3%**
Source: Authors' calculations based on COMTRADE mirror data.		
See appendix for methodological notes		

Market Failures: Coordination Externalities

3.58 To become profitable, many (new) products require coordinated large-scale investments, which cannot be undertaken by a single entrepreneur. Profitable new industries can fail to develop unless upstream and downstream investments are planned simultaneously. More generally, coordination failures can arise whenever new industries exhibit scale economies and some of the inputs are non-tradable. This is a phenomenon characteristic of low-income countries, and favors some sort of public intervention. The cluster approach for instance, and the development of Export Processing Zones, constitute narrower interpretations of this idea. As explained by Rodrik (2004) "…when the industry in question is highly organized and the benefits of the needed investments can be localized, this coordination can be achieved within the private sector, without the government playing a specific role. But more commonly, with a nascent industry and a private sector that has yet to be organized, a government role will be required."

3.59 From the practical point of view, the depth of coordination failures in an economy can be ascertained when different stakeholders, including government officials, would-be private entrepreneurs, bankers, and the public express their disappointment about "things that fail to happen" or about "lack of coordination" to undertake an activity which, in their view, has strong potential to help improve the standard of living of a nation over the long term. In the case of Liberia, lack of coordination is an ubiquitous phenomenon—one that has been identified in the interaction (or lack of thereof) between government and the private sector, within government, within the private sector, between government officials and development partners, and even among development partners.

3.60 Part of the analytical work currently being conducted in support of Government policy aims at understanding the resource needs and necessary linkages between government and the private sector, and also among private entrepreneurs, in key areas of the economy. The emphasis has been on identifying the infrastructure gaps and resource potential of different geographic areas within Liberia; for example, the Development Corridor study (Government of Liberia 2010) and the Infrastructure Analytical Report (World Bank 2011). But more effort is needed, especially in identifying new activities and in establishing mechanisms to overcome coordination failures.

3.61 Coordination problems extend to every part of the inclusive growth diagnostic tree. A number of examples were cited during the consultations carried out for this report. A few are summarized below:

3.62 **Example 1. Coordination for human capital accumulation**. Interviews with representatives from large corporations operating in traditional, resource-rich sectors express their dismay at not being able to find skilled workers to employ in many operational and technical areas of the business. "Everyone wants to be a lawyer and work in the big city," claims a representative from Arcelor Mittal, a leader producer of iron ore in Liberia. "But you can't find plumbers, carpenters, electricians or mining operators, let alone engineers and natural scientists." What otherwise could be associated exclusively with problems of human capital levels and skills mismatch (both binding constraints to investment in Liberia) has important implications for other areas of policy, particularly when actions that could contribute to solving these issues are not being taken, due to lack of coordination among relevant

stakeholders. Large corporations have expressed their willingness to implement in-house training programs, which would contribute in the formation of a skilled labor supply. Representatives from Arcelor Mittal, for instance, expressed their willingness to undertake such programs, if agreement with the government regarding co-funding, standards and types of training can be reached.

3.63 **Example 2. Coordination in infrastructure**. As discussed above, Liberia's public power generation system is, for all practical purposes, nonexistent, even though resources are plentiful. Financial needs are great, and donors, including the World Bank and the Government of Norway, have pledged support for building a power grid, but this has failed to occur. Reasons include a lack of agreement on targeted sectors or areas of the economy; lack of a champion to implement policy in the sector; and lack of coordination among government authorities and with Liberian Electricity Corporation to implement a power plan. Although an important amount of analytical work has been focused on reducing coordination problems in the power sector and other traditional infrastructure activities, very little has been done in non-traditional activities (to support information technology for example).

3.64 **Example 3. Coordination in Government policy**. Officials from many different ministries (Labor, Planning and Economic Affairs, Finance, Public Works, etc.) were interviewed in the course of this research. In every case, it took no more than five minutes for coordination issues to be mentioned. The following are quotations from such interviews: "Within ministries we are very territorial" (Ministry of Labour); "We can't move land reform policy faster because we can't get people from different ministries to agree on key subjects?" (Land Commission); "It is hard to get technical and analytical reports from other ministries….sometimes we get them through the World Bank" (Ministry of Planning and Economic Affairs).

3.65 **Example 4. Coordination among donors**. There are many donor initiatives in the areas of education and social protection, mainly small scale and of short to medium duration. Such activities are not adequately coordinated among donors, and there is no government entity in charge of donor interventions. As a result, one can encounter different organizations duplicating efforts or doing operational work that could certainly benefit from coordination and exchange of information.

Other Complexities

3.66 Coordination problems affect return on investment and entrepreneurial activity in a number of areas, which makes the diagnostic exercise inherently complex. Returns are not constrained by a single element, or by a group of elements that influence them separately, in an additive manner. Nor do these elements affect all activities and economic actors equally. Instead, constraints can interact, reinforce each other, and have different degrees of relevance across activities and individuals. In the case of Liberia, we observe a vicious circle, or negative interaction, among three groups of elements, which prevents new employment-generating, growth-enhancing, technology-pushing activities from flourishing.

- First, there is a lack of complementary factors of production (physical and human capital) that would make it possible to introduce new activities or scale up and increase productivity in traditional, existing sectors;

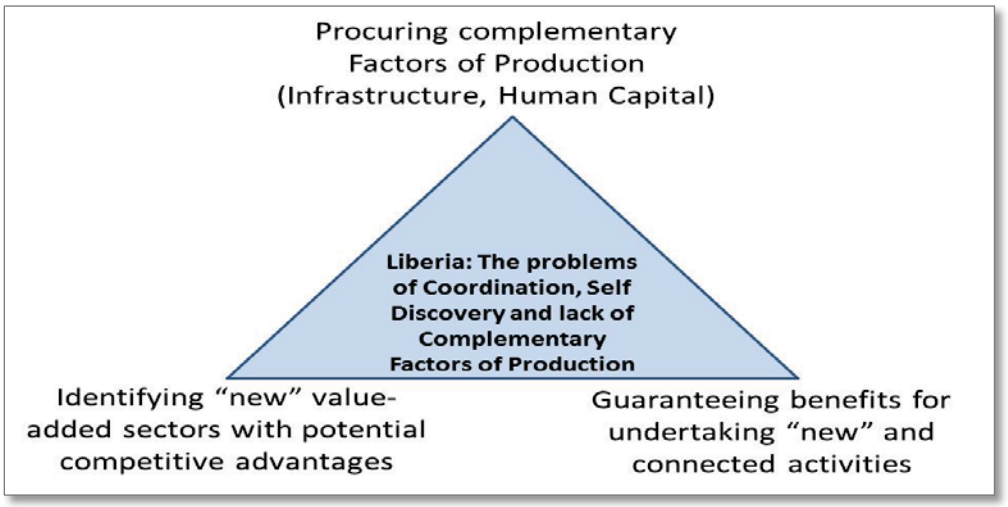
- Second, there are problems of identifying "new" profitable economic activities with potential comparative advantages (self-discovery);

- Third, linked to the second issue,[46] there is the question of how to guarantee adequate returns to investors in new ventures, given the likelihood that the discoverer will not be able to recover costs and enjoy extraordinary benefits due to market or government failures.

3.67 Encompassing all these problems, there is the issue of coordination itself, which worsens these negative interactions and limits government's ability to carry out effective policy for diversification, transformation, and employment generation. On top of all these factors, each activity may also be affected by one or more additional binding constraints, as revealed by the diagnostic (Figure 3.21).

3.68 The observance of serious failures in coordination opens the door for considering a role for industrial policy. See Box 3.3, based on Rodrik's (2004c) advice for wise industrial policymaking.

Figure 3.21: Procuring Complementary Factors of Production



[46] Normally, the issue of self-discovery directly involves the problem of the inability of entrepreneurs to recover costs and enjoy a reward (in terms of extraordinary benefits) from undertaking risky ventures, so the second and third problems can be seen as one. We have made the distinction here because we want to highlight the extent of both problems: identifying what Liberia may be good at producing, and then providing the economic incentive to undertake such activities. Hausmann and Rodrik (2002) may disagree.

Box 3.3 : A View on Industrial Policy for the 21st Century

The conventional approach to industrial policy "consists of enumerating technological and other externalities and then targeting policy interventions on these market failures" (Rodrik 2004c).* The discussion then "revolves around the administrative and fiscal feasibility of these policy interventions, their informational requirements, their political-economy consequences, and so on". A central argument of Rodrik is that the task of industrial policy is as much about eliciting information from the private sector on significant externalities and their remedies as it is about implementing appropriate policies. The right model for industrial policy is not that of an autonomous government applying taxes or subsidies, but of strategic collaboration between the private sector and the government with the aim of uncovering where the most significant obstacles to restructuring lie and what type of interventions are most likely to remove them. Correspondingly, the analysis of industrial policy needs to focus not on the policy outcomes—which are inherently unknowable ex ante—but on getting the policy process right. The challenge is to design a setting in which private and public actors come together to solve problems in the productive sphere, each side learning about the opportunities and constraints faced by the other, and not about whether the right tool for industrial policy is, say, directed credit or R&D subsidies or whether it is the steel industry that ought to be promoted or the software industry."

Rodrik (2004c) suggests three main guidelines for the design and implementation of industrial policy:

First, approach industrial policy as a discovery process, in which firms and the government learn about underlying costs and opportunities and engage in strategic coordination. Under this view, the typical retort about governments' inability to pick winners becomes irrelevant. Government acknowledges its imperfect information, but so does the private sector. It is precisely the information externalities generated by ignorance in the private sector that creates a useful public role—even when the public sector has worse information than the private sector. Similarly, the idea that government needs to keep private firms at arms' length to minimize corruption and rent-seeking gets "turned on its head," as Rodrik (2004c) notes. "Yes, the government needs to maintain its autonomy from private interests. But it can elicit useful information from the private sector only when it is engaged in an ongoing relationship with it—a situation that has been termed 'embedded autonomy' by the sociologist Peter Evans (1995)." *Second, Industrial Policy should come as a "carrot-and-stick" strategy,* as proposed by Hausmann and Rodrik (2002). Since self-discovery requires that rents be provided to entrepreneurs, one side of the policy has to take the form of a carrot. This can be a subsidy of some kind, trade protection, or the provision of venture capital. To ensure that mistakes are not perpetuated and bad projects are phased out, these rents must, in turn, be subject either to performance requirements (for example, a requirement to export), or close monitoring. In other words, there has to be a stick to discipline opportunistic action by the recipient of the subsidy. *Third, government stance should be one not of picking winners, but of knowing when it has a loser*

*We use Rodrik's (2004c) definition of Industrial Policy, namely, restructuring policies in favor of more dynamic activities generally, regardless of whether those are located within industry or manufacturing per se… [as] there is no evidence that the types of market failures that call for industrial policy are located predominantly in industry.

D. FINANCE

3.69 In this section, we analyze whether Liberia is a finance-constrained economy; that is, one in which even high-return investment opportunities cannot be undertaken because the cost of finance is very high or because access to capital is quite limited. In other words, is it an economy in which, compared to its needs, insufficient financial resources are available to carry on growth-enhancing investments?

3.70 We look at a set of macro and micro financial variables in order to ascertain the extent to which they are binding constraints to economic activity. Following the Hausmann et al. (2004, 2005)

framework; two types of candidate hypotheses are examined: one that refers to inadequate access to savings, and another that points to inefficiencies in the process of financial intermediation.

Access to Finance

3.71 Savings can originate domestically, at the private sector level, once consumption is deducted from disposable income; or at the government level, in the form of budget surplus. Or savings can originate from foreign sources, in the form of official aid, net private transfers, and net income.

3.72 Gross domestic savings as a share of GDP have been negative in Liberia for many years, reflecting the substantial dis-saving during the years of conflict. These savings represented less than 5 percent of GDP in the mid-2000s. Average gross national income per capita was just over US$ 300 in 2009 at parity purchasing prices—that is, less than US$ 1 per day, which is 20 percent below the internationally defined poverty line. According to a recent population-based survey (UC Berkeley 2008), 89 percent of Liberians have incomes under the US$1.25 a day poverty line. Simply put, most Liberians have to use all of their current income to procure a minimum of goods or services to survive, which severely limits their ability to accumulate resources for investment.

3.73 The government's current account balance has been negative in the 2000s, as tax revenues (mainly from international trade, income tax, and, to a lesser extent, sales tax) have been insufficient to cover current expenditures. Non-tax revenues and grants have helped to close the gap from the revenue side, but considering capital expenditures, the overall balance remains slightly negative. According to IMF (2010a), a substantial increase in non-tax revenues, mainly from concessions—expected to be in excess of 8 percent of GDP for the period 2011-2015—will allow for a ramping up capital expenditures to spur growth. However, as discussed above, there is a financing gap for infrastructure needs alone of about 4 percent of GDP.

3.74 Liberia's low levels of domestic savings are compensated by significant inflows in the form of foreign aid. To this can be added the expected non-tax revenues from concessions in traditional sectors, and foreign currency and fiscal revenues linked to newly discovered oil. We have used empirical results from Collier and Hoeffler (2002) to estimate what the authors call "saturation point" aid (the point at which the positive impact of aid falls to zero), and compare it with actual foreign inflows for this concept for the period 1986-2009. Results indicate that foreign revenues exceeded their saturation point (Figure 3.22). Liberia's foreign savings, therefore, certainly help bridge the financing gap. The extent to which that gap will be closed will depend on the extraordinary financing linked to traditional sectors and potential oil finds.

3.75 In fact, one could extend the exercise on potential growth performed under Section 2 to estimate an implied need for foreign financing resources that is consistent with a given average growth rate of total GDP, for defined levels of capital formation and domestic financing.[47] For a scenario of total GDP growth of 7 percent per year between 2010 and 2030, and considering an increase in the ratio of

[47] Using the macro-defined savings-investment identity, the foreign savings consistent with a growth rate of total GDP can be estimated for given targets of investment and reasonable assumptions on domestic savings.

gross capital formation to GDP of up to 20 percent in 2030, plus gross domestic savings equivalent of 5 percent of GDP, the required foreign net financing over the next two decades would be equivalent to 10 percent of GDP.

3.76 In sum, Liberia's growth is not starved from lack of financing resources. Financing needs are and will be substantial in comparison with the size of the economy (Figure 3.23), but resources are flowing in and will continue to do so in years to come, from aid and from foreign direct investment in the natural resource sectors. Furthermore, as of today (February 2012), financial institutions are very liquid, and are positioning themselves in the domestic market with expectations of an explosion of the credit market.

Figure 3.22: Liberia Actual Foreign Aid versus Saturation Point

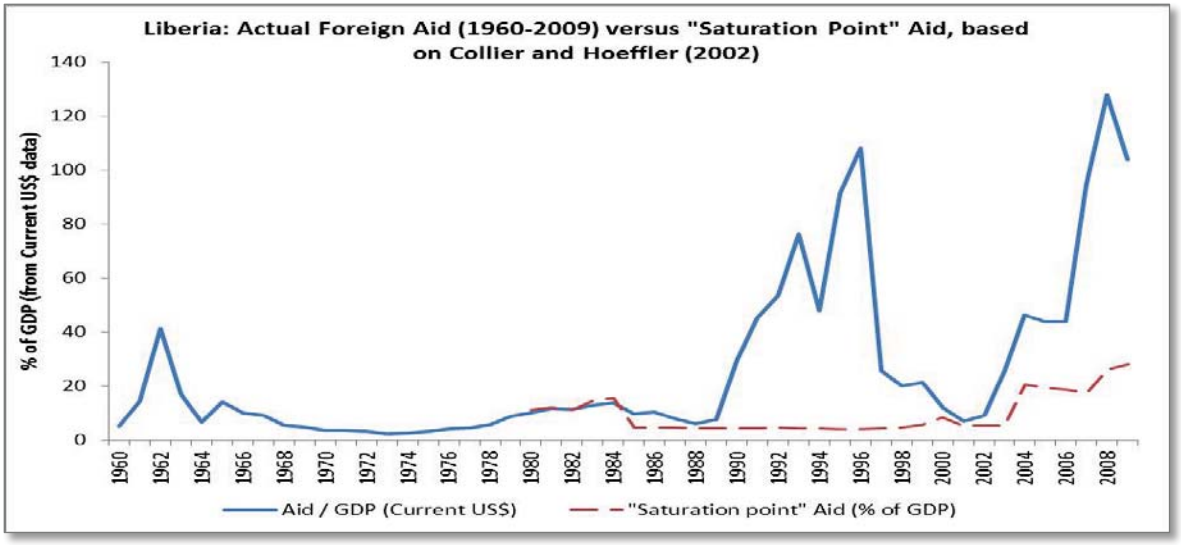
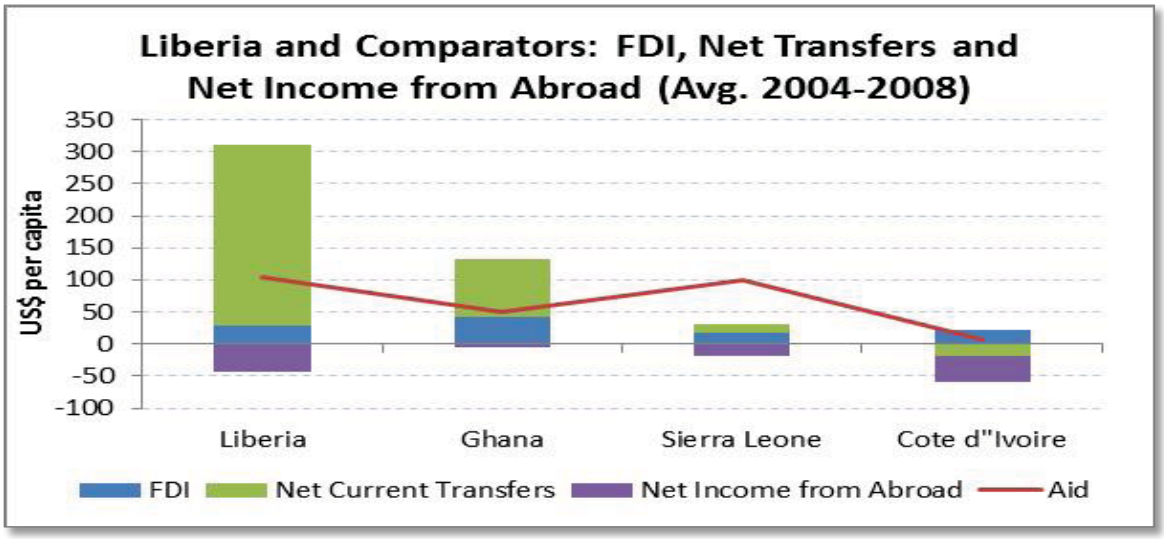


Figure 3.23: FDI, Net Transfer and Net foreign Income-Liberia and Selected Comparators



Intermediation

3.77 Substantial progress has been made in expanding Liberia's banking system, and the financial intermediation gap between Liberia and SSA is closing. In contrast with the situation of very high liquidity in Liberia's financial sector, however, SMEs and individuals in the lowest income percentiles are very much starved of financing resources. While the large traditional sectors are able to secure resources for investment from international sources, SMEs are struggling to finance potentially profitable ventures—a result of the stable, peaceful macro-environment and expected improvements in infrastructure and in traditional sector businesses.

3.78 Presently, private commercial banks are unwilling to extend credit to SMEs and lower-income entrepreneurs as a result of the following:

- The very limited basic information on most potential borrowers, which reduces the banks' willingness to engage them in credit activities.
- A legal system that banks perceive as unfavorable to financial institutions. Only recently has legislation been enacted that increases their expectation of a fair resolution of court cases. Banks have been very careful in expanding credit so as not to increase their portfolio of non-performing assets. They derive most of their current revenues from customers in the form of fees and commissions,[48] and do not expect to shift toward income from intermediation until they observe a legal system that improves their changes of recovering loans.
- Lack of a credit culture in Liberia. Financial institutions perceive that many individuals who seek for loans are not really willing to repay such credits. In addition, there exists a mismatch between the liquid deposits in banking institutions compared to the average credit length demanded of such institutions.

[48] Banks do not make any money either from treasury operations, but expect in the short term to start benefitting from T-Bills that are to be introduced by government.

Table 3.6 : Diagnostic Matrix

	Traditional Sectors	Non-traditional Sectors	New Activities
Social Returns: Geography	Not binding, excellent location, rich in natural resources, no natural geographic impediments to communication and trade		
Social Returns: Infrastructure	Transport: Binding, but being addressed	Transport: Binding, but being addressed Electricity: Binding, not being addressed. High cost / lack of access to electricity reduces competitiveness of otherwise potentially attractive value-added sectors	
Social Returns: Human Capital	A problem, but not really binding as firms circumvent it by importing skilled labor, which hampers the development of local skills and human capital accumulation	Binding. Lack of education and skills, especially among the young adult and adult working-age population reduces their employability and opportunities to participate and benefit from the growth process.	
Appropriability, Government Failures: Macro Risks	Not binding. Main potential concerns refer to social and political stability and exposure to shocks in international commodity prices. But these are not an issue right now.	Not binding, but an area of concern as Liberians that generate their incomes and carry on transactions in Liberian Dollars (generally those in lowest income percentiles) have been exposed to movements in the exchange rate that erode their real income. There exists a risk of REER appreciation and Dutch disease.	Not binding, but an area of potential concern from risk of REER appreciation and Dutch disease. Other potential concerns refer to social and political stability and exposure to shocks in international commodity prices. Not an issue right now.
Appropriability, Government Failures: Micro Risks	Not binding, but land tenure issues and lack of decisions on land use policy, including clarity on the concession process, constitute areas of concern	Not binding, but an area of concern due to the perception of bias against SMEs due to lack of level playing field. Government has made commendable advances in the last 5 years in improving the business environment and further progress is expected in years to come.	
Appropriability, Market Failures: Information Externalities	Not Binding	Market failures not associated with existing sectors activities, but instead to potentially attractive new activities	Binding. Liberian authorities and private sector yet to discover what new value added, employment-generating activities they would be "good at" undertaking
Apprpriability, Market Failures: Coordination	Not binding for large corporations, but certainly binding for SMEs in the agriculture		Binding, as new activities fail to get off the ground.

	Traditional Sectors	Non-traditional Sectors	New Activities
Externalities	sector, especially in rubber, cocoa, coffee and palm oil activities		
Cost / Access to Finance, International Sources	Not binding. True, there are financing gaps even when compared only to infrastructure needs. But this is more a problem of efficient allocation of the resources available (which are not negligible, as Liberia has substantial financial support from development partners) than of true deprivation of the economy of resources needed for development		
Cost / Access to Finance, Domestic – Low Savings	Not binding for large corporations, but an issue for SMEs	Binding. Lack of capital and very low income among the majority of Liberians, which reduce their ability to save	
Cost / Access to Finance, Domestic – Bad Intermediation	Not binding for large corporations, but an issue for SMEs	Binding. Together with lack of capital, low possibility or willingness to accumulate (due to the post war maintenance of a "hand-mouth" approach) and scant education and skills, reduce the possibility of observing small and medium entrepreneurial with a chance to become competitive, sustainable and to multiply employment. Still many small potential entrepreneurial ventures are literally asphyxiated from lack of access to credit in face of huge liquidity maintained in local financial institutions	

Appendix 1 : Main Development Targets of Liberia Rising 2030

- A strong sense of national identity and shared community;
- Eradicating gender inequities, finding strength in its cultural, social and religious diversity;
- Sustainable growth;
- Equitable distribution of income, with no one living in abject poverty and robust social safety nets;
- A strong system of education and skills development;
- Improved health status and life expectancy, reducing to the minimum the burden of infectious disease;
- A modern, technologically enabled agricultural sector, which ensures national food security;
- A vibrant, globally competitive manufacturing sector, that contributes significantly to GDP;
- National self-reliance in power generation;
- Development of Liberian middle class, through increased entrepreneurship, among other goals;
- Adequate transport system;
- Adequate physical infrastructure and services, that is cost effective and socially sustainable;
- Appropriate management of water resources, and adequate collection and safe disposal of wastewater; and,
- Modernized technological and telecommunications Infrastructure.

Appendix 2 : Assessing Necessary Growth Rates to Reach the Target Income Level

Given the time frame (20 years, from 2010 to 2030), the per capita growth rate necessary for Liberia to achieve lower middle-income status depends on two numbers: the yet-to-be-determined per capita income in 2010; and the unknown threshold separating low-income from lower middle-income countries in 2030. The World Bank currently sets this threshold at US$975. From the formula that relates current (Y0) and target (Yn) per capita income, one can derive the necessary per capita average growth rate:

$$Y_n = Y_0 \times exp^{g \times n} \rightarrow g = \frac{ln(Y_n/Y_0)}{n} \qquad \text{(eq YYY)}$$

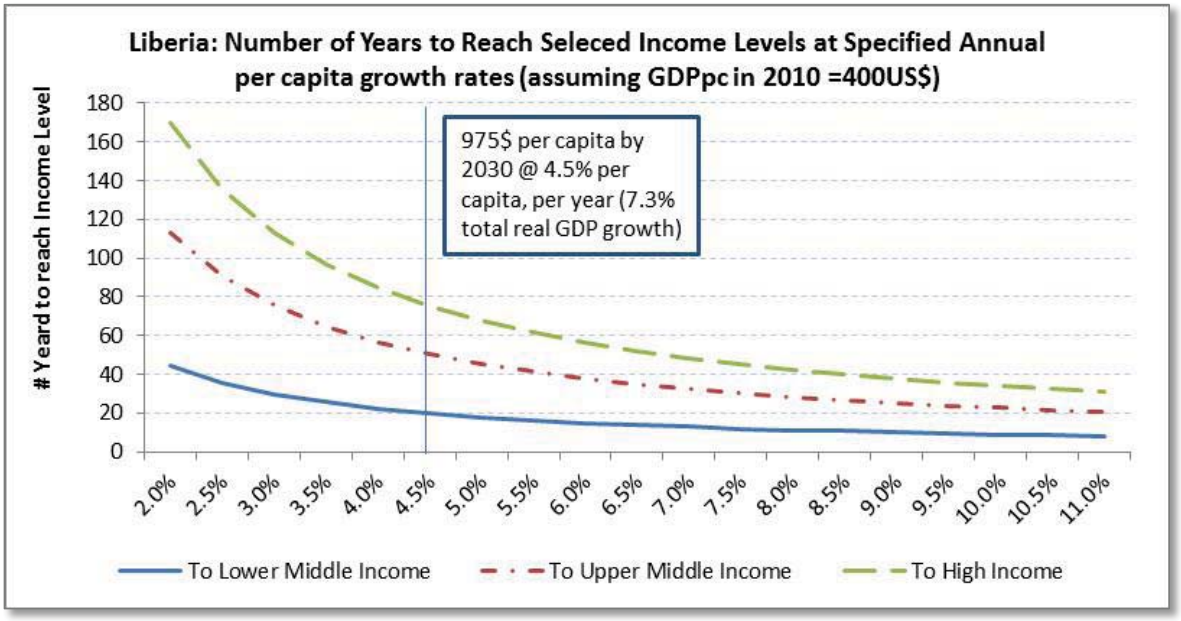
For instance, if real per capita GDP in 2010 was estimated at US$150 (base 2000), Liberia would need to grow at 9.4 percent per capita (more than 12 percent per year in total real GDP, considering an expected population growth rate of 2.8 percent per year) to reach lower middle-income level status by 2030. However, if the former was estimated at, say US$400 in 2010, the growth rate needed to reach lower middle-income status by 2030 would be reduced to 4.5 percent (7.3 percent in total real GDP growth).

		Threshold separating Low from Lower Middle Income Countries.								
		950	975	1000	1050	1100	1150	1200	1250	1300
Real per capita GDP, 2010 (US$ of 2000)	150	9.2%	9.4%	9.5%	9.7%	10.0%	10.2%	10.4%	10.6%	10.8%
	200	7.8%	7.9%	8.0%	8.3%	8.5%	8.7%	9.0%	9.2%	9.4%
	250	6.7%	6.8%	6.9%	7.2%	7.4%	7.6%	7.8%	8.0%	8.2%
	300	5.8%	5.9%	6.0%	6.3%	6.5%	6.7%	6.9%	7.1%	7.3%
	350	5.0%	5.1%	5.2%	5.5%	5.7%	5.9%	6.2%	6.4%	6.6%
	400	4.3%	4.5%	4.6%	4.8%	5.1%	5.3%	5.5%	5.7%	5.9%
	450	3.7%	3.9%	4.0%	4.2%	4.5%	4.7%	4.9%	5.1%	5.3%
	500	3.2%	3.3%	3.5%	3.7%	3.9%	4.2%	4.4%	4.6%	4.8%

An alternative way of looking at the evolution of living standards (proxied by changes in per capita income) across time starts from the identification of a plausible, achievable long-term average growth rate, based on the expected evolution of factor inputs (which contribute directly to the generation of output), and on reasonable assumptions about the pace of technological progress (or a vector of elements that allow for an increase in the amount of output per unit of quantifiable inputs). In such case, one can be interested in the time required to reach a given per capita income target (Y_n). From equation YYY above, solving for the time period (n) and having Y_n as the target income level:

$$n = \frac{ln(Y_n/Y_0)}{g}$$

The graph below summarizes results for a given initial per capita income level in 2010 (US$400 in real year 2000 US dollars), and for predefined thresholds separating low income from lower middle-income groups (US$975); lower middle-income from upper middle-income groups (US$3,856); and upper middle-income from high-income groups (US$ 11,906), based on the most recent World Bank country classifications by income level.


Liberia: Number of Years to Reach Seleced Income Levels at Specified Annual per capita growth rates (assuming GDPpc in 2010 =400US$)
Yeard to reach Income Level
180
160
140
120
100
80
60
40
20
0
975$ per capita by 2030 @ 4.5% per capita, per year (7.3% total real GDP growth)
2.0%
2.5%
3.0%
3.5%
4.0%
4.5%
5.0%
5.5%
6.0%
6.5%
7.0%
7.5%
8.0%
8.5%
9.0%
9.5%
10.0%
10.5%
11.0%
To Lower Middle Income
To Upper Middle Income
To High Income

Appendix 3 : Extended Growth Accounting Decomposition

Traditionally, a growth accounting exercise attempts to decompose the rate of growth in GDP per worker in a given period into the contributions of factor inputs and a residual element (TFP) that accounts for unspecified circumstances influencing the value-added indicator. The approach makes use of widely accepted national accounting principles, and of a set of assumptions about the way factor inputs transform into output, including a particular form of a hypothetical aggregate technical relation that is called a production function. Such assumptions refer to the market structure; the degree of substitution among specified factor inputs; the mechanism whereby technology improvements and efficiency gains contribute to output growth; and the definition of best proxies for selected included variables, among others. The approach is widely popular, as it is used as a main platform to conduct a "sources of growth" type of analysis, whereby the behavior (over time or relative to other countries) of "proximate" determinants of growth often constitutes the first block in a growth analysis intended to gains insights for policymaking.

Unfortunately, more often than not, the approach is misused, as practitioners tend to the forget implicit and explicit assumptions involved in the calculations; ignore potentially relevant measurement issues; be too literal in associating changes in the residual TFP to real variations in "productivity"; and use results quite arbitrarily as "proof" of some phenomena, as "support" for policy insights and recommendations, or even worse, to say something about causality at the macro level.[49]

We conduct such growth accounting exercise for none of those reasons. Here the growth accounting framework is simply used as an organizational device, to observe the historical evolution of factor inputs (which certainly have an impact on the potential of the economy to generate value), and to present a loose exercise of what sort of growth rate could result in Liberia from dynamic *feasible* scenarios for such inputs. Results will be combined with scenarios for aggregate savings to ascertain financial needs implied in estimated growth paths. They will be also used to construct some scenarios for employment by main sectors of economic activity (for assumed targets in average product of labor), which can be useful to observe how a given income path relates to increases in the population and labor force.

A standard growth accounting decomposition makes it possible to ascertain proximate sources of growth by virtue of relating output to the amount of available factors of production, by means of some hypothetical technology which transforms input into output. The framework includes many implicit and explicit additional assumptions regarding the structure of the market, degree of substitution among production factors, impact of technological advances on output growth, returns to inputs, etc. These assumptions have become more or less mainstream within orthodox economic empirical analysis, based on the belief that they tend to strike a good balance between simplicity and representativeness of the chosen specification. They also happen to include variables for which, more often than not, there exist good time series data.

In this way, the typical growth accounting decomposition relates real output (Y) to labor (L), physical (K) and human (H) capital inputs, and a vector of other factors summarized in a residual variable called Total

[49] See, for instance, Dani Rodrik's critical views on the use of sources of growth at: http://rodrik.typepad.com/dani_rodriks_weblog/2008/02/what-use-is-sou.html

Factor Productivity (A), by means of a factor neutral, the Constant Returns to Scale Cobb Douglas production function. We use such specification for Liberia for the period 1970-2010, for which *most* of the required data (in such specification) are available:

$$Y_t = A_t \times K_t^{\alpha} \times (L_t \times H_t)^{(1-\alpha)} \quad \text{(eq 1)}$$

Where α is the share of capital in total output, which value can be obtained at the macro level from a country's national accounts, as the ratio of payments to capital (Net Operating Surplus accruing to Capital) divided by Value Added GDP (net of Consumption of Fixed Capital). Y_t is simply real value added GDP. L_t is the amount of labor used in the production process (proxied by the total number of hours worked during the time period considered, and, if no data on average hours worked per worker are available, simply by the level of employment). H_t is the average stock of human capital embedded in each unit of labor, proxied by the average number of years of schooling for a given population cohort. A suggested specification for the human capital is:

$$H_t = H_0 \times e^{ROE \times SCHt} \quad \text{(eq 2)}$$

where the initial value of Human Capital (H_0) is normalized to 1, ROE refers to the rate of return to schooling (assumed to be constant in this specification) and SCH_t is a proxy for education, the average number of years of schooling. Empirically, ROE is normally estimated from microeconomic data by means of econometric specifications relating earnings from workers to an education proxy (again, number of years of schooling) and other individual controls (such as age, gender, experience, etc.). Mincer earning specifications (Mincer 1974) are commonly used in this sense. Data on cross-country average years of schooling are available from Barro and Lee (2010) for the period 1960-2010.

The value of capital stocks is also estimated from national accounts, based on gross capital formation and consumption of fixed capital data, and assumptions for the motion of capital stock. The perpetual inventory method is normally used, departing from the equation:

$$K_t = K_{t-1} \times (1-\delta) + I_t \quad \text{(eq 3)}$$

where I_t is the gross fixed capital formation in period t, and δ is the depreciation rate (assumed constant for the period). In a specification such as this, the initial value of physical capital stock is derived from assumptions about the *steady state* growth rate of said capital.

This growth accounting decomposition can be performed in such a way that one estimates proximate sources of growth in total real GDP or in GDP per unit of labor (the latter being more welfare relevant). Dividing both sides of eq. 3 by L_t, the specification now refers to the contribution of physical capital per unit of labor ($k_t=K_t/L_t$) and human capital per unit of labor ($h_t=H_t/L_t$) to output per unit of labor ($y_t=Y_t/L_t$) given the level of technology A_t and input shares:

$$y_t = A_t \times k_t^{\alpha} \times (h_t)^{(1-\alpha)} \quad \text{(eq 4)}$$

Incorporating demographics and labor force into the growth accounting decomposition

Furthermore, since we are normally interested in the evolution of *per capita* GDP, as an approximation for individual's welfare, and such dynamic process may differ during the analyzed period from that of the GDP per unit of labor referred to in equation 4, due to either a significant demographic transition,

changes in working age population willingness to participate in economic activity and / or significant shifts in the employment rate, one may want to account for such dynamic elements in the growth decomposition. Otherwise, they will be end up represented in changes in the already mishmash variable A_t, that we call TFP. Starting from the identity:

$$\frac{Y_t}{POP_t} \equiv \frac{Y_t}{L_t} \times \frac{L_t}{LF_t} \times \frac{LF_t}{WAP_t} \times \frac{WAP_t}{POP_t} \qquad \text{(eq 5)}$$

where LF_t is the labor force, WAP_t is the working age population, and POP_t is total population, so that Y_t/POP_t is per capita income, Y_t/L_t is output per unit of labor (average product of labor), L_t/LF_t is the employment rate, LF_t/WAP_t is the participation rate, and WAP_t/POP_t is an indicator of the age dependency ratio.[50] Equation 4 can be plugged into equation 5 to obtain an extended growth accounting decomposition, making:

$$Y_t \equiv \frac{Y_t}{L_t} \times \frac{L_t}{LF_t} \times \frac{LF_t}{WAP_t} \times \frac{WAP_t}{POP_t} \times POP_t \qquad \text{(eq 6)}$$

$$Y_t \equiv A_t \times k_t^{\alpha} \times \left[(h_t)^{(1-\alpha)} \times \frac{L_t}{LF_t} \times \frac{LF_t}{WAP_t} \times \frac{WAP_t}{POP_t} \times POP_t \right] \qquad \text{(eq 7)}$$

The expression in brackets corresponds to the effect of all labor force and demographic-related variables, which we can call "adjusted labor and skills." If we denote the growth rate of a variable by a dot, so for instance: $\dot{Y} = dY_t/dt$,we get:

$$\dot{Y}_t \equiv \dot{A}_t + \alpha \times \dot{k}_t + \left[(1-\alpha) \times \dot{h}_t + \left(\frac{\dot{L_t}}{LF_t} \right) + \left(\frac{L\dot{F}_t}{WAP_t} \right) + \left(\frac{W\dot{A}P_t}{POP_t} \right) + P\dot{O}P_t \right] \qquad \text{(eq 8)}$$

About potential growth

A simple exercise can be conducted to ascertain the growth potential of a country based on its proximate determinants. This requires assumptions regarding the time behavior of physical capital, all labor force and human capital-related variables, and TFP. For instance, the behavior of demographics and labor force can be drawn from a demographic model which uses hypothetical parameters for the fertility rate, migration patterns, and life expectancy (or mortality rates by age cohorts). Similarly, empirical relationships and/or historical data can be used to derive guess-estimates of the participation and employment rates. One can also restore to simple assumptions for the behavior of the investment ratio to GDP or, if possible, to introduce behavioral equation for aggregate investment. Cross-country, benchmark data, or again, some more elaborated model can be introduced to estimate trends in TFP. Further assumptions regarding the value of other parameters such as returns to Education, the rate of depreciation of physical capital stock, and capital formation as a share of GDP, together with the type and technology transforming inputs into output (functional form), and others, will continue to be necessary for purposes of this estimation.

In what follows, we describe very simplistic assumptions used to estimate potential real GDP growth for Liberia for the period 2010-2030.

[50] Specifically, the age dependency ratio (ADR) is defined as the ratio of non-working age population to working age population. If the later is defined as the number of people between 15 and 64 year of age, then ADR=(POP<15 + POP>64)/POP15.64, so WAP/POP=1/(1+ADR).

Population growth rate. It is assumed that *the rate* of growth of population decreases from that registered in 2009 (4.2 percent) to an estimated 2.25 by 2050.[51] The approximation to this reduced population growth rate conforms to a *logistic* specification. Under such functional form, the gap separating the current value of a variable (X_t) to its target (X_f), given its initial value X_0, is closed over time at a rate that is proportional to the remaining gap, so that[52]:

$$X_t = \frac{X_f}{\left(1+\left(\frac{X_f}{X_0}-1\right)\times exp^{-g\times t}\right)}$$

where g is the (constant) rate at which the variable closes the gap. Under these assumptions, Liberia's population will increase by 80 percent between 2010 and 2030, reaching more than 7.1 million people.

Ratio of working age population to total population. It is assumed that the ratio of working age population (those in the age cohort of 15-64 years) to total population converges from its current value, which was equal to 54.2 percent in 2009, to a long run target of 60 percent, by following, once more, a logistic approximation. This assumption is consistent with World Bank estimates for the age dependency ratio, linked to a demographic scenario for the period 2010-2050, which involves an over-time reduction in fertility rates, increases in life expectancy, and relatively low net migration in Liberia. By 2030, the ratio of working age population to total population would reach 57 percent. In this scenario, fertility rates fall from 5.5 children per mother in childbearing years in 2010, to fewer than 3 children by 2050. Similarly, life expectancy increases during the period by more than 10 years, from 60.5 years in 2010 to over 70 years by 2050. Linked to the former is a fall in infant mortality rates, from 87.6 per 1,000 live births in 2010, down to 67.7 per 1,000 live births by 2030; and to 48.9 per 1,000 live births by 2050. Net migration remains close to zero for most of the next 40-year period.

Participation rate and labor force. Labor force is estimated as a fraction of the working age population. This fraction is called the participation rate. This rate was calculated at 75 percent of the working age population in 2009, and has been stable over the last 2 decades. Once again, an assumption was made of a logistic approximation of the participation rate to an 80 percent target over the next half decade. Such expected increase in participation is linked to augmented expectations of people of having access to jobs, in both traditional and new economic activities.

Employment. Employment is calculated from labor force and employment (or unemployment) rate data. It is assumed that unemployment remains low in Liberia during the full period of projections, approaching to 6 percent in 2030, from also low historical records (7.3 percent by 2009). The reader should be aware that low rates of unemployment in a country do not necessarily mean that the majority of people in the labor force enjoy good quality jobs. In fact, low unemployment rate figures are common in poor countries such as Liberia, with the majority of the labor force engaging in subsistence agriculture and informal activities, while just a very small fraction have formal jobs.

---

[51] World Bank, Human Development Network, population projections by country, based on demographic assumptions for variables such as mortality rate, fertility and international migration patterns. http://go.worldbank.org/KZHE1CQFA0.

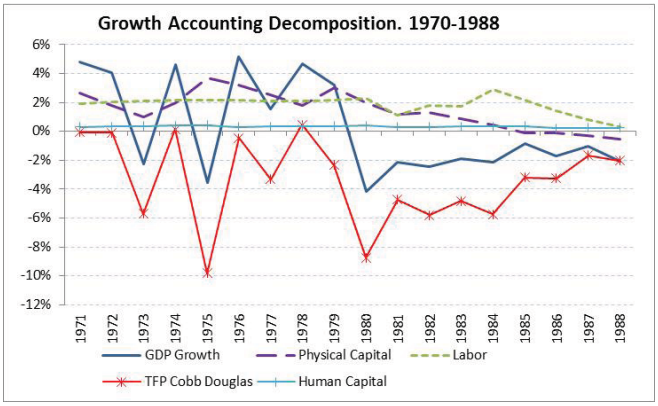
[52] The state value of the variable X_t at time "t" results from the solution of a non-linear model, where the change over time in X, dX/dt is a function of the *current* value of X, and a growth rate g, which depends on such current value and the maximum attainable value (X_f), so that $dX/dt = g(X_t,X_f)*X_t$.

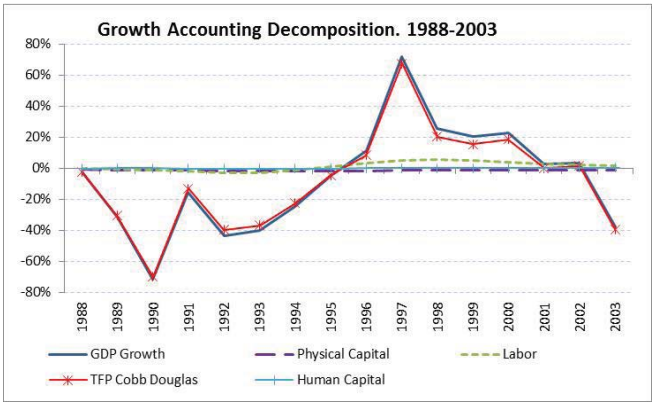
Human capital, as explained above, is proxied by the average number of years of schooling for the population 15 years of age and older. Schooling data have been obtained from Barro and Lee (2010). In 2010, average schooling was estimated at 5.4 years, compared, for instance, to 3.4 years in Sierra Leone, 7.7 years in Ghana, and 9.5 years in Botswana. It is assumed that rates of schooling increase at the same pace as in the last decade, reaching 8.3 years by 2030 and 9 years by 2050.

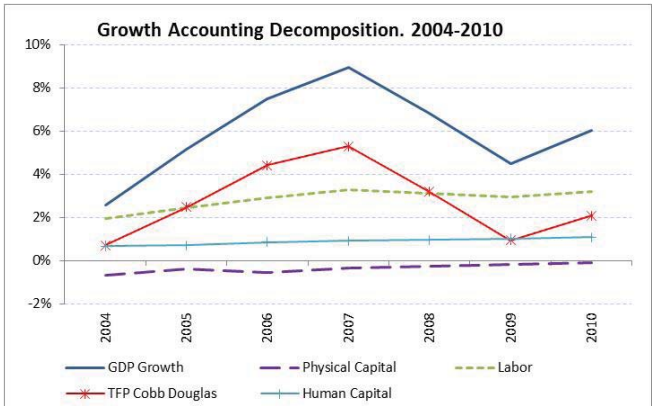
Ratio of investment to GDP. Historically, there have been large oscillations in the pace of capital accumulation, which has been linked to entrepreneurs' perceptions about political and economic stability in the country, and to the availability of resources for public and private investment. Real investment reached historical low ratios of 5 percent of GDP in the beginning of the 1990s and the beginning of the 2000s, recovering to almost 15 percent in 2010. It is assumed that by 2030, such ratio will approximate the 20 percent levels registered in the 1970s.

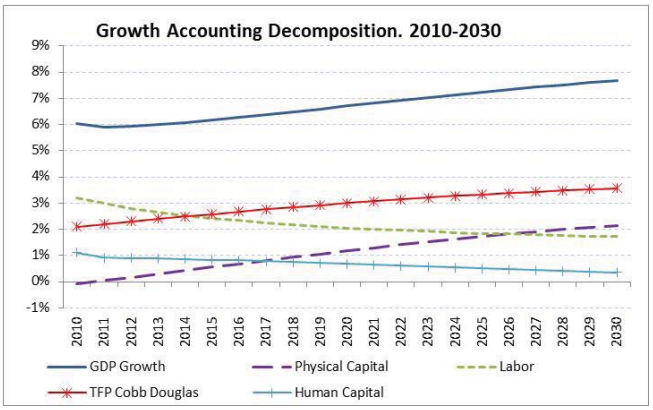
Total factor productivity. TFP growth was calculated at 2.9 percent per year between 2003 and 2010, largely as a result of post-conflict improvements in factor capacity utilization, but also from real gains in productivity as a stable macro-framework and return to peace allowed entrepreneurs to organize their business, plan for the future, and adopt better technologies in their production processes. A deepening of such conditions, together with a hypothetical diversification of activities and competition in local, regional and international markets, may help to further improve such gains in the amount of output produced with given levels of inputs. TFP growth is then assumed to increase up to 3.5 percent by 2030 and 4 percent by 2050.

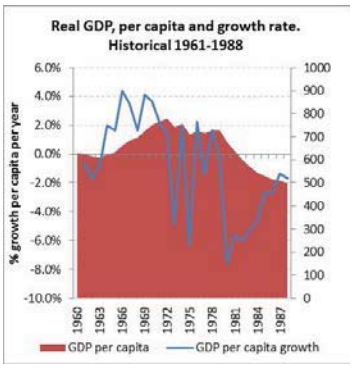
Growth Accounting Decomposition, by period, including scenario exercise for 2010-2030

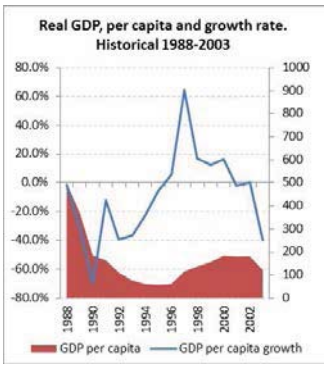


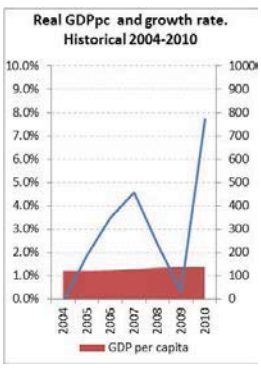


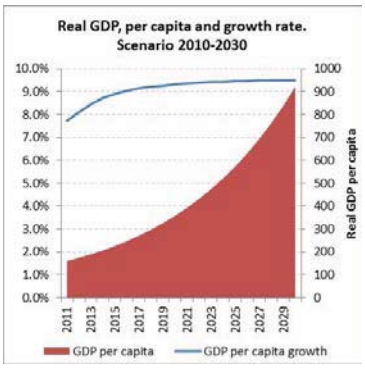




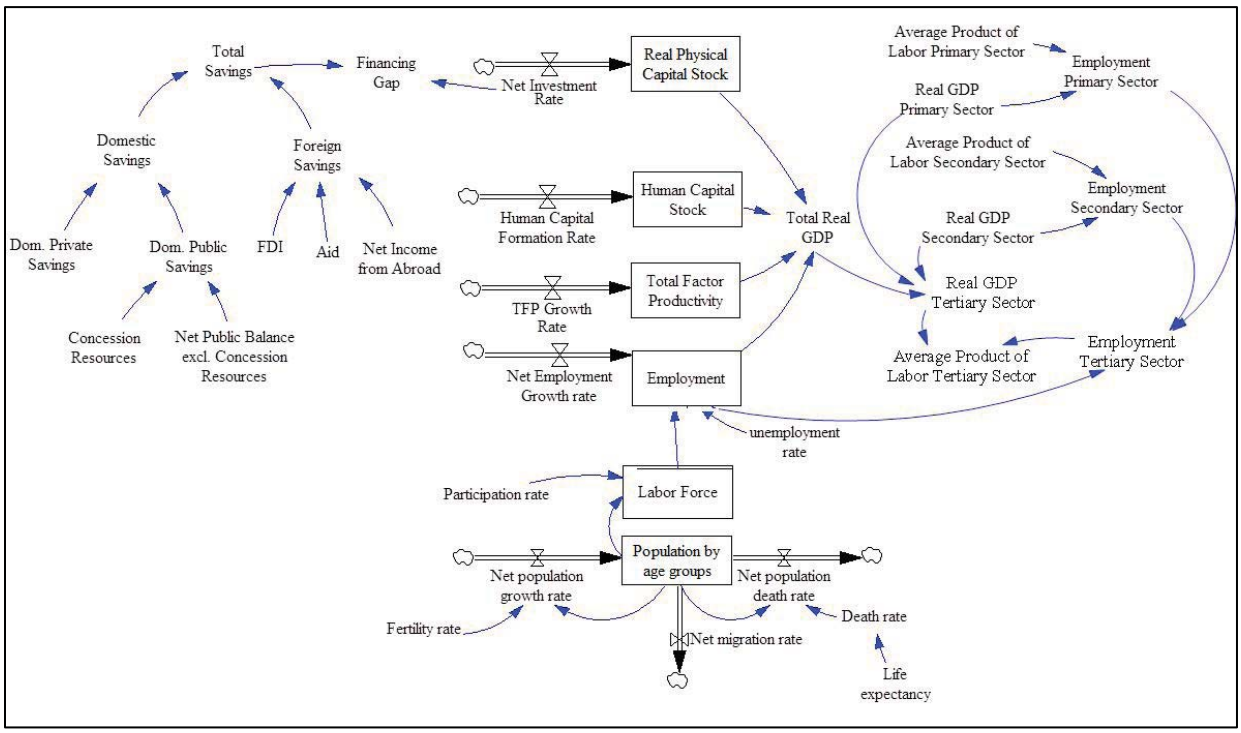








Graphical Representation of the Extended Growth Accounting Decomposition and Structural Transformation Analysis



Appendix 4 : Estimating the Rate of Return to Capital at the Macro Level

A proxy for the rate of return to capital obtained at the macro level can be obtained as the ratio of GDP that is accrued by capital, divided by the current value of capital stock. The current value of capital stock is estimated using the perpetual inventory method. This method requires a calculation of the (steady state) initial value of capital stock (K) based on data on investment (I), depreciation rate (δ, and output (Y), departing from the equation for the accumulation of capital stock:

$$K_{t+1} = (1-\delta) \times K_t + I_t \qquad => \qquad \frac{K_{t+1}}{Y_t} = (1-\delta) \times \frac{K_t}{Y_t} + \frac{I_t}{Y_t}$$

Since: $Y_t = Y_{t+1}/(1+g)$ where g is the real growth rate of total output

$$\frac{K_{t+1} \times (1+g)}{Y_{t+1}} = (1-\delta) \times \frac{K_t}{Y_t} + \frac{I_t}{Y_t}$$

In Steady State (SS), leaving aside the time subscript:

$$(1+g) \times \left(\frac{K}{Y}\right)^{SS} = (1-\delta) \times \left(\frac{K}{Y}\right)^{SS} + \left(\frac{I}{Y}\right)^{SS} \qquad => \qquad \left(\frac{K}{Y}\right)^{SS} \times [(1+g) - (1-\delta)] = \left(\frac{I}{Y}\right)^{SS}$$

$$\left(\frac{K}{Y}\right)^{SS} = \frac{1}{g+\delta} \times \left(\frac{I}{Y}\right)^{SS} \qquad => \qquad \left(\frac{K_0}{Y_0}\right)^{SS} = \frac{1}{g+\delta} \times \left(\frac{I}{Y}\right)^{SS} => \ (K_0)^{SS} = \frac{1}{g+\delta} \times \left(\frac{I}{Y}\right)^{SS} \times Y_o^{SS}$$

Appendix 5 : Principles of Differential Diagnostics

Hausmann et al. (2008) provide further insights on how to conduct an Inclusive Growth Diagnostic exercise in their "mindbook" *(Doing Growth Diagnostics in Practice: A Mindbook),* which provides a set of guiding principles for formulating candidate hypothesis about potential constraints to economic activity, and how to evaluate or contrast them. The authors pose that, if a constraint is binding, then one or several of the following phenomena can be observed, depending on the type of evidence available:

1. The (shadow) price of the constraint is high;

2. Movements in the constraint should produce significant movements in the objective function (e.g., GDP, or income of a specific group of individuals);

3. Agents in the economy should be attempting to overcome or bypass the constraint, and these economic actions can be observed;

4. Agents less intensive in a binding constraint are more likely to survive and thrive and vice versa.

Appendix 6 : Estimating Real Effective Exchange Rates Based on Cross-Country Data

REER has been computed, using the Balassa Samuelson relationship, based on Frankel (2004) and Rodrik (2007). These approaches use cross-country data to estimate, year by year, the valuation percentage of the RER, considering countries' nominal exchange rates (E) in LCU/$, Parity Purchasing Power Exchange rates (PPP) in LCU/$, and real per capita GDP in PPP (y) in $ of 2005.

Real Exchange Rates are computed using the formula:

$$RER = E / PPP \qquad \text{(eq 1)}$$

Following Frankel's specification, the RER valuation percentage for a country "i" in year "t" (RERVi,t) is calculated from an OLS regression of RER on a constant and per capita GDP at PPP:

$$RERV_{i,t} = a + by_{i,t} + u_{i,t} \qquad \text{(eq 2)}$$

Under Rodrik's approach, the RERVi,t is calculated using the multi-year full sample, with a fixed effect OLS specification:

$$RERV_{i,t} = a + by_{i,t} + c_{i,t} + u_{i,t} \qquad \text{(eq 3)}$$

Appendix 7 : Export Diversification and Export Sophistication Indicators

Herfindhal Index of Exports Diversification

A more precise indicator of export diversification is the so-called Herfindhal- Hirschmann index. It is calculated for country "i" as the sum of squared values of product "j" shares in total country export (Xsh), minus 1, adjusted by the number of products exported by the country in year "t", as follows:

$$HH_{i,t} = \left[\left(\frac{\sum_j Xsh_{i,t}^{\ 2}}{\sum j_{i,t}} \right) \Big/ \left(1 - \frac{1}{\sum j_{i,t}} \right) \right] \qquad \text{(eq 1)}$$

where the adjustment 1 minus sum of exported products "j" is intended to scale the HH index to the ratio 0 to 1, with zero meaning full diversification and 1 meaning a concentration of exports in just one product.

Revealed Comparative Advantage in Egypt

RCA indicator for a product "j" exported by country "i" during period "t" (Xi,j,t) is computed as the ratio of country's export of "j" to total exports of country "i", divided by the ratio of world (W) exports of "j" to world exports in year "t":

$$RCA_{j,i,t} = \frac{X_{j,i,t}}{\sum_j X_{j,i,t}} \Big/ \frac{X_{w,i,t}}{\sum_j X_{w,i,t}} \qquad \text{(eq 2)}$$

A dummy variable $DRCA_{j,i,t}$ is generated if the ratio of $RCA_{j,i,t}$ is higher than 1. The indicator is constructed for all years from 1978 to 2009. Also, dummy variables for RCA are constructed for periods 1978 to 1985 and 2000 to 2009. The information is then organized in a table that classifies products in 4 groups:

1. The Marginals: products that did not have RCA neither in 1978-1985 nor in 2000-2009;
2. The Classics: products that had RCA in 1978-1985 and also in 2000-2009;
3. Disappearances: products that had RCA in 1978-1985, but did not have RCA in 2000-2009;
4. Emerging Products: products that did not have RCA in 1978-1985, but had RCA in 2000-2009.

Income Value of a Country's Export Basket (EXPY), per year

This indicator is constructed in 2 steps. First, the income value of each product "j" is generated by year, using the export (x) share of a country in world exports of product "j" divided by the sum of shares of "j"

in world exports of "j" across all countries exporting the product. These ratios are multiplied by the exporting country's per capita income level (Ypc) and the result summed up across all countries:

$$PRODY_{j,i,t} = \sum_{i} \left[\left(\frac{x_{j,i,t}}{\sum_{i} x_{j,i,t}} \right) \times Ypc_{i,t} \right] \qquad \text{(eq 3)}$$

EXPY is a weighted income value of products exported by a country. It is computed as the weighted sum of PRODY by country, using as weight the share of exports on the country's total exports:

$$EXPY_{i,t} = \sum_{j} \left[\left(\frac{x_{j,i,t}}{\sum_{j} x_{j,i,t}} \right) \times PRODY_{j,i,y} \right] \qquad \text{(eq 4)}$$

EXPY is said to by an indicator of export sophistication of a country (Hausmann and Klinger, 2006). Higher EXPY –authors hypothesize- allows countries to move in the "product space" towards their "technology frontier."

Export Distribution by Main Exporting Categories (Leamer Classification)

Leamer's (1984) classification allows for a broad classification of exports in primary, labor-intensive and capital-intensive products, and machinery and equipment, which helps to show the degree of export sophistication in a country. Primary products include Leamer's groups 1-6, namely: Animal Products, Cereals, etc., Tropical Agriculture, Forest Products, Raw Materials, and Petroleum and Petroleum Products.

REFERENCES

Aghion, Philippe and Steven Durlauf (2007a). From Growth Theory to Policy Design. Commission on Growth and Development.

Aghion, Philippe and Steven Durlauf (2007b). Growth Regression and Policy Evaluation. Commission on Growth and Development.

Balassa, Bela (1965). Trade Liberalization and 'Revealed' Comparative Advantage. Manchester School 33, pp. 99-123.

Barro, Robert and Jong-Wha Lee (2010). *A New Data Set of Educational Attainment in the World, 1950–2010.* NBER Working Paper No. 15902 (April).

Brahmbhatt, Milan and Canuto Ottaviano (2010). Natural Resources and Development Strategy after the Crises. Economic Premise, World Bank.

Bravo-Ortega, Claudi., and Jose de Gregorio (2007). **"The Relative Richness of the Poor? Natural Resources, Human Capital, and Economic Growth". In Lederman, D., and Maloney, W.F. (2007).** ***Natural resources. Neither Curse nor Destiny.*** **The World Bank. Stanford University Press. Bravo- Brierley, Sarah (2010)**. Concession Awards in Liberia: An Overview. World Bank.

Collier Paul and Benedikt Goderis (2007). *Commodity Prices, Growth, and the Natural Resource Curse: Reconciling a Conundrum.* Working Paper 276. Centre for the Study on African Economies.

Collier, Paul and Stephen A. O'Connell (2004). Opportunities and Choices. Chapter 2 of Synthesis Volume, *Explaining African Economic Growth*. African Economic Research Consortium.

Commission on Growth and Development (2008). The Growth Report: Strategies for Sustained Growth and Inclusive Development. World Bank.

Diao, X., P. Hazell, P., D. Resnick, and J. Thurlow (2008). *The Role of Agriculture in Development, Implications for Sub-Saharan Africa.* International Food Policy Research Institute Research, Report 153.

Dixit, Avinash (2007). Evaluating Recipes for Development Success. *World Bank Research Observer*, Vol. 22, No 2.

Dollar, David and Art Kraay (2001). Growth is Good for the Poor. World Bank, Development Research Group (March).

Essama-Nssah, B. (2005). A Unified Framework for Pro-Poor Growth Analysis. *Economic Letters* 89, pp. 216-221. Science Direct, Elsevier.

Frankel, Jeffrey *(2004).* "Experience of and Lessons from Exchange Rate Regimes in Emerging Economies," NBER WP No. 10032. In *Monetary and Financial Integration in East Asia: The Way Ahead*, edited by Asian Development Bank, (Palgrave Macmillan Press, New York) vol. 2, 91-138.

Government of Liberia (2008a). *Poverty Reduction Strategy, Republic of Liberia*

Government of Liberia, **Ministry of Gender and Development/World Bank (2007).** Liberia Gender Needs Assessment: Towards Women's Economic Empowerment. Monrovia.

Government of Liberia, **Ministry of Labour and Liberian Institute of Statistics and Geo-Information Services (LISGIS) (2008b).** Population Census.

Government of Liberia**, Ministry of Labour and Liberian Institute of Statistics and Geo-Information Services (LISGIS) (2010a).** Report on the Liberia Labor Force Survey (December).

Government of Liberia, **National Core Team on Liberia Rising 2030 (2010b).** Poor Governance, A Challenge to Sustained Economic Growth with Development in a Resource Rich Country: A Situation Analysis of the Political Economy of Liberia.

Government of Liberia, **Ministry of Planning and Economic Affairs (2011).** Liberia's Vision for Accelerating Growth: Development Corridor Desk Study (draft, June).

Hamilton, Kirk and Eduardo Ley (2010). Measuring National Income and Growth in Resource-Rich, Income-Poor Countries. *Economic Premise,* World Bank.

Hartwick, John M. (1977). Intergenerational Equity and the Investment of Rents from Exhaustible Resources. *American Economic Review* 67, pp. 972-74 (December).

Hausmann, Ricardo, Bailey Klinger and Rodrigo Wagner (2008). Doing Growth Diagnostics in Practice: A Mindbook. Center for International Development, Harvard University (September).

Hausmann, Ricardo, and Dani Rodrik (2002). Economic Development as Self Discovery. John F. Kennedy School of Government, Harvard University (November).

Hausmann, Ricardo, Dani Rodrik and Andres Velasco (2004). Growth Diagnostics. John F. Kennedy School of Government, Harvard University (October).

Hausmann, Ricardo, Dani Rodrik and Andres Velasco (2005). Growth Diagnostics. John F. Kennedy School of Government, Harvard University (March).

Hausmann, Ricardo, Lant Pritchett and Dani Rodrik (2005). Growth Accelerations. John F. Kennedy School of Government, Harvard University (August).

Hausmann, Ricardo, Jason Hwang and Dani Rodrik (2005)*.* What You Export Matters. Working Paper 11905, National Bureau of Economic Research (December).

Hausmann, Ricardo and Bailey Klinger (2006)*.* Structural Transformation and Patterns of Comparative Advantage in the Product Space. CID Working Paper No 128. Center for International Development at Harvard University (August).

Hidalgo, C., Bailey Klinger, A. Barabasi and Ricardo Hausmann (2007). The Product Space Conditions the Development of Nations. *Science,* Vol. 317, No. 5837 (July 27).

Ianchovichina, Elena and Susanna Lundstrom (2009). Inclusive Growth Analytics: Framework and Application. *Policy Research Working Paper* 4851. World Bank, Poverty Reduction and Economic Management, Economic Policy and Debt Department (March).

ILO. http://laborsta.ilo.org.

ILO (International Labour Office). 2008. Tracer study of TVET Institutes.

International Monetary Fund (2010a). Liberia: Selected Issues. IMF African Department (November).

International Monetary Fund (2010b). *Liberia: 2010 Article IV Consultation and Fifth Review Under the Three-Year Arrangement Under the Extended Credit Facility.* Staff Report. IMF Country Report No. 10/373 (December).

International Monetary Fund and World Bank (2011). Leveraging Investments by Natural Resource Concessions.

Kaufmann D., A. Kraay, and M. Mastruzzi (2010)*.* The Worldwide Governance Indicators: Methodology and Analytical Issues**.** World Bank Governance Indicators 1998-2010.

E. Leamer (1984). *Sources of Comparative Advantage: Theory and Evidence*. Cambridge, MA: MIT Press.

Lederman Daniel and William Maloney, eds. (2007). *Natural Resources: Neither Curse or Destiny.* World Bank and Stanford University Press.

Lin, Justin (2010). *New Structural Economics – A Framework for Re-Thinking Development.* World Bank Policy Research Working Paper No. 5197.

Lopez H. and L. Serven (2004). The Mechanics of Growth-Poverty-Inequality Relationship. World Bank.

Mincer, Jacob (1974). *Schooling, Experience and Earnings.* New York: NBER Press.

Mo Ibrahim Index on African Governance, 2003/2004-2008/2009.

Ndulu, Benno, Stephen A. O'Connell, Jean-Paul Azam, Robert H. Bates, Agustin K. Fosu, Jan Willem Gunning and Dominique Njinkeu, eds. (2007). *The Political Economy of Economic Growth in Africa. 1960-2000. Volume 2: Country Case Studies.* Cambridge University Press.

Organisation for Economic Co-operation and Development (2009). *Natural Resources and Pro-Poor Growth: The Economics and Politics*. DAC Guidelines and Reference Series.

Pritchett, Lant (2000). Understanding Patterns of Economic Growth: Searching for Hills among Plateaus, Mountains, and Plains. *World Bank Economic Review,* Vol. 14, No 2, pp. 221-50.

Pritchett, Lant and Preya Sharma (2008). Implementing Growth Analytics: Motivation, Background, and Implementation. Document prepared for DFID training workshop (September).

Ravallion, Martin (2004). *Pro-Poor Growth: A Primer*. World Bank, Development Research Group. Policy Research Working Paper 3242 (March).

Ravallion, Martin (2001). *Growth, Inequality and Poverty: Looking Beyond Averages.* Policy Research Working Paper 2558. World Bank, Development Research Group (February).

Rodrik, Dani (2004a). Growth Strategies. John F. Kennedy School of Government, Harvard University (August).

Rodrik, Dani (2004b). Rethinking Economic Growth Policies in the Developing World. John F. Kennedy School of Government, Harvard University (October).

Rodrik, Dani (2004c). Industrial Policy for the 21st Century. John F. Kennedy School of Government, Harvard University (September).

Rodrik, Dani (2006). Goodbye Washington Consensus, Hello Washington Confusion. John F. Kennedy School of Government, Harvard University (January).

Rodrik, Dani (2007) The Real Exchange Rate and Economic Growth: Theory and Evidence. John F. Kennedy School of Government, Harvard University (July).

Rodrik, Dani (2008). The Real Exchange Rate and Economic Growth. John F. Kennedy School of Government, Harvard University (October).

Romo, Z (2011) Background analysis of power supply development options for Liberia, Mimeo, World Bank, Washington DC

Sachs, Jefferey D. and Andrew M. Warner (1995). *Natural Resources Abundance and Economic Growth.* NBER Working Paper 5398. National Bureau of Economic Research, Cambridge MA.

Thorbecke, Erik (2009). The Anatomy of Growth and Development in Sub Saharan Africa. Framework Paper Prepared for the African Economic Research Consortium (AERC) Collaborative Project on Growth and Poverty. Cornell University (April).

Transparency International. Corruption Perceptions Index.

University of California, Berkeley-School of Law (2011) Talking Peace: A Population-Based Survey on Attitudes About Security, Dispute Resolution, and Post-Conflict Reconstruction in Liberia.

World Bank (1974). President's Memorandum to the Executive Directors, No. R74-61, March 25, 1974

World Bank (1975a). *Liberia: Growth with Development. Volume I: Main Report.* Report No. 426a-LBR.

World Bank (1975b). *Liberia: Growth with Development. Volume II: Statistics.* Report No. 426a-LBR.

World Bank (1979). *Liberia: Current Economic Situation and Prospects.* Report No. 2662-LBR.

World Bank (1978). *Current Economic Position and Prospects of Liberia*. Report No. 1642a-LBR

World Bank (2005). *Poverty Manual*. World Bank Institute (August).

World Bank (2006a). Mini-Diagnostics Analysis of the Investment Climate. FIAS (International Finance Corporation and the World Bank) (March).

World Bank (2006b). Where is the Wealth of Nations? Measuring Capital for the 21st Century.

World Bank (2007-2011). *Doing Business Report.*

World Bank (2008). *Liberia: Tapping Nature's Bounty for the Benefit of All. Diagnostic Trade Integration Study.* World Bank, PREM 4. Africa Region. Report No 54113-LR (December).

World Bank (2009). Liberia: Investment Climate Policy Note. Africa Finance and Private Sector Group (AFTFP).

World Bank (2010a). *Liberia's Infrastructure: A Continental Perspective.* Africa Infrastructure Country Diagnostic, Country Report (March).

World Bank (2010b). *Enhanced Heavily Indebted Poor Countries (HIPC) Initiative Completion Point Document and Multilateral Debt Relief Initiative (MDRI)*. World Bank, International Development Association and International Monetary Fund (June).

World Bank (2010c). Liberia: Poverty and Human Development Note (June).

World Bank (2010d). *Liberia: Employment and Pro-Poor Growth*. World Bank, PREM 4. Africa Region. Report No 51924-LR (November).

World Bank (2010e). *Doing Business 2010*.

World Bank (2010f). Liberia Country Policy and Institutional Assessment.

World Bank (2010g). Liberia Education Sector Status Report.

World Bank (2011a). Applying the Growth Identification and Facilitation Framework: The Case of Nigeria. Development Economics Vice-Presidency (draft, April).

World Bank (2011b). The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium.

World Bank (2011c). Liberia Leveraging Concessions for Private Sector Development (draft).

World Bank (2011d). Liberia Leveraging Investment by Natural Resource Concessionaires (draft).

World Bank (2011e). Liberia Prioritizing Investment for Economic Diversification (draft).

World Development Indicators (various years) http://data.worldbank.org/data-catalog/world-development-indicators