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Nepal Growth Diagnostic

May 2014

Foreword

It is my pleasure to introduce the recently completed constraints to growth analysis, which is the result of a partnership between the Government of Nepal and the Millennium Challenge Corporation (MCC), a United States Government aid agency dedicated to promoting economic growth and poverty reduction. In December 2011, and subsequently in 2012 and 2013, the Board of Directors of MCC selected Nepal as eligible to develop a threshold program.

A joint team of economists working on behalf of the governments of Nepal and the United States conducted extensive research and analysis for more than one year, proactively engaging a wide array of stakeholders both within and outside of the Government of Nepal. This extensive and inclusive analysis concludes that there are four main binding constraints to economic growth in Nepal: policy implementation uncertainty; inadequate supply of electricity; high cost of transport; and challenging industrial relations and outdated labor laws and regulations. Agreeing with these findings, the Government of Nepal recently highlighted power and transport infrastructure development as priority sectors for intervention.

I take this opportunity to express my sincere thanks to the team of MCC, USAID, and Nepalese economists, along with officials from the Ministry of Finance, for their hard work coordinating and successfully concluding this exercise. I also thank all stakeholders, including development partners and officials from the Government of Nepal and non-governmental agencies, for their contributions during consultations. This analysis will be used as resource for designing the MCC program, as well as for initiating various policy and institutional reforms in the relevant sectors. We hope that this analysis will help to inform policy and institutional reforms that promote economic growth that directly benefits the people of Nepal.

Thank You,

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April 2014

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Table of Contents

1. Introduction and Summary of Findings	8
1.1 Nepal’s Binding Constraints to Growth	9
Policy Implementation Uncertainty	9
Electricity.....	9
Transport Costs	9
Industrial Relations and Rigid Labor Regulations.....	9
1.2 Underlying Issues and ‘Growth Syndrome’	10
Political Instability	10
Effect on the Policy Uncertainty Constraint.....	11
Effect on Government Expenditures and Infrastructure Constraints.....	11
Effect on Industrial Relations	12
Other Channels	12
Relaxing Underlying Issues.....	13
1.3 Additional Risks	13
1.4 The Methodology of Growth Diagnostics.....	14
1.5 Implementation, Data, and Evidence	15
2. Background and Overview of Nepal’s Economy	17
2.1 Nepal’s Economic Growth and Policy History	17
2.2 Economic Activity by Sector	19
Agriculture	20
Services	22
Manufacturing	23
2.3 Investment Activity in Nepal	23
Gross Fixed Capital Formation (GFCF)	23
Foreign Direct Investment (FDI).....	25
2.5 Poverty and Inequality.....	26
Poverty	26
Inequality	26
2.6 Migration and Remittances in Nepal.....	27
Migration.....	27

Remittances	27
2.7 Conclusions: Background Examination.....	28
3. Access to Finance.....	29
3.1 Exploration of Finance Restrictions	30
Price Signals	30
Low Correlation between Supply of Finance and Investment.....	30
Are Firms Overcoming Finance Constraints?	31
Firms are Becoming Less Capital Intensive	32
Banks Have Adequate Access to Savings	32
3.2 Conclusions: Access to Finance	32
4. Natural Capital.....	34
4.1 Natural Capital Factors	35
Natural Beauty and Tourism	35
Hydropower Potential.....	35
Challenging Terrain	35
Arable Land	35
Mineral Wealth	36
Landlocked	36
Seismic Risks	36
Landslide, Flood, and Climate Change	38
4.2 Conclusions: Natural Capital.....	40
5. Infrastructure.....	41
5.1 Electricity	42
Shadow Price of Electricity.....	43
Generator Use.....	43
Losses in Transmission and Distribution	44
Interaction with Other Constraints.....	44
Conclusions: Electricity	45
5.2 Transport	45
Roads.....	45
Border Frictions and Predictability	46

Trucking and Transport Services	47
Limited Alternatives: Rail & Air	50
Conclusions: Transport	51
5.3 Irrigation and Water Supply	51
5.4 Telecommunications	52
5.4 Conclusions: Infrastructure	53
5.5 Annex: Power Development Map of Nepal.....	54
6. Human Capital	56
6.1 Human Capital Measures in Nepal	56
6.2 Education.....	59
The Value of Education in Nepal.....	59
Nepal: Comparison of OLS Estimates of Returns to Education.....	
Unemployment	62
Correlation with Growth and Investment.....	63
Are Firms Overcoming Education Constraints?	64
International Migration and Human Capital.....	65
Conclusions: Education	67
6.3 Health	67
Economic Costs of Poor Health.....	70
6.4 Conclusions: Human Capital	71
6.5 Annex: Nepal Education Indicators	73
7. Appropriability Risks	74
7.1 Previous Studies and Perception Surveys.....	74
7.2 Political Instability, Definition and Growth Connection	77
Political Stability and Economic Growth in Nepal.....	77
7.3 Policy Implementation Uncertainty and Economic Growth.....	79
Short Term Financing is Prevalent	79
Leading Growth Sectors are Not Dependent on Political Stability	79
Sectors that Require Political Stability Have Done Poorly	80
7.4 Government Capital Expenditures	81
7.5 Other Aspects of Business Environment, Taxation, and Corruption	83
Taxation is Moderate	83
Corruption.....	84

High Levels of Informal Economic Activity	84
7.6 Industrial Relations and Labor Regulations	85
Small Average Firm Size	86
Temporary Workers are Prevalent	87
Conclusions: Labor and Business Relations	87
7.7 Conclusions: Micro-Level Risks	88
7.8 Macroeconomic Management	89
Fiscal Policy and Debt.....	89
Dutch Disease through Remittances.....	90
Banking Sector Risk	91
7.9 Conclusions: Appropriability Risks.....	91
7.10 Annex: Remittances and Dutch Disease	92
8. Market Failures: Information and Coordination Externalities	95
8.1 'Self-Discovery' and Information Externalities	95
Export Diversity.....	96
Product Space	98
Export Sophistication	102
Conclusions: Self-Discovery and Information Externalities	104
8.2 Investment Coordination and Market Failures: The Case of Tourism.....	104
Nepal's Tourism Potential.....	105
Achieving Nepal's Tourism Potential	106
Conclusions: Coordination Failures.....	107
8.3 Conclusions: Market Failures	107
Appendix. Finance	108
Introduction.....	108
The Finance Sector in Nepal: A Brief Overview	108
Conclusion	110
References	111

1. Introduction and Summary of Findings

Nepal is a country of striking cultural heritage and natural beauty. Landlocked between India and China, the Kingdom of Nepal existed as an independent Hindu monarchy for over 200 years. Unlike many of its South Asian neighbors, Nepal did not experience European colonial rule. In 1996, the Maoist rebellion marked the beginning of a civil conflict that would conclude in 2006 with a Comprehensive Peace Accord that paved the way for a protracted democratic transition process.

Institutionalizing this transition process is ongoing, but the land-locked country has made substantial progress in consolidating the peace process and re-integrating former fighters into society. A new Constituent Assembly (CA) was elected in November 2013 and a coalition government was formed. The CA is tasked with promulgating a new constitution and conducting legislative business. Consistent with the country's history of self-determination, these final steps towards codifying democratic institutions will be fully owned and driven by the Nepalese people.

While the country appears set on a path of institutionalizing democratic governance, the transition period since the peace agreement has been characterized by political instability and policy uncertainty that have hindered the country's economic development. Political instability is defined in this report as the frequent change in political leadership and fragility of the governance environment and is not meant to indicate that Nepal is currently experiencing high levels of violence associated with civil conflict (See Chapter 7 for a more detailed definition).

Nepal's growth in Gross Domestic Product (GDP) has averaged a modest 4.5% since 2007, well below regional levels (WDI Nepal, 2013). With slow economic growth and few employment opportunities at home, millions of workers have sought opportunities abroad. Remittances from migrant workers have been high, greater than 25% of GDP (WDI Nepal, 2013). This large flow of money into Nepal has profoundly shaped economic activity and led to significant reductions in poverty. However, remittances also come with social and economic costs so that this may not be a reliable source for future growth. Therefore, economic growth and employment in Nepal will be critical for achieving further gains in poverty reduction and human development. To achieve these gains, relaxing constraints to economic growth will require increased attention as Nepal's political transition continues moving forward.

This report provides evidence and analysis that will help prioritize the challenges that constrain Nepal's economic development. This prioritization helps focus resources for reform on the issues with the greatest potential to increase growth. This report draws on the methodology outlined in "Growth Diagnostics" by Ricardo Hausmann, Dani Rodrik, and Andrés Velasco (HRV, 2005). As HRV point out, all countries face an array of economic challenges, but not all of these challenges are equally restrictive to growth. The methodology has generated a large body of literature and insights about prioritizing constraints to growth that inform this report. In particular, the team had the benefit of building on an excellent growth diagnostic study published in 2009 by the Asian Development Bank, the Department for International Development, and the International Labor Organization.

The remainder of this chapter outlines the main findings of the report followed by an explanation of the methodology used to arrive at these results. The second chapter reviews Nepal's economic structure and history in order to ensure the report is informed by Nepal's unique context. Then, the remaining chapters provide detailed evidence and analysis from investigations into potential constraints to growth.

1.1 Nepal's Binding Constraints to Growth

The team identified four main constraints to growth in Nepal: (1) policy implementation uncertainty; (2) the inadequate supply of electricity; (3) the high cost of transportation; and (4) challenging industrial relations and rigid labor regulations. The balance of the evidence suggests that policy uncertainty and electricity constraints may be more severe than transportation and labor constraints. A summary of each constraint is provided below, with additional evidence presented for each of these constraints in their relevant chapter.

Policy Implementation Uncertainty

Frequent changes in government leadership have resulted in policy implementation that has been unpredictable for firms in Nepal. While much of Nepal's bureaucratic structure and policy documents have remained the same, changes in leadership of a ministry often leads to significant shifts in the implementation of government policy. This lack of continuity and predictability of policy implementation is consistently cited by firms as a major constraint to making investments in Nepal (see Chapter 7).

Electricity

Nepal suffers from the worst electricity shortages in South Asia. Only half of the demand for electricity can be met by the nation's grid. This results in load shedding of up to 18 hours a day during the dry winter months, when hydropower generation is low (Poudel, 2013). The low availability of electricity creates significant costs for businesses which have to run generators on expensive imported fuel (see Chapter 5).

Transport Costs

Nepal ranks 147th out of 155 countries in the Logistics Performance Index (World Bank LPI). While Nepal's rugged terrain and landlocked geography contribute to this poor performance, the high cost of transportation in Nepal is also driven by poor quality and quantity of roads, a lack of competitiveness in the trucking sector, and by costly customs procedures. The result is that transporting goods within Nepal and reaching international markets is expensive and unreliable (Chapter 5).

Industrial Relations and Rigid Labor Regulations

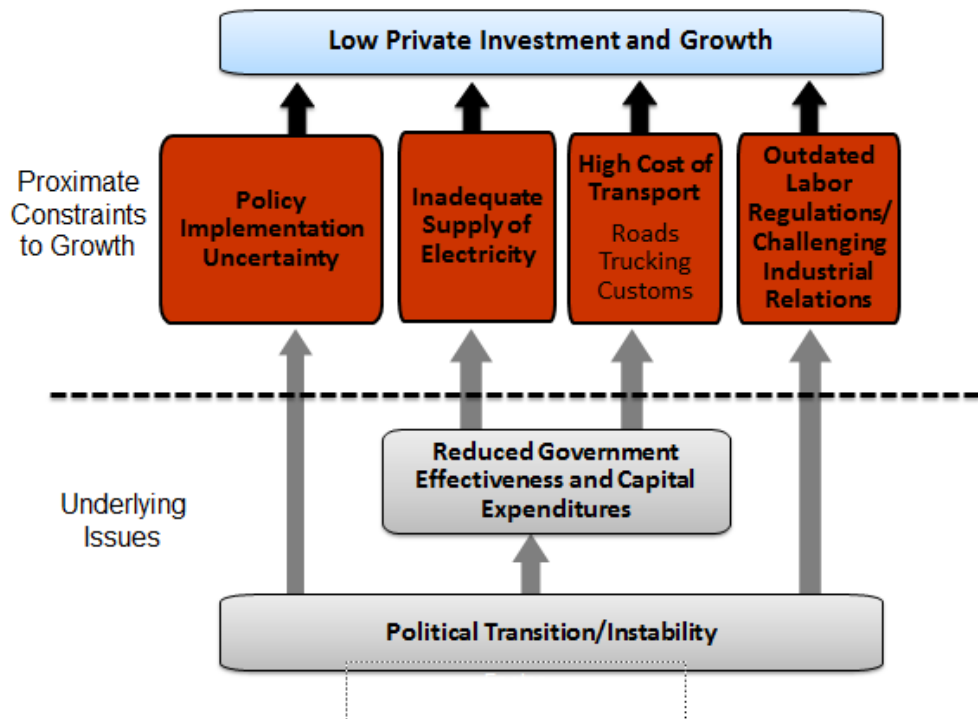
Nepal's labor code is complex. Implementation of the code and mediation by the government between labor and business is both challenging and inadequate. The Federation of Nepalese Chambers of Commerce and Industry (FNCCI) Employers' Council summary report (2010) identifies three primary reasons why the labor code needs revision: poor implementation, protracted court rulings, and long firing procedures (Amatya et al., 2010). These difficulties appear to alter the hiring and firing practices of firms in costly ways that include firm size remaining small to avoid the difficulties of labor negotiations. However, evidence from focus group discussions in Nepal suggest that these issues are improving and thus the team has categorized this constraint as less severe (Chapter 7).

1.2 Underlying Issues and ‘Growth Syndrome’

As suggested in the growth diagnostics literature,¹ it is important to identify the underlying drivers of binding constraints. A *growth syndrome* describes the overarching nature of the failure of the government that results in constraints to growth. Nepal’s growth syndrome can be described as an underinvesting state resulting from political instability.

The results of the growth diagnostic study highlight the foundational role of government instability in Nepal’s economy. Instability has led to reductions in the quantity and quality of capital expenditures on infrastructure, which contributes to constraints in electricity and transportation. Frequent changes in government create uncertainty for firms on what government policy will be and how it will be implemented. The high politicization of labor organizations means that unions use their leverage for political issues and not just for labor negotiations, which results in an even more difficult environment for firms. The relationship of these main elements is summarized in **Figure 1** and further discussed below.

Figure 1. Nepal’s Growth Constraints and Syndrome



Political Instability

The Comprehensive Peace Accord of 2006 brought an end to Nepal’s violent political struggles. Since the agreement, Nepal has made significant progress through political consensus and bargaining, but has not yet institutionalized and codified a system for empowering government leadership in a transparent and predictable way.

¹ Especially in “The Mindbook”, Hausmann et al. (2008), and “Implementing Growth Analytics”, Pritchett et al. (2008).

In 2008, Nepal elected a Constituent Assembly according to the terms of an interim constitution. The CA took power with a mandate to legislate and to draft a constitution. While the CA made progress, disagreement over the appropriate federal structure prevented the CA from finalizing the constitution within the timeframe of its mandate. After multiple extensions, the Supreme Court of Nepal determined in May 2012 that the CA should be disbanded and that elections were required to reselect a CA with a fresh mandate. Because the interim constitution did not have a provision for this contingency, Nepal's political leaders again had to find a consensus path forward without constitutional direction (The Economist, May 2012). Elections were recently held in November 2013, resulting in a new CA again tasked with conducting legislative business and finalizing a new constitution.

This combination of political instability and the resulting policy implementation uncertainty are the foundation of Nepal's most binding constraints to growth.

Effect on the Policy Uncertainty Constraint

One result of the lack of stable democratic institutions has been frequent changes in government leadership. In five years, from 2008 through 2012, Nepal had six heads of government (BTI, 2012). This frequent change of government illustrates the uncertainty that constrains firms' investments.

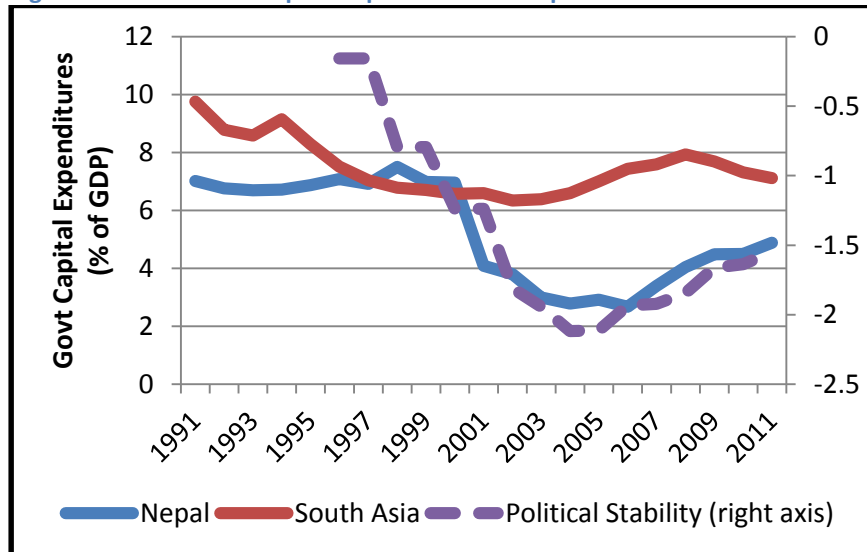
Effect on Government Expenditures and Infrastructure Constraints

The ongoing political instability has affected the government's ability to invest in infrastructure and other capital expenditures. Approval of Nepal's annual budget in FY 2009, FY 2010, and FY 2011 was delayed by months due to the protracted process of building political consensus (Krause, 2013). FY 2012/13 was an extreme example of the difficulties that resulted from a late budget. The dissolution of the CA in May 2012 resulted in a nine month delay in passing a full budget (Karoobar Daily, July 2013). This delay shortened the timeframe for implementing capital expenditures and reduced them to only 3.1% of GDP (Kathmandu Post, September 2013). In contrast to expenditures, revenue collection is not contingent on the budgetary process and revenues have grown steadily. As a result of limited expenditures alongside growing revenue, there was an unexpected budget surplus in 2012/13.²

The correlation between political instability and government capital expenditures is illustrated in [Figure 2](#). Government capital expenditures (as a percent of GDP) have dropped off significantly along with measures of stability. Despite a modest recovery, the level of capital expenditures remains low in comparison to other South Asian countries.

² The interim government has taken encouraging action to pass the budget on time for FY 2013/14.

Figure 2. Government Capital Expenditures in Nepal and South Asia



Source: World Bank World Development Indicators (2013), WGI

The low level of capital expenditures contributes to the country’s infrastructure constraints in transport and electricity. Expenditures on road infrastructure have been increasing, but overall levels remain low.

The private sector would be a willing partner to help develop Nepal’s hydropower resources, which have the potential to exceed the country’s electricity generation needs (UNIDO). However, Nepal’s hydropower potential has remained untapped due to the government’s inability to be a reliable partner to the private sector (UNIDO, 2002). The private sector needs the construction of transmission lines to evacuate power, which has been constrained by low capital expenditures. Nepal’s hydropower development is further constrained by additional policy issues and uncertainty (*eKantipur*, August 2013).

Effect on Industrial Relations

Political instability is only a partial contributor to challenging industrial relations, but there is still a significant connection. Labor unions in Nepal are generally aligned with political parties (ILO). Because of this, unions often call strikes, or *bandhs*, for political purposes rather than for negotiating labor contracts. This is especially problematic in the current environment of frequent changes in government and policy uncertainty. The proliferation of political parties in Nepal has also led to a proliferation of labor unions, which increases the number of unions a firm must negotiate with.

Other Channels

Figure 1 depicts the most salient features of constraints to growth in Nepal. A more complex diagram might attempt to illustrate how low growth feeds back into political instability. However, to limit the scope of this report, we do not attempt to examine the underlying determinants of political stability in Nepal. There are also interactions between proximate constraints. For example, a lack of electricity often exacerbates labor issues when firms are unable to employ workers who have shown up to work.³ Rather

³ Anecdotal evidence suggests that firms with adequate access to electricity and other inputs have fewer labor problems.

than complicate the diagram, this dynamic is reflected in the lower ranking of labor relations relative to electricity.

Relaxing Underlying Issues

Nepal appears to be on a path toward political stability. While political instability is an underlying contributor to constraints in Nepal, achieving stability will not immediately eliminate the country's binding constraints in infrastructure. This is an example of what the growth diagnostic literature has termed the "fan belt effect". When a fan belt breaks in a car, various other components in an engine also tend to break. So while the fan belt was the initial cause of the breakdown, fixing just the fan belt is not sufficient on its own to get the car running again (HRV, 2005).

Applying the fan belt analogy to Nepal's economy, achieving political stability (the fan belt) will not by itself fix the infrastructure deficit (the broken engine) that has arisen over years of underinvestment. In other words, improvements to levels of political stability can increase the flow of investment into infrastructure, but a low stock of infrastructure will continue to constrain economic growth for a while afterwards. Fixing the underinvesting state targets the flow of investment into infrastructure, but the country is sufficiently maintaining its infrastructure so it will remain a constraint for a while. This means that economic growth effects of solving the political stability issue will not be immediate, but will take time for the other parts of the engine that have also been broken to get fixed. Still, achieving this stability remains necessary to begin relaxing constraints to growth and get Nepal's economic engine running.

1.3 Additional Risks

The issues identified above represent the most critical constraints to growth in Nepal. This section presents those issues with the potential to become critical constraints if their situation worsens or if more critical constraints are relaxed.

Nepal's macro-economic stability has generally been strong but appears at risk from a potential banking crisis. If a banking crisis were to materialize, the economic costs would be substantial. However, the probability of such a crisis is difficult to assess. The World Bank has recently begun the Nepal Financial Sector Stability Credit that will help to identify risks and strengthen institutional arrangements to support the sector (World Bank, June 2013). Nepal's macro-economic environment is also heavily affected by the significant flow of remittances into the country. A slowdown in remittances could have ripple effects through the economy and precipitate a banking crisis. Remittances have also led to "Dutch Disease" effects that encourage growth outside of the tradable sector and into non-tradable goods. However, as discussed further in Chapter 7, the government has yet to develop a policy strategy available to address Dutch Disease while the country still faces critical constraints in infrastructure.

Nepal also faces coordination failures that constrain the growth of its tourism sector. Tourism has the potential to grow quicker and create more jobs in Nepal, but faces especially difficult coordination problems. Because tourism-related services strongly complement each other, deficiencies in any one aspect of marketing, transportation, dining, hospitality, attractions, etc. can affect the profitability of other aspects. Supportive institutions for tourism planning can help overcome these issues, but appear to be underperforming in Nepal.

Finally, Nepal is in a high-risk area for seismic activity. Due to the recent increase in construction in urban areas like Kathmandu Valley, this densely populated area is susceptible to disruption from earthquakes and increases the risk to life and property.

1.4 The Methodology of Growth Diagnostics

The growth diagnostic approach begins with the premise that economic growth requires private investment.⁴ Building from this premise, the incentives for making investment fall into three broad categories: (1) the overall return to investment; (2) the share of the return an investor expects to keep; and (3) the cost of financing investment. The “diagnostic tree” in [Figure 3](#) provides a heuristic for organizing the investigation into the three factors and their sub-components and this report investigates the influence of each of these three factors in a country’s specific context.⁵

For a particular branch or factor of the diagnostic tree to be a constraint to growth, it must be in high demand and in low supply. A low quantity of a factor does not alone indicate a constraint as low quantities can be the result of weak demand for the factor. For example, there may be low access to finance in the economy but this may not represent a problem in the banking sector’s supply of finance. Rather, it could be due to a lack of demand for financing because of binding constraints in factors like infrastructure. Only in the case of low supply and strong demand is a factor a candidate for a binding constraint to investment and growth.

Unfortunately, supply and demand dynamics are often difficult to observe directly. To help identify when the supply of a factor is low relative to demand, Hausmann, Klinger, and Wagner (2008) suggest the following signals should be observed, which have come to be known as the “four tests” of a growth diagnostic:

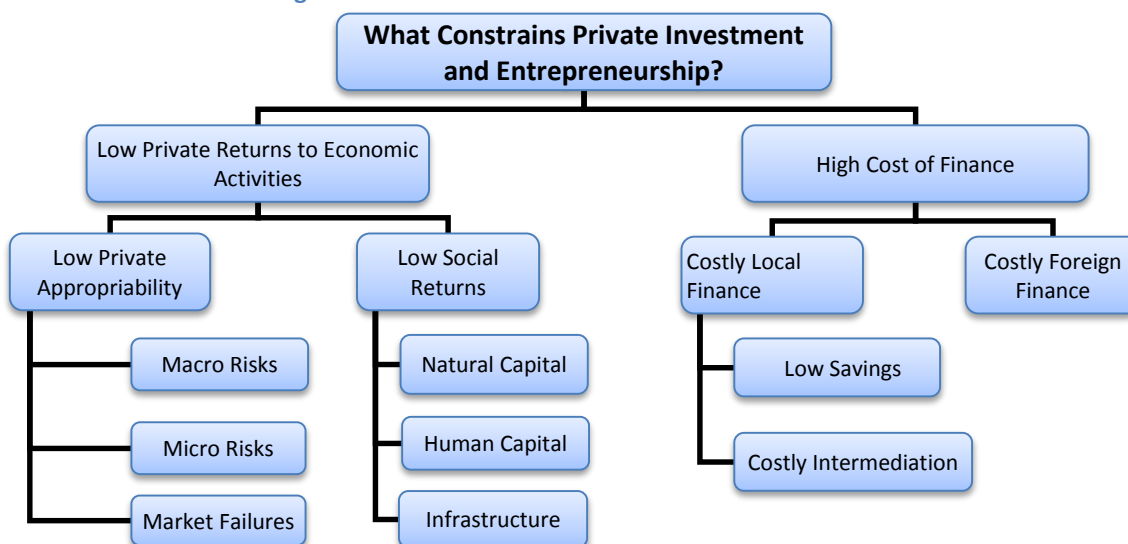
1. The price of the factor is high;
2. Changes in the availability the factor are correlated with changes in investment or growth;
3. Economic agents incur costs or risks to circumvent the constraint; and
4. Economic agents that rely heavily on the constraining factor are not able to thrive⁶

⁴ The term “investment” is intended in the broadest sense of the term to mean “any initiative that expands production- from building warehouses to identifying new products or entrepreneurial opportunities.” (Pritchett, 2009)

⁵ The figure is labeled with numbers that correspond to the incentive categories identified above.

⁶ This is known as the “camels and hippos” test. In the same way one might expect to observe camels and not hippos in environments lacking water, one should expect to observe economic actors thrive that do not heavily rely on a constraining factor, while economic activities that are intensive in the factor are missing or stagnant.

Figure 3. The HRV Growth Diagnostic Tree



Source: Hausmann, Rodrik, & Velasco (2005)

After identifying a small set of binding constraints (usually two or three), this analysis examines their root causes. Understanding how a country’s policy, institutional and social context underlies and gives rise to its constraints helps to inform how reform efforts should address them.

1.5 Implementation, Data, and Evidence

To implement the HRV methodology, the Millennium Challenge Corporation partnered with the Government of Nepal along with economists from the US Agency for International Development and Nepalese academic and private sector organizations to form a team of analysts.

The feasibility of assessing each of the above “four tests” is dependent upon the nature of the factor being examined and the availability of relevant information. National level data provides a strong foundation for the analysis; however, reliable data does not exist in Nepal for every relevant question. Where possible, we complement our data-driven approach with qualitative investigation. “The Investment Climate Assessment” by Afram and Del Pero (2012) provided an excellent reference and qualitative assessment. To build on this work, the Constraints Analysis team held targeted consultations throughout Nepal.⁷ The Federation of Nepalese Chambers of Commerce and Industry (FNCCI) sponsored focus group discussions in four separate urban centers around the country that included representatives from agriculture, manufacturing, tourism, and the services sector. Additionally, the team held multiple consultations with relevant actors that included government officials, the private sector, civil society, and rural villagers. Nepal’s popular press was also a useful resource. Broadening the evidence base with qualitative evidence helps to strengthen the team’s interpretation of the quantitative analysis. As suggested by Hausmann et al. (2008, p. 42):

⁷ Afram and Del Pero examined the 2009 IFC Enterprise Survey data in addition to conducting targeted interviews

... 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 a reasonable counter-factual might be.

Assessing available evidence often requires creating a frame of reference by selecting countries to compare against Nepal. Throughout this report, we strive to present comparator countries that reflect the most relevant comparison for the specific question under examination. In some cases, this requires adjusting the selection of comparator countries depending on the context. For example, transport costs can be affected by being landlocked, and so other landlocked countries are important comparators. In contrast, financial systems are mostly unaffected by being landlocked and it is often more informative to make comparisons with regional neighbors, especially India, as Nepal pegs its exchange rate to India's currency. The problem of selecting comparator countries is mostly related to the tradeoff between presenting concise information versus presenting exhaustive information, this analysis endeavors towards parsimony. The analysis that underlies our conclusions generally attempts to assess as wide a comparison set as possible, and often includes comparators that may not be displayed in the accompanying graphic.

2. Background and Overview of Nepal's Economy

This chapter presents a brief overview of Nepal's economic history and key features of the current economy. Understanding Nepal's unique economic context helps to inform the examination of its potential constraints to economic growth.

Nepal's economy began its first period of sustained economic growth in the early 1980s and through the 1990s, when growth remained relatively steady but slow. The civil conflict that began in 1996 and escalated in 2002 further slowed Nepal's already modest rate of economic growth, especially in relation to other nearby economies in South Asia. While the Comprehensive Peace Accord of 2006 led to improved economic performance, economic growth remains modest. Since 2008, per capita growth has averaged around 3% per year (Kharel, 2012).

Despite slow economic growth, Nepal's recent progress in poverty reduction has been strong. From 2006 to 2011, Nepal was the top performer out of 22 countries in reducing multi-dimensional poverty, as measured by the Oxford Poverty & Human Development Initiative. These gains have come largely through an increase in international labor migration and growth in remittance income (Alkire et al., 2013).

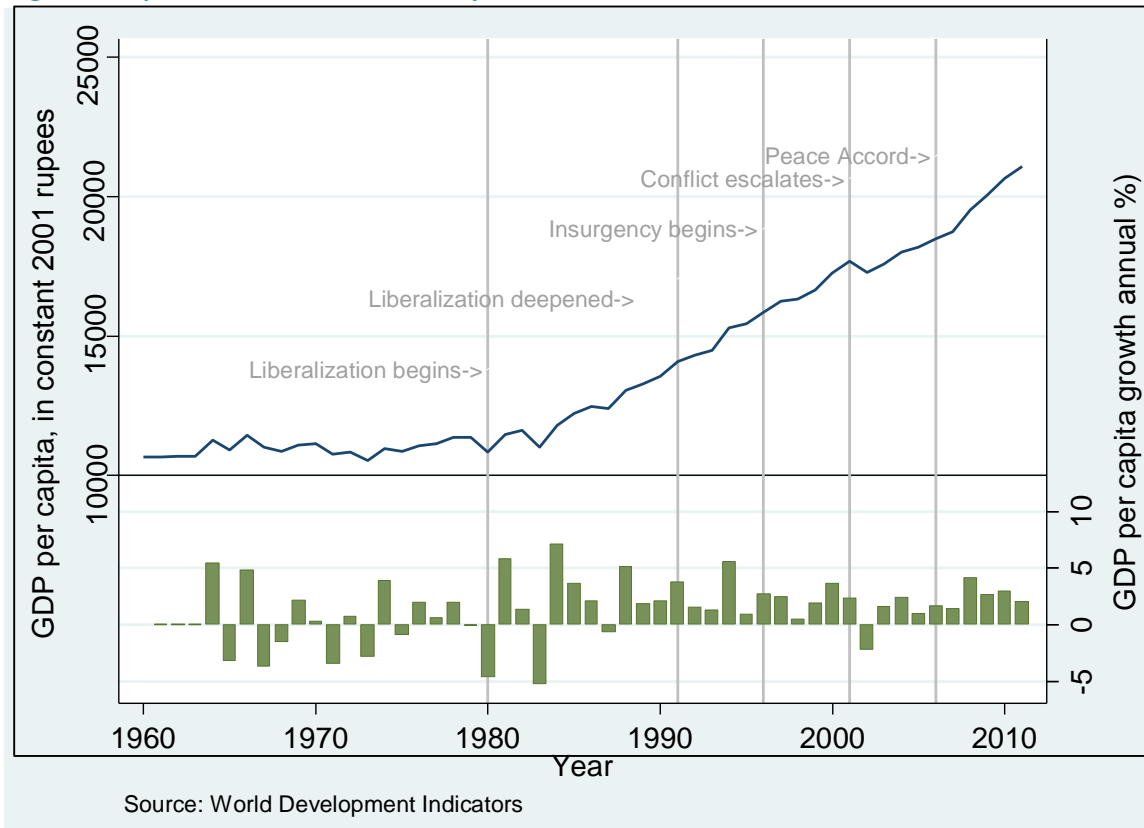
Growth in remittances has supplanted growth in Nepal's tradable sector, which has remained stagnant since the late 1990s (World Bank, 2011). Much of Nepal's workforce is currently employed in agriculture. Though growth in the agricultural sector will remain an important contributor to poverty reduction for the foreseeable future, agriculture alone cannot provide for Nepal's employment needs. Land resources are already stretched with a high rural population density. Growth in agricultural productivity per worker will mean that fewer workers will be needed to maintain productivity per hectare of land. Therefore, growth in Nepal's tradable sector will be necessary to absorb employment from the agricultural sector, drive economic growth, and increase employment opportunities in Nepal (Bhandari, 2004).

2.1 Nepal's Economic Growth and Policy History

Prior to 1980, Nepal's economy experienced minimal growth. In [Figure 4](#), there was a transition to higher GDP per capita growth rates from the early 1980s, when the government introduced important reforms in the financial sector and in international trade. This opening of Nepal's economy marked the beginning of persistent but modest growth. In 1985/86 a balance of payments crisis spurred further macro-economic management reforms under a World Bank structural adjustment program. The World Bank program was followed, in 1989, by reforms to the tax code and liberalization of the financial system (Kharel, 2012).

In 1991, Nepal established a constitutional monarchy and held free and fair elections. This was the first democratically elected assembly in Nepal since the 1950s. These democratic reforms were followed by further economic liberalization, including some privatization of public enterprises and an improved environment for foreign investment (Kharel, 2012).

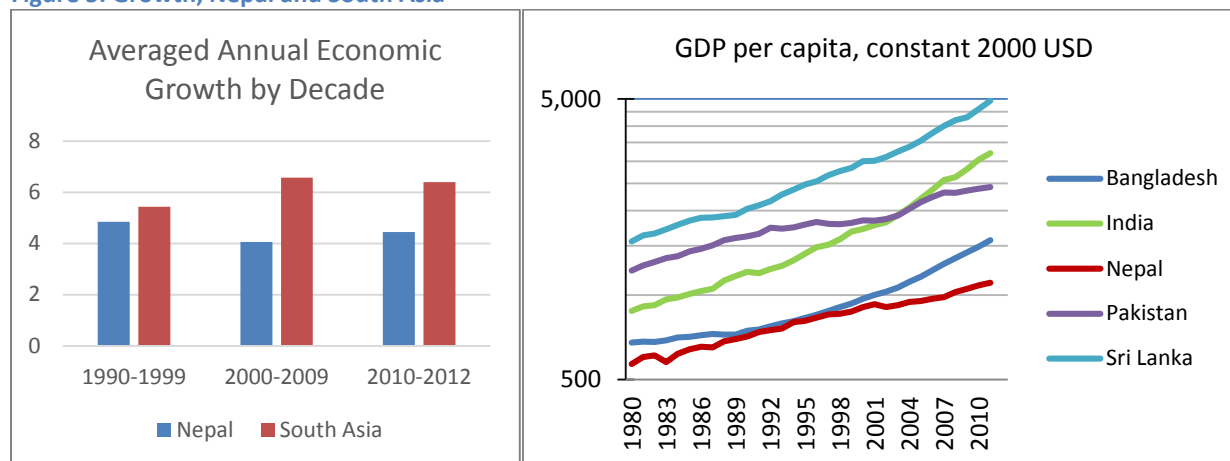
Figure 4. Nepal's Economic Growth History



Through the 1980s and 1990s Nepal experienced similar rates of economic growth as its South Asian neighbors. However, beginning in the early 2000s, Nepal's economy began to slow while growth in other South Asian economies accelerated (see left side of [Figure 5](#)). The right-hand side of Figure 5 shows in the 1990s, Nepal's GDP per capita growth was roughly parallel to that of Sri Lanka and India. Through the 1990s, Nepal's growth rate decelerated and became more comparable to that of Pakistan. Though Nepal's GDP per capita growth rate has accelerated somewhat, it still lags behind its faster-growing South Asian neighbors. In order for Nepal to keep up with regional growth, it will need to take steps to accelerate its rate of growth growing forward.

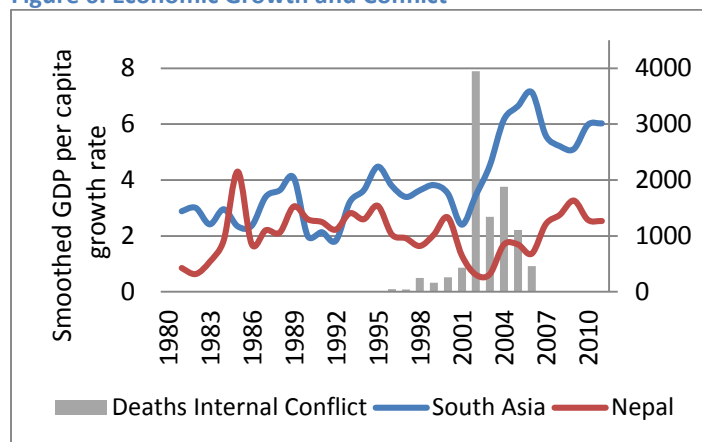
In [Figure 6](#), it is clear that the beginning of the conflict in 1996 and its escalation in 2002 align with the increasing gap between Nepal's growth rate and the rest of South Asia. Various studies (Ding and Masha, 2012; Dabla-Norris et al., 2012) suggest that accelerated growth in South Asia, and especially India, should create positive spillovers for growth in Nepal, though this has not yet been the case. After the signing of the Comprehensive Peace Accord in 2006, Nepal's economic growth recovered to rates achieved in the 1990s. However, these rates still fall short of accelerated regional growth. This suggests a return to the modest growth rates of the 1990s is an inadequate target for growth. Nepal's lack of participation in this acceleration suggests the economy faces considerable constraints. The goal of this report is to identify those constraints that, if relaxed, will help return Nepal's economic trajectory to that of its South Asian neighbors.

Figure 5. Growth, Nepal and South Asia⁸



Source: World Bank World Development Indicators (2013)

Figure 6. Economic Growth and Conflict



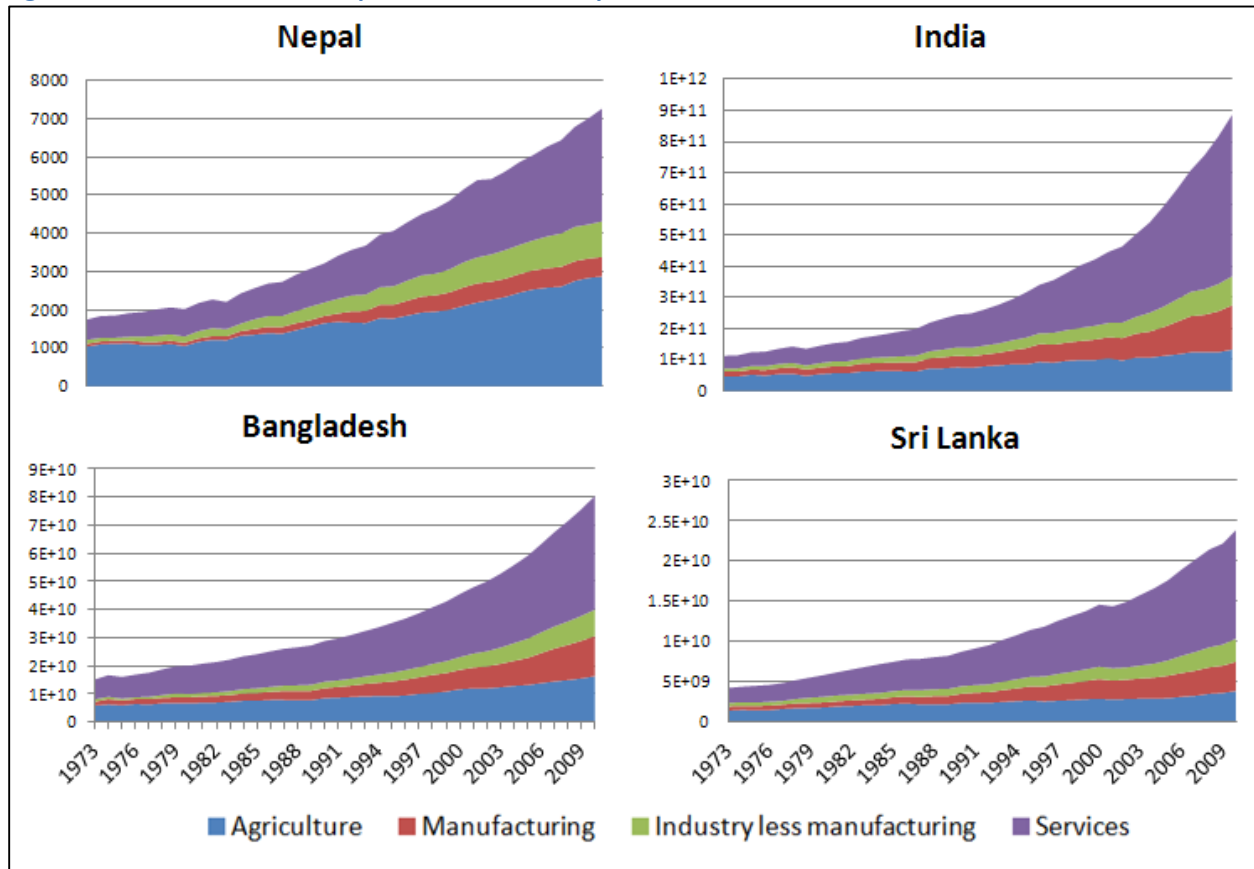
Source: World Bank World Development Indicators (2013)

2.2 Economic Activity by Sector

Nepal’s economy is predominantly agricultural; the sector contributes 35% of GDP (Nepal CBS) and 75% of employment (Nepal CBS; NLSS, 2012). Further, this sector plays a more prominent role in Nepal’s economy than it does in other South Asian comparators (Figure 7). Despite agriculture’s prominence, growth has been more rapid in other sectors. In the 1990s, manufacturing and industry led economic growth. Manufacturing recovered somewhat, after the conflict, to the levels of growth in agriculture (Kishor, 2000). In the 2000s, the services sector has been the primary driver of growth. Growth in trade-related services like transport and retail have led growth. This reflects stronger consumer demand driven by growth in remittance flows, which are Nepal’s largest source of foreign exchange (UNESCAP).

⁸ This uses the World Bank definition: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka.

Figure 7. Productive Sectors, Nepal and Selected Comparators

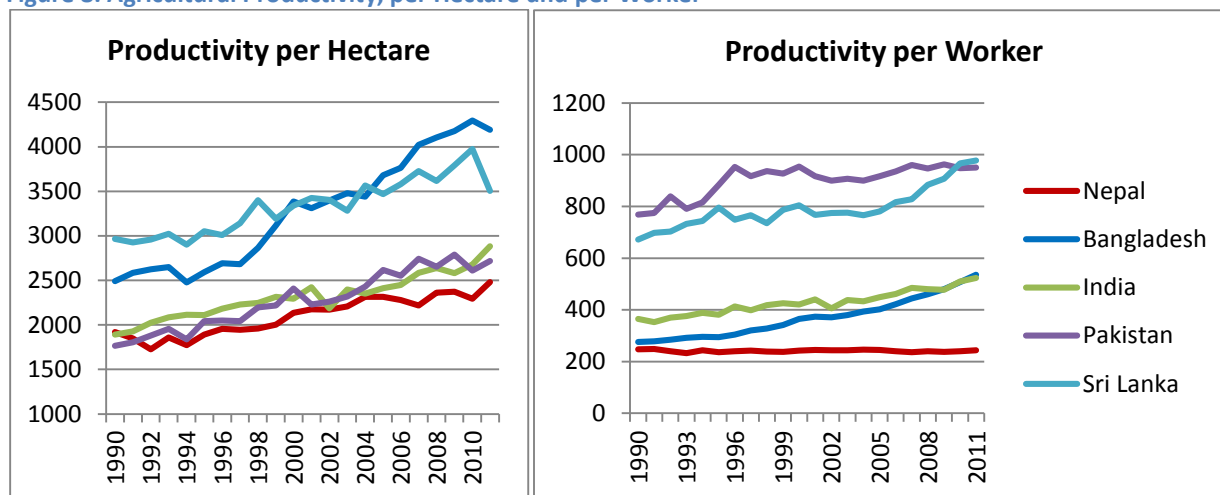


Source: World Bank World Development Indicators (2013)

Agriculture

Nepal produces cereals, especially rice. Vegetables and buffalo products are also significant and have seen the highest growth among agricultural products. Most agricultural production is for subsistence or local consumption and as little as 13% is traded in non-local markets (Samriddhi, 2011). Nepal’s highest value agricultural export product, lentils, is produced in quantities far below cereals. Tea, cardamom, and ginger are other leading agricultural exports.

Figure 8. Agricultural Productivity, per Hectare and per Worker



Source: FAOSTAT and World Bank World Development Indicators (2013)

Growth in agricultural productivity per hectare has been slow. Nepal currently lags the rest of South Asia in this measure (Figure 8). The available data on per-worker productivity shows even slower growth than productivity per hectare. However, this may be the result of over-counting the number of agricultural workers, since manufacturing workers who migrate may still live in rural areas. This might classify them as agricultural despite their incomes coming from other sectors (Bhandari, 2004). Yet, this issue is not sufficient on its own to explain the low growth of agricultural worker productivity. Smaller and more fragmented land holdings also contribute and make it difficult to achieve efficient economies of scale (Table 1).⁹

Table 1. Declining Size of Land Holdings

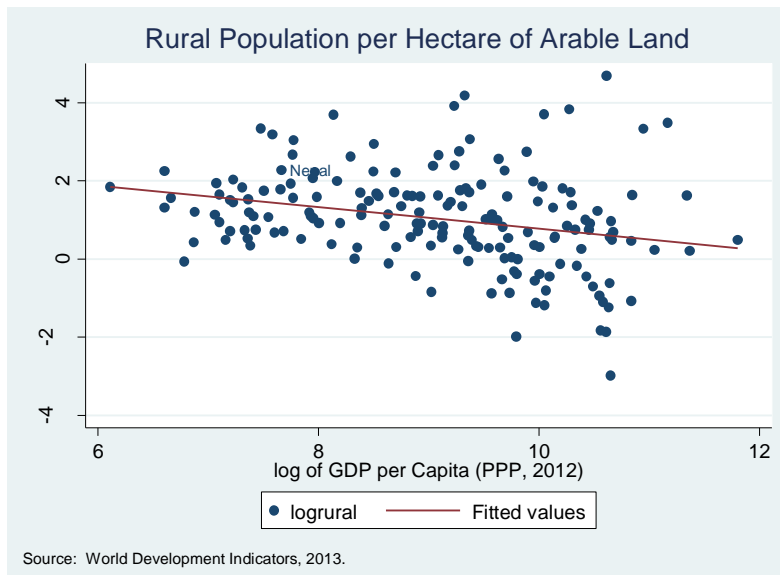
	1995/96	2003/04	2010/11
Percentage of holdings operating less than 0.5 hectares	40.1	44.8	52.7
Percentage of holdings growing main paddy	76	76.1	72.3
Percentage of holdings growing summer vegetables	35.6	60.8	68.8

Source: Nepal Living Standards Survey (NLSS, 2012)

Growth in agricultural productivity per worker in Nepal will likely require more land per worker. However, Nepal has a high rural population relative to the amount of arable land in the country (Figure 9 and further discussed in Chapter 4). Therefore the amount of land cannot be increased and growth in other sectors of the economy will be necessary to create new employment opportunities for Nepal’s rural workforce and allow land to be consolidated into larger holdings. While improving worker productivity in agriculture will remain an important driver of poverty reduction, it must be complemented by employment growth in other economic sectors. This would provide new employment opportunities to reduce the number of people dependent on each hectare of farmland.

⁹ According the 2010/11 NLSS an agricultural holding is defined as: “an economic unit of agricultural production under single management comprising all livestock and poultry kept, and all land used wholly or partly for agricultural production purposes, without regard to title, legal form, or size.” (NLSS, 2012, p. 5)

Figure 9. Rural Population Density

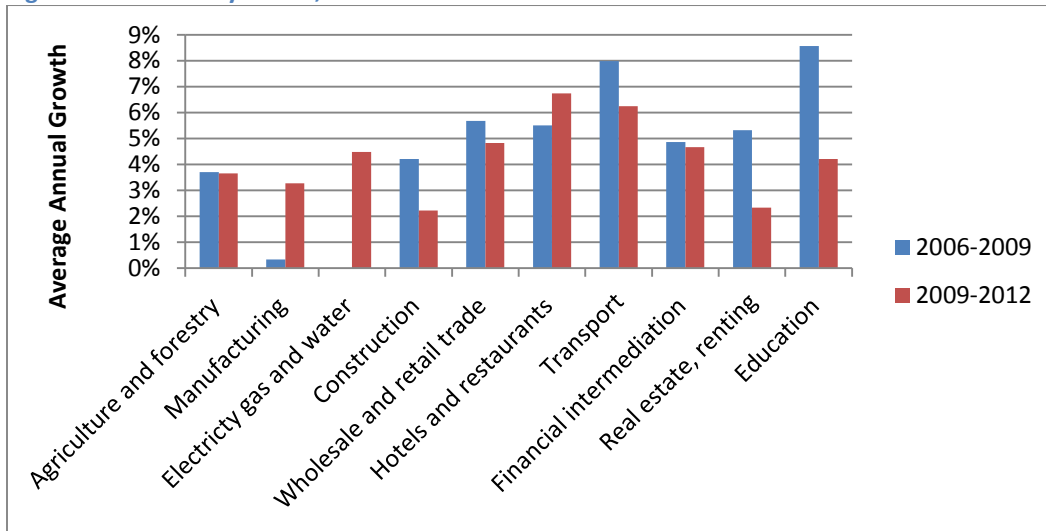


Source: World Bank World Development Indicators (2013) and author's calculations

Services

The services sector has been growing more quickly than other sectors since the signing of the Comprehensive Peace Accord. Those services that support consumption growth due to increased remittances have grown the quickest, including transport and retail services, which directly benefit from consumption growth. Additionally, remittance growth likely strengthened the real estate and construction sectors, until the softening of the housing market after 2009 (ILO, 2010).

Figure 10. Growth by Sector, Detailed¹⁰



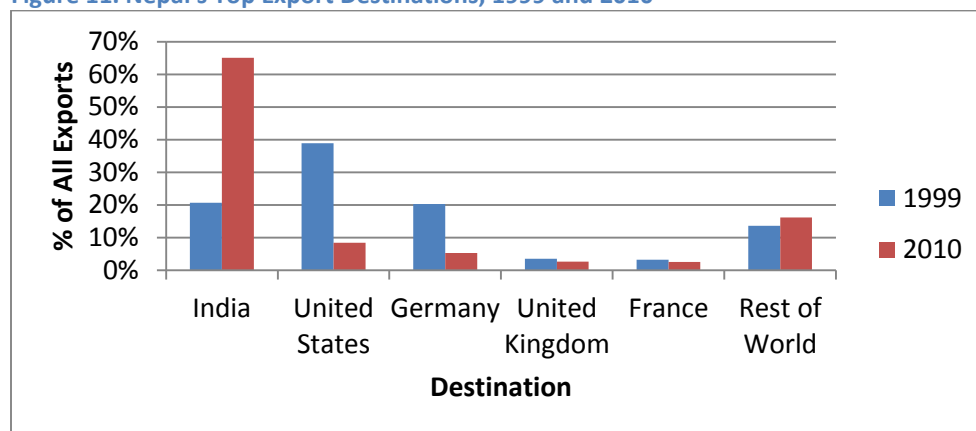
Source: GON Ministry of Finance

¹⁰ The increase in manufacturing, from 2009, reflects a recovery to normal levels. The 2006-2009 period was hurt by various factors including the expiration of the MFA.

Manufacturing

Manufacturing exports grew solidly from 1980 to 2000. Much of this growth was led by textiles which benefited from preferential access to the U.S. textiles market under the Multi-Fiber Arrangement (MFA) (Kishor, 2000). The U.S. was Nepal's main export market for textiles until the MFA gradually rolled back protections in the early 2000s, and expired completely in 2005. This time frame also coincided with the civil conflict. As a result, total exports fell significantly during this period. The recovery in exports, beginning in 2007, is notable for its limited growth in the textiles sector. The decline of the textile sector is also reflected in the decline of the U.S. as a trading partner,¹¹ which was the primary destination for Nepal's textile manufacturing (Figure 11) (SAWTEE, 2007). Nepal's export sector is examined in further detail in Chapter 8.

Figure 11. Nepal's Top Export Destinations, 1999 and 2010



Source: COMTRADE, SITC4 data

Overall, Nepal has been undergoing a slow transformation from an economy with an agricultural foundation to one which increasingly relies on the services sector. Still, while agriculture will continue to be a key component of the economy for the foreseeable future, more non-agriculture jobs will need to be created in order to accelerate Nepal's growth and reduce poverty.

2.3 Investment Activity in Nepal

This report uses the Hausman, Ricardo and Velasco (2005) methodology to search for binding constraints to self-sustaining private investment in a country. That is, the focus of the constraints analysis is to uncover the reasons that entrepreneurs and investors do not invest in an economy – build a business, hire workers, engage in trade, and grow industries. Any analysis that seeks to uncover these reasons must look at the current levels of investment within an economy, which is the purpose of this section.

Gross Fixed Capital Formation (GFCF)

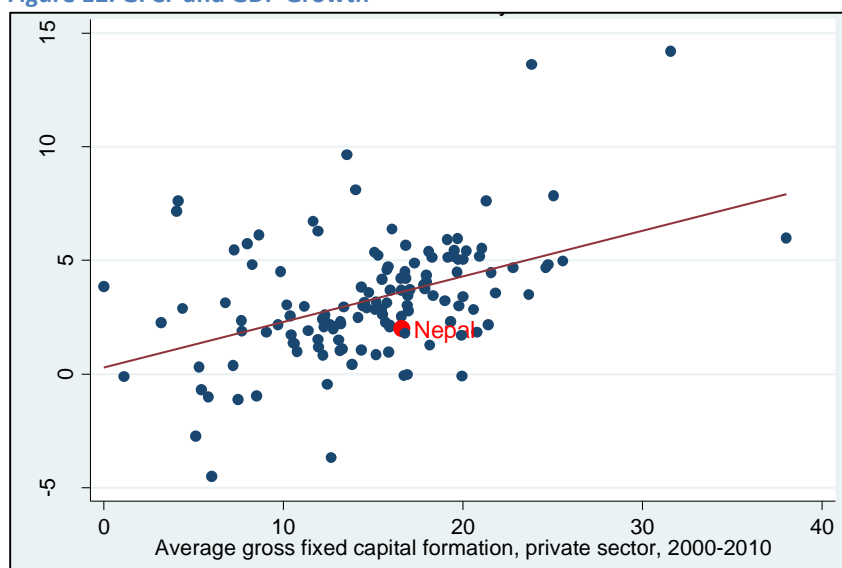
Figure 12 shows the positive correlation across countries between GFCF and economic growth over the 2000-2010 time period.¹² Nepal's position on the chart illustrates a relatively strong level of private

¹¹ The U.S. went from accounting for 39% of exports in 1999 down to only 8.4% in 2010.

¹² While this report makes use of standard statistical measures of investment, they are presented with a note of caution. Use of the term "investment" is intended "in the broadest sense, from investments to expand physical

investment given its GDP per capita. However, Nepal's GDP growth rate was lower than most other countries with similar levels of investment. This suggests a low return to investment in Nepal, which is consistent with constraints in complementary inputs, like infrastructure, that are examined in subsequent chapters of this report.

Figure 12. GFCF and GDP Growth

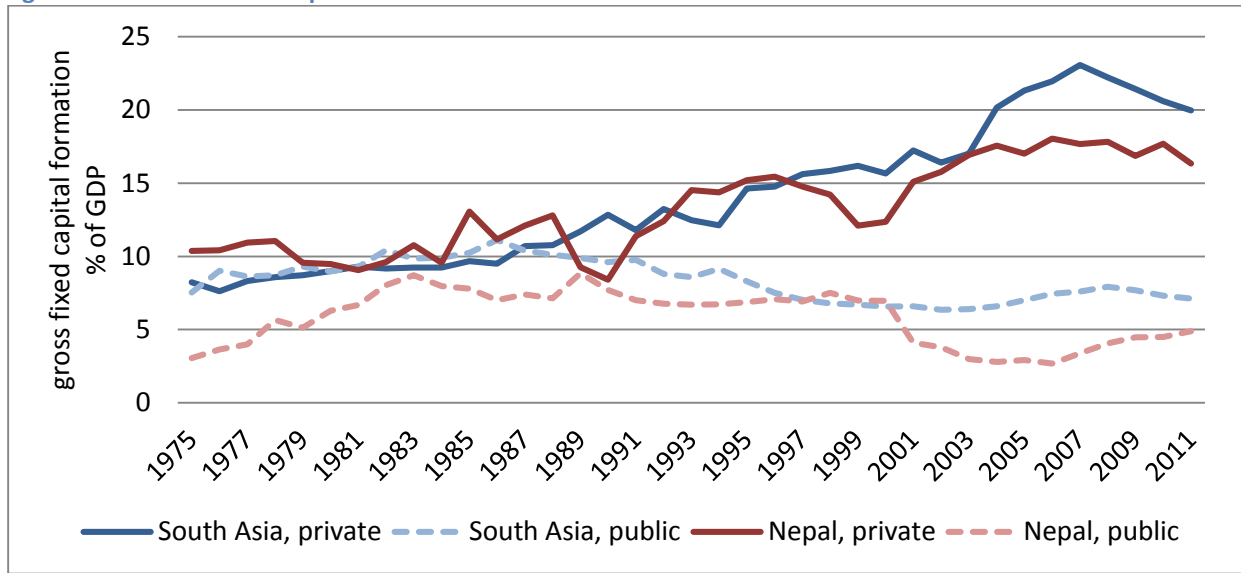


Source: World Bank World Development Indicators (2013)

South Asia's private GFCF increased sharply in 2004 at around the same time the growth rate in the region accelerated. Nepal's inability to participate in the accelerated investment also likely contributed to its failure to accelerate growth. The decline in public sector investment beginning in 2001 (Figure 13) combined with the destruction of existing infrastructure during the conflict to further reduce the country's overall stock of infrastructure. Public capital formation and private capital formation are often complementary. Public capital such as roads, electricity lines and schools complement and enhance the productivity of private capital investments. Firms use roads to transport their products, electricity connections to light their facilities, and capable workers to produce goods. This lack of complementary public goods likely contributed to the low growth relative to private investment.

facilities to innovations in process, introducing new products, or more generally any initiative that expands production" (Pritchett, 2009). Standard investment measures can be helpful for understanding important trends. An Asian Development Bank (2009) study identifies concerns about the ability of *gross capital formation* statistics to accurately reflect investment in Nepal and suggest that a more accurate indicator may be *gross fixed capital formation* (GFCF).

Figure 13. Investment in Nepal and South Asia

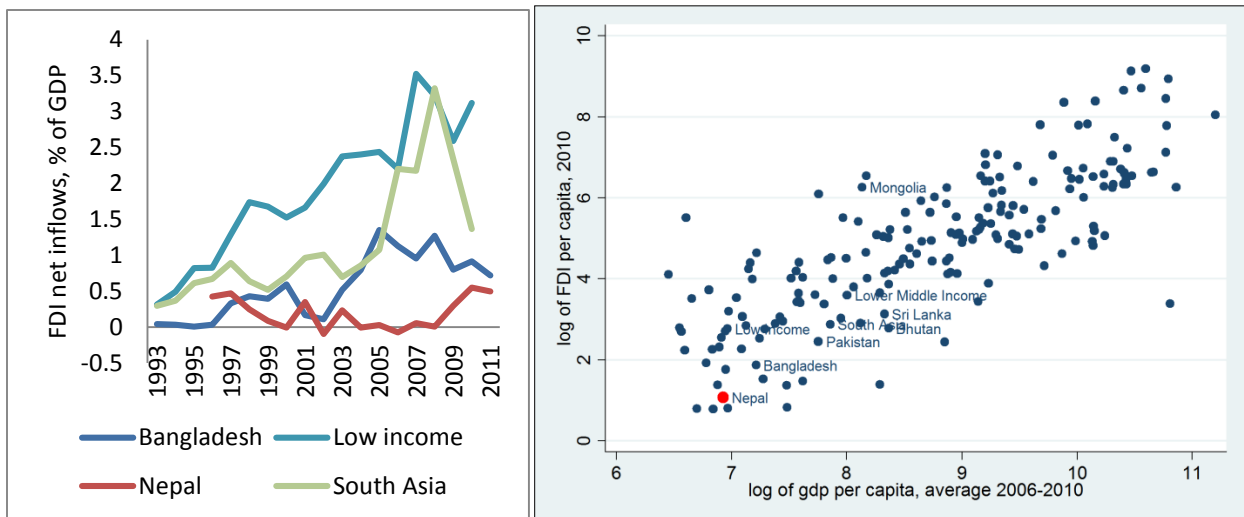


Source: World Bank World Development Indicators (2013)

Foreign Direct Investment (FDI)

FDI in Nepal was markedly suppressed through the conflict period. While FDI flows began to recover in 2009, it still remains low (Figure 14).

Figure 14. Foreign Direct Investment



Source: World Bank World Development Indicators (2013)

The above figures combine to suggest a low return to private capital in Nepal. Relative to its GDP per capita, there is a low level of FDI, and relative to its annual average level of gross fixed capital formation, GDP per capita remains relatively low. Even relative to low income countries, FDI has stagnated as a percent of GDP. Relatively low public fixed capital formation may be contributing to these low returns on private dollars, given the complementarity of public and private assets.

2.5 Poverty and Inequality

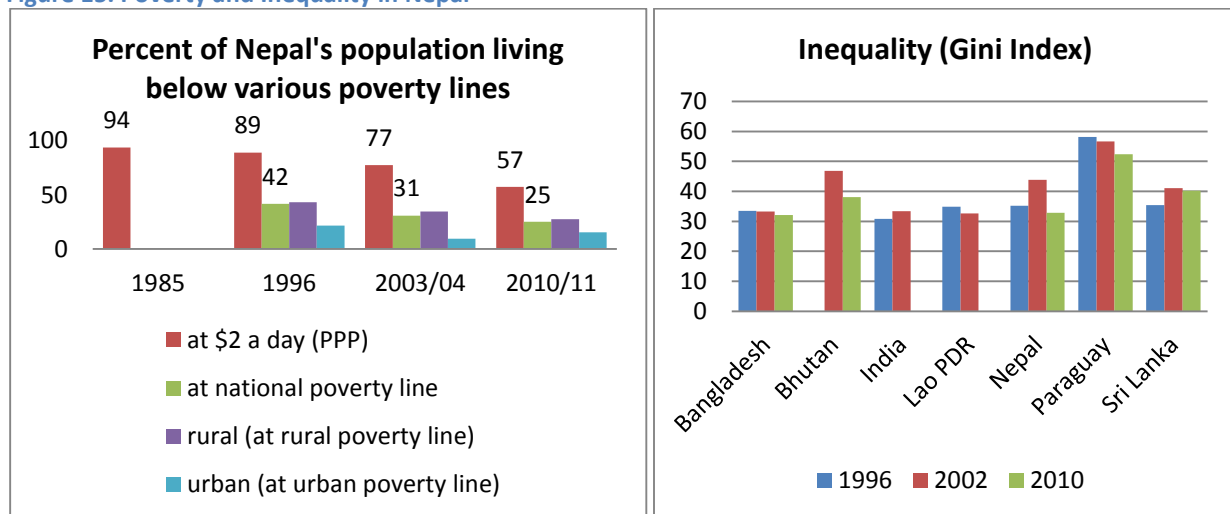
Poverty

Despite only modest GDP growth, Nepal has made considerable progress in reducing poverty. The proportion of Nepalese living on less than \$2 a day fell from over 94% in 1985 to 57% in 2010 (Figure 15). Much of this reduction in poverty is due to increasing rates of international and rural-to-urban migration and remittances. Estimates of the reduction in poverty attributed to migration and remittances in Nepal range from 20% to nearly 50% (Lokshin et al., 2007; PREM South Asia). This decline in income-measured-poverty also translated to improvements in other poverty measures. From 2006 to 2011, Nepal was the top performer out of 22 countries in reducing multi-dimensional poverty as measured by the Oxford Poverty & Human Development Initiative.

Inequality

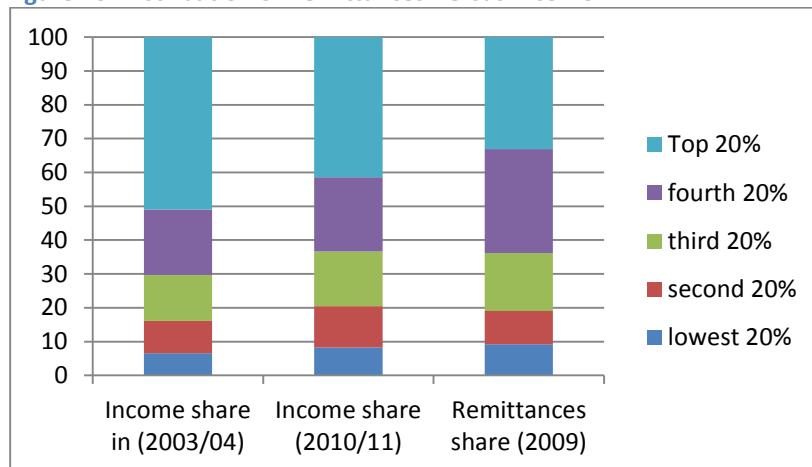
Inequality in Nepal has decreased since 2002 and is at, or below, most regional comparators as measured by the GINI index, a standard measure of income inequality (Figure 14). The relatively pro-poor distribution of remittances has likely played a role in improved income equality. Figure 15 shows that, from 2003 to 2010, the income distribution of the population improved and now more closely reflects the distribution of remittance income.

Figure 15. Poverty and Inequality in Nepal



Source: CBS, World Bank World Development Indicators (2013)

Figure 16. Distribution of Remittances Versus Income



Source: World Bank World Development Indicators (2013)

2.6 Migration and Remittances in Nepal

In this section we present a broad overview of migration and remittances in Nepal. In addition to the living standard survey, much of our information about migration in Nepal comes from the World Bank study “Large-Scale Migration and Remittance in Nepal” (2011). Given the prominence of migration and remittances in Nepal, we also draw upon the approach to performing growth diagnostics in countries with high migration presented by Keller and Scheja (2011). A deeper examination of remittances and their potential Dutch Disease effects is included in Chapter 7.

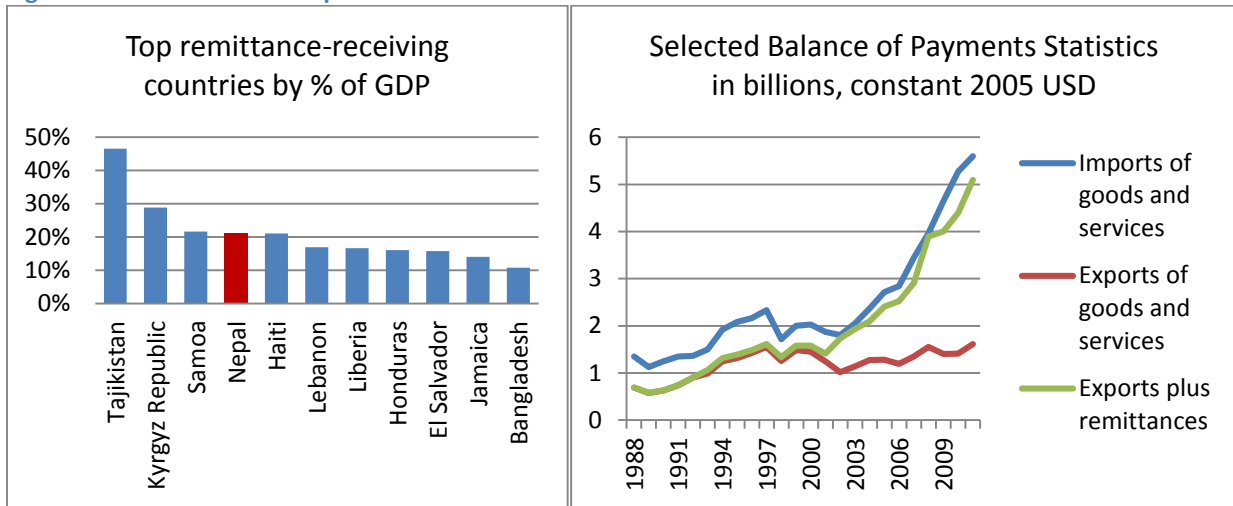
Migration

Migration is a prominent feature both internally (between communities within Nepal) and externally with other countries. Internal migration is predominantly from rural to urban, and especially to Kathmandu. External migration is generally for the purpose of temporary work. The top destinations for external migrant workers are India, the Gulf States, and Malaysia. Nearly half of all households in Nepal have members that have worked abroad at some time in their lives and roughly one third of working-age men are working abroad at any given time (PREM South Asia).

Remittances

One result of frequent migration is that Nepal has among the highest proportions of remittances to GDP in the world (Figure 17). The value of remittances has grown steadily since the early 2000s. Since 2005, remittances have surpassed and are now about double the value of goods’ and services’ exports (PREM South Asia). Over this time period, growth in exports of goods and services has remained flat. This is consistent with symptoms of Dutch Disease through remittances, which incentivizes the local economy to focus on supplying non-tradable inputs to meet the increased consumption demands made possible by remittances inflows. This is consistent with Nepal’s strong growth in services like transport and retail and the lack of growth in tradable goods like light manufacturing. Chapter 7 examines this dynamic further.

Figure 17. Remittances in Nepal



Source: World Bank World Development Indicators (2013)

2.7 Conclusions: Background Examination

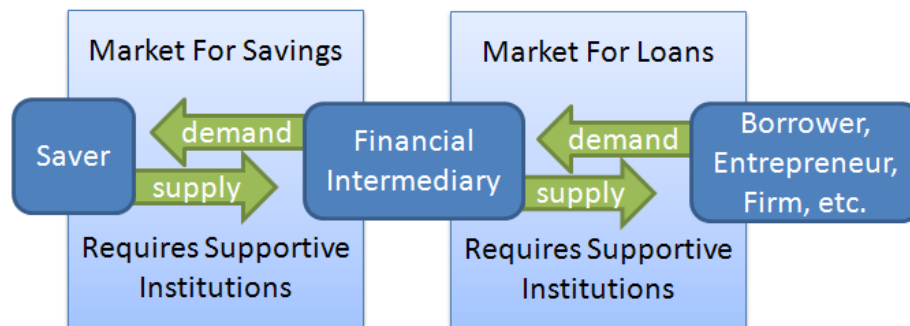
Nepal’s recent experience is one of significant improvement in human development indicators despite limited economic growth. Measures of poverty have improved dramatically; however, this improvement has been driven by migration rather than by improvement of economic conditions within Nepal. Investments in Nepal have remained relatively stagnant compared to its South Asian neighbors, and private investment appears to have low returns relative to its comparators. While migration has been beneficial to Nepal, this report is focused on examining impediments to increased investment and economic growth that improve productivity and job creation within Nepal’s borders.

3. Access to Finance

The development of the financial system plays an essential role in allocating capital within an economy. By overcoming information asymmetries and facilitating transactions, financial intermediaries exert a positive influence on economic growth. Without a well-developed system of financial intermediaries, the market for credit can suffer from these types of market failures and ultimately make the cost of accessing finance for investment purposes prohibitively expensive. This chapter examines finance in Nepal, and our analysis finds that the cost of accessing finance is not a critical constraint to investment.

As illustrated in **Figure 18**, the market for loans is determined by both the supply of lending by intermediaries like banks and the demand for borrowing by firms and entrepreneurs. A low overall level of financing may be due to either low supply or low demand. Supply may be constrained by an inadequate banking system. Demand may be constrained by an unproductive environment for investing due to inadequate complementary factor like infrastructure or due to a high share of returns going to labor, taxes, or other risks to private returns. This chapter considers whether investment in Nepal is constrained by an inadequate supply of financing from intermediaries and/or if low investment is due to low demand for finance from private firms and entrepreneurs.

Figure 18. The Financial System



In cases where the supply of finance appears to be constraining, the HRV framework organizes the search for potential deeper determinants. The supply of finance available to investing firms and entrepreneurs is determined by the supply of savings in the economy and the ability of intermediaries (banks) to make savings available to investors. The role of international finance should also be considered. A companion study by Fabiosa and Min (2013) undertook an exhaustive examination of the available data and potential constraints in the finance sector.¹³ Their study is included as a complementary document to this report. Below, we condense their results and present their key findings and evidence.

¹³ Located in Appendix to CA

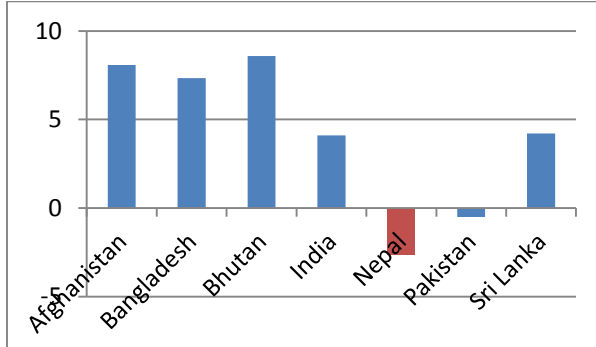
3.1 Exploration of Finance Restrictions

Price Signals

The growth diagnostic framework relies on price signals to assess the finance market. If a factor of productivity like finance is in high demand, we expect to see a high price for that factor in the marketplace. If however, the demand is slack relative to the available supply, we should expect to see prices that are relatively low.

In the market for finance, the price of a loan is its interest rate. To make a comparison of interest rates across countries and time periods, real interest rates are used to account for different rates of inflation. Real interest rates in Nepal are low; data shows that interest rates have been the lowest in the region. While the data in **Figure 19** reflects only the lowest lending rates and there is significant variance in lending rates to different risk categories, rates remain relatively low even after accounting for this variation (as further discussed in Fabiosa and Min).

Figure 19. Average Real Interest Rate from 2007-2010



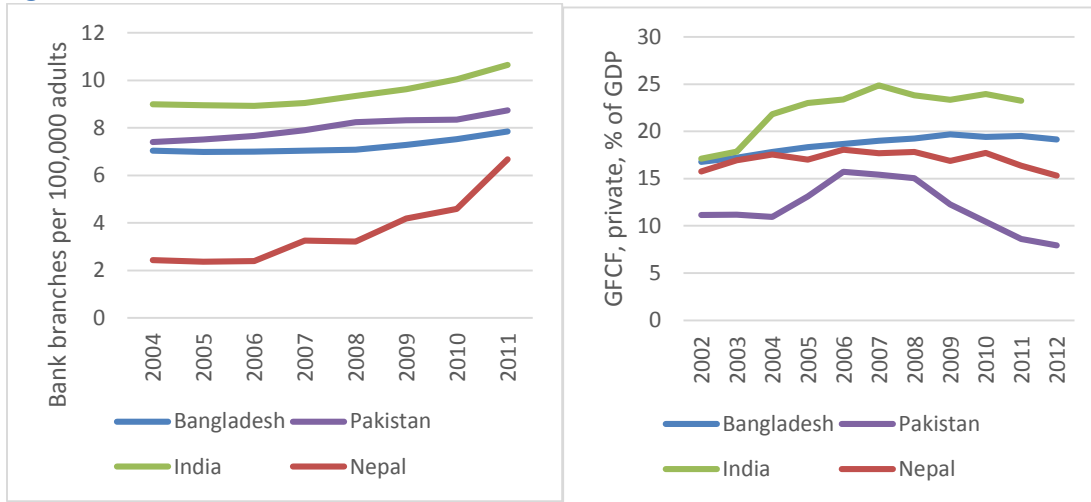
Source: World Bank World Development Indicators (2013)

Low Correlation between Supply of Finance and Investment

If access to finance has been a binding constraint to investment in Nepal, we should see improvements in the supply of finance producing significant changes in growth.

One factor in the supply of finance is the number of banks and bank branches. Nepal experienced a striking increase in the number of banks in the mid to late 2000s. However, this expansion of banks did not result in increased investment (**Figure 20**). This suggests that improvements in the supply of finance did not increase investment and therefore finance is not a binding constraint to investment and growth.

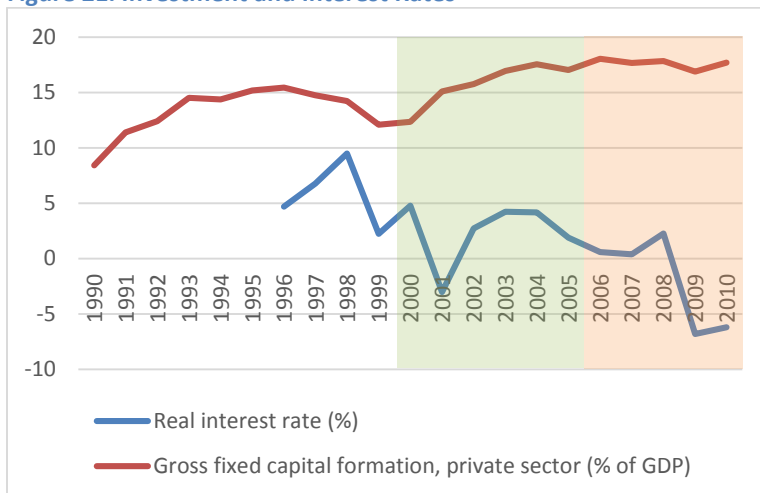
Figure 20. Bank Branches and Private Investment



Source: World Bank World Development Indicators (2013)

Just as any other good, when the supply of finance is scarce, it is likely to be expensive. Therefore, if we can observe the price declining, we can infer that finance constraints are becoming less binding. We do observe a slight connection between declining real interest rates and increasing investment in the early 2000s. However, from 2006 to 2010, investment shows little to no response to real interest rates (orange shaded area in Figure 21).

Figure 21. Investment and Interest Rates



Source: World Bank World Development Indicators (2013)

Are Firms Overcoming Finance Constraints?

If finance is a constraint, firms should be undertaking activities to overcome the constraint. Survey evidence suggests that a large proportion of firms do not need additional financing and that they are sufficiently able to meet their investment needs with internal retained earnings. Fabiosa and Min further elaborate on a framework for assessing internal financing. Table 2 shows that the main reason firms do not apply for a loan is because a loan is not needed and not because of problems in the financial system.

Table 2. Main Reason for Not Applying for a Line of Credit

	Informal Sector	Formal Sector
No need for a loan	50	72
Application procedures too complex	20	3
Interest rate are not favorable	11	5
Collateral requirements are too high	9	3
Did not think it would be approved	2	0
Other	7	15

Source: World Bank Enterprise Surveys (2009)

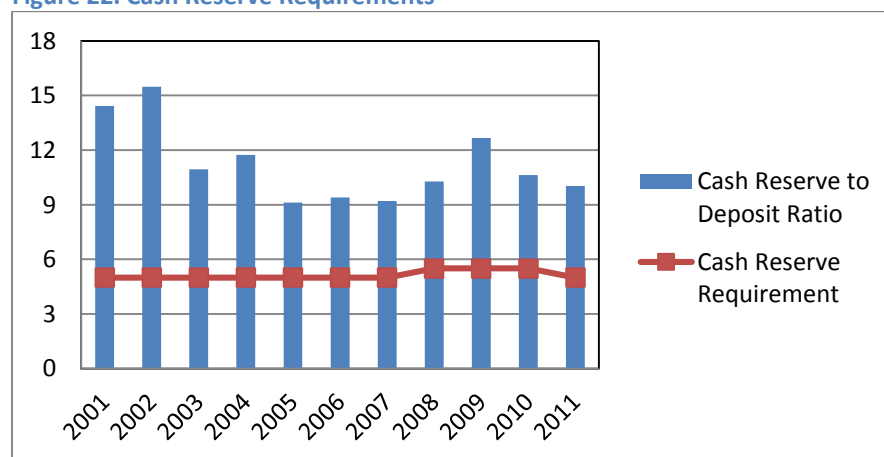
Firms are Becoming Less Capital Intensive

If financing were a constraint, we would expect to see economic agents become more intensive in other inputs like labor. However, firms in Nepal appear to be substituting away from labor and using more capital. Substituting labor for capital is a finance-intensive process that would be unexpected if finance were the most binding constraint. Rather, the behavior of firms is consistent with the cost of employing workers as more constraining than finance.

Banks Have Adequate Access to Savings

An additional potential effect of constraints in the financial sector is that banks will have difficulty mobilizing enough savings. This indicator of financial constraints is not present in Nepal. Banks generally hold excess liquidity, beyond regulatory mandates. Banks also can attract sufficient deposits while paying relatively low interest rates (Figure 22). Therefore, banks do not appear to have a problem generating enough savings to meet the demand from borrowers.

Figure 22. Cash Reserve Requirements



Source: Banking and Financial Statistics, Nepal Rastra Bank (2011)

3.2 Conclusions: Access to Finance

The conclusion of the growth diagnostic examination is that access to finance is not a binding constraint to investment and growth in Nepal. This does not mean that there is no scope to further improve access to finance in Nepal. Relaxing other constraints will be a necessary precondition for Nepal's financial

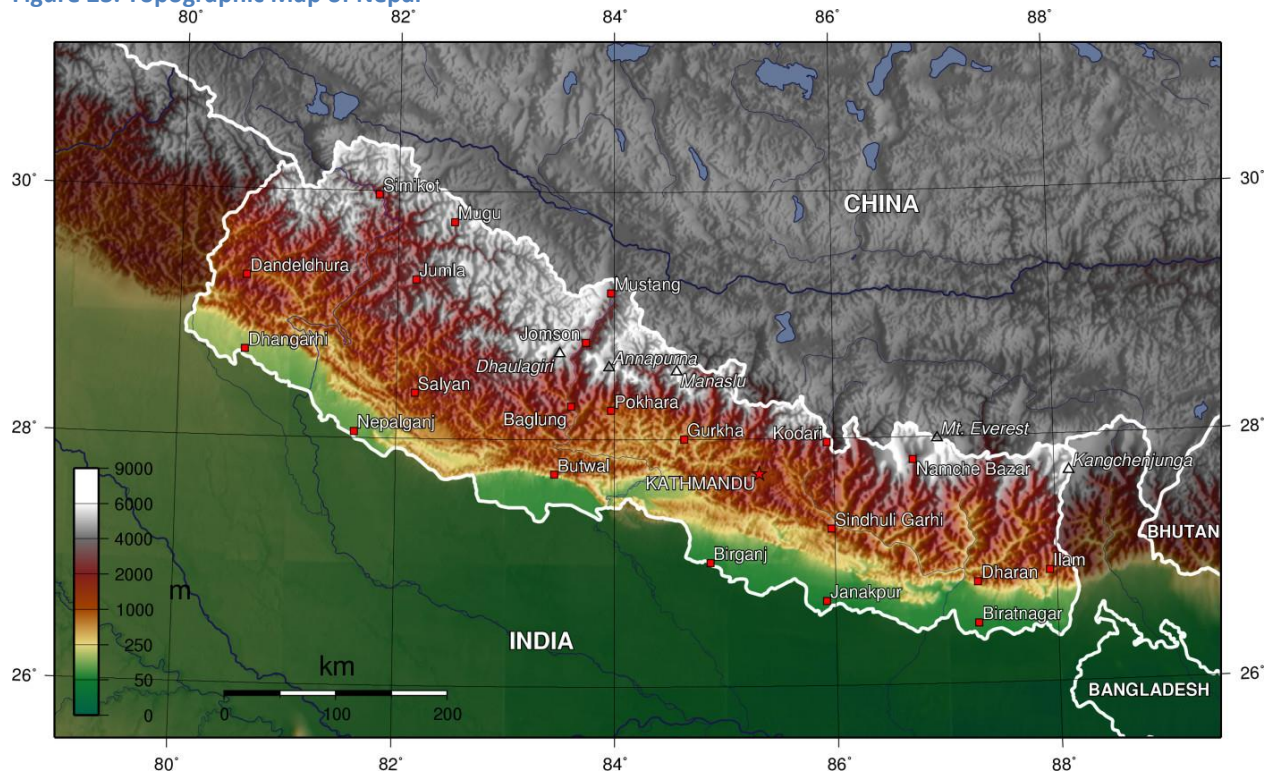
development to fully benefit economic growth. For example, the ongoing political uncertainty in Nepal may be causing economic and financial uncertainty that makes banks less willing to lend, especially over the long term. While firms and observers may perceive this as inadequate access to finance, the true constraints derive from political instability which the financial sector is simply performing its intended role of pricing in risk. A full assessment of the financial sector stability risks will be undertaken by an IMF and World Bank Financial Sector Assessment Program.

4. Natural Capital

A country's geography, climate, and natural resources can have a significant influence on economic growth, but these are not binding constraints to Nepal's economic growth. This chapter examines the role of these features, termed *natural capital*, in Nepal's economy. Nepal's natural capital creates both opportunities and constraints to growth. Beneficially, Nepal's has abundant opportunities for tourism and hydro-power development. However, as a landlocked country with challenging terrain, natural capital contributes to constraints in transportation and trade. Beyond the economic impacts, natural capital creates risks to human development, as earthquakes pose a clear and serious humanitarian risk. The long run economic risks of large-scale seismic events are less clear.

Nepal is a landlocked country, bordered to the north by China and the Himalayan mountain range and to the other three sides by India. Nepal's topography creates three distinct regions within Nepal. The *Terai* region consists of flat plains along the Indian border. The *Hills* region increases in elevation up to the *Mountain* region along the border with China (**Figure 23**).

Figure 23. Topographic Map of Nepal



Source: Wikimedia Commons (2006)

According to the 2011 population census, 50% of Nepal's population live in the Terai, 43% live in the Hill region, and the remaining 7% live in the Mountain region. Nepal's population is 17% urban, spread across 58 municipalities. Kathmandu is the largest urban centre, with over 2.5 million people in the agglomerated area (Nepal CBS, 2011).

4.1 Natural Capital Factors

Natural Beauty and Tourism

The Himalayan range, with eight of the world's ten tallest peaks, provides great natural beauty and tourism opportunities. Activities like mountaineering, trekking, and white-water rafting provide high adventure-tourism potential. Nepal is also home to prominent religious and cultural attractions. The birthplace of Buddha in Lumbini is a world heritage site, as is Kathmandu Valley which is home to numerous religious and cultural centres. Despite this geographical and culture richness, Nepal's tourism receipts are low compared to other countries. This is more thoroughly discussed in the micro risks chapter.

Hydropower Potential

Nepal's elevation ranges from 8,848 meters to 80 meters above sea level. The huge change in elevation occurs over the span of less than 200 km. Combined with strong water resources, this elevation change produces over 40,000 MW of viable hydropower potential (World Atlas, 2009). Of this potential, a little over 700 MW is currently developed (Sticklor, 2012). While Nepal's geography also increases costs of hydropower projects due to siltation and seismic risk, hydropower remains an economically viable resource. Bhutan's rapid hydropower development under similar siltation and seismic conditions demonstrates this viability. However, Nepal's hydropower potential remains significantly underdeveloped; this will be discussed in greater detail in Chapter 5.

Challenging Terrain

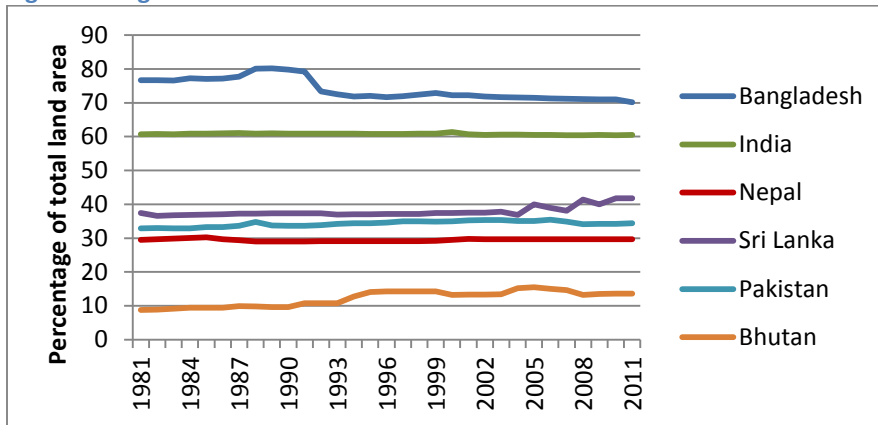
The large change in elevation also increased costs for construction of infrastructure like roads and transmission lines. Depending on the terrain, road construction costs can increase by 300% or more (Ghee, 1997). This represents a challenge for public and private fixed capital investments, and raises the costs of maintenance to the government for roads, electricity lines, and other fixed capital.

Arable Land

Nepal's geography and various micro-climates support a wide diversity of agricultural activities, however, Nepal has limited land available for agricultural production. As noted in Bhandari (2004), land limitations in combination with population growth and inheritance customs have resulted in smaller and more fragmented land holdings. Small land holdings of less than 0.5 hectares have been increasing. In 1995 only 40.1% of land holdings were smaller than half a hectare (Bhandari, 2004), while the 2010/11 Living Standard Survey found 52.7% of holdings were smaller than half a hectare (NLSS, 2012). Smaller size land holdings reduce overall production and can make it difficult to achieve efficient economies of scale.

Opening new land to agricultural production is restricted by limited availability and already high deforestation. Therefore, increases in agricultural output will require higher productivity per hectare rather than an increase in land under cultivation. As services continue to make up growing proportions of GDP, the lack of access to land should become less problematic and agricultural productivity should improve as workers move to non-agricultural sectors (**Figure 24**).

Figure 24. Agricultural Land



Source: World Bank World Development Indicators (2013)

Mineral Wealth

Nepal earns relatively little income from mineral and natural resource rents and has relatively low potential for this type of economic activity. While mineral resources in Nepal do not have the potential to be “game-changers”, there are opportunities. Construction related mineral resources are abundant, including limestone, cement, sand, and aggregate (Nepal MOI). In addition, as of this writing, Texana Resources Company and Cairn Energy PLC are investigating the potential for oil resources (*Kathmandu Post*, June 2012).

Landlocked

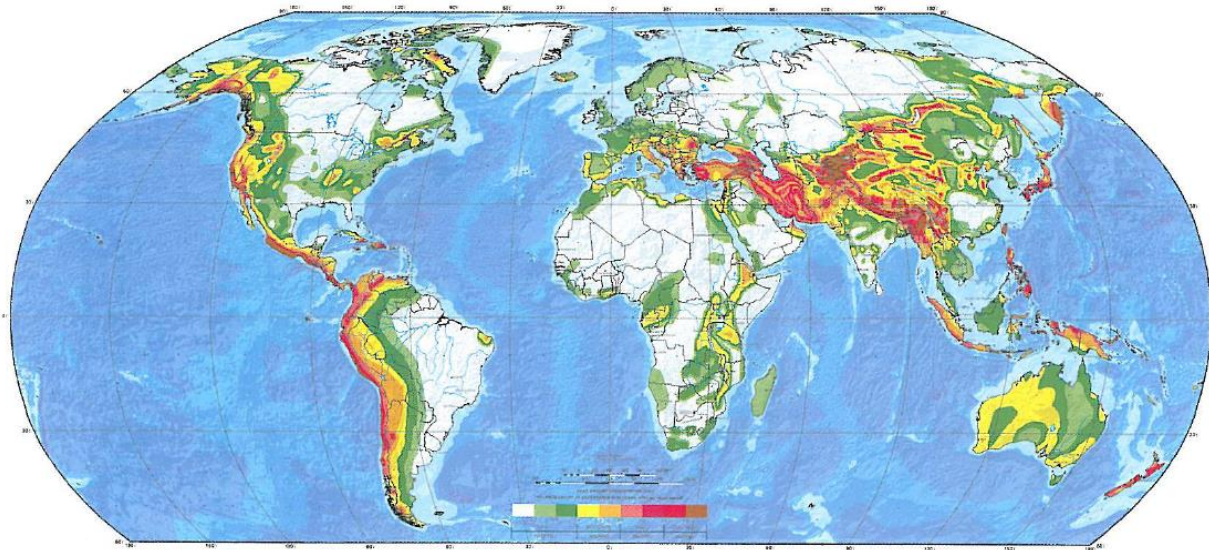
As noted by Faye et al. (2004), landlocked countries face additional economic challenges due to their dependence on neighbours’ infrastructure, administrative practices, peace and stability, and cross-country political relations. Nepal’s trade transits mostly through the Indian port of Kolkata via containers through the port of Kolkata. This makes Nepal’s relationship with India especially important to economic activity, as illustrated by the trade dispute between the two countries from 1989-1990. An inability to reach agreement on trade issues resulted in Nepal losing access to the port of Kolkata. While this level of restriction has not occurred since, the port of Kolkata remains a concern for traders. In February 2013 an investigation into India’s customs office slowed the flow of Nepal bound containers to less than 20% of normal (Tripathi, 2013). With the Himalaya mountain range creating a geographic barrier to trade in the north, Nepal’s access to regional and global markets relies on continued cooperation with India.

Seismic Risks

According to the UNDP, Nepal ranks 11th in the world in vulnerability to earthquakes (Figure 25). Nepal’s seismic risks pose serious threats to Nepal’s physical infrastructure as well as human life and wellbeing (UN Business, 2010). A 1999 report by Nepal’s National Society for Earthquake Technology (NSET) examined the impact of an 8.4 magnitude earthquake striking Kathmandu and estimated 40,000 deaths and 600,000 to 800,000 people left homeless.¹⁴

¹⁴ NSET chose the magnitude based on estimates of the 1934 earthquake and similar sized quakes from the 1800s

Figure 25. Global Seismic Hazard Map



Source: Global Seismic Hazard Assessment Program, United Nations (1999)

While earthquakes represent a clear risk to human life and wellbeing, the potential economic effects are less clear. The literature on economic costs of earthquakes provides mixed evidence between short run and long run effects. A review by Cavallo and Noy (2011) finds a consensus that natural disasters like earthquakes have negative short run effects on economic output and growth. In Nepal, NSET estimates that 60% of buildings in Kathmandu valley would be significantly damaged. Damage to transport infrastructure could create further economic costs. Over the longer term, the literature is less clear that earthquakes constrain growth. Cavallo et al. (2012) find minimal long run growth effects unless the earthquake also leads to political instability. Skidmore and Toya (2002) find that seismic events have a slightly negative impact on long run growth. Raddatz (2009) finds no effect from seismic events on income in the long run. A case study by Horwich (1997) of the 1995 earthquake in Kobe, Japan suggests that important economic features like human capital and institutional quality can remain intact despite seismic activity.

Current investment and growth also appears not to be constrained by seismic risk. Large construction projects like hydro-power must adapt to seismic risks through increased construction and insurance costs, but are still economically viable. Smaller scale construction activities are more problematic. A lack of adherence to earthquake-safe building codes suggests economic actors are making a trade-off for lower short-term costs in exchange for increased seismic vulnerability. This could represent a distortion in the market such that investors are not internalizing all costs from seismic risk. Such a distortion would increase investment in unsafe construction activities.

Overall, the long run economic costs of seismic risks and their effect on economic growth in Nepal are of less concern than the potential for a profound humanitarian impact. Disaster preparedness is especially important to prevent or mitigate a crisis. Various studies suggest that economic development can play a role in mitigating loss of life from natural disasters. Kahn (2005) finds that countries that are more economically developed suffer a lower toll from natural disasters. The differential in impact of the 2010

earthquakes in Haiti and Chile provide a well-studied example. While Chile’s earthquake was one of the strongest ever recorded, at a magnitude 8.8, the death toll was less than 1,000. In Haiti, the death toll may have exceeded a quarter of a million. While Levitt (2010) shows the geological characteristics of the earthquakes played some role, construction techniques appear to be the main culprit, as argued by Bilham (2010). As a complement to appropriate building codes, Horwich (1997) points out that building safety is also a function of the demand for safe buildings and consumers’ ability to pay. As income of consumers grows, their ability to purchase safer buildings also grows. However, Kellenberg and Mobarak (2008) caution against assuming a linear relationship between economic development and reduced vulnerability to natural disasters. Urbanization that precedes institutional improvements for enforcing building codes may increase the human toll from earthquakes. In tandem with appropriate disaster planning and institutional improvements in areas like building codes, economic growth in Nepal may help mitigate the human cost of future earthquakes in Nepal.

Landslide, Flood, and Climate Change

Due to Nepal’s steep terrain and heavy rainfall patterns, there are many landslides which can damage infrastructure like roads and transportation. This has the added disadvantage of accelerating both public and private infrastructure depreciation and raising maintenance and replacement costs. In extreme events, entire villages have been destroyed. These events are localized and do not constrain economic activity more broadly (Yagi et al., 1990). Floods are also a significant risk. As shown in [Table 3](#) and [Table 4](#), these events, while infrequent, have the potential for property damages in the hundreds of millions of dollars (McSweeney et al.). Despite the damage that can be cause by these events, in and of themselves they are not binding constraints to growth, but rather contribute to depleted and inadequate levels of infrastructure.

Table 3. Top 10 Natural Disasters in Nepal for the Period 1900 to 2013, Sorted by Numbers Killed

Disaster	Date	Number Killed
Earthquake (seismic activity)	Jan 1934	9,040
Epidemic	Jun 1991	1,334
Flood	Aug 1993	1,048
Epidemic	Nov 1963	1,000
Flood	Jul 1996	768
Earthquake (seismic activity)	Aug 1988	709
Flood	Sep 1981	650
Epidemic	Apr 1992	640
Mass movement wet	Jul 2002	472
Flood	Aug 1970	350

Source: International Disaster Database, EM-DAT

Table 4. Top 10 Natural Disasters in Nepal for the Period 1900 to 2013, Sorted by Economic Damage Costs

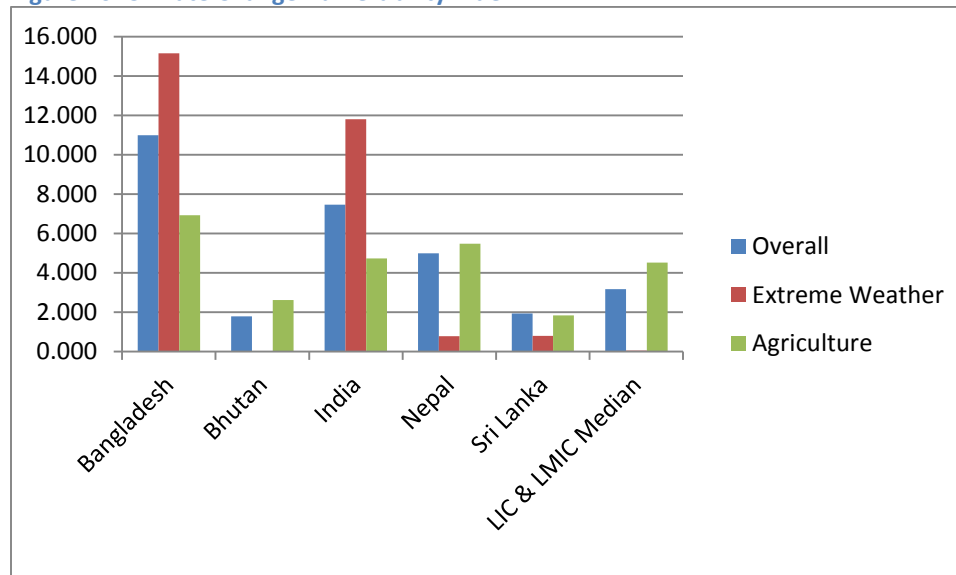
Disaster	Date	Damage (Millions of USD)
Flood	Aug 1987	727.5
Earthquake (seismic activity)	Jul 1980	245
Flood	Aug 1993	200
Earthquake (seismic activity)	Aug 1988	60
Flood	Oct 2009	60
Flood	Jul 1998	22
Drought	1972	10
Flood	Sep 1983	10
Flood	Jun 2000	6.3
Wildfire	Mar 1992	6.2

Source:

Climate change has the potential to increase the frequency of extreme weather which would increase the frequency of both landslides and flooding. UNDP’s climate change profile of Nepal has found minimal temperature changes to date, but it has calculated a decline in monsoon rains of 3% a decade. Looking forward, precipitation is not expected to decline further, but rainfall may increase in volatility (McSweeney et al.).

Changes in climate may affect the productivity of Nepal’s agricultural sector. Wheeler (2011) disaggregates climate vulnerability between extreme weather, sea level rise, and agriculture. While sea level rise is not a concern for Nepal, agriculture vulnerability is higher in Nepal than some South Asian comparators. Overall, Nepal is close to the median risk in low and lower middle income countries (Figure 26). However, we do not consider the risk of climate change to be a critical constraint to current investment or growth.

Figure 26. Climate Change Vulnerability Index



Source: Wheeler (2011)

4.2 Conclusions: Natural Capital

A country's geography, climate, and natural resources can have significant influence on economic growth, but this is not a binding constraint in Nepal. This chapter examined the role of these features, termed natural capital, in Nepal's economy. Nepal's natural capital creates both opportunities and constraints to growth. Nepal's natural capital strengths provide opportunities for tourism and hydro-power development. As a landlocked country with challenging terrain, natural capital contributes to constraints in transportation and trade. Beyond the economic impacts, natural capital creates risks to human development that are important to recognize. Earthquakes pose a clear and serious humanitarian risk, although the long run economic risks are less clear.

5. Infrastructure

This chapter applies the HRV method of analysis to public infrastructure and associated sectors and finds that electricity and transport costs are binding constraints to private investment in Nepal. This finding is consistent with other constraints analyses done independently by international organizations (see ADB, 2009). First, electricity is in severe short supply and does not meet existing demand. This shortfall is largely due to insufficient power generation, despite Nepal’s significant potential resources for hydropower generation. Nepal’s transmission system further limits the availability of electricity throughout the country (ADB, 2009).

Second, this chapter finds that costs associated with the transport of goods are prohibitively high. Constraints from the high of cost of transporting goods are not only driven by the limited quantity and poor quality roads but also from a lack of competitiveness in the trucking sector, as well as border frictions that may include costly customs procedures. The result is that transporting goods within Nepal and reaching international markets is expensive with high variability.

As noted above, this result largely confirms previous work on constraints to growth in Nepal. The 2009 Asian Development Bank (ADB) study also identified inadequate electricity supply and the high cost of transport as binding constraints to growth. The ADB report found that electricity in Nepal was the most expensive in the region and that there was great excess demand. The ADB also concluded that transport in Nepal was unreliable, expensive, and did not meet local demand. Furthermore, they examined the role of political strikes that closed roads, as well as the lack of road maintenance as contributing factors to insufficient transport services (ADB, 2009).

Survey data also affirms that infrastructure issues are a top constraint for businesses in Nepal. The World Bank Business Environment South Asia Report surveyed business owners about the top hindrances to business operations (**Table 5**) and they identified electricity and transport at the top of the list, after political instability (World Bank, 2012).¹⁵ The first section below examines electricity in terms of price, ease of access, and relationship with economic growth. The next section examines the factors that increase costs of transport, including: road quality and access; competition in the trucking sector; customs and border frictions; and the alternatives to road transit in Nepal. Finally, we examine irrigation and telecommunications and find they are not binding constraints.

Table 5. Top Constraints Identified by Enterprises in South Asia

Nepal	Bangladesh	India	Pakistan
Political Instability	Electricity	Electricity	Tax Administration
Electricity	Political Instability	Corruption	Political Instability
Transportation	Corruption	Tax Administration	Government Policy
Corruption	Access to Land	Labor Regulations	Courts

Source: World Bank Enterprise Surveys

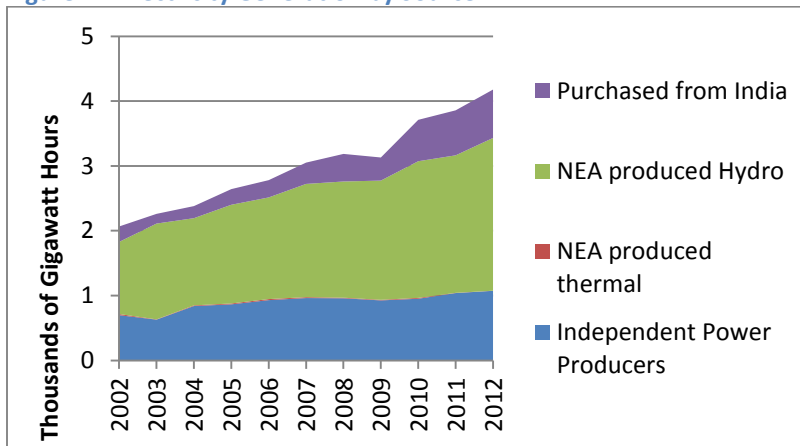
¹⁵ Electricity was also a constraint for businesses in other countries in South Asia, including India and Bangladesh.

5.1 Electricity

In 2013, the World Economic Forum ranked Nepal’s electricity supply 143rd out of 144 countries in its sample (WEF, 2012).¹⁶ The 2011 “Comparison of Electricity Supply and Tariff Rates in South Asian Countries” study by The Energy Forum of Sri Lanka identified Nepal as having the most depressed power capacity and load shedding problem in the region. It estimated that supply was able to meet a little more than half of estimated demand, which is the highest shortfall of electricity supply in South Asia (Faisal, 2012; Wijesinha, 2011). The 2012 annual report from the NEA also confirms that electricity supply is only able to meet roughly half of demand (NEA, 2011).

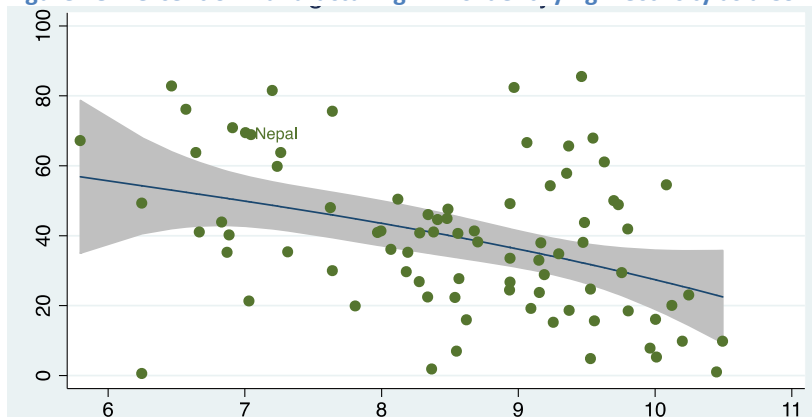
Electricity generation for Nepal’s grid is mostly from hydropower. The generation of hydropower by the NEA has risen in recent years, as have imports from India. Generation by independent producers has remained flat (Figure 27) (NEA, 2011) and manufacturing firms regard this as a constraint (Figure 28).

Figure 27. Electricity Generation by Source



Source: NEA Annual Report (2012)

Figure 28. Percent of Manufacturing Firms Identifying Electricity as a Constraint



Note: Horizontal axis is the log of GDP per capita.

Source: World Bank Enterprise Survey.

¹⁶ The WEF asked, “How would you assess the quality of the electricity supply in your country (lack of interruptions and lack of voltage fluctuations)?”

Shadow Price of Electricity

When available, grid electricity is affordable in Nepal. The Doing Business Indicators show that administrative requirements to acquire access to the power grid and the price for electricity are reasonable (**Table 6**) (World Bank, 2012). This indicates that the administrative burden of acquiring electricity is not overly costly. However, electricity tariffs are not determined by market-clearing prices, thus the “shadow” price of electricity diverges from the price paid by consumers. This is especially true in Nepal, where roughly half of demand is unmet by the supply of electricity. The result of unmet demand is daily load shedding that is exceptionally costly. Business owners in Nepal report 26% annual revenue loss due to power outages (World Bank, 2009). This is the highest rate in the world and twice that of the next worst off country in South Asia, Bangladesh. High losses due to power outages imply a high shadow cost of constraints to electricity supply and point to electricity outages as a significant barrier to growth (World Bank, 2012).

Table 6. Selected Electricity Indicators

	Getting Electricity Rank	Days to Get Electricity	Flat rate	Per KW Hour Rate	Losses due to Electrical Outages¹⁷
Nepal	96	70	2.91	0.11	26%
Bangladesh	185	404	0.32	0.36	10%
Ethiopia	94	95	none	0.04	3%
India	105	67	n/a	n/a	n/a
Pakistan	171	206	none	0.07	8%
Sri Lanka	103	132	23.69	0.11	2%

Sources: World Bank Doing Business Indicators, various government ministries;¹⁸ World Bank Enterprise Surveys

Generator Use

In the aggregate, generator usage does not appear to be especially high, when graphed against the log of GDP per capita (**Figure 29a**). However, for large firms in Nepal, self-generation accounts for 40% of electricity usage (**Figure 29b**). The cost of generator-produced electricity is roughly 3 to 4 times the cost of electricity from the grid. This makes it especially difficult for firms that are intensive in electricity to remain competitive. The high rate of generator usage among large firms suggests that electricity has a high shadow price, at least for large firms.

¹⁷ In percent of annual sales.

¹⁸ Nepal Electricity Authority, Ethiopian Electric Power Corporation, Public Utilities Commission of Sri Lanka, Bangladesh Power Development Board, and National Electric Power Regulatory Authority of the Islamic Republic of Pakistan. Note that prices shown are current and in USD.

Figure 29a. Proportion of Electricity from a Generator, All Firms

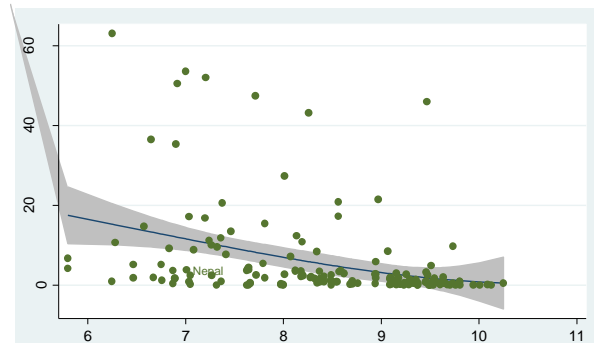
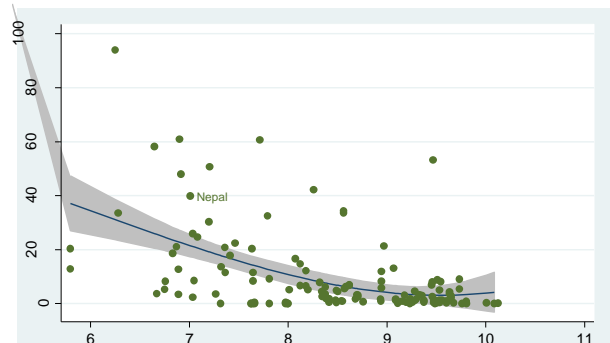


Figure 29b. Proportion of Electricity from a Generator, Large Firms



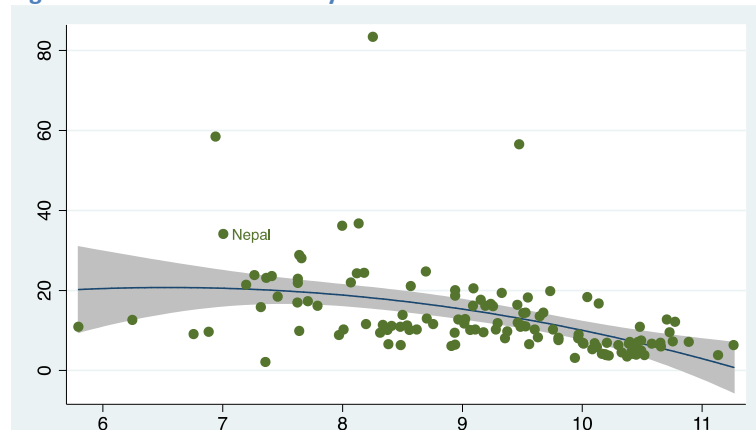
Note: Horizontal axis is the log of GDP per capita.

Source: World Bank Enterprise Surveys

Losses in Transmission and Distribution

Nepal's inadequate generation of electricity is exacerbated by a high rate of systems losses in transmission and distribution. At 34%, electricity losses are the highest in the region when graphed against the log of GDP per capita (**Figure 30**). The Nepal Electricity Authority's Distribution and Consumer Services Business Group made special efforts in 2010/2011 to reduce losses in the most highly affected areas. Mitigation techniques included load shedding, publicizing loss rates, and monitoring and coordination with local law enforcement to disconnect illegal consumers. Overloaded conductors were also upgraded but the group noted difficulty in implementing these upgrades in the Terai and hilly regions due to difficult work environments (NEA, FY10/11).

Figure 30. Losses in Electricity Transmission and Distribution



Note: Horizontal axis is the log of GDP per capita.

Source: World Bank World Development Indicators (2013)

Interaction with Other Constraints

The inconsistent electricity supply also contributes to other productivity issues in Nepal. When the power is out for several hours a day, it is costly to retain full time staff who remain idle. Consultations suggested that this issue contributes to tension between employers, who do not want to have to pay idle staff, and employees, who desire consistent work.

Conclusions: Electricity

Electricity generation in Nepal is inadequate to meet the country's needs. The availability of electricity is further reduced by high losses in transmission and distribution. The International Finance Corporation (2013) estimates that, on average, low income countries could expect 4 to 5% annual job growth if electricity were made more reliable (World Bank, 2012). Given Nepal's particularly poor electricity supply and high use of alternatives like generators, job creation may be more affected by electricity than the IFC estimate of the average effect. Overall, the availability of electricity in Nepal is a binding constraint to investment and growth in the economy (IFC, 2013).

5.2 Transport

By any international metric of the ability to transport goods, Nepal ranks poorly. The Logistics Performance Index based on Arvis et al. (2010) ranks Nepal 147th out of 155 countries (World Bank, 2010). Nepalese exporters inordinately rate transport as a key constraint. While 33% of firms, on average, cite transport as a constraint in Nepal, this almost doubles to 66% when only considering exporting firms (Figures 31a and 31b). In both cases, Nepal sits above the trend line, meaning that transport not only places a greater burden on the average firm, but firms that rely on transport are the ones who see it as a much greater problem. This poor performance in transport is due to several factors including: quality and quantity of roads; inefficient border and customs processes; and a lack of competition in the trucking sector. While it is difficult to attribute the poor performance of the transport sector to any one factor, overall, transport in Nepal is highly variable, expensive, and a constraint to growth.

Figure 31a. Transportation as a Constraint (Average Firm)

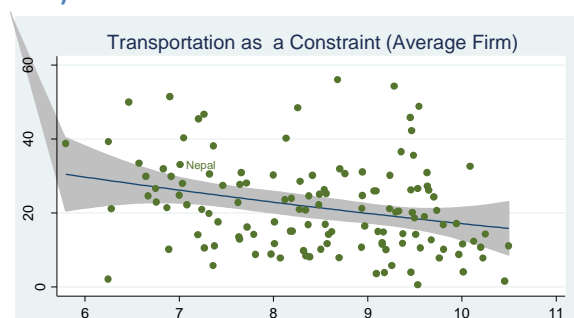
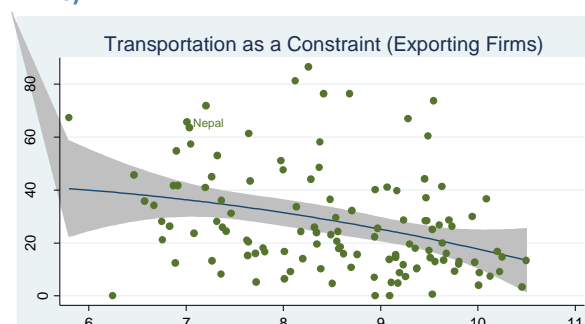


Figure 31b. Transportation as a Constraint (Exporting Firms)



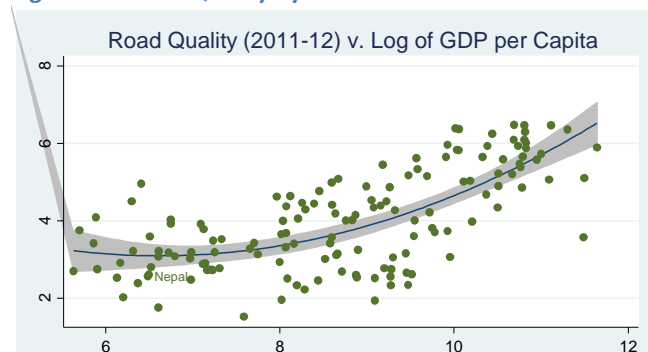
Note: Horizontal axis is the log of GDP per capita.

Source: World Bank Enterprise Surveys

Roads

Not only do firms identify transportation as a constraint but the quality of the road network also rates poorly. For example, in Figure 32, Nepal falls below the trend-line for the World Economic Forum's road quality measure. Roads are scarce and of poor quality in Nepal, which has one of the lowest road densities in the region (Table 7). The World Bank notes that poor road quality adds additional and unpredictable transit times that limits market access for farmers in hilly regions (World Bank, 2010).

Figure 32. Road Quality by Income



Note: Horizontal axis is the log of GDP per capita.

Source: World Economic Forum (2013)

Table 7. Road Density

Country	Km road per 100 km ² total land	Km road per 100 km ² arable land
Bangladesh	15	30
Bhutan	18	720
India	125	260
Nepal	14	80
Pakistan	33	130
Sri Lanka	174	950

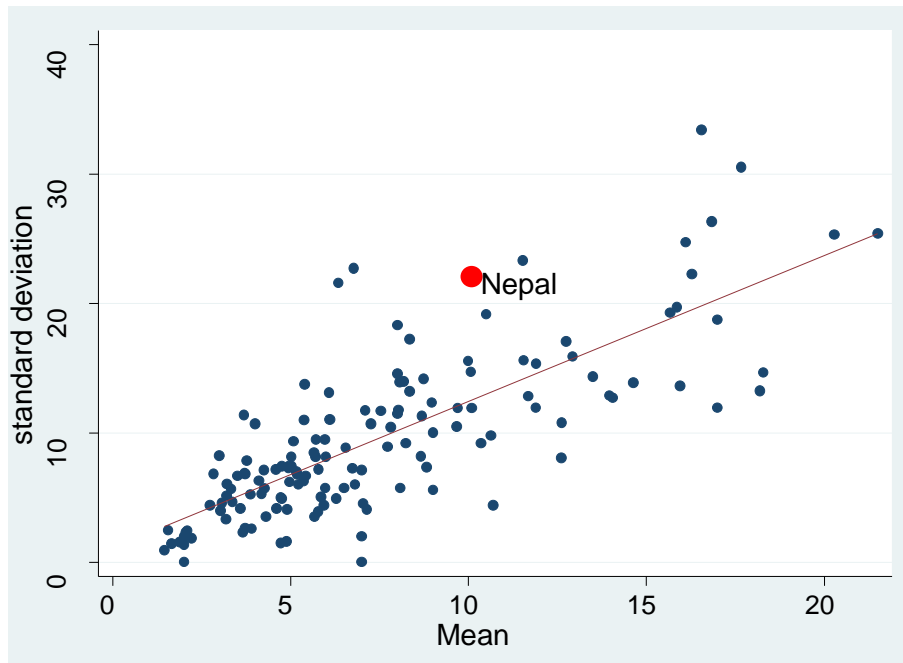
Source: World Bank World Development Indicators (2013) and author's calculations

The quality and quantity of roads are clearly low relative to countries with similar incomes, and also globally. Given the importance of road networks for transporting goods and services along strategic routes, the high importance given to transport costs by firms – especially exporting firms which are less elastic to transport costs – and the measured poor quality of the existing roads, the poor stock of roads in Nepal clearly contributes to high and variable transport costs.

Border Frictions and Predictability

Beyond the average length of transport times, variable and unpredictable transport times can be an additional problem. Pritchett et al. (2009) find that unpredictability in the number of days it takes for imports to clear customs is more harmful to employment creation than a high average number of days. In Nepal, this dynamic is more apparent for exports clearing customs. As seen in [Figure 33](#), exports in Nepal average about ten days to clear customs. Out of the set of countries with enterprise survey data, this is lengthy, but not exceptionally so. However, the standard deviation of over 20 days is remarkably high (Li et al., 2009). This suggests that firms in Nepal are subject to significant variability in the time it takes for them to ship exports.

Figure 33. Days for Exports to Clear Customs



Source: World Bank Enterprise Surveys

Note: Units in days.

As Pritchett et al. point out, variance in *de facto* implementation may be facilitated in part by onerous *de jure* policies that create the space for discretion and implementation uncertainty. The Global Enabling Trade Report (2012) ranked Nepal's 'transparency of border administration' at 126 out of 132 economies (WEF Enabling Trade, 2012). The uncertainty around clearing customs can prevent Nepalese exporters from being able to commit to shipment timelines. Dependence on port infrastructure in India adds further uncertainty to transport times in Nepal.

Trucking and Transport Services

The cost of road transit services varies throughout the year based on weather patterns, road safety, and demand for transit services. During the dry season, trucks can safely navigate Nepal's poorly maintained roads at lower risk. Lower risks mean lower overall costs to moving goods which results in increased use of transport. During the dry season most truck drivers find work and most entrepreneurs can acquire transit services at reasonable rates (World Bank, 2008). However, the seasonal variability is quite high, as [Table 8](#) illustrates, with the maximum cost of freight transit services ranging up to 3.33 times the average minimum rate. This high degree of variability can undercut pricing and production consistency for producers and reduces planning capability for firms.

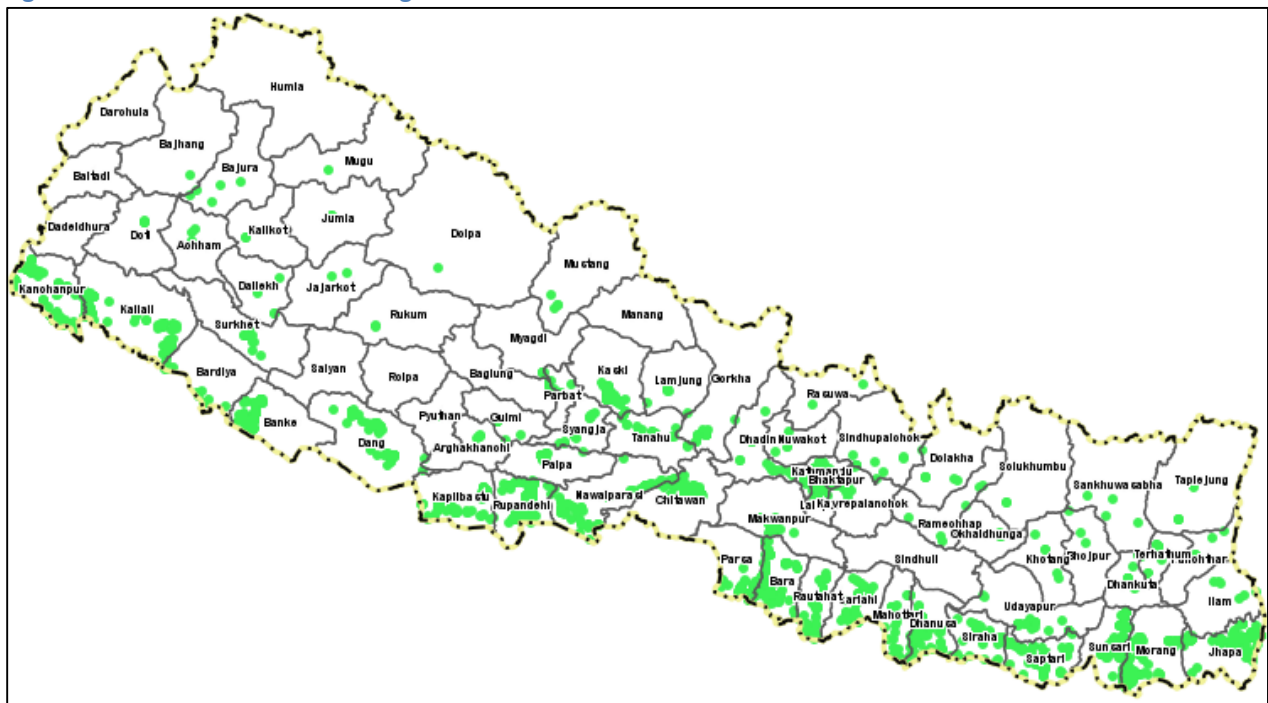
Table 8. Road Freight Rates (2002)

Country	US\$/tonne-km
Pakistan	1.5 – 2.1
India	1.9 – 2.7
Brazil	2.5 – 4.8
USA	2.5 – 5.0
Australia	3.6
China	4.0 – 6.0
Bangladesh	5.5
Nepal (2003)*	6.0 – 20.0

Source: Trade and Transport Facilitation in South Asia & Nepal

Though transit services are costly and variable, based on evidence from focus group discussion held with businesses throughout Nepal, transport appears to be a less binding constraint to firms in the Terai, but much more binding for firms in the Hills. This suggests that the inland aspect of transport is more problematic than border frictions, as all firms are subject to border frictions, but those in the Terai are less exposed to inland transit issues. Furthermore, **Figure 34** illustrates that manufacturing firms locate along the border with India, possibly so that they can minimize the amount of reliance on the Nepali road network.

Figure 34. Location of Manufacturing Industries



Source: See Nepal Initiative

The cost of inland transport is also reflected in the 2013 Doing Business Indicators, which examine the cost of exporting from Kathmandu. Of the total time to export, 19 days are allocated to inland transport

and handling. This accounts for almost half of the total time and is a much higher percentage than in other landlocked countries ([Table 9](#)).

Table 9. Doing Business Indicators, Transport in Selected Landlocked Countries

Nepal				
Nature of Export Procedures	Duration (days)	% of total duration	USD Cost	% of total cost
Documents preparation	14	34%	300	15%
Customs clearance and technical control	4	10%	300	15%
Ports and terminal handling	4	10%	275	14%
Inland transportation and handling	19	46%	1100	56%
Totals	41	100%	1975	100%
Lao PDR				
Nature of Export Procedures	Duration (days)	% of total duration	USD Cost	% of total cost
Documents preparation	15	58%	275	13%
Customs clearance and technical control	2	8%	110	5%
Ports and terminal handling	4	15%	155	7%
Inland transportation and handling	5	19%	1600	75%
Totals	26	100%	2140	100%
Ethiopia				
Nature of Export Procedures	Duration (days)	% of total duration	USD Cost	% of total cost
Documents preparation	25	60%	500	23%
Customs clearance and technical control	7	17%	290	13%
Ports and terminal handling	3	7%	270	13%
Inland transportation and handling	7	17%	1100	51%
Totals	42	100%	2160	100%

Source: World Bank Doing Business Indicators (2012)

Limited Alternatives: Rail & Air

Transportation of goods in Nepal relies predominantly on road freight services. Rail is limited in Nepal and concentrated along the border. Nepal has the lowest rail line density in the region with less than one-tenth of the next lowest country, Bangladesh (Rahman and Yusuf, 2010).

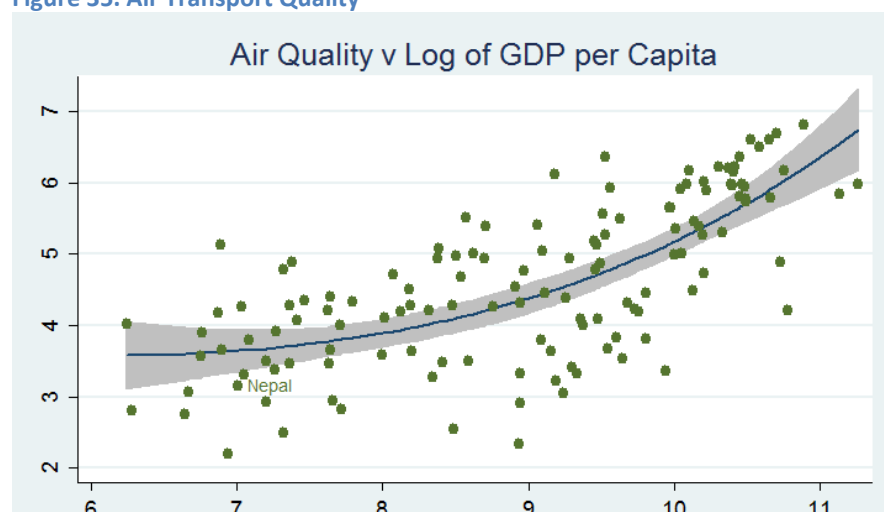
The quality of air transport is poor in Nepal and ranks among the worst quality in the region, based on its level of logged GDP per capita (Table 10 and Figure 35). Air freight volumes relative to trucking volumes are somewhat low but not an outlier. With very few kilometers of rail in Nepal and low quality air freight services, trucking services are the primary source of transportation for goods.

Table 10. Air Transport Quality

Air Transport infrastructure quality, rank (score)	
Nepal	131 (3.2)
Bangladesh	120 (3.5)
Ethiopia	50 (5.1)
India	68 (4.7)
Pakistan	78 (4.3)
Sri Lanka	57 (5.0)

Source: WEF Competitiveness Report

Figure 35. Air Transport Quality



Note: Horizontal axis is the log of GDP per capita.

Source: World Economic Forum, 2013.

Conclusions: Transport

Nepal's transportation sector, as a whole, is a constraint to growth. Nepal's road network is limited. Implementation of border and customs policies also appear problematic. The degree to which any one of these issues contributes to the high cost of transport is not clear. However, given the importance of transporting goods and services from Nepal to regional and global markets, the high cost of transport is a binding constraint to economic growth in Nepal.

5.3 Irrigation and Water Supply

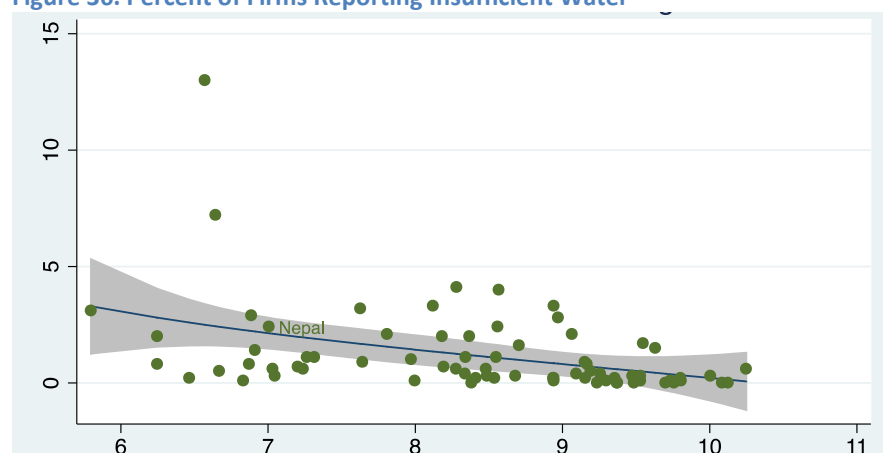
The Nepal Ministry of Irrigation (MOI) estimates that only 7% of available water in the country is used for economic or social purposes. It does not stand out as one of the most binding constraint for Nepali firms (Figure 36). Nepalese rely on its river network for drinking water, irrigation, and hydropower. The physical irrigation infrastructure is unsophisticated but plays an important role for farmers, with 54% of agricultural land being irrigated (NLSS, 2012). In Table 11, household access to water seems on par with the rest of South Asia; 88% of Nepal's rural population and 93% of its urban population have access to improved water.

Table 11. Percent of Population with Improved Water Source

	Rural	Urban
Nepal	88	93
Bangladesh	80	85
Ethiopia	34	97
India	90	97
Pakistan	89	96
Sri Lanka	90	99

Source: World Bank World Development Indicators (2013)

Figure 36. Percent of Firms Reporting Insufficient Water



Note: Horizontal axis is the log of GDP per capita.

Source: World Bank Enterprise Surveys

Nepal appears comparable to other countries in its income group with respect to the proportion of the population that has access to improved water. As well, access to and availability of water is not a constraint that is currently recognized by firms in Nepal. Therefore, we do not consider it to be a binding constraint to investment.

5.4 Telecommunications

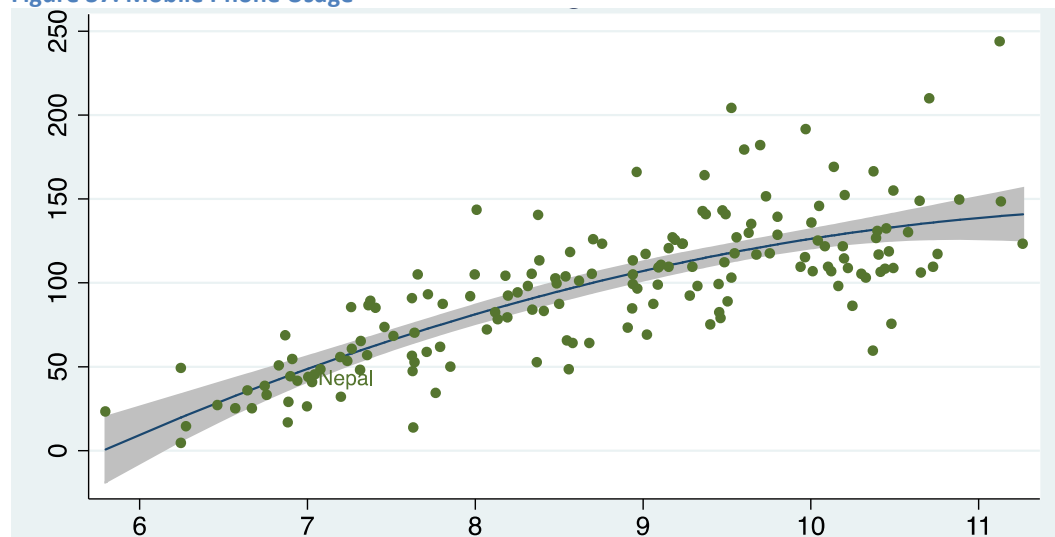
Telecommunications are also not a binding constraint. Nepal enjoys the highest cell phone subscription rate in South Asia and internet subscriptions are within the anticipated range for the region (**Table 12**). Prior to 2004, telecommunication services were provided by the state-owned Nepal Telecommunication Corporation (Arvis et al., 2010). Now there are numerous telecom providers in Nepal. The graph below (**Figure 37**) shows Nepal's mobile phone subscription rate is normal for its income group and also normal for South Asia, graphed against the log of GDP per capita.

Table 12. Telecom Indicators (Per 100 People)

	Mobile Phone subscriptions	Fixed phone lines	Internet subscribers
Nepal	43.8	2.8	0.31
Bangladesh	56.5	1.1	0.04
Ethiopia	16.7	1	0.03
India	72	2.6	1.03
Pakistan	61.6	3.2	0.42
Sri Lanka	87	17.	1.71

Sources: WEF Competitiveness Report and World Bank World Development Indicators (2013)

Figure 37. Mobile Phone Usage



Note: Horizontal axis is the log of GDP per capita. Vertical axis is the number of mobile phones per 100 people.

Source: World Bank World Development Indicators (2013)

5.4 Conclusions: Infrastructure

This chapter finds that inadequate supply of electricity and the high costs of transport are binding constraints to private investment in Nepal. Specifically, the evidence shows that low availability of electricity leads to high use of generators among large firms. In addition, the high and variable costs of transport are binding constraints that raise the costs to firms – particularly agricultural producers and manufacturing firms that are more dependent on transport. Though costs themselves are high, the analysis in this chapter also suggests that the unreliability and variability of costs contributes to transport’s bindingness as a constraint.

5.5 Annex: Power Development Map of Nepal

POWER DEVELOPMENT MAP OF NEPAL

SMALL HYDRO POWER STATIONS, ISOLATED SOLAR & DIESEL POWER STATIONS

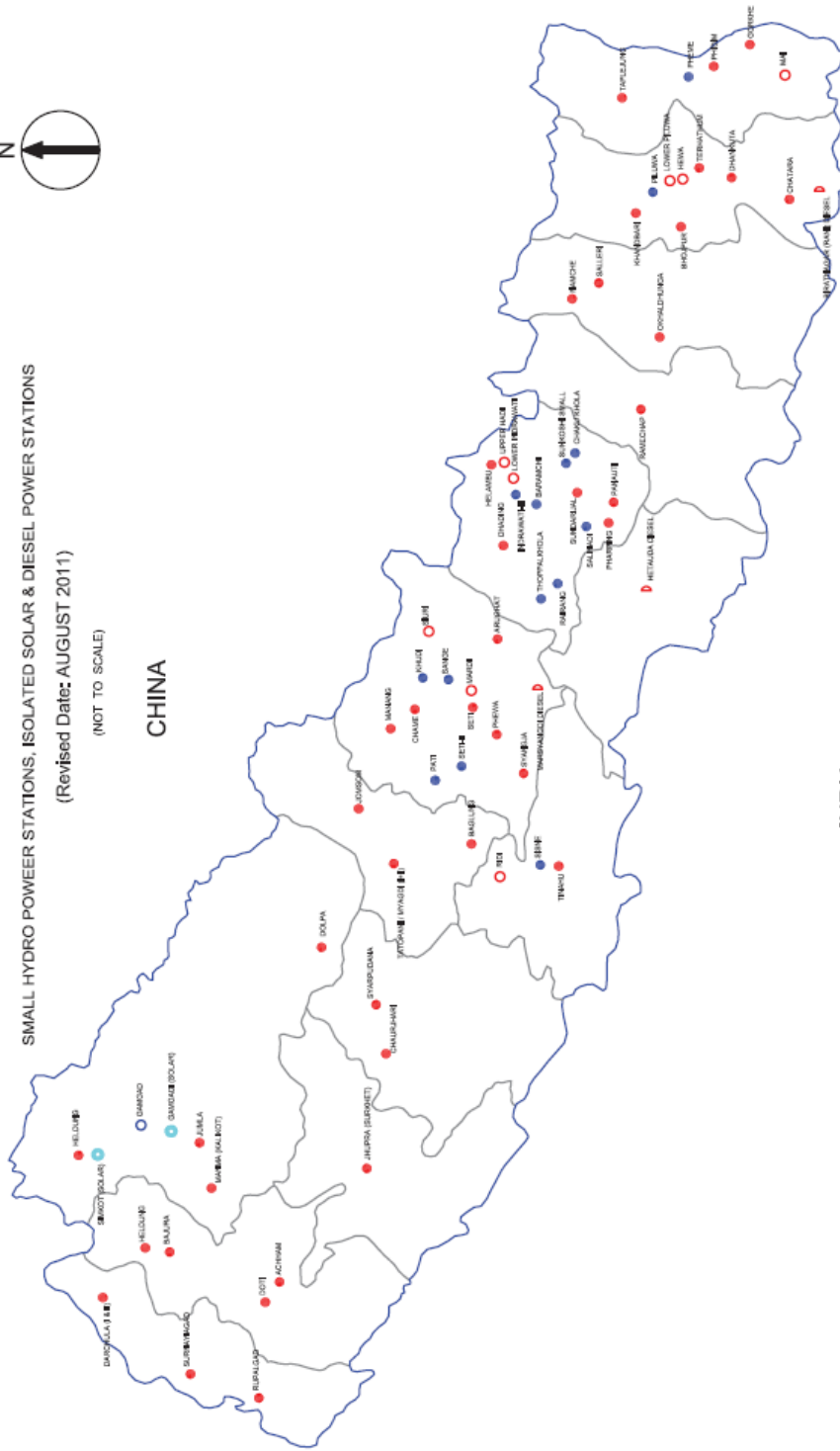
(Revised Date: AUGUST 2011)

(NOT TO SCALE)



CHINA

INDIA



LEGENDS

EXISTING	NEA SMALL POWER PLANTS
UNDER-CONST.	IPP'S POWER PLANTS
	NEA'S DIESEL POWER PLANTS
	SOLAR POWER PLANTS

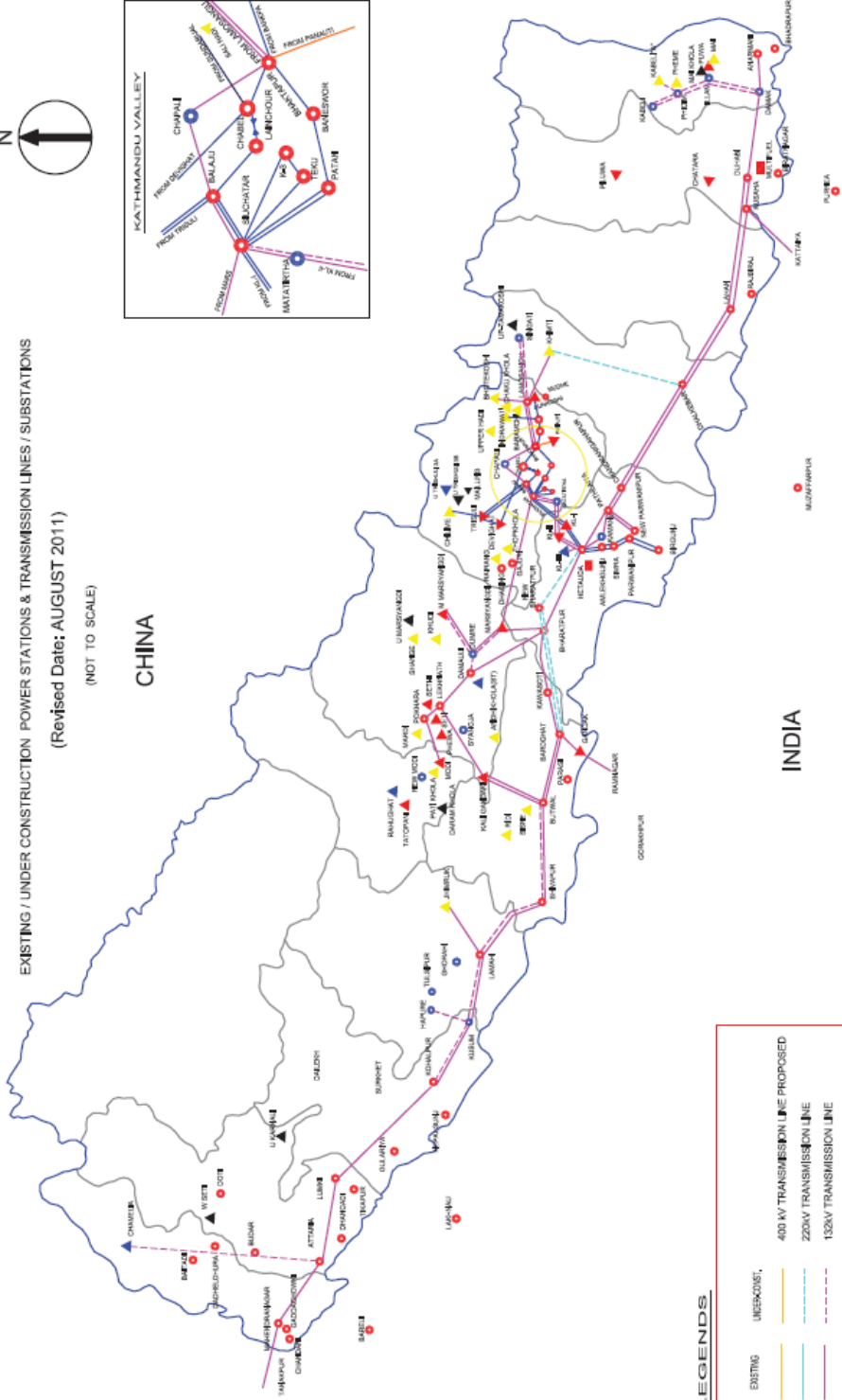
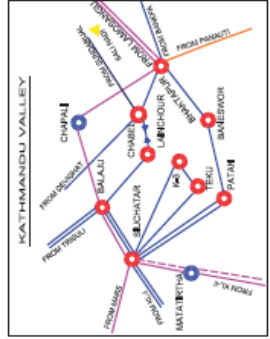
NEPAL ELECTRICITY AUTHORITY
GRID DEVELOPMENT
TRANSMISSION LINE CONSTRUCTION DEPARTMENT
Prepared by : D.Y. Manager Gagan Manandhar

POWER DEVELOPMENT MAP OF NEPAL

EXISTING / UNDER CONSTRUCTION POWER STATIONS & TRANSMISSION LINES / SUBSTATIONS

(Revised Date: AUGUST 2011)

(NOT TO SCALE)



LEGENDS

- EXISTING
- UNDERCONSTR.
- 400 KV TRANSMISSION LINE PROPOSED
- 220KV TRANSMISSION LINE
- 132KV TRANSMISSION LINE
- 66KV TRANSMISSION LINE
- GRID SUBSTATION
- HYDRO-POWER STATION
- PPA HYDRO-POWER STATION
- DIESEL/PPA POWER STATION

NEPAL ELECTRICITY AUTHORITY
GRID DEVELOPMENT
TRANSMISSION LINE CONSTRUCTION DEPARTMENT

Prepared by: P.Dy. Manager Gagan Manandhar

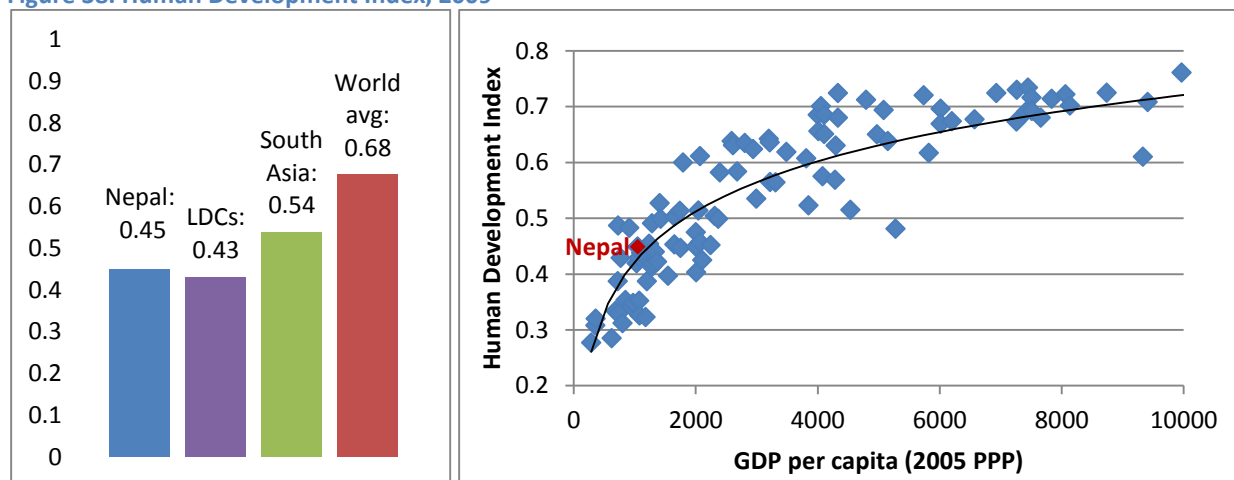
6. Human Capital

A low supply of human capital is one factor that could lead to low intrinsic returns that constrain investment in Nepal. Labor is one of the key inputs to any business, and different types of firms require employees with different sets of skills and education. If the skills and abilities of workers do not match the demands of the economy, it could impose additional costs on firms and ultimately hinder economic growth. Because paid labor is the primary way in which most people contribute to economic activity, human capital is important to ensure that the benefits of economic growth are shared broadly throughout the economy. We find that human capital, particularly education and health, are not constraining investment in Nepal.

6.1 Human Capital Measures in Nepal

When it comes to broad measures of human capital, Nepal lags behind regional and global averages, although conditions appear to be improving. According to the *2011 Human Development Report*, Nepal ranks 157th out of 187 countries and territories in the Human Development Index (HDI).¹⁹ As shown in the chart below (**Figure 38**), Nepal also scores lower in HDI than the world and South Asia averages, although it performs slightly better than the LDC average.

Figure 38. Human Development Index, 2009²⁰



Source: UN Human Development Indicators (2011)

However, when comparing HDI to GDP per capita across all countries, it appears that Nepal's HDI is near the expected level given its GDP per capita, as shown in **Table 13**, and rates very well for life expectancy. This suggests that the current level of human capital is about, or even above, average compared to countries with similar levels of development. Furthermore, Nepal's performance on individual

¹⁹ This is a composite statistic that captures measures of life expectancy, education, and income.

²⁰ GDP per capita is a major component of the HDI. The data points' deviation from the trend line can therefore be seen as the deviation in the HDI that is due to non-GDP per capita components of the HDI.

components, such as life expectancy and average years of schooling, has been steadily improving over the last three decades:

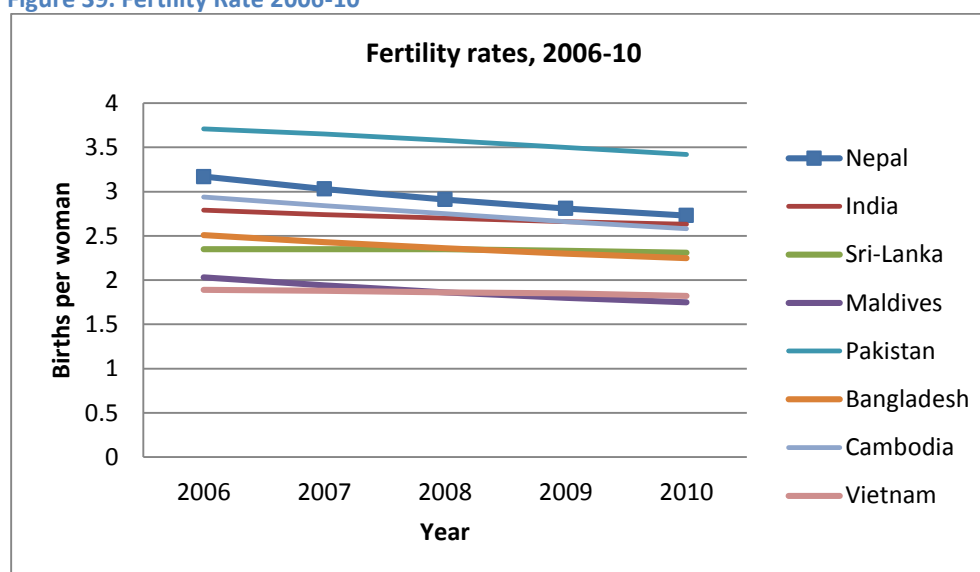
Table 13. Human Development Index

	Life expectancy at birth	Expected years of schooling	Means years of schooling	GNI per capita (2005 PPP\$)	HDI value
1980	48.2	5.6	0.6	587	0.242
1985	51.1	5.6	1.2	647	0.285
1990	54.0	7.3	2.0	740	0.340
1995	57.5	8.0	2.2	804	0.366
2000	61.6	8.8	2.4	915	0.398
2005	65.6	8.8	2.7	960	0.424
2010	68.5	8.8	3.2	1,121	0.455
2011	68.8	8.8	3.2	1,160	0.458

Source: UN Nepal Human Development Report (2011)

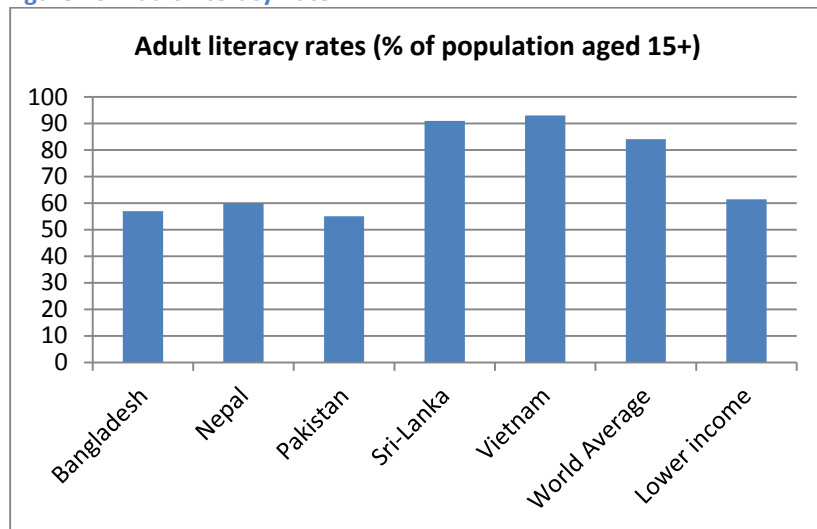
Life expectancy rose over 40% between 1980 and 2010, and the mean years of schooling more than quintupled. In addition to rising life expectancy, **Figure 39** shows that fertility rates appear to be falling in Nepal concurrently with those in neighboring countries, although Nepal's fertility rates remain higher (UNDP, 2011).

Figure 39. Fertility Rate 2006-10



Source: World Development Indicators (2013)

Figure 40. Adult Literacy Rate



Source: UNESCO (2013)

Nepal’s adult literacy rate is near the average for lower income countries and higher than in Bangladesh and Pakistan, although it is significantly lower than the world average (Figure 40). While there does not appear to be any regional differences in literacy, Table 14 shows there is a discernible gender gap, with fewer than half of adult women being literate (UNDP, 2011). In 2009, the female population with at least a secondary education was 17.9%; for males the rate was 39.9%. It is worth noting that Nepal’s 2009 Gender Inequality index was 113, a relatively high ranking compared to its overall HDI value of 157 (UNDP, 2009).

Table 14. Percentage of Nepal’s Population Aged 15+ That is Literate

Development Region	Male	Female	Total
Eastern	71.9	45.2	57.2
Central	70.5	41.8	55.1
Western	70.4	48.1	57.5
Mid-Western	68.1	39	52
Far-Western	72.5	40.4	54.1

Source: Nepal Labor Force Survey (2008), CBS

6.2 Education

Public spending on education as a percentage of total government expenditure in Nepal is nearly double that of India and Pakistan, and significantly higher than Bangladesh (NLS, 2012). However, the quantity of investment in education alone does not signal whether education is a binding constraint. To do so we look for signals that human capital in Nepal is insufficient to meet demand.

The Value of Education in Nepal

The HRV framework first looks for price signals. If educated workers are relatively scarce, firms should be willing to pay a premium for their labor. One way to measure if firms are

paying a high premium for educated workers is to estimate the returns to additional years of schooling using a Mincer regression. A Mincer regression uses household survey data to measure the effects of an additional year of education on wages, while controlling for other individual characteristics (HRV, 2005).

Using data from the 2010-11 Nepal Living Standards Survey (NLSS), a Mincer regression analysis suggest that the returns to an additional year of schooling in Nepal education are approximately 13% (NLSS, 2012). Comparing this estimate to the large cross-country sample of returns to education compiled by Psacharopoulos and Patrinos (2004) shows that the returns to education in Nepal are somewhat high relative to other countries with similar GDP per capita (Figure 41). Nepal's 13% return to education is also higher than the global average (9.7%) and the average for Asia (9.9%).²¹

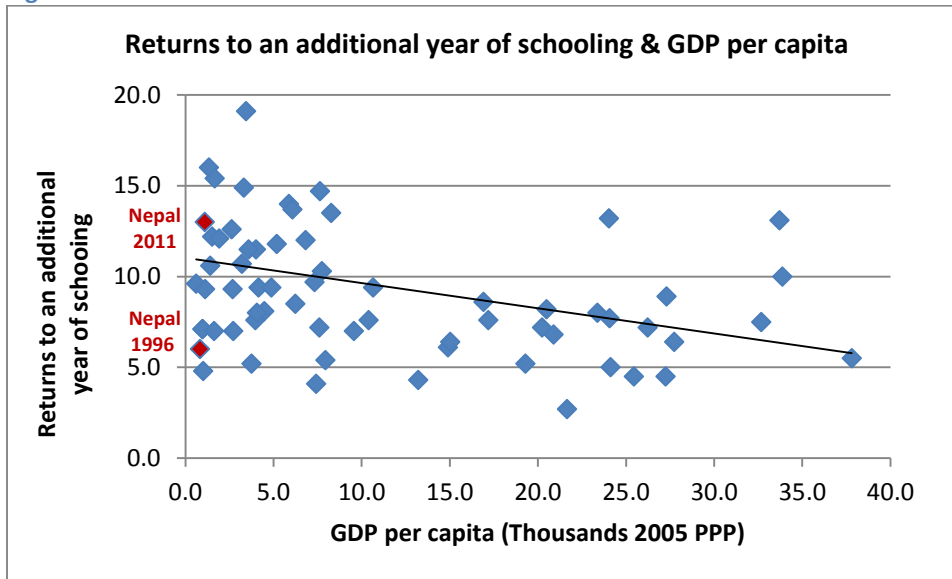
**Table 14. Public Spending on Education
(% of Government Expenditure)**

Country	%	Year
Nepal	20.2	2010
Vietnam	19.8	2008
Maldives	16.0	2009
Bangladesh	14.1	2009
India	10.5	2010
Pakistan	9.9	2010
Sri-Lanka	8.1	2009

Source: NLSS (2012)

²¹ Methodologically, it is not possible to know exactly how comparable the Psacharopolous and Patrinos (2004) Mincer results are to the Akanda (2010) results. The Mincer conducted for this analysis resembles the Akanda (2010) specification. As such, some difference in the returns to education results will be solely due to differences in specification of the regression models.

Figure 41. Returns to Education



Sources: Pscharopoulos and Patrinos (2004) and author's estimates

Because other versions of the NLSS were conducted in 1995-96 and 2003-04, it is possible to track the returns to education over time. Akanda (2010) used the 1995-96 NLSS to conduct an identical Mincer regression of returns to education. Comparing the 2011 estimates of returns to education to the 1996 data, it is apparent that returns have increased over that 15-year period. In 1996, returns to education were estimated at 6%, which is lower than the trend line, given Nepal's GDP per capita at the time (Akanda, 2010).

Table 15. Regression Analysis: Returns to Education

Nepal: Comparison of OLS Estimates of Returns to Education

	1995-96	2010-11
Education	0.06**	0.13**
Experience	0.02**	0.05**
Experience squared	-0.00**	-0.00**
Female	-0.29**	-0.28**
Born urban	0.35**	0.08
Married	-0.01	0.02
Eastern	-0.05	-0.22
Western	-0.05	-0.06
Midwestern	0.13**	-0.31*
Far western	0.11*	-0.36
6-10 in HH	0.01	-0.12
11-15 in HH	0.01	-0.13
16-24 in HH	0.05	0.15
Mother's years of education	-0.12*	-0.00
Father years of education	-0.01	0.00
Mother works in agriculture	0.01	-
Father works in agriculture	0.11*	-
Constant	1.5**	1.87**
N	3,569	1,064
R-squared	0.17	0.31

* = significant at 5% level

** = significant at 1% level

Sources: Akanda (2010) and author's estimates

According to **Table 16**, returns to primary and secondary education also have increased between 1996 and 2011. The marginal returns to primary education increased from 6% to 14% and the marginal returns to secondary education increased from 4% to 10%. The returns to education remain highest for primary education (ADB, 2009). The marginal returns to tertiary education remained 13% (Akanda, 2010).

Table 16. Regression Analysis by Level of Education²²

	OLS Estimates		Marginal Returns	
	1995-96	2010-11	1995-96	2010-11
Primary	0.12	0.29	0.06	0.14
Secondary	0.33	0.87	0.04	0.10
Tertiary	0.98	1.51	0.13	0.13
N	3,569	1,064	•	•
R-sq	0.18	0.30-0.32	•	•

Note: All results are significant at 1% level.

Sources: Akanda (2010) and author's estimates

Within the regression model, there are a couple of other important factors to note. First, the estimates show that women (as demonstrated by the “Female” dummy variable) earn a 30% lower wage, controlling for other factors. Separate estimates of returns to education for men and women show that returns to an additional year of schooling for women (16%) are higher than those for men (12%). The pay disparity suggests there may be barriers faced by women in education and in the labor market. Second, the magnitude and significance of the “Born urban” coefficient declined substantially between 1995-96, when it was 0.35, and 2010-11, when it was 0.08 (Akanda, 2010). This too suggests that place of birth has less influence on wages than it did 15 years ago. Although there could be any number of explanations, perhaps people born in rural areas are more mobile today and migrate to urban areas with greater frequency than in the past, opening new job opportunities to them.

Unemployment

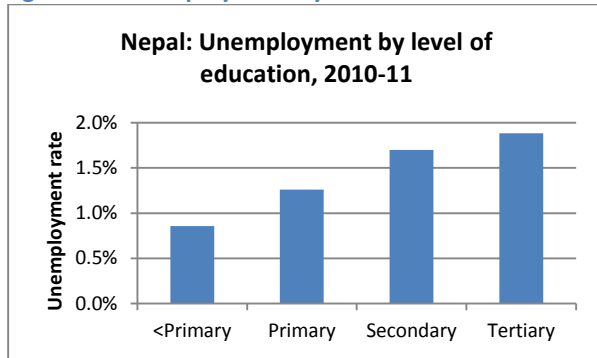
Wage and employment statistics by level of education and for skilled workers versus unskilled workers provide an additional approach to examining demand for educated workers. In Nepal, unemployment rates increase with the level of education completed. The unemployment rate for people with a tertiary education is roughly double the rate for those with less than a primary education (WDI Nepal, 2013). The unemployment rate for young and urban people is higher than for older and rural workers. The ILO cites a lack of decent work available to younger workers to explain the high unemployment and underemployment of youth (ILO, 2010).

Unfortunately, this data does not capture “under”-employment very well. Most workers who cannot find formal sector employment take low pay informal work and are thus not considered unemployed. This contributes to the very low measured unemployment in Nepal despite having an underutilized labor force. In contrast, **Figure 42** shows that individuals with tertiary education are better able to endure unemployment in order to wait and accept a job of their choosing. This is reflected in the increase in unemployment for tertiary educated workers, over primary and secondary educated workers. Despite

²² Using the OLS estimates in Table 16, the marginal returns (i.e. the return to a single year of schooling within that level) were calculated by subtracting the estimates from the previous level and dividing by the number of years within that level: *Marginal return to a year of secondary* = $(\beta_{secondary} - \beta_{primary}) / \text{years of secondary}$. Although the OLS numbers appear large because each level is a combination of multiple years, the returns per year within each level (14%, 10%, 13%) are in line with the overall return to a year of education cited in Table 15 (13%).

this, tertiary unemployment rates in Nepal are low at under 2%. This implies that educated workers are being absorbed by the labor market in Nepal (WDI Nepal, 2013).

Figure 42. Unemployment by Level of Education



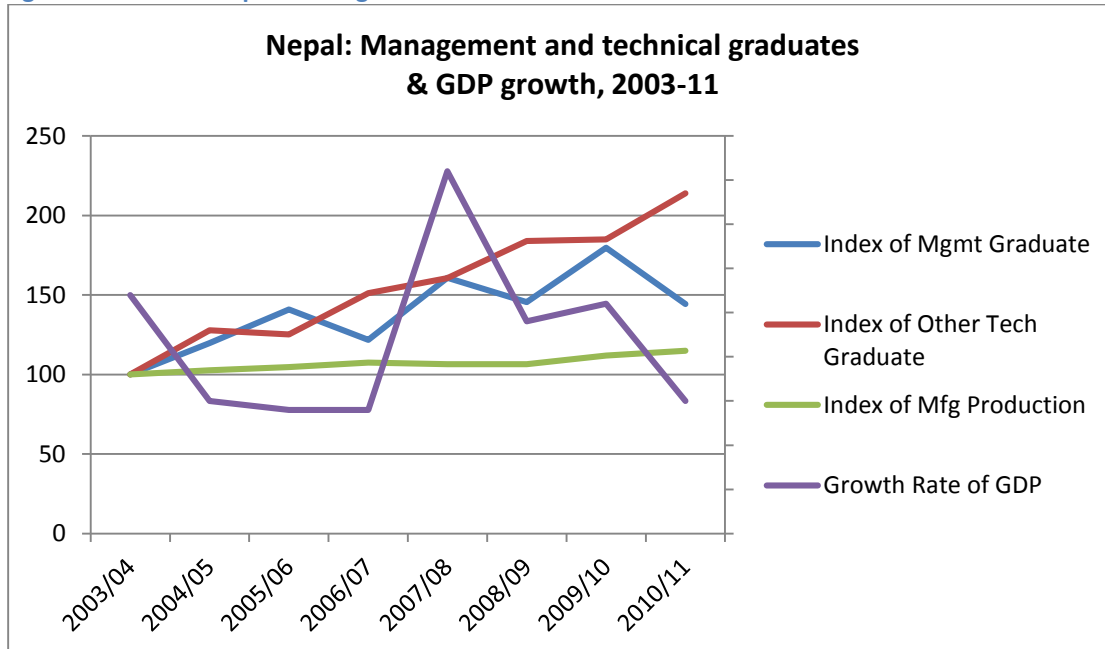
Source: World Bank World Development Indicators (2013)

Correlation with Growth and Investment

According to HRV (2005), another indication of a binding constraint is that changes in the constraint will produce changes in investment. If education were a constraint, investment would increase when average levels of education were increased.

In **Figures 43** and **44**, the indices for management and other technical graduates rose over a seven year period, but the index of manufacturing and the rate of GDP growth remained steady. Rate of GDP growth appears unrelated with the number of management, technical, or manufacturing graduates, suggesting that a lack of skilled labor is not the binding constraint to growth.

Figure 43. Relationship of Management and Technical Graduates to GDP Growth



Source: Calculated from CBS, 2011 and from Economic Survey (2011/12), Ministry of Finance, Government of Nepal.

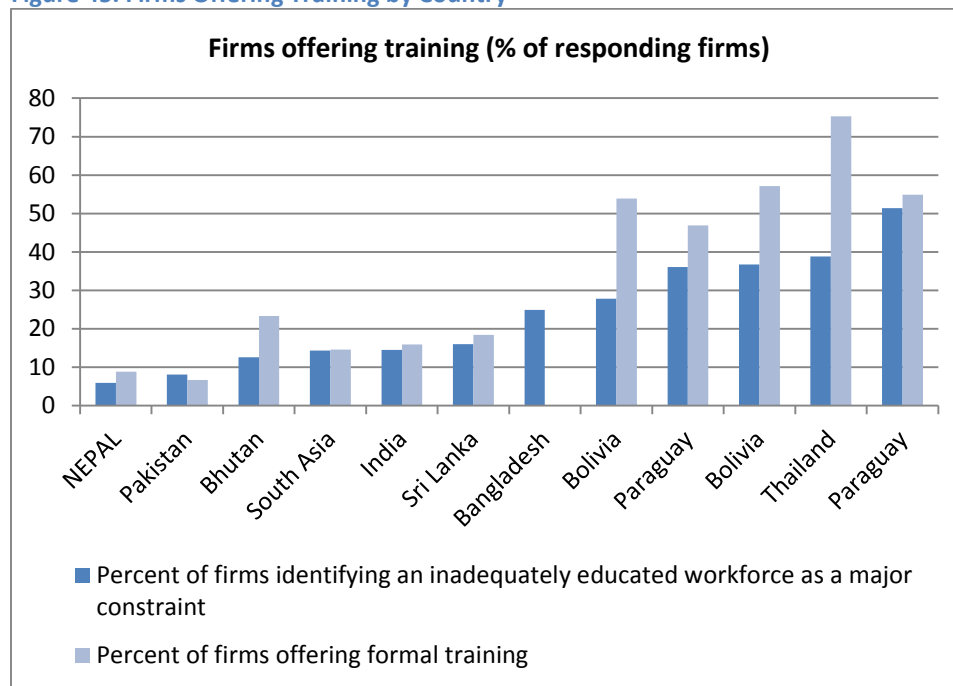
Anecdotal evidence suggests that skilled and technical graduates are going abroad in search of well-paid job opportunities. Several interviews with manufacturing firms and exporters of commercial agriculture commodities indicated that Nepal’s youth work force is seeking employment abroad. The relatively high levels of international migration by workers suggests that otherwise qualified people in Nepal cannot find appropriate work. This is more symptomatic of a lack of jobs than a lack of human capital in an economy.

Are Firms Overcoming Education Constraints?

According to HRV (2005), where binding constraints exist, economic actors will take steps to try to overcome the constraint. If a lack of educated or skilled workers is a constraint, firms may try to overcome this constraint by offering training programs to workers, or hire skilled workers from abroad.

It appears that firms do not see a lack of skilled workers as a constraint in Nepal. According to a 2009 enterprise survey, as shown in **Figure 45**, only 5.9% of Nepali firms identified an inadequately trained workforce as a major constraint, and only 8.8% of firms offer formal training (IFC, 2009). As shown in the chart below, these numbers are far less than in neighboring or comparator countries. This indicates that Nepali firms are not attempting to overcome constraints related to workforce training and education.

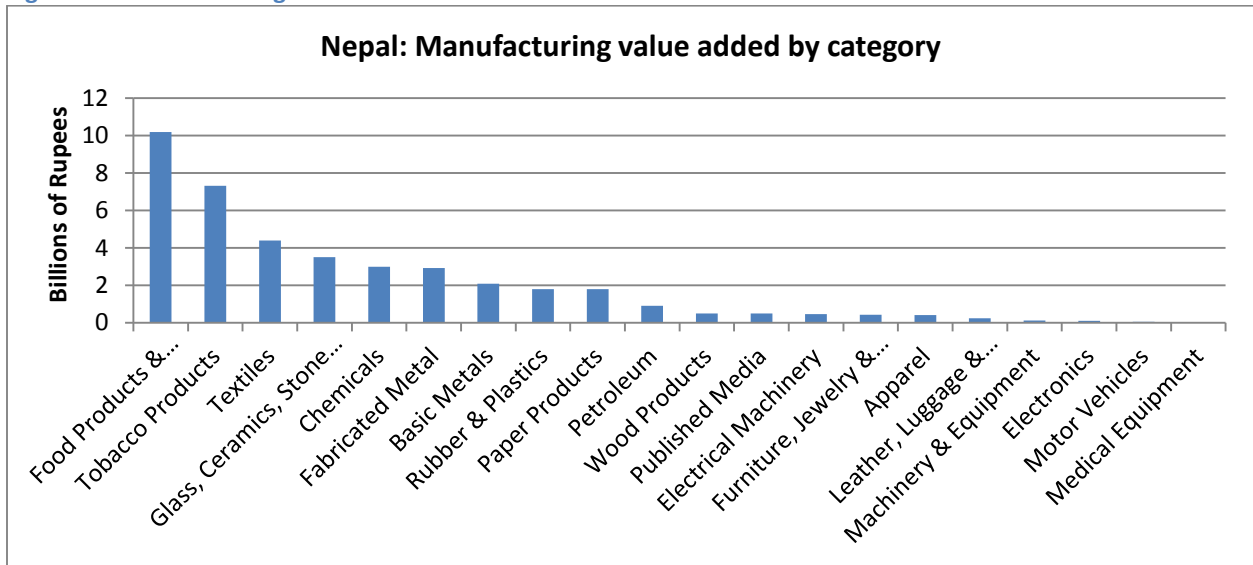
Figure 45. Firms Offering Training by Country



Source: World Bank Enterprise Surveys

Although existing firms do not see education as a constraint to investment, perhaps firms currently not operating in Nepal do see it as a problem. Existing firms may be less human capital-intensive, allowing them to survive, while other firms cannot operate at all due to a lack of skilled workers. Data from a recent manufacturing census, shown in **Figure 46**, shows that the manufacturing sector in Nepal is focused on food, tobacco, textiles, ceramics, chemicals and metals (Nepal CBS).

Figure 46. Manufacturing Value Added



Source: Economic Survey, Government of Nepal, Ministry of Finance, 2012.

Higher value items, such as machinery, electronics and motors vehicles, typically require greater specialization and more skilled labor to produce, but do not contribute much to value to Nepal’s manufacturing sector. Comparing this manufacturing data with education data from the NLSS, the product categories with the greatest value added also have the lowest percentage of workers with a secondary education. That is, the products that Nepal makes relatively more of require relatively less human capital. However, this result may be explained in other ways; higher value items also require various other inputs that may be in short supply in Nepal. Therefore, this test is ambiguous.

International Migration and Human Capital

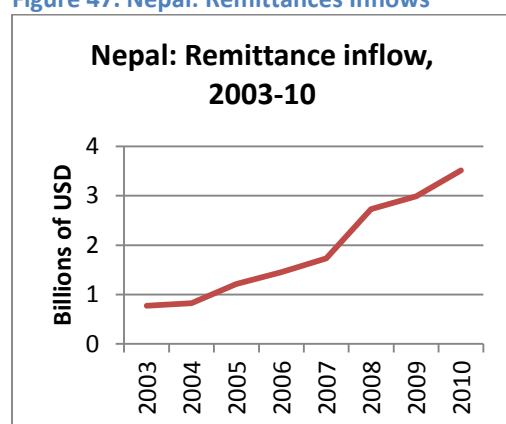
As discussed in Chapter 2, migration is a significant feature of Nepal’s economy (Table 17). According to the Nepal Living Standard Survey (2011), 52.8% of the total households have at least one absentee member, of which 32% have members living in foreign countries. This has led to significant remittances. Nepal is among the top five countries receiving remittances, with inflows amounting to 23% of GDP and 55% of the total households receive remittance from members abroad. Figure 47 shows the growth in remittances over the last decade.

Table 17. Nepal: Monthly Migration, 2010-11

Month	Male	Female	Total
July 2010	31,279	372	31,651
Aug 2010	24,981	413	25,394
Sep 2010	23,044	468	23,512
Oct 2010	30,422	480	30,902
Nov 2010	28,463	622	29,085
Dec 2010	25,809	359	26,168
Jan 2011	35,901	640	36,541
Feb 2011	29,207	733	29,940
Mar 2011	34,718	444	35,162
Apr 2011	24,189	589	24,778
May 2011	40,683	980	41,763
Jun 2011	34,399	449	34,848
	363,095	6,549	369,744

Source: GON, Ministry of Transport and Labor Management (2012)

Figure 47. Nepal: Remittances Inflows



Source: World Bank World Development Indicators (2013)

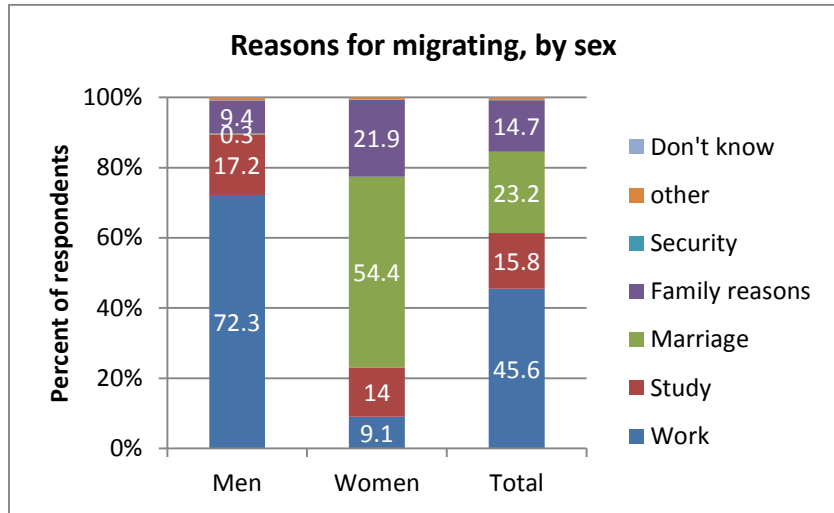
Furthermore, migration occurs across all levels of skilled workers according to the World Bank study on migration. The large number of high and low skilled Nepalese migrant workers that are able to find employment internationally suggests that there is an adequate supply of skilled and healthy labor within Nepal (Shrestha, 2008). The fact that domestic firms are unable to pay salaries competitive enough to keep more workers employed within Nepal is consistent with low productivity and investment within Nepal due to other constraints identified in this report. The resulting weak demand for labor results in workers incurring large costs to find employment outside of the country. Based on the scale of migration from Nepal, it is likely that the supply of skilled jobs is low, rather than the supply of skilled labor, and drives people to migrate elsewhere. Indeed, Shrestha (2008) finds:

The major factor contributing to large-scale out-migration from Nepal is higher growth of labor force and limited employment opportunities outside the farm sector. The 3 percent annual growth of labor force is not matched by additional job creation; moreover, the low salary structure in the economy, insecurity in the rural areas, and higher demand for the

labor in the industrialized Asian and Middle-east countries are the other contributing factors.

Figure 48 shows the most common reasons for migration out of Nepal as measured by the World Bank Migration Study (2011). Across all respondents, the predominant reason for migrating was work, although it was more pronounced for men than for women. This reinforces both the notion that low demand for labor is driving Nepalese to migrate and the notion that women face significant barriers to participation in the economy. These findings suggest that skilled and educated workers are not in short supply in Nepal and education is not a binding constraint to growth at this time.

Figure 48. Nepal: Monthly Migration, 2010-11



Source: CBS: NEPAL LIVING STANDARDS SURVEY 2010/11.

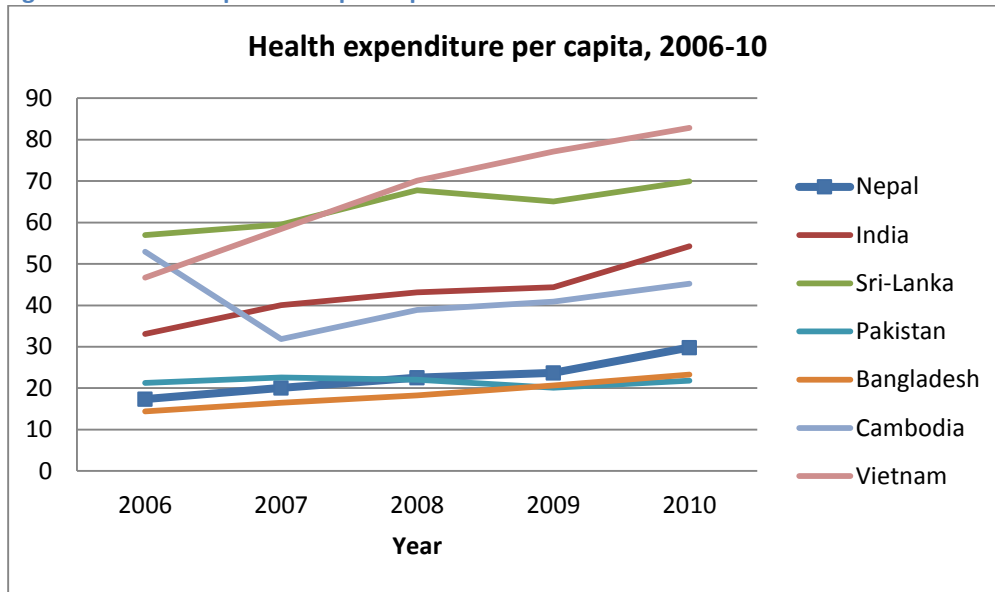
Conclusions: Education

Despite somewhat high returns to education, there are a few reasons why education is not a binding constraint. First, the returns to education may come in part through internal labor migration and remittances and not reflect the true demand for skills in Nepal’s domestic economy. Additionally, firms in the country do not appear to be actively trying to overcome the constraint through training or bringing in foreign workers.

6.3 Health

Health is an important component of human capital. Besides the stock of knowledge and ability an individual may possess, physical health has additional implications for worker absenteeism and general productivity. If health is inadequate, productivity may suffer as workers must miss work due to personal or family illness. The Government of Nepal’s vision for the health sector is to improve the health and nutritional status of the Nepali population, especially for the poor and excluded. Yet the health sector continues to face ongoing challenges in improving the situation of these disadvantaged groups, namely in improving healthcare access, raising the quality of service,s and ensuring the availability of medicines. The health system is understaffed, especially in the mountain and hill areas that are deemed hardship posts for government personnel (NSMP, 2004). Figure 49 shows that Nepal has a low health care expenditure per capita compared to its neighbors, and it also does not appear to be increasing at a faster rate (WDI Nepal, 2013).

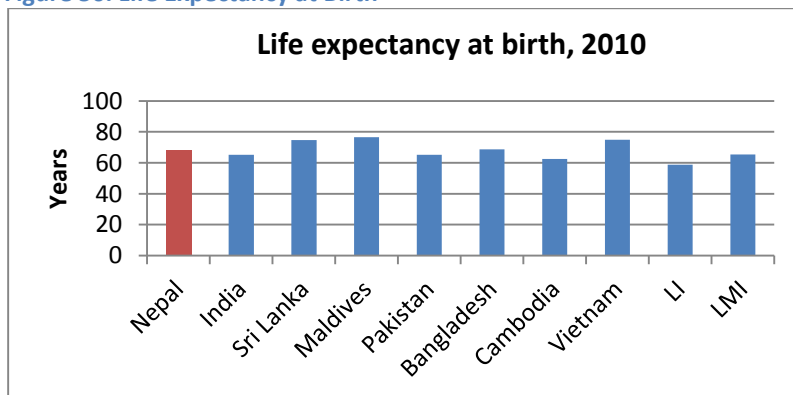
Figure 49. Health Expenditure per Capita



Source: World Bank World Development Indicators (2013)

Despite these challenges, health statistics in Nepal appear to be improving. Nepal's life expectancy is better than the average for least developed (Figure 50), South Asian and lower income countries, while it is not far from the world average. The country's life expectancy is higher than that of both India and Pakistan (WDI Nepal, 2013).

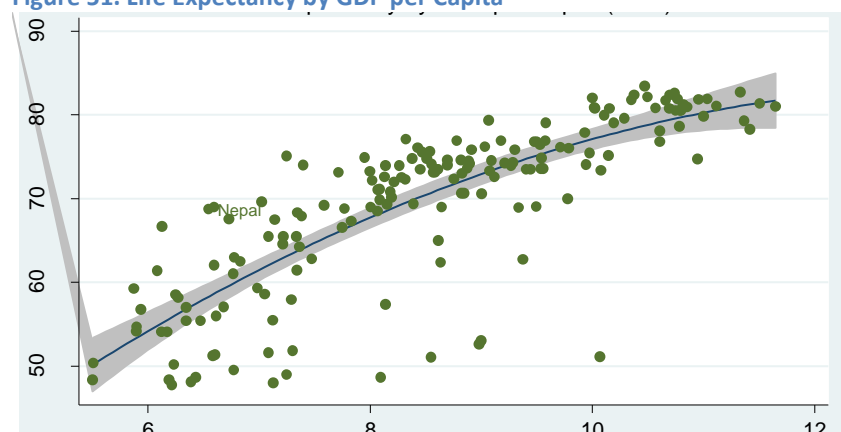
Figure 50. Life Expectancy at Birth



Source: World Bank World Development Indicators (2013)

Figure 51 shows that Nepal's life expectancy is significantly higher than expected given its income per capita (as log of GDP per capita).

Figure 51. Life Expectancy by GDP per Capita



Note: Horizontal axis is the log of GDP per capita. Vertical axis is life expectancy in years.

Source: Nepal MDG Progress Report 2013, UNDP

As seen in Table 18, Nepal is also on track to meet several Millennium Development Goals (MDGs). The average number of children a woman has in her lifetime has declined from 5 births per woman in 1996 to 2.6 in 2011. Tuberculosis case-detection and treatment success rates are improving and malaria incidence is declining (UNDP, 2013).

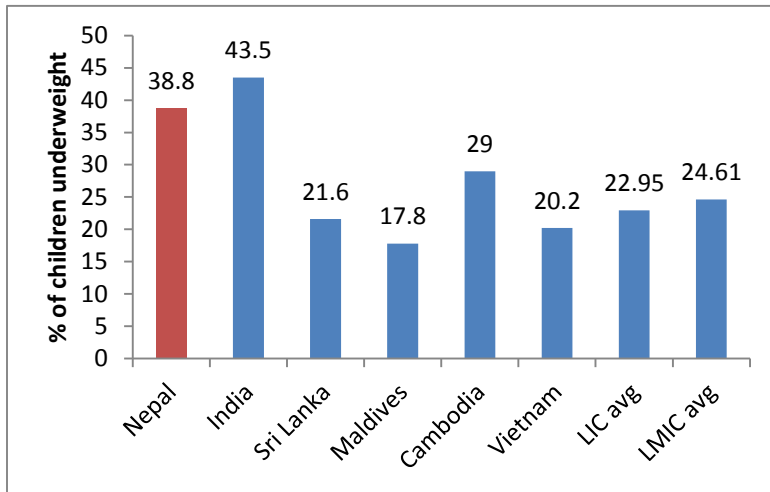
Table 18. Nepal: Progress toward Selected Targets of Reproductive, Maternal, and Child Health

Indicator	1996	2001	2006	2011	2015 Target
Under-five mortality rate (per 1,000 live births)	118	91	61	54	54
Infant mortality rate (per 1,000 live births)	79	64	48	46	36
Newborn mortality rate (per 1,000 live births)	50	39	33	33	16
One-year old children fully immunized (%)	43	66	83	87	85
Maternal mortality rate (per 100,000 live births)	539	415	281	-	134
Births attended by skilled birth attendants (%)	-	11	19	36	60
Underweight children under five (%)	-	43	39	29	29

Source: Nepal: Millennium Development Goals: Progress Report (2013)

While some progress has been made, there are still significant challenges, especially in reducing the prevalence of stunting among children. Figure 52 shows that Nepal has a higher rate of malnourishment for children under five years of age than many other countries in the region, and it is significantly above the averages for both lower income and lower middle income countries (WDI Nepal, 2013).

Figure 52. Malnourishment (weight for age) for Children Under 5



Source: World Development Indicators.

Economic Costs of Poor Health

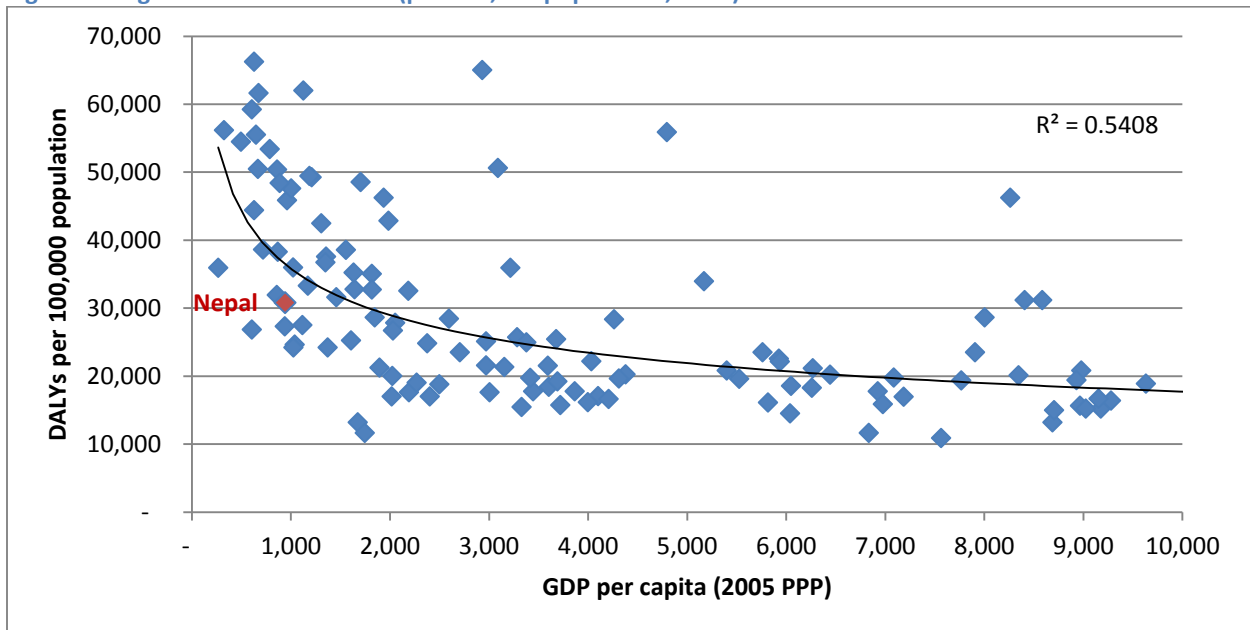
The World Health Organization (WHO) measures the burden of disease in countries throughout the world using a statistic called the disability-adjusted life year (DALY).

This is a time-based measure that combines years of life lost due to premature mortality and years of life lost due to time lived in states of less than full health. After standardizing DALY statistics for age and converting them to rates per 100,000 people,

Figure 53 shows that Nepal's burden

of disease is less than what would be predicted given its GDP per capita (WHO Nepal).

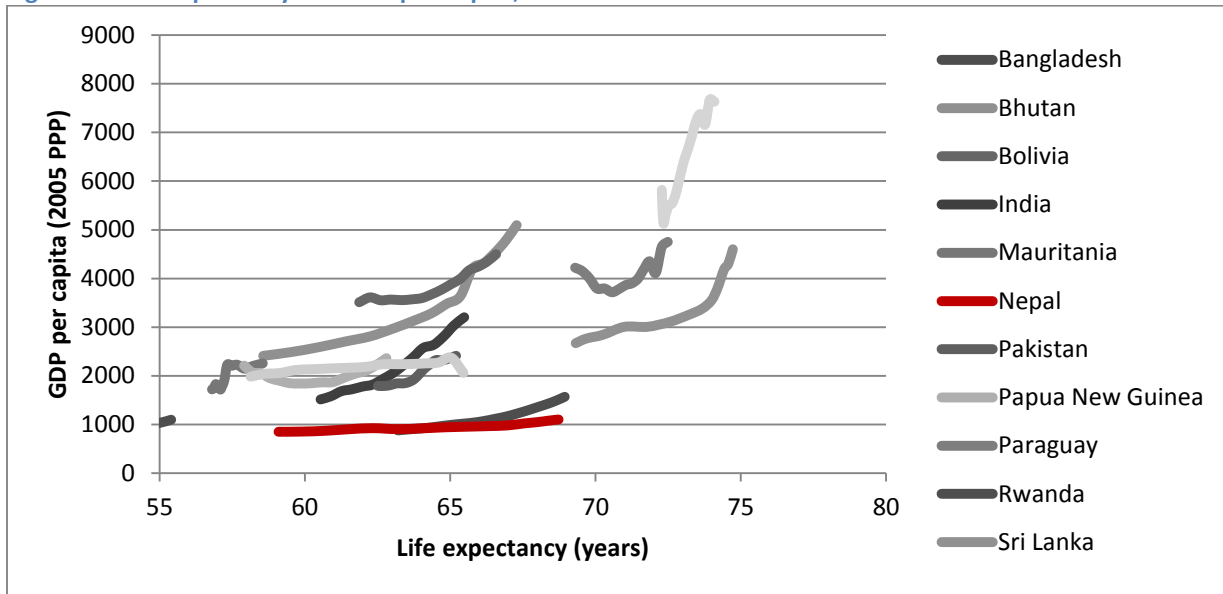
Figure 53. Age-standardized DALYS (per 100,000 population, 2004)



Source: WHO (2013)

If health were a binding constraint to growth, improvements in health would be expected to lead to increased growth. While life expectancy and GDP per capita in Nepal have grown in tandem over the last decade and a half, the gains in GDP per capita have not been as pronounced as countries that experienced similar gains in life expectancy (**Figure 54**).

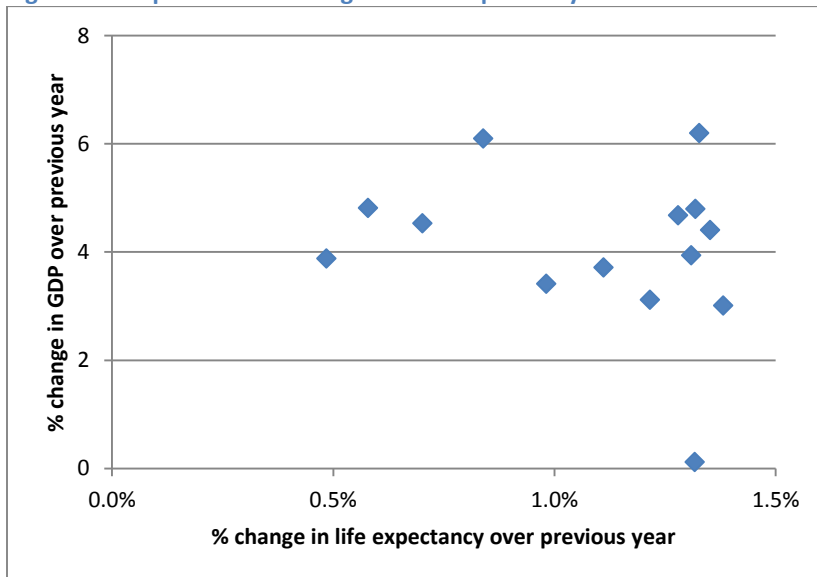
Figure 54. Life Expectancy and GDP per Capita, 1997-2011



Source: World Bank World Development Indicators (2013)

When comparing annual growth rates of life expectancy with the annual growth of GDP between 1997 and 2011 (Figure 55), there seems to be almost no correlation (WDI Nepal, 2013). This suggests that changes in health outcomes are not leading to accelerations in economic growth.

Figure 55. Nepal: Annual Changes in Life Expectancy and GDP



Source: World Bank World Development Indicators (2013)

6.4 Conclusions: Human Capital

Scarcity of human capital, either in skilled or healthy workers, are not constraints to economic growth in Nepal. Firms do not identify lack of skilled labor as a constraint to their growth in Nepal, and although returns to education have increased in Nepal since the mid-1990s, there is a significant amount of out-

migration by people searching for opportunities outside of Nepal, suggesting that there is a lack of adequate work in Nepal for capable workers. Further, Nepal performs relatively well on indicators of human health relative to other countries in its income bracket, and there does not appear to be any connection between health improvements and investment in Nepal. This all supports the finding that human capital is not a binding constraint to investment in Nepal.

6.5 Annex: Nepal Education Indicators

Key Education Indicators, Base-Year Status and 2015/16 Targets

Indicators	Unit	Base Years								Targets 2015/16
		2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	
1. Share of Education Budget in										
GNP	%	2.0	2.1	2.1	2.2	2.3	2.3	2.4	2.5	2.5
GDP	%	3.5	3.6	3.6	3.7	3.7	3.8	3.8	3.9	4.0
2. Share in Education Budget										
Basic Education	%	70	71	71	72	73	74	74	75	76
Secondary Education	%	9	9	9	9	9	9	9	9	9
3. Enrolment at Grade 1										
New entrants ECED experience										
with ECED/ Pre Primary	%	33	36	41	45	51	57	64	71	80
Gross Intake Rate	%	141	148	144	140	137	133	130	127	123
Net Intake Rate	%	78	81	83	86	88	91	94	97	100
4. Gross Enrolment Rate										
ECED/Pre primary	%	60	63	67	72	77	82	87	93	99
Basic Education (1-8)	%	116	123	125	128	130	132	132	131	131
Secondary Education	%	36	40	43	47	52	58	66	75	83
5. Net Enrolment Rate										
Primary Education	%	89	92	94	96	97	98	99	99	100
Basic Education	%	71	73	75	77	80	82	85	87	90
Secondary Education	%	20	21	22	23	24	26	27	29	31
6. Teachers with required Qualification and Training										
Basic Education	%	62	66	70	74	79	83	88	94	100
Secondary Education	%	74	77	80	83	86	89	93	96	100
7. Teachers with required Certification										
Basic Education	%	90	91	92	94	95	96	97	99	100
Secondary Education	%	90	91	92	94	95	96	97	99	100
8. Pupil Teacher Ratio										
Basic Education	Ratio	44	43	41	40	39	38	37	36	34
Secondary Education	Ratio	42	39	37	34	32	30	28	26	25
9. Repetition Rate										
Grade 1	%	28	18	12	8	5	3	2	1	1
Grade 8	%	13	11	9	7	6	5	4	3	2
10. Survival Rate by Cohort Method										
Grade 5	%	54	58	61	65	70	74	79	84	90
Grade 8	%	37	41	45	49	54	60	66	73	80
11. Coefficient of Efficiency										
Basic Education	Ratio	0.46	0.49	0.52	0.55	0.59	0.62	0.66	0.71	0.75
Secondary Education	Ratio	0.30	0.33	0.36	0.39	0.42	0.46	0.50	0.55	0.60

Source: Nepal Ministry of Education (2010)

7. Appropriability Risks

This chapter examines risks to receiving returns on investment that occur at both the macroeconomic and microeconomic levels. At the macro level, risks may arise from fiscal or monetary policies that create imbalances and economic instability. Risks at the micro level arise from issues like insecure property rights, unpredictable enforcement of regulation, and high tax burdens. Whether at the macro or micro level, these risks share the feature that they reduce an investor's expected share of overall investment returns, which HRV terms *appropriability*.

This chapter shows that micro-level risks to appropriability are a critical binding constraint to investment and growth in Nepal. In particular, political instability and policy implementation uncertainty constrain investment and growth. Political instability has recently been due to frequent changes in government and the lack of a stable and predictable political process – between 2008 and 2012, the head of the government of Nepal changed five times.

One widely used metric to assess stability of government is the Worldwide Governance Indicators. In 2011, Nepal ranked in the 6th percentile of the political instability indicator.²³ The WGI metric of political instability captures, among other things, aspects of the frequent changes in government and fragility of the current governance environment. Without a legislative body in place, and without a clear constitutional basis for executive power, the government's legitimacy to act on behalf of the people has been contingent on a tenuous political consensus.

This instability affects the environment for private investment in various ways. Frequent changes in government and a lack of a clear political mandate create uncertainty in policy direction and implementation resulting in disincentives for long term investment. Political instability has also impeded development spending on infrastructure and capital projects which hinder the ability to address infrastructure constraints.

To examine appropriability risks, we first review previous studies. We next examine information on firm perceptions and complement this with quantitative data based on the four tests proposed by Hausmann et al. (2008). In examining risks to appropriability, the application of the tests is limited and determined by the availability of relevant data. This chapter also examines appropriability risks from macro-economic stability and finds them not to be binding constraints.

7.1 Previous Studies and Perception Surveys

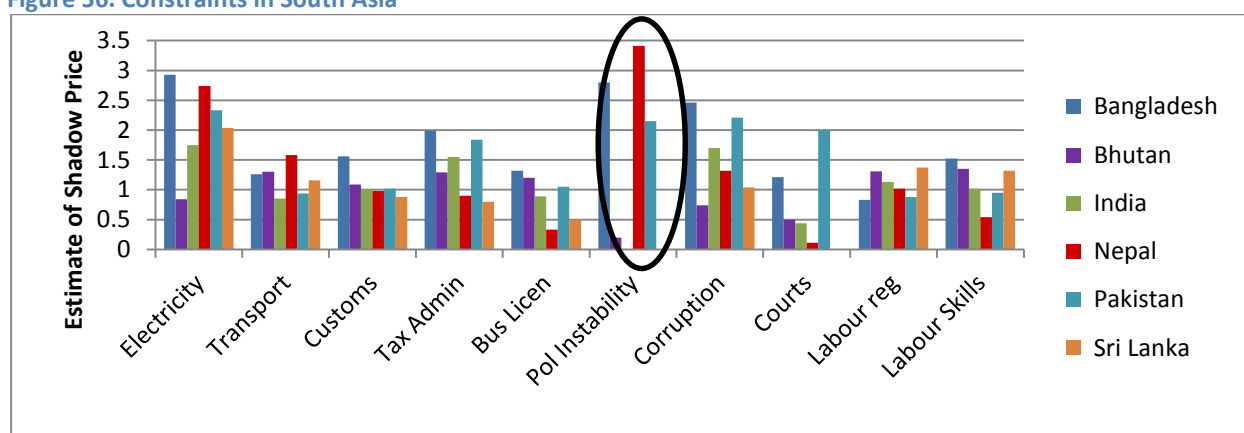
A 2009 ADB/DFID/ILO report identified political instability as a critical constraint and also categorized other governance and industrial relations risks as critical. Control of corruption was identified as a constraint, although not critical. The study noted concerns about the rule of law and administration of the

²³ This measure captures only part of the dynamic in Nepal. The WGI political stability metric measures “perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means.” The definition suggests an emphasis on violence that, while significant during the civil conflict, is currently less applicable to Nepal after significant steps forward like integration of former fighters.

tax system that did not rise to the level of a binding constraint (ADB, 2009). The report based these conclusions on a variety of evidence including a 2008 enterprise survey conducted by ADB, DFID, and FNCCI (IFC, 2009).

Subsequent to the ADB report, the World Bank and IFC conducted another enterprise survey in 2009. Using this data, Afram and Del Pero (2012) find that, “the single aspect of the business climate that most deeply affects firms in Nepal is political instability” (Afram et al., 2012, p. 37). The 2009 survey data has the additional benefit of allowing comparisons across countries, which Carlin and Schaffer (2012) use to make estimates of the shadow prices of constraints across South Asia.²⁴ Of particular interest in their methodology is that they give higher weight to constraints reported by firms that are expanding employment. Carlin and Schaffer also found political instability to be the most binding constraint in Nepal, where their shadow price estimate is more costly than any other constraint in any other comparator country (Figure 56) (Carlin et al., 2012).

Figure 56. Constraints in South Asia

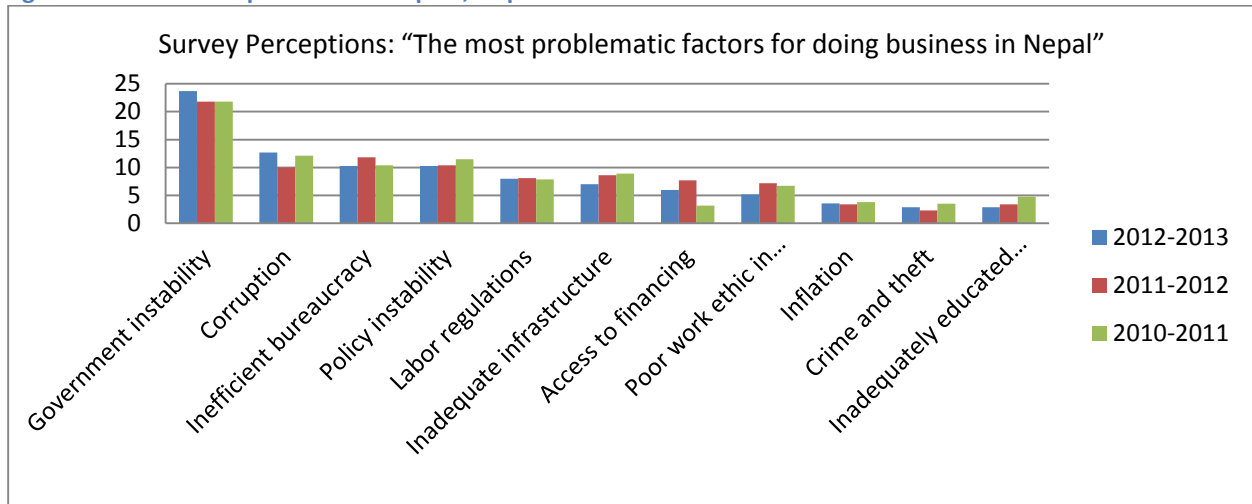


Source: Carlin and Schaffer (2012), Table 8, based on 2009 World Bank Enterprise Surveys

For more recent indicators of constraints, the annual Global Competitiveness Report by the World Economic Forum produces a survey and ranking of the most problematic factors for doing business. Figure 57 shows that “government instability” (referred to as political instability in this report) tops a list of 15 potential issues, followed by corruption, inefficient bureaucracy, and policy instability (Klaus, 12/13).

²⁴ The shadow prices are estimated using econometric techniques developed in Carlin et al. (2006, 2010, 2012).

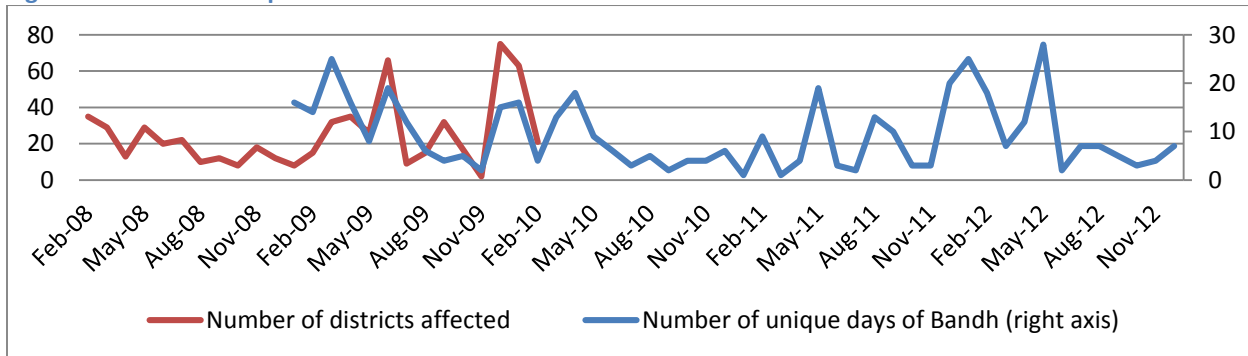
Figure 57. Global Competitiveness Report, Nepal



Source: World Economic Forum, The Global Competitiveness Report

A survey of labor representatives, private businesses, and opinion makers also found political instability to be the highest reported economic concern (IFC, 2013).²⁵ The survey was conducted from May through July of 2012, which coincided with an increase in uncertainty due to the failure to reach agreement on the constitution and the subsequent dissolution of the Constituent Assembly. Increased *Bandh* activity during this time period,²⁶ as shown in Figure 58, further emphasizes the political instability at this time. *Bandh* activity also appears to have been especially high during the previous World Bank/IFC enterprise surveys conducted in 2009. While fluctuations in instability may have influenced survey results, it is clear that political stability remains a concern.

Figure 58. *Bandhs* in Nepal



Note: Two data series are used to cover a longer time series.

Source: UNDP

²⁵ "Opinion makers" included leaders in universities, student leaders, journalists, elected officials, etc.

²⁶ *Bandhs* are a form of political protest in South Asia where economic activity is shut down in the area affected by the protest, which can include entire cities.

7.2 Political Instability, Definition and Growth Connection

The term “political instability” is widely used to discuss the transition underway in Nepal. However, for the purposes of this analysis it is imprecise since it includes multiple aspects of instability. Definitions of political instability generally include measures of expectations of violence and upheaval. For example, the World Governance Indicator of political instability “measures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism” and they score the risk of violent overthrow of the government appears low in Nepal despite the country’s poor ranking in this measure (6th percentile). The Comprehensive Peace Accord signed in 2006 has enabled Nepal to make significant steps with the adoption of an interim constitution, the holding of free and fair elections, and the integration of former fighters back into a unified Nepalese army (USIP, 2012).

Rather than the risk of violence, survey respondents’ perceptions of political instability in Nepal may also reflect the frequent changes in government leadership and the fragility of the current governance environment. Under the interim constitution signed in 2008, the head of government in Nepal has, on average, lasted less than a year.

A connection between political stability and economic growth has been established in various cross country studies.²⁷ These studies suggest multiple channels through which instability might constrain growth, including uncertainty around security of property rights, uncertainty on policy direction or implementation, or producing an inefficiently short-term focus of policy makers. Below we first identify a general connection between political stability and economic growth in Nepal. Then we identify two channels through which instability affects growth in Nepal: policy and implementation uncertainty due to frequent changes in government leadership; and the effect of political instability on the ability of the government to make needed capital expenditures.

Political Stability and Economic Growth in Nepal

The WGI political instability measure correlates closely with economic growth in Nepal. **Figure 59** illustrates the relationship between economic growth and the WGI measure of political stability from two perspectives:

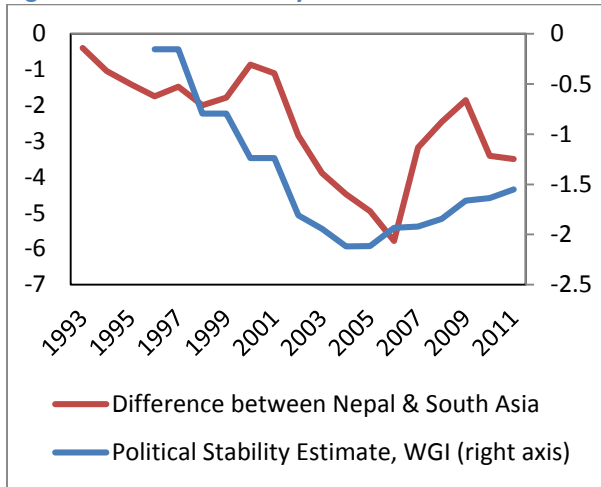
- (1) The absolute rates of growth of GDP per capita; and
- (2) Nepal’s growth rate in comparison to the average growth of other South Asian countries.

Various studies, including Ding and Masha (2012) and Dabla-Norris et al. (2012), identify spillover effects on growth in low income countries, like Nepal, from growth in large neighboring countries, like India. Therefore, it is important to examine Nepal’s growth not just on its own, but also in relation to growth in India and South Asia. To do this we construct a simple metric of the difference between growth in South Asia and Nepal. From the 1990s through 2002, Nepal’s growth maintained a consistent relationship of around one percentage point lower than growth in South Asia, (**Figure 59**). Concurrent with the political

²⁷ For example: Gupta 1990, Alesina et al. 1992, Barro 1996, Alesina and Rodrik 1994, Aisen and Veiga 2012

violence in 2002, the gap between Nepal’s growth and that of South Asia widens as the WGI index declines.

Figure 59. Political Stability and Economic Growth in Comparison to South Asia

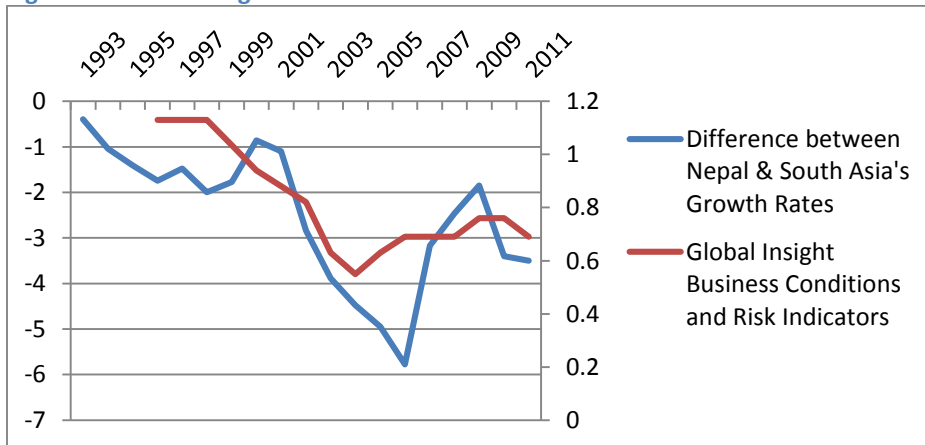


Note: Smoothed GDP per capita growth.

Source: WGI, World Bank World Development Indicators (2013)

The WGI measure aggregates various measures of risk. Some of these have a less complete time series than others. The global insight business and conditions risk indicator has the most complete time series of any of the sub indicators used in the WGI. To ensure robustness of the correlation between risk indicators and growth in Nepal, **Figure 60** repeats the analysis with this subcomponent. In this analysis, the correlation with growth is even stronger.

Figure 60. Global Insight Risk Indicator and Growth



Source: IHS Inc.

The correlations above suggest that political instability is an important factor for growth in Nepal. With the connection between political instability and economic growth established in general, we next turn to understanding the specific channels through which frequent changes in government leadership affect investment and growth.

7.3 Policy Implementation Uncertainty and Economic Growth

Frequent turnover in government leadership can lead to changes in government policy and unpredictable implementation of policy. This unpredictability can be especially challenging for businesses. Pritchett et al. (2010) examine policy implementation uncertainty and explore “why firms hate it”. The authors find that divergence between *de jure* policies as written and their *de facto* implementation creates uncertainty that is particularly difficult to manage business climate. They find that variation and unpredictability in implementation affects employment growth more than the “average” level of implementation. Therefore, the actual policies in place within Nepal may not be as problematic as is the inconsistent and unpredictable implementation of these policies that arises from frequent changes in government leadership. **Table 19** shows that firms do not believe policies are implemented consistently and that this is especially true for large firms that likely have more exposure to and interaction with government. On average, other countries do not exhibit a correlation between firm size and perception of implementation consistency.

Table 19. Is Policy Implemented Consistently?²⁸

	Micro	Small	Medium	Large
Strongly disagree	2%	7%	8%	0%
Tend to disagree	42%	56%	64%	71%
Tend to agree	44%	29%	21%	16%
Strongly agree	0%	0%	1%	0%
Don't know	12%	8%	7%	13%

Source: World Bank Enterprise Surveys (2009)

Short Term Financing is Prevalent

The annex on Nepal’s financial sector identifies the prevalence of short term lending in Nepal. Most loans available to the private sector have maturities of less than 12 months (Khanal, 2007). The short term bias of the financial sector appears to be driven in part by a lack of long term deposits (Khanal, 2007). It is important to match deposit and lending maturities to some degree in order to reduce systemic risks in the banking sector. Therefore, if depositors are unwilling to take long term positions, banks have little recourse but to restrict long term lending. Increasing finance and investment is problematic in this environment. However, the lack of longer term credit can be driven by political instability that that prevents lenders and borrowers from making long term commitments, and is not necessarily a symptom of constraints within the financial sector.

Leading Growth Sectors are Not Dependent on Political Stability

The growth diagnostics literature suggests that thriving firms in an economy should not be intensive in a constrained factor. Therefore, if political instability is a constraint, we should observe that sectors and firms doing well in Nepal are able to cope with instability.

In 2001, Nepal’s service sector began growing faster than other sectors, like manufacturing. As shown in **Table 20** and also presented in Chapter 2, services have been a leading driver of growth in Nepal. Much

²⁸ Responses to the statement: “Government officials’ interpretations of the laws and regulations affecting this establishment are consistent and predictable.”

of this growth was in transportation, retail, and wholesale trade – industries that do not rely on long-term expectations for investment decisions.

Table 20. Averaged Annual Value Added Growth

Sector	1990s	2000s
Manufacturing	10.5%	1.1%
Services	6.2%	4.7%

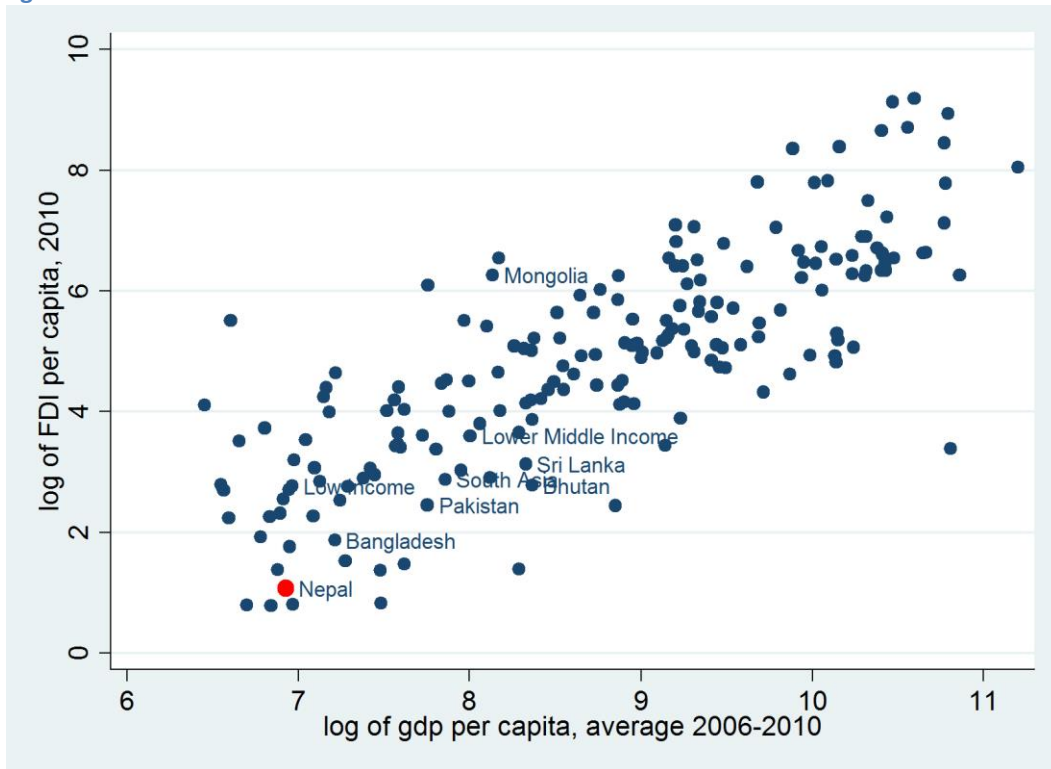
Source: World Bank World Development Indicators (2013)

Sectors that Require Political Stability Have Done Poorly

Investment in sectors that require stable long term expectations has been limited. Hydro-power is an example of a sector where investments require long amortization periods and are particularly reliant on predictable policies to be profitable (Kumar, 2010). As shown in the infrastructure chapter, most recent investment in hydropower generation has occurred through the government-owned NEA whereas growth in the private sector’s contribution to production has been minimal.

Foreign investment can be particularly sensitive to political stability and appropriability constraints. Foreign direct investment has been increasing since 2008, consistent with an improvement in political stability. Despite the improvement, FDI remains low in comparison to other countries, even after accounting for Nepal’s lower level of GDP per capita, as shown in [Figure 61](#).

Figure 61. Income and FDI



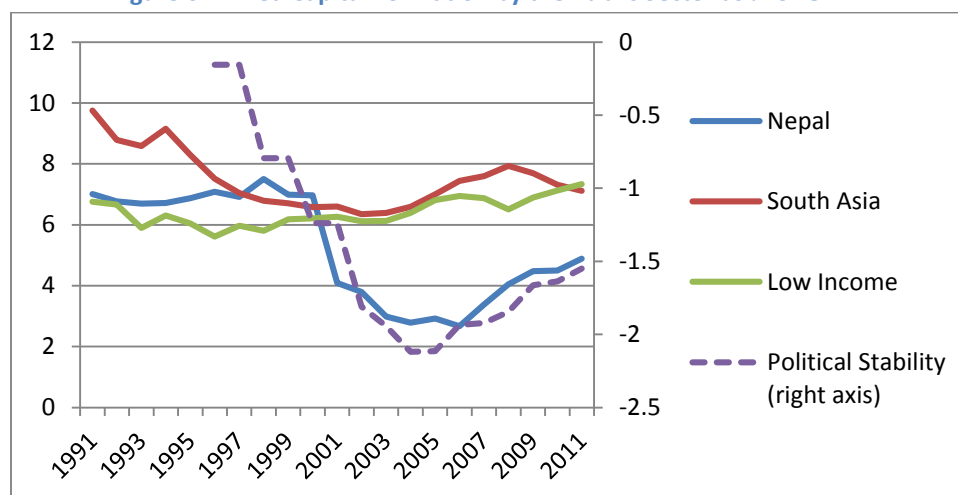
Source: World Bank World Development Indicators (2013)

7.4 Government Capital Expenditures

In addition to creating uncertainty, political instability in Nepal coincides with low capital expenditures by the government. First, public capital expenditure declined during the conflict and has not yet recovered to pre-conflict levels, as measured in percent of GDP.²⁹ This measure of capital expenditure also appears closely linked to political instability, as shown in [Figure 62](#), which suggests that political instability has negatively affected capital expenditures.

²⁹This data uses figures from the World Governance Indicators to facilitate comparison across countries. Data directly from the MOF on capital expenditures looks slightly different but shows similar trends.

Figure 62. Fixed Capital Formation by the Public Sector as % of GDP³⁰



Source: WGI, World Bank World Development Indicators (2013)

The link is illustrated by the passage and implementation of the FY 2012/13 budget. Following the dissolution of the Constituent Assembly in May 2012, the budget was not passed on time in July. In the absence of a legislative branch, the legitimacy of the government to make expenditures came into doubt and the caretaker government was only able to build consensus around a budget that was limited to one-third of the previous year's allocations. In a public statement (MoF 2012), the former finance minister, Mr. Barshaman Pun, noted that:

Despite several attempts, consensus among the political parties could not be achieved even after the end of first trimester of the current Fiscal Year. Due to lack of annual budget, uncertainties grew in the area of economic policy and implementation of development programs and projects. There was no significant progress in the capital expenditure allocated for the development projects because of this uncertainty.

Final passage of the budget came nine months late, in April of 2013. This delay in the passage of the budget affected the execution of capital expenditures in particular. The IMF mission chief noted in February of 2013 that the budget uncertainty "contributed to significant under-execution of spending plans thus far in Fiscal Year 2012/13." One effect of the budgetary delay was a back loading of capital expenditures. Almost half of total capital expenditure (43%) occurred in the final month of the fiscal year (NRB). The budgets for 2008/09, 2009/10 and 2010/11 were also delayed, although not as dramatically, with similar effects on back loading of capital expenditures.

If political stability can be achieved, capital expenditures may improve to a more appropriate level. However, the lack of investment in infrastructure over an extended period of time has led to a significant infrastructure deficit that will not be overcome overnight. This is an example of what the growth diagnostics literature has termed the *fan-belt effect* (Hausmann, 2008; Pritchett, 2008). When a fan belt breaks in an automobile engine, the resulting overheating of the engine causes various other problems to

³⁰ Note: Calculated by subtracting private sector GFCF from total GFCF.

arise, like seized piston. While the fan belt initiated the breakdown, fixing the fan belt alone will not get the engine running again.

To apply this analogy to Nepal's economy, the decline of political stability was breaking the fan belt. This created uncertainty and directly caused Nepal's economy to slow, stopping the engine. The increased instability also broke other important parts of Nepal's economic engine – infrastructure, in particular. Political instability eroded the country's infrastructure directly through destructive conflict and also reduced maintenance and investment in capital projects and infrastructure. In other words, the arrival of instability (fan belt breaking) led to the destruction of other important parts of Nepal's economic engine like infrastructure (seizing a piston). Therefore, while improving political stability will directly resolve uncertainty constraints, the degree to which economic growth reaches its potential will also depend on whether capital expenditures increase with political stability. Furthermore, even with improved investment in infrastructure, it will take time to overcome the significant infrastructure deficit to relax this constraint and allow Nepal's economic growth to achieve its full potential. Therefore, establishing a stable political system in Nepal to empower the government remains a necessary (if not sufficient) condition for improved investment and growth.

Nepal's hydropower sector and the projects referred to as the "super six" provide an illustrative case of the importance of an increased flow of government capital expenditures and lag this may have on relaxing constraints. These projects represent a combined electricity generation capacity of over 200 MW and were the first to receive their licenses through a competitive process in 2010 and 2011. The improved license process should have put the super six in a stronger position to develop their projects compared to the previous first-come first-served licensing process. However, none of the projects have yet broken ground, owing to the lack of a purchase power agreement (PPA) with the Nepal Electric Authority (NEA) and Ministry of Energy (MoE) (Thanju, 2013; *eKantipur*, January 2013). The NEA and MoE have postponed signing a PPA due to their inability to provide transmission lines to the projects (Thanju, 2013; *eKantipur*, January 2013). Fortunately, the timeliness of the 2013/14 budget with additional allocation to capital expenditures has provided NEA the funding to build transmission lines and the confidence to sign a PPA with the knowledge that they will be able to evacuate the power to the grid (Agrawal, 2013; Koirala (GoN), 2013). However, the long timeframe of hydropower construction (roughly 5 years) means the effect of increased government capital expenditures will not be felt for some time to come.

7.5 Other Aspects of Business Environment, Taxation, and Corruption

Some areas of Nepal's bureaucracy have maintained their effectiveness and implemented policy relatively consistently. For example, Nepal scores well on various aspects of Doing Business Indicators, with an overall ranking of 108th which compares well with the average ranking for South Asia of 121st (Doing Business, 2013). Below we examine the most relevant aspects of micro-economic governance and the business environment.

Taxation is Moderate

Tax rates in Nepal are not binding constraints. At 31.5%, Nepal's total tax rate is lower than the average in South Asia of 40.2%. While large firms in Nepal complain about tax rates more often, this is not

disproportional given the results for South Asia and the world. While the administration of tax policies is cumbersome for firms to navigate ([Table 21](#)), firms do not rate it as a major constraint ([Table 22](#)).

Table 21. Tax Policy Indicators

Indicator	Nepal	South Asia	OECD
Payments (number per year)	34	30	12
Time (hours per year)	326	311	176
Profit tax (%)	17.2	17.1	15.2
Labor tax and contributions (%)	11.3	8.7	23.8
Other taxes (%)	3	14.4	3.7
Total tax rate (% profit)	31.5	40.2	42.7

Source: World Bank Doing Business Indicators (2012)

Table 22. Percent of Firms Identifying Taxes as a Major Constraint³¹

Firm Characteristic	Tax Rates as a Major Constraint			Tax Administration as a Major Constraint		
	Nepal	South Asia	World	Nepal	South Asia	World
Small (5-19)	11.2	22.5	34.1	8.3	17.2	21.5
Medium (20-99)	11.2	28.0	34.7	14	21.6	23.5
Large (100+)	14.3	27.3	34.4	2.4	22.3	23.9

Source: World Bank Enterprise Surveys (2013)

Corruption

The data on corruption reveal significant concerns but do not indicate a binding constraint. Nepal ranks 139th out of 170 countries in the corruptions perceptions index. Large firms appear to be much more affected by informal payments than do smaller firms ([Table 23](#)). This may be related to the inconsistency of policy implementation identified above because this uncertainty provides corruption opportunities, and both are perceived to be higher among large firms.

Table 23. Bribery Depth³²

	Nepal	South Asia	World
Small (5-19)	8.2	23.7	14.1
Medium (20-99)	20.8	24.6	15.8
Large (100+)	16.1	29.5	12.9

Source: World Bank Enterprise Surveys (2013)

High Levels of Informal Economic Activity

Firms may choose to remain informal or hire informal workers for a variety of reasons related to the business environment. They may stay informal to avoid corruption, taxes, or labor issues. Overall, informality is quite high in Nepal, with only 8% of employment in regular wage or salaried positions (World Bank, 2012). Beyond a high level of informality, the type and characteristics of informal employment help to understand the drivers of informality in Nepal.

³¹ The authors note the sizable changes in these data from the 2009 WBES and cannot account for them.

³² Percent of public transactions where a gift or informal payment was requested

The vast majority of employment, 80%, comes in the form of informal and low-end self-employment activities such as street vending. This is much higher than in other South Asian countries. In India and Bangladesh, low-end self-employment respectively accounts for 43% and 62% of employment. This type of informality is in contrast to “off the books” casual wage labor within firms attempting to bypass formal legal constraints. In Nepal, casual wage labor is only 10% of employment (Pant et al., 2009) while it constitutes 32% for India and 22% for Bangladesh. This suggests that informality in Nepal is not due to circumvention of constraints in the formal sector, but rather the slow growth and employment creation within the formal sector.

The data on informal sector competition support the conclusion that the informal sector in Nepal is not in competition with the formal sector and is not trying to circumvent political or bureaucratic constraints. Small and medium sized firms in Nepal compete against the informal sector at a higher rate than the South Asia average. However, fewer Nepalese firms identify informal sector competition as a constraint than in South Asia and the World averages (Table 24).

Table 24. Informal Sector Competition

Percent of firms competing against unregistered or informal firms			
	Nepal	South Asia	World
Small (5-19)	60.2	43.7	58.4
Medium (20-99)	38.5	24.9	54.5
Large (100+)	8.3	20.7	46.5
Total	55.7	38	56.3
Percent of firms identifying practices of competitors in the informal sector as a major constraint			
	Nepal	South Asia	World
Small (5-19)	33.4	25.4	31.4
Medium (20-99)	22.4	21.4	30.4
Large (100+)	11.8	13.9	24.6
Total	31.5	23.7	30.4

Source: World Bank Enterprise Surveys (2013)

7.6 Industrial Relations and Labor Regulations

Labor issues remain a candidate as a binding constraint to growth in Nepal. Nepal’s labor code faces the challenge of providing for “Quality of Work Life” (QWL) for laborers as well as providing employers the flexibility they need to manage their workforce in changing economic conditions.³³ It is a false dichotomy to suggest that all labor market regulations necessarily create tradeoffs between QWL and employers’ needs (Adhikari and Gautam, 2011; Storm and Naastepad, 2009). Yet, burdensome labor regulations and weaknesses in the implementation of regulation can create obstacles to employing workers. This, in turn, can suppress investment and growth in demand for labor and have negative overall effects on workers by increasing unemployment and pushing existing employment into informal activities where wages and

³³ We borrow this phrase from existing literature, including Adhikari and Gautam (2011).

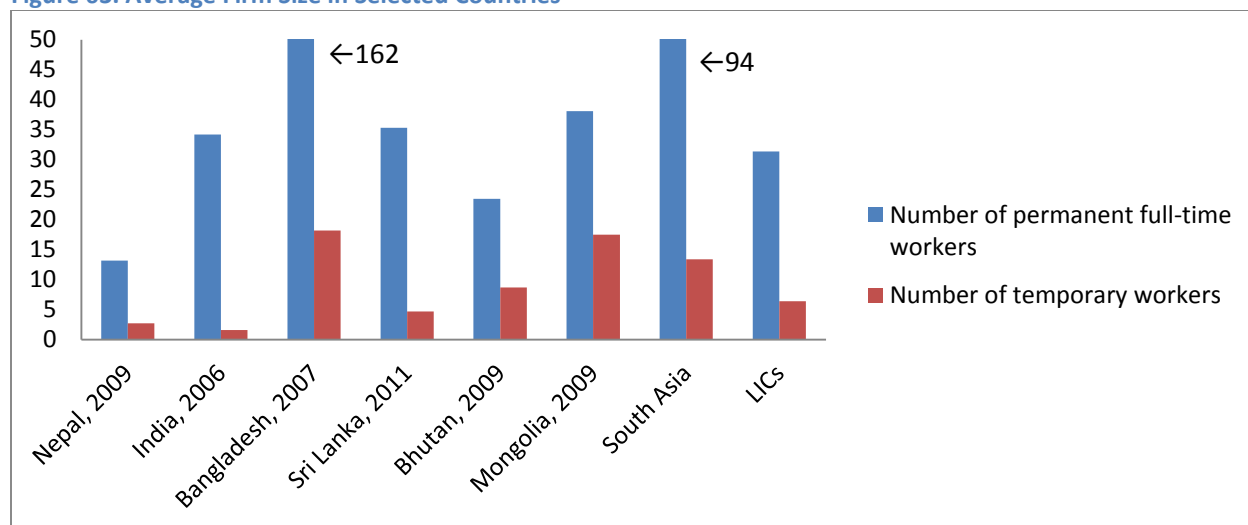
protections are lower. Burdensome labor regulations can also negatively impact the ability of firms to grow and create new jobs. A large body of literature has identified that labor market rigidities can reduce employment and productivity growth in a broad sample of countries (e.g.: Besley and Burgess, 2004; Almeida and Carneiro, 2008; Botero et al., 2004).

Various indicators and rankings can provide a broad picture of labor regulations and industrial relations in Nepal. The 2010 Doing Business Indicators ranked Nepal 148th out of 183 economies in its Employing Workers category (World Bank, 2010). Issues around flexibility in downsizing a firm’s workforce appear most problematic. Third party approval for redundancy dismissal can be difficult to obtain and severance packages are somewhat high (Doing Business Indicators, 2013; consultations with ILO). The EIU identifies labor relations as the third highest risk category, behind government effectiveness and legal and regulatory. The 2012-2013 Global Competitiveness Report ranked Nepal 140 out of 144 in the “Cooperation in Employee Labor Relations” (Klaus, 12/13).³⁴ Below, we examine specific effects of difficult labor relations and regulations in Nepal.

Small Average Firm Size

One way firms may attempt to circumvent labor regulations and relations in Nepal is to remain small, as the labor code only applies to firms of ten or more employees.

Figure 63. Average Firm Size in Selected Countries³⁵



Source: World Bank Enterprise Surveys (2013)

As shown in **Figure 63**, average firm size in Nepal is small. Smaller firm size may be a result of various issues including labor regulation and relations. Afram and Del Pero (2012) also suggest that “size is what matters when it comes to labor regulations.” Carlin and Schaffer (2012) confirm this and show that the cost of labor regulations increases with firm size, and that this increase is significantly higher than in other

³⁴ The WEF asked, “How would you characterize labor-employer relations in your country?” on a scale of 1-7; 1 = generally confrontational; 7 = generally cooperative. Nepal scored 3.1, just ahead of Venezuela and Korea’s score of 3.0.

³⁵ Note: Bangladesh and South Asia are not shown to full scale to allow better comparison of other countries.

South Asian countries. A simple disaggregation of the World Bank Enterprise Survey results by firm size in [Table 25](#) illustrates the issue. In most countries, larger firms are more likely to identify labor regulations as a major constraint, but in Nepal, over half of large firms report labor regulations as a major constraint, almost twice as high as the next highest in the region.

Bangladesh is an interesting comparator. In addition to the low share of firms in Bangladesh that identify labor regulations as a constraint, they use far fewer temporary workers, and also have a high average manufacturing firm size of 199.4 permanent production employees (IFC, 2007).

Table 25. Percent of Firms Identifying Labor Regulations as a Major Constraint

Firm Size	Nepal	Bangladesh	Sri Lanka	India	South Asia	World
Small (5-19)	7.8	7.3	12.5	6.1	8	10.7
Medium (20-99)	14.1	0.4	8.6	15.3	11.1	13
Large (100+)	54.1	2.8	27.8	16.9	20.3	15.6

Source: World Bank Enterprise Surveys (2009)

Temporary Workers are Prevalent

In order to get around constraints in employing full-time workers, firms may employ more temporary workers. According to [Table 26](#), Nepal has the highest percent of firms that employ temporary workers among their comparators. Nepal also has a high ratio of temporary to full time workers. Despite the significant role of temporary workers, a ratio of 1.2 to 1 is not vastly different from comparator countries.

Table 26. Use of Temporary Workers

	% of firms using temporary workers	Ratio of temporary to full time workers
Afghanistan, 2008	58	3.6
Bangladesh, 2007	59	0.7
Nepal, 2009	76	1.2
Pakistan, 2007	74	1.4
Sri Lanka, 2011	52	0.5
All Surveyed	60	0.8

Source: World Bank Enterprise Surveys

Conclusions: Labor and Business Relations

Anecdotal evidence from targeted focus group discussions suggest that industrial relations have been improving in Nepal. These improvements do not show up in the data presented above. Despite improvements, issues remain to be addressed in labor relations. The multitude of unions in Nepal means that even if relations are constructive with most legally registered unions, poor relations with a small minority of registered and unregistered unions can stop production. Additionally, the labor code is complex and there is scope for improved *de jure* policy as well as better implementation of it by the government including mediation of disputes. The FNCCI’s Employers’ Council summary report (2010) states that “Ineffective implementation, delay in the court decisions and the rigid provisions on termination of employment were some of the reasons for the demand of reformation of the law” (Amatya et al., 2010). Finally, labor unions in Nepal are integrated with political parties and political objectives.

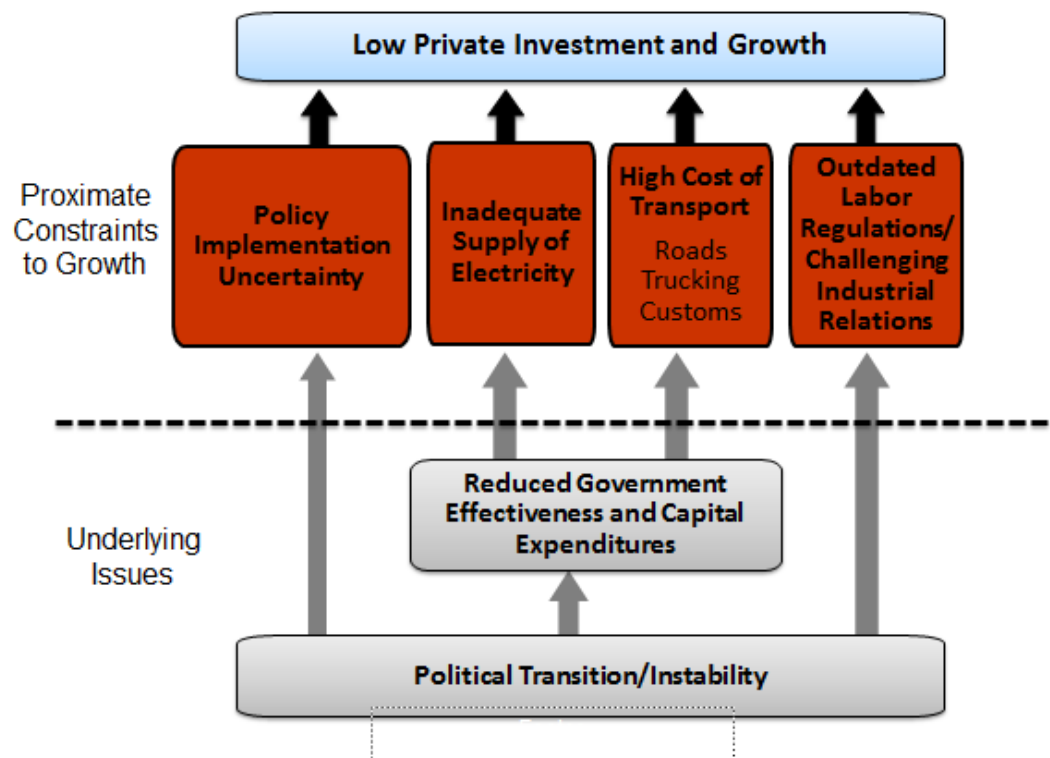
Strikes and union activities are often for the purpose of achieving political objectives rather than for purposes of labor negotiation.³⁶

In conclusion, while this report categorizes industrial relations and rigid labor regulations as a binding constraint to growth in Nepal, it should be noted that the evidence on which to base this assessment is mixed. Labor issues remain a candidate as a binding constraint and should be given due consideration in future examinations of constraints to growth in Nepal.

7.7 Conclusions: Micro-Level Risks

The current political situation is a crosscutting issue that underlies the most binding constraints to growth identified in this report. Frequent changes in government leadership are directly related to policy implementation uncertainty. Political issues also directly affect labor regulations and government relations. These changes in government leadership have also led to reduced effectiveness of the government in budgeting and making expenditures. Through this channel, constraints in electricity and roads have been perpetuated. **Figure 64** illustrates these connections.

Figure 64. Flow chart of Constraints to Growth in Nepal



Political stability and policy certainty in Nepal will take due time and effort. However, even in the current environment, some aspects of government effectiveness have been consistent, such as macro-economic management discussed below.

³⁶ Personal consultations with labor and government stakeholders in-country.

7.8 Macroeconomic Management

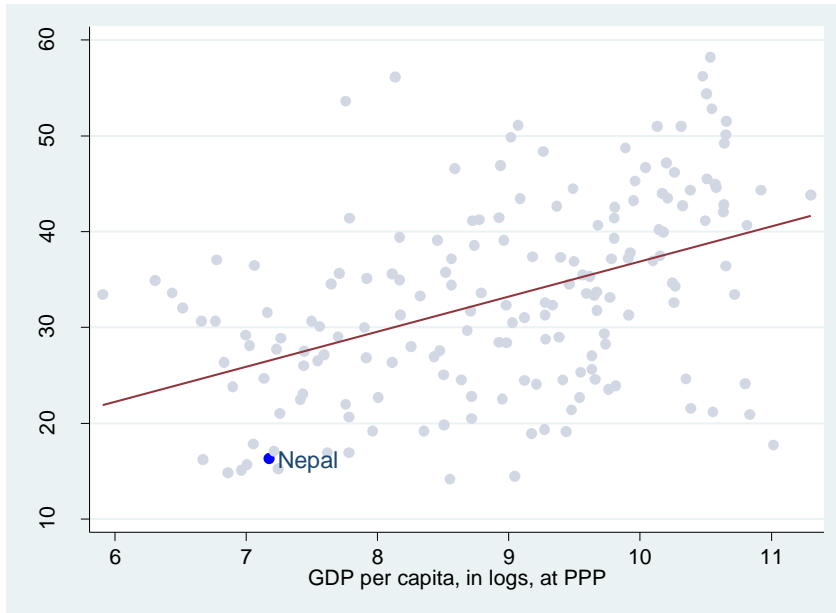
Macroeconomic management in Nepal has generally been sound and avoided serious risks. Nepal's history of economic growth presented in the background chapter shows remarkably little volatility as the country has avoided various macroeconomic issues like high debt or commodity dependency that can create significant disruptions. This section examines the risks of macroeconomic shocks and fluctuations in Nepal over the near term.

Fiscal Policy and Debt

The discussion above on capital expenditures identified issues in the ability of the government to make expenditures. The extended delay in passing the FY2012/13 budget became an economy-wide issue. In February of 2013, the Ministry of Finance revised the growth projection for 2012/2013 down, from 5.1% to 4.1%, noting the lack of a full budget and weak capital expenditures (MOF, 2013). The IMF also revised their growth estimates for Nepal due in part to "significant under-execution of spending plans thus far in Fiscal Year 2012/13" and has advised the authorities to "take steps to accelerate high quality spending, both for poverty-alleviation and public capital investment" (IMF, 2013). Subsequently, a full budget was passed, but too late in the fiscal year to allow for both good quality and adequate quantity of expenditures. This lack of expenditures produced a significant shock to aggregate demand, resulting in significant imbalances in Nepal's economy.

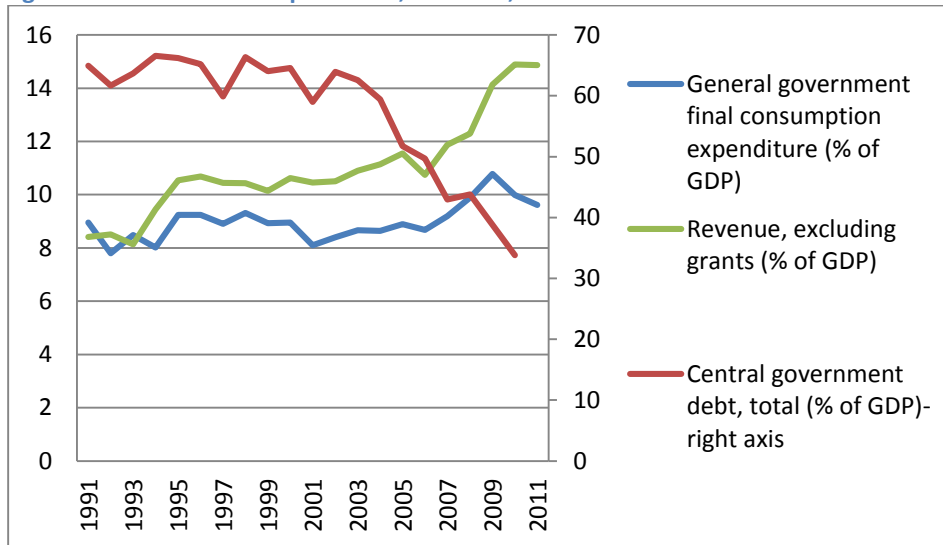
Beyond short term fluctuations, overall expenditures in Nepal are low compared to other countries in their income bracket (**Figure 65**). While expenditures have been limited, revenues have grown and are currently at an all-time high as measured in percent of GDP. This is one area where the bureaucracy has maintained and even improved its effectiveness despite the current political climate. Revenues may not be sufficient to meet Nepal's long term plans, but they are currently non-binding, as constraints are more severe on the expenditure side. The result of strong growth in revenues and limited government expenditures has been a decline in central government debt as a percent of GDP (**Figure 66**).

Figure 65. Government Expenditures in 2010, Worldwide by Income Level



Source: World Bank World Development Indicators (2013)

Figure 66. Government Expenditure, Revenue, and Debt



Source: International Financial Statistics

Dutch Disease through Remittances

A high flow of remittances is a prominent feature of Nepal’s economy. One potential effect of high remittance flows is an economic phenomenon termed “Dutch Disease” that erodes the competitiveness of export sectors in the economy. The technical annex to this chapter discusses the dynamics and symptoms of Dutch Disease in Nepal in further detail. While the symptoms of Dutch Disease are apparent in Nepal’s economy, it is not clear that there is a good policy prescription to address the issue. Attempts to promote the tradable sector through exchange rate manipulation are not likely to be successful in the face of significant constraints in infrastructure and policy uncertainty. Furthermore, these types of

manipulations can impose costs for consumers and the non-tradable sector in the form of increased prices of imports. Finally, the exchange rate peg has been a source of consistency for Nepal's monetary policy (Pandey, 2012). Therefore, it appears more prudent over the near term to focus on improving the competitiveness of exports through a more orthodox approach of improving infrastructure and other public inputs. Heterodox approaches to addressing Dutch Disease like exchange rate policy may become more viable after the most binding constraints to investment have been relaxed.

Banking Sector Risk

There is the potential for Nepal to suffer a systemic financial crisis. The finance annex and the recent IMF Article IV Consultation discuss the role of non-performing loans and the potential for ever-greening and under reporting these loans. In addition, commercial banks are heavily invested in the real estate sector and more than two thirds of their portfolios are exposed to real estate in some way (NRB). The recent decline in real estate values and transactions makes the low level of reported non-performing loans further suspect. Growth in remittance flows appears to be holding the banking sector afloat. A combined shock in real estate and remittances could be sufficient to trigger a systemic financial crisis, but any analysis is speculative on this point. Further study of the sector can provide important guidance on the need for accelerating reforms in financial governance.

7.9 Conclusions: Appropriability Risks

This chapter shows that micro-level risks to appropriability are a critical binding constraint to investment and growth in Nepal in the forms of political instability through frequent government changes and unpredictable application of policies and laws, and poor labor relations and labor market rigidities. In particular, political instability and policy implementation uncertainty constrain growth and investment.

7.10 Annex: Remittances and Dutch Disease

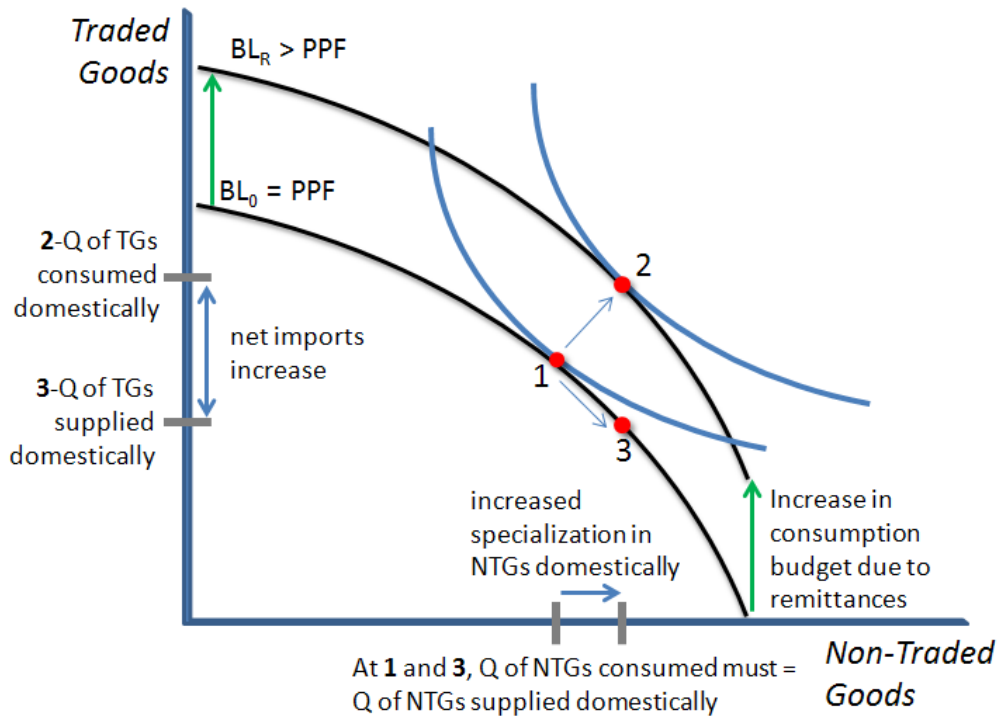
One potential effect of high remittances in an economy is termed “Dutch Disease”. The term originated to describe the natural resource boom in the Netherlands and the resulting decline of manufacturing in the country. A remittance “boom” can produce similar symptoms of Dutch Disease. Both “booms” increase the budget for consumption in the domestic economy. This increased domestic demand comes in two forms, demand for traded goods (TGs) and demand for non-traded goods (NTGs).³⁷ Because NTGs must be produced domestically, the domestic economy specializes in producing these while the increased demand of traded goods is met through imports (Bruno and Sachs, 1982).

To incentivize the local economy to specialize in non-traded goods, the price of NTGs increases relative to TGs. This is Real Exchange Rate appreciation due to Dutch Disease. This makes exports of traded goods less profitable as the selling price of exports remains fixed in the world market while local non-traded inputs are more expensive. The result is that the manufacturing sector, which mostly produces traded goods, becomes less competitive (Bruno and Sachs, 1982).

The Dutch Disease dynamic is illustrated in [Figure 67](#), which is adapted from Bruno and Sachs (1982). Before the resource boom of remittances, the economy produces and consumes the same amount of traded and non-traded goods at point 1 in the diagram. After the resource boom the economy is able to consume more, shown by a shift in the budget line. However, the production possibility frontier (ppf) has not shifted out because the underlying productive capacity of the country has not changed. Consumption then moves out to point 2. To provide for the increased demand for non-traded goods at point 2, domestic production specializes and moves to point three. The resulting increase in imports is financed by the resource boom. The real exchange rate is represented by the slope of the ppf and budget line at the equilibrium points. The steeper slope at points 2 and 3 versus the original point 1 represents the increase in the real exchange rate that is needed to incentivize the domestic economy to move to point 3 (Bruno and Sachs, 1982).

³⁷ NTGs are goods or services that are not able to be traded across borders. The canonical example of NTGs is haircuts, which are not possible to trade internationally. Additionally services like transportation and retail must be produced within a country’s borders.

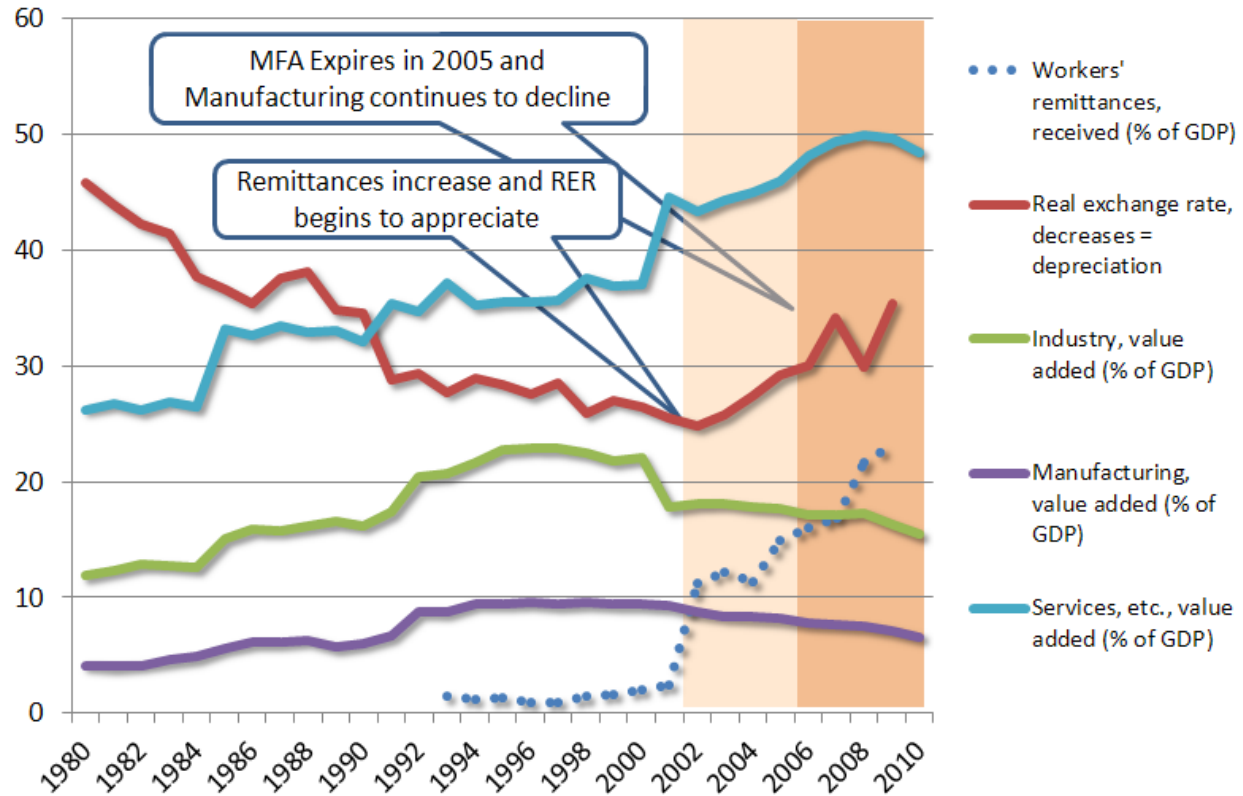
Figure 67. Dutch Disease- Specialization in Non-Traded Goods



Source: adapted from Bruno and Sachs (1982)

We can observe various effects of Dutch Disease in Nepal's economy. As seen in [Figure 68](#), after remittances increase sharply in 2002, the real exchange rate begins to appreciate. This is accompanied by an increase in the service sector and a relative decline in the share of economic activity from industry and manufacturing in Nepal. As remittances continue to increase, the real exchange rate also continues to appreciate and manufactures decline.

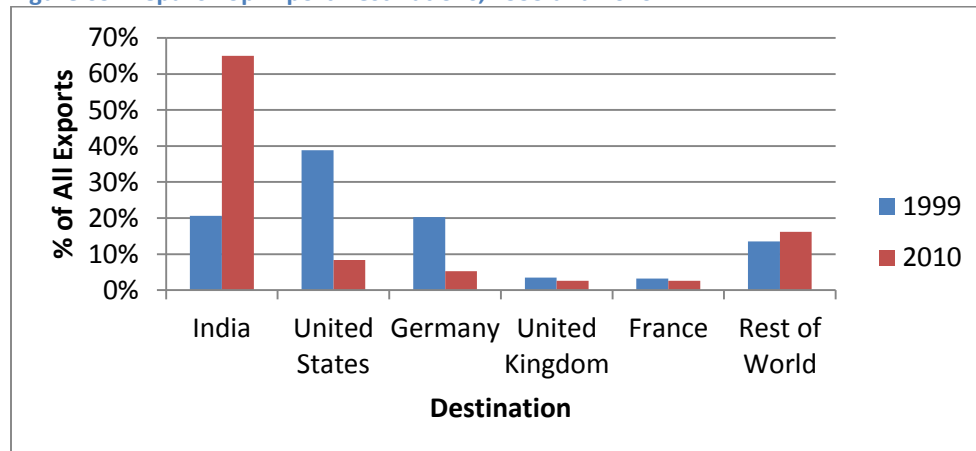
Figure 68. Potential Dutch Disease Impacts



Source: World Development Indicators.

This dynamic was exacerbated by additional factors that contributed to the decline of Nepal’s export sector, in particular, the expiration of the Multi-Fiber Arrangement in 2005. The MFA provided Nepal with preferential access to the ready-made-garment market in the United States. The decline of the US as a trading partner is illustrated in Figure 69, which shows that the U.S. went from accounting for 39% of exports in 1999 down to only 8.4% in 2010 (World Bank, Trade Policy).

Figure 69. Nepal's Top Export Destinations, 1999 and 2010



Source: COMTRADE, SITC4 data

8. Market Failures: Information and Coordination Externalities

This chapter examines the potential impact of market failures on Nepal's economy from two perspectives. In section one, we present evidence that self-discovery and informational failures are not constraints to growth in Nepal's export sector. In section two, we identify issues of coordination and planning that appear to hamper investment and growth in Nepal's tourism sector.

(1) Self-discovery and informational externalities

Firms, entrepreneurs, and individuals need information on which sectors, products, or activities can be successfully developed. This information is a public good that is created through a process called "self-discovery" and may be underprovided within an economy. In Nepal, export diversification is high relative to the country's level of income, a strong signal that sufficient self-discovery has been taking place.

(2) Failures in planning and coordinating investment

Returns to an individual investment may depend on coordinated investments by other private sector actors as well as the government. For example, in the Nepalese tourism sector investment in a new hotel may only be profitable in the presence of other investments in restaurants, attractions, transportation, and so on. In these cases, while not a binding constraint, a lack of planning and coordination impede investment.

8.1 'Self-Discovery' and Information Externalities

Hausmann and Rodrik (2003) present the "self-discovery" model of the identifying investment opportunities. The model suggests that successful investments create an informational public good that is utilized by new entrants into the sector. While the original investor bore the risk of investing in a new sector, subsequent entrants benefit from the demonstrated profitability of the sector. Therefore, incentives for discovery of new sectors may be underprovided and the number of potential opportunities that investors explore is lower than socially optimal.

Investment in new sectors may also be constrained by a lack of complementary inputs that are necessary for production. Firms that pioneer new products and sectors may bear additional costs of developing logistics and supplier networks that further benefit new entrants. Rodrik (2008) provides a helpful example of self-discovery dynamics from Ethiopia:

Most notable in this respect is the flower industry, which was started by some courageous entrepreneurs who had observed the success of the industry in nearby Kenya and wondered if it could be made to work in Ethiopia as well. Even though much of the technology is standard, local soil conditions make a lot of difference to the economics of growing flowers, and a whole range of other services--from daily cargo flights to high-quality cardboard packaging--has to be in place before the operation can succeed. To its

credit, the Ethiopian government understood the need to subsidize these pioneer firms, through cheap land and tax holidays, and the industry took off. Exports have reached \$100 million from zero in just a few years. There are now around 90 flower farms in the country, with latecomers the beneficiary of the tinkering that early investors have undertaken.

Export Diversity

Data on a country's export products are useful for examining the potential severity of self-discovery issues for a country.³⁸ Diversity among the products Nepal exports suggests that the economy has been sufficiently able to discover new products. It ranks 54th out of 172 economies according to the Herfindahl–Hirschman Index,³⁹ and **Figure 70** illustrates that the export basket is not dominated by any one particular product (Dennis and Shephard, 2011).

³⁸ Much of the literature and evidence on self-discovery focuses on the export of goods. This is partly due to the availability of detailed data on exports and a lack of comparable data on services and non-traded goods. In addition, exports can be important drivers of growth and employment. Therefore, export data provides a practical place to begin examination of whether self-discovery issues are a constraint to growth.

³⁹ A measure of export concentration

Product Space

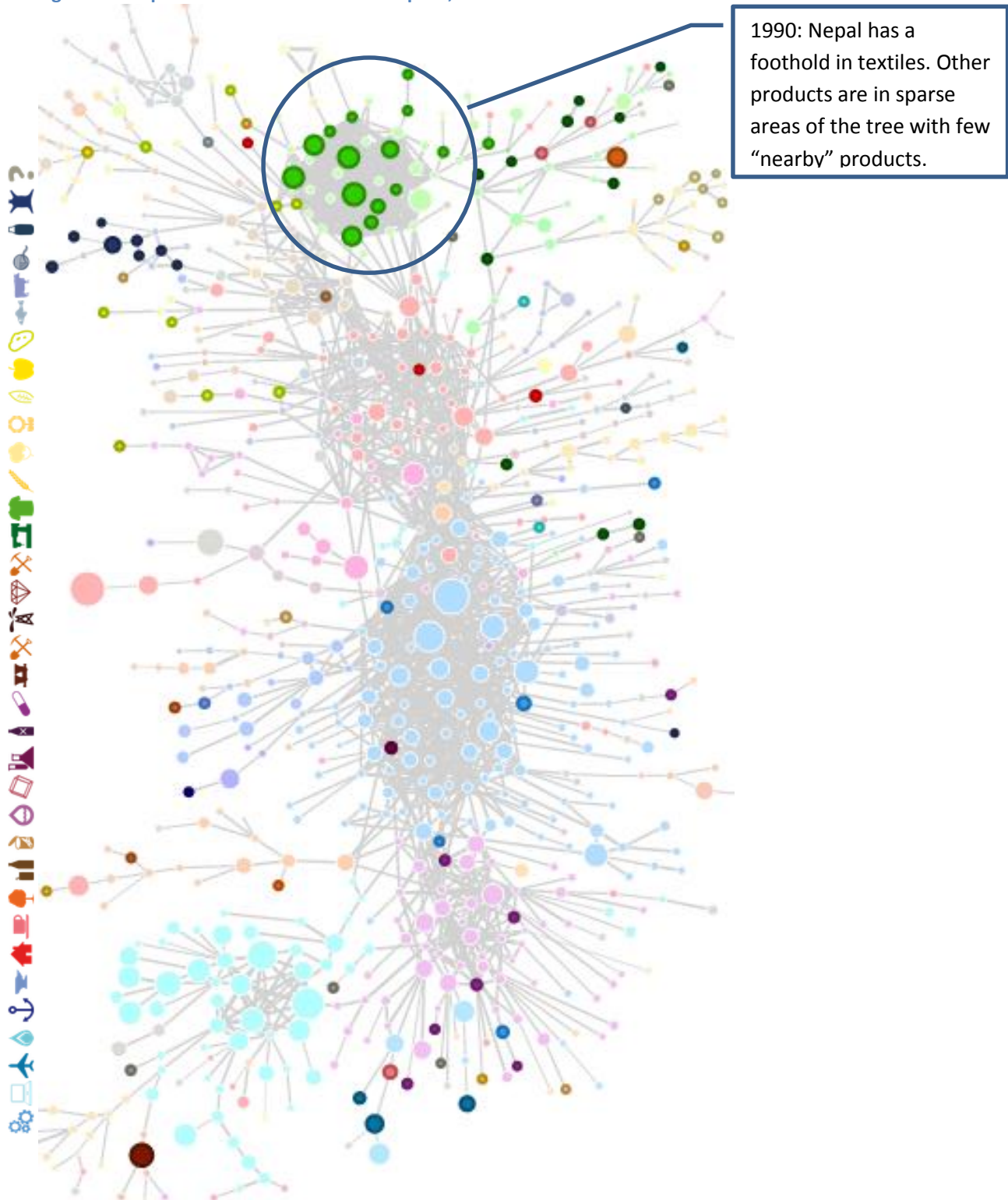
A diverse export basket may also facilitate further discovery of new products. Hausmann and Klinger (2006) and Hidalgo et al. (2007) develop the Product Space approach to predicting whether a new product can be produced within an economy.⁴⁰

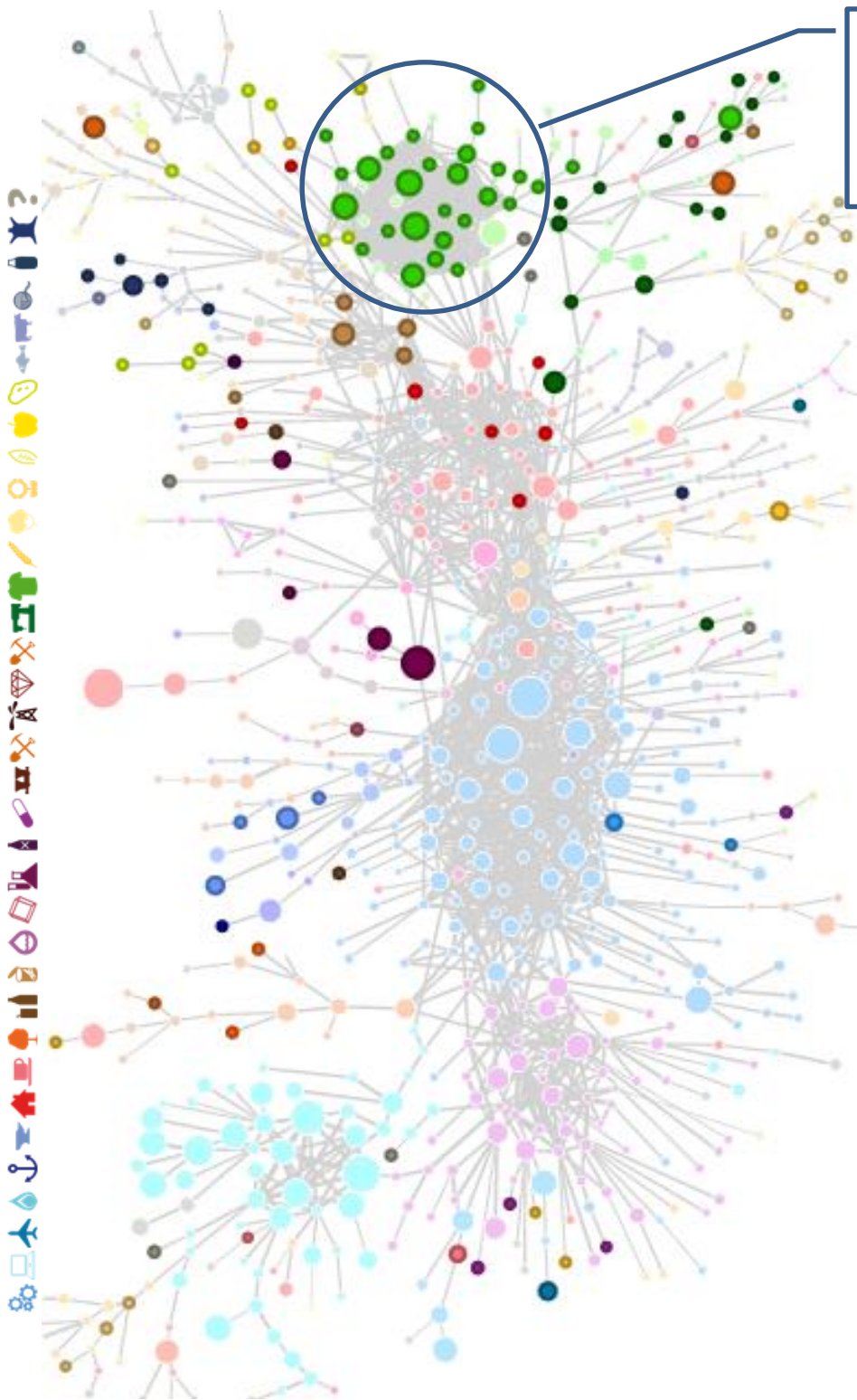
Figure 71 illustrates the evolution of Nepal's exports within the product space. Each bubble is a product traded in the world economy. Darker bubbles represent products that Nepal exports. The size of the bubble reflects the quantity of world trade in the product, while the distance between two products reflects the probability that both are exported by the same country. The tree-map on the next page provides a key to the color coding.

Nepal's current position in the product space appears to provide plenty of opportunities, or nearby products, in which to diversify. For a more quantitative estimate of this, Felipe et al. (2010) create a measure called "open forest" that builds on Hausmann and Klinger (2006). In this measure Nepal ranks 55th among 96 developing economies, which is in line with expectations based on GDP per capita and suggests that the capabilities within Nepal's economy are suitable for further growth (Felipe et al., 2010).

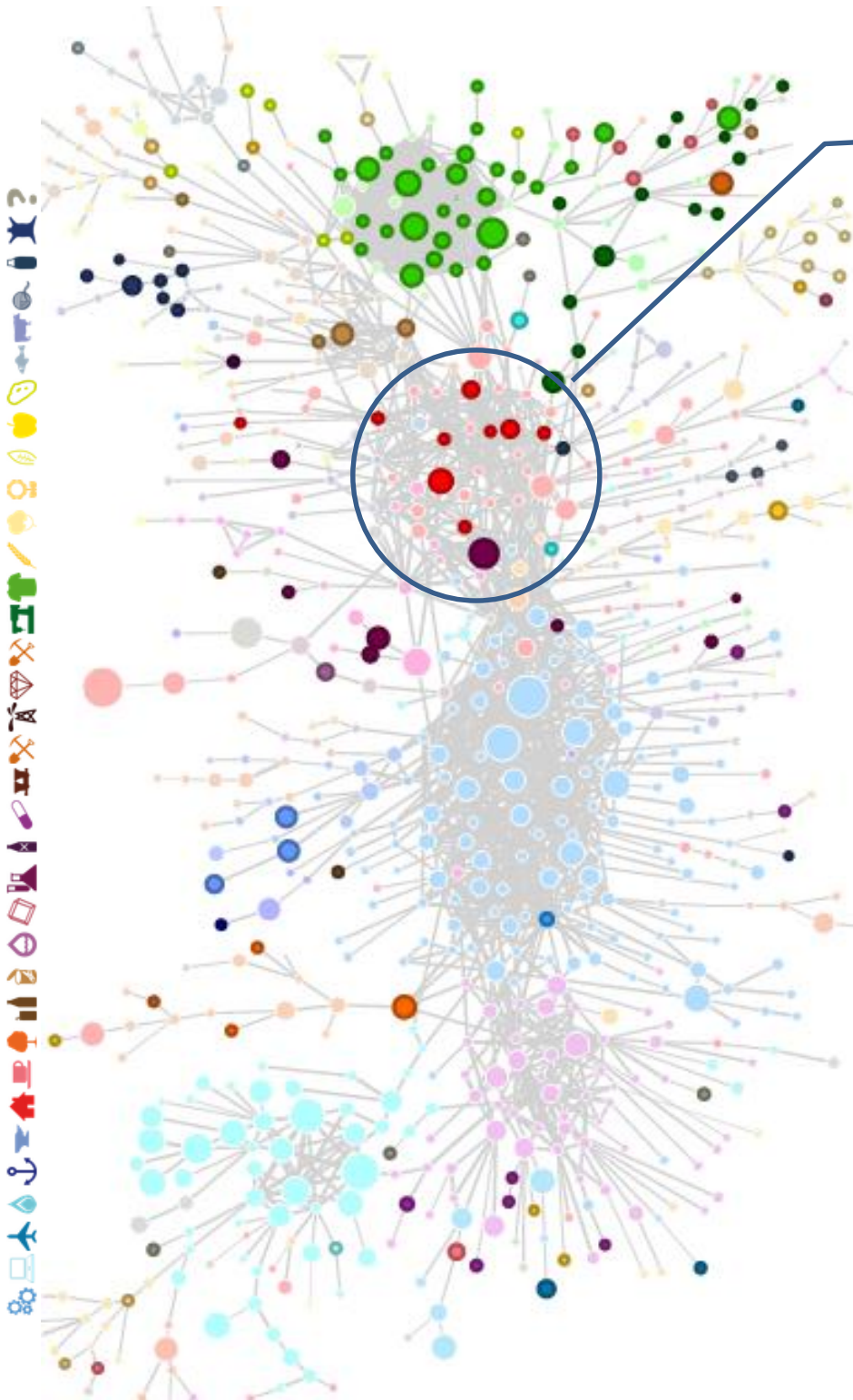
⁴⁰ The authors theorize that a specific set of capabilities must be available within an economy for each product to be exported with comparative advantage. These capabilities are wide and varied but include supplier networks, human capital, and connections to external markets. Therefore, a firm will find it easier to produce a new product if the necessary capabilities already exist within the local economy. The production of products that are "similar" to the new product implies the existence of similar capabilities and thus predicts the new product will be discovered. The Product Space Network organizes products traded in the world economy by how similar they are (Hausmann and Klinger, 2006). Thus products close together in the network imply an overlapping set of capabilities. Therefore, it is easier for a firm to successfully export a new product if other products "nearby" in the product space are already being produced.

Figure 71. Nepal's Position in the Product Space, 1990-2010





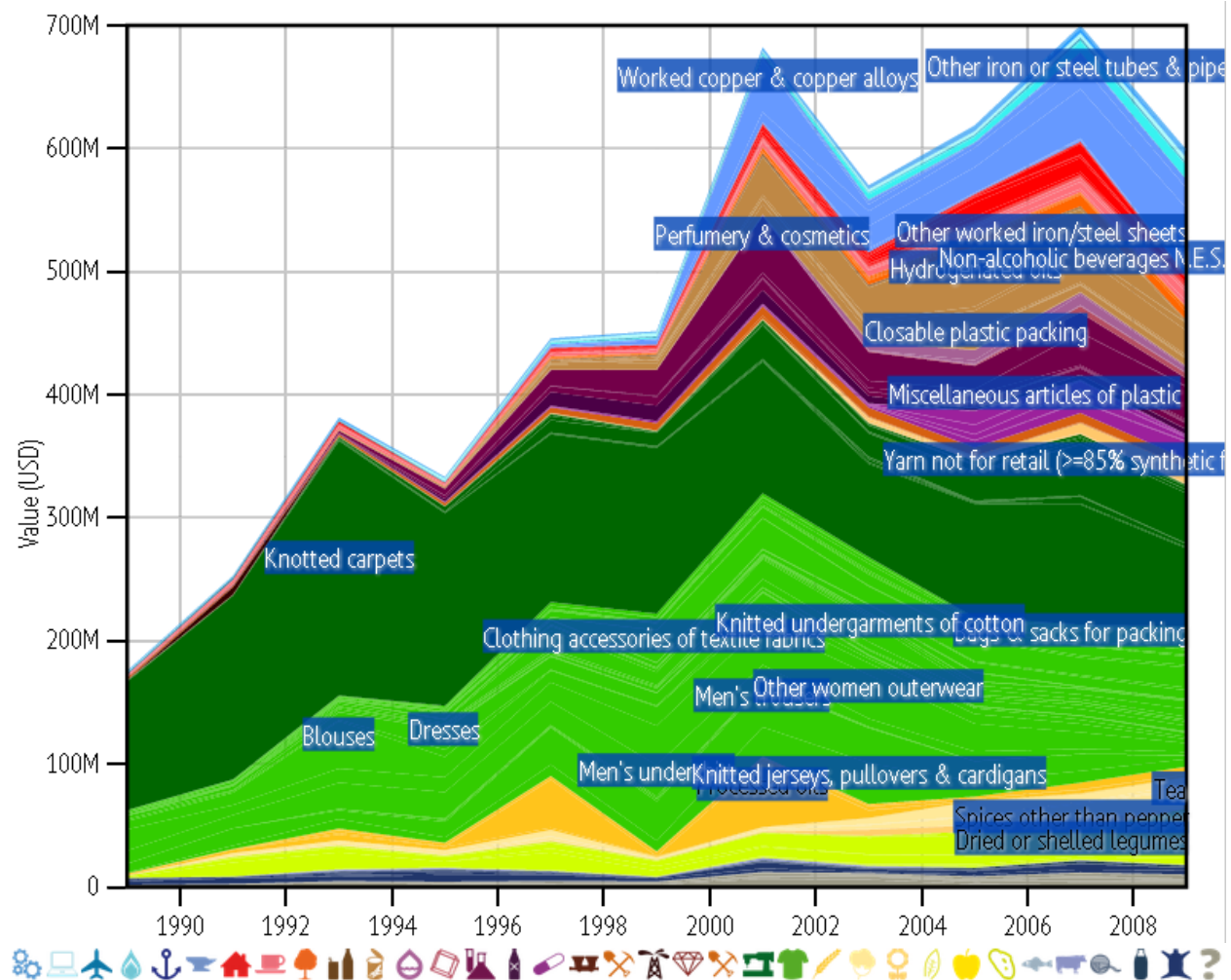
2000: The textile sector is more fully developed. Other areas of the product space remain sparse.



2010: Nepal appears to be gaining a foothold in the construction materials cluster. However, the quantities are very low, making the long term viability of the cluster questionable.

Nepal's expansion within the textile cluster of the product space provides a useful case study through which to examine self-discovery. Preferential access to the U.S. garment market provided by the Multi-Fiber Arrangement (MFA) facilitated expansion of Nepal's textiles sector. Unfortunately, after the MFA ended in 2004-2005, Nepal's garment exports shrank significantly as shown in **Figure 72** (World Bank, Trade Policy). Under the self-discovery model, firms may need assistance moving into new products, but should not require long term support to remain competitive. The inability of well-established textile firms to compete suggests that the overall productivity of the sector is more problematic for growth than issues of "self-discovery". Therefore, addressing causes of low productivity, like instability and poor infrastructure, will be necessary before policies to promote discovery of new products becomes an effective strategy for economic growth.

Figure 72. Nepal's Exports over Time, SITC4 Code, Current USD

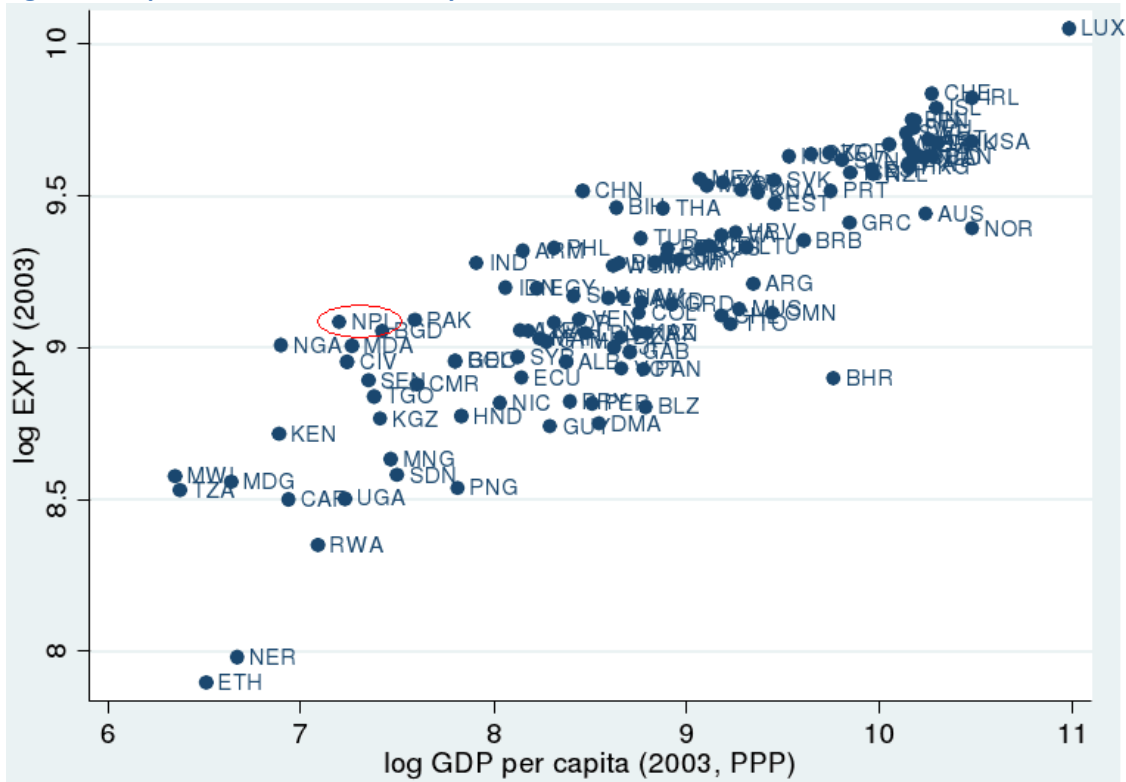


Source: World Bank, Trade Policy.

Export Sophistication

Hausmann, Hwang, and Rodrik (2006) define an often employed metric of economic sophistication termed Export Sophistication (EXPY). In this measure, Hausmann et al. found Nepal's economic sophistication to be high relative to its level of income (**Figure 73**).

Figure 73. Sophistication as Measured by EXPY, 2003



Source: Hausmann, Hwang, and Rodrik (2006)

While EXPY has been widely used in growth diagnostics and other studies, alternative measures have also been developed to refine measurement of economic sophistication. Prominent among these is the “Method of Reflections” proposed by Hausmann and Hidalgo (2009).⁴¹ Felipe et al. (2009) calculate a measure of sophistication using this method. Out of 124 countries, Nepal ranked 89th, which is in line with its income level (Felipe et al., 2009). Freire (2011) calculates a similar measure that is somewhat modified, and Nepal fares slightly better on this measure.⁴² Table 27 presents these measures of sophistication for Nepal and selected comparator countries. For a broader comparison across countries, Figure 74 shows that Nepal’s economic sophistication is high relative to its level of GDP per capita. In short, by the three available metrics, Nepal’s economy is comparatively sophisticated.

⁴¹ The method begins by calculating a measure of “diversity”, or the number of different products a country exports. Higher diversity implies more sophistication. For each product in a country’s export basket, the method then counts the number of other countries that also export that product. This measure is called a product’s “ubiquity”. Products that are exported by many countries have high ubiquity, which implies that the set of capabilities required for production of the product are more easily attainable. Therefore, the higher the diversity of products a country exports, and the lower the ubiquity of those product, the more sophisticated are the economy’s capabilities. The method of reflections combines diversity and ubiquity to create a measure of a country’s economic sophistication.

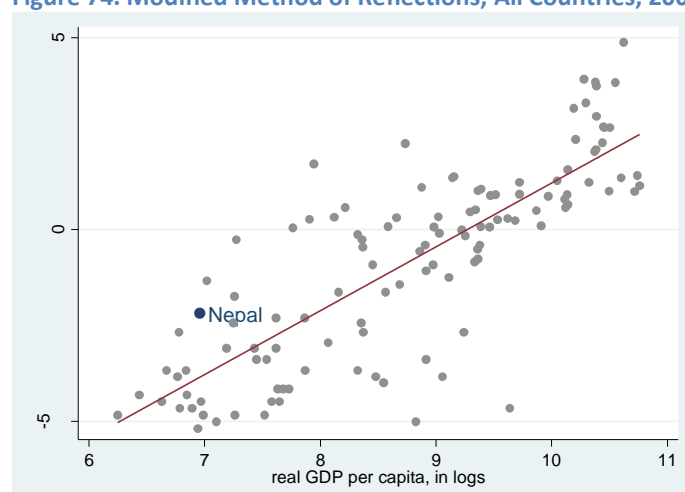
⁴² Among other features, Friere’s index accounts for price variation within SITC product categories.

Table 27. World Rankings of Economic Sophistication

	EXPY, 2006 (out of 120)	Felipe, 2009 (out of 124)	Friere, 2011 (out of 123)
Nepal	59	89	81
India	41	49	17
Bangladesh	84	117	79
Sri Lanka	n/a	108	66
Lao PDR	77	119	105
Ethiopia	102	109	102
Pakistan	64	100	57

Sources: Hausmann, Hwang, and Rodrik (2006); Felipe (2009); Friere (2011)

Figure 74. Modified Method of Reflections, All Countries, 2009



Source: Friere (2011)

Conclusions: Self-Discovery and Information Externalities

While discovering new sectors and increasing economic sophistication is generally desirable, the available evidence suggest the process and history of self-discovery in Nepal is adequate to support growth. Therefore, Nepal’s slow export growth does not appear to be the result of an inability to develop new and more sophisticated products. Low growth in exports is more likely to be the result of constraints in other branches of the diagnostic tree that limit the competitiveness of currently discovered sectors.

8.2 Investment Coordination and Market Failures: The Case of Tourism

As noted in Chapter 4 on natural capital, Nepal has abundant potential for tourism, yet tourism receipts remain low. Market failures other than self-discovery appear to hinder tourism development more than other sectors of Nepal’s economy. Consultations with the private sector highlighted a lack of tourism planning, leadership, and coordination. Veal (2002) and Lin and De Guzman (2007) identify theoretical ways that tourism development may be constrained by market failures. The profitability of an investment may depend on complementary investments by other actors and government. For example, investment

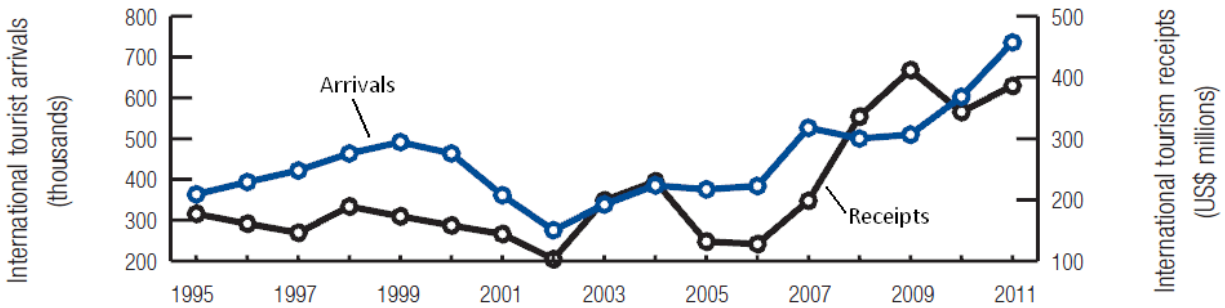
in creating a tourist attraction may be suppressed due to low availability of hotel accommodations, but investment in hotel accommodations may be low due to limited development of the tourist attraction.

Additionally, other aspects of the tourism experience such as air travel and visa applications can affect the flow of tourists and influence the profitability of investment in other sectors like restaurant and hospitality. Tragedy of the commons issues may also contribute to over-use and deterioration of natural attractions, if not managed. Finally, effective advertising and promotion of Nepal as a destination requires coordination among actors (Veal, 2002). Overall, free market principles are still the fundamental driver of growth in the sector, but there is economic rationale for government involvement in promotion of the tourism sector.

Nepal's Tourism Potential

Like many other sectors, tourism in Nepal declined during the violence and civil conflict from 2000-2006 (Figure 75). Following the peace accord, arrivals have steadily rebounded (Tin and Guzman, 2007).

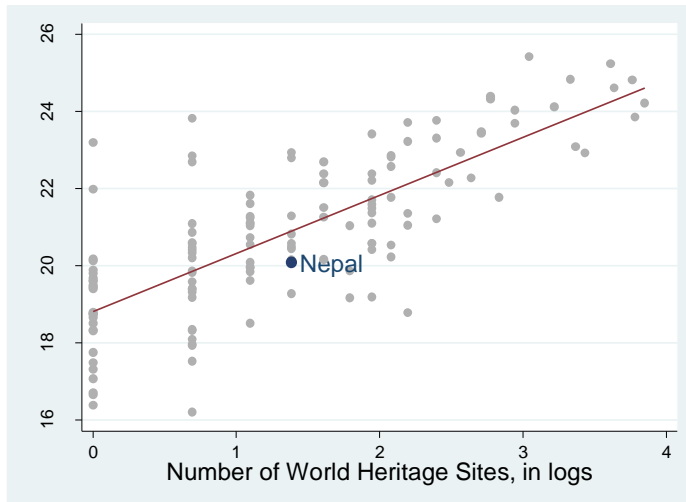
Figure 75. Tourism Arrivals and Receipts



Source: World Economic Forum, Travel & Tourism Competitiveness Report (2013)

Despite this recovery, tourism in Nepal remains under-developed relative to its potential. As noted in Chapter 4, Nepal has natural beauty and cultural sites with potential to be significant tourist draws. Yet according to the World Travel and Tourism Council, tourism contributed only 4.3% to Nepal's GDP in 2012, which ranks 72nd in the world. This compares unfavorably to the world average of 5.2% and to countries like Thailand and Lao PDR, where tourism contributes 7.3% and 5.3% respectively. Including tourism's indirect contribution to GDP, Nepal is ranked even lower at 87th globally (WTTC, 2013). To further examine Nepal's tourism income relative to potential, Figure 76 shows total tourism receipts for all countries compared to their number of World Heritage Sites (UNESCO). This confirms that Nepal may have untapped potential for income generation through tourism.

Figure 76. Tourism Receipts by World Heritage Sites



Source: UNESCO

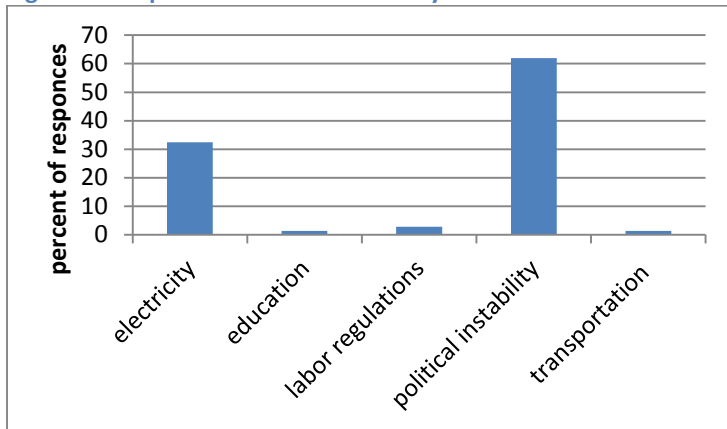
In addition to income generation, tourism has employment-generation potential. Currently, nearly a million people in Nepal are directly or indirectly employed through tourism. The WEF predicts a 3.1% growth rate in employment in the sector. At that growth rate, tens of thousands of jobs will be created every year in the tourism sector (WTTC, 2013). The Ministry of Finance’s Action Plan for Economic Development sets an ambitious target of creating 50,000 new job opportunities (*Kathmandu Post*, January 2012).

Achieving Nepal’s Tourism Potential

The market failures described above may be preventing growth in Nepal’s tourism sector and various agencies within Nepal are important for addressing these issues. First, the Nepal Tourism Board (NTB) can play a large role, but it has been hindered by government instability. The NTB has been without a CEO since 2011 and, as of this writing, has not been able to appoint a permanent replacement. Despite having an independent and growing revenue stream from tourist fees, this has constrained NTB’s ability to effectively disburse money (Asia Invest, 2008).

Surveys of tourism firms indicate that issues in infrastructure and political stability also constrain tourism development (Figure 77). It is difficult to rigorously prioritize constraints to a particular sector like tourism without a recent sectoral-specific study. The absence of such a study and a corresponding detailed plan is symptomatic of the lack of coordination and planning for tourism development (Asia Invest, 2008).

Figure 77. Top Constraints Identified by Tourism Firms



Source: Nepal Tourism Sector Analysis, Asia Invest (2008)

Conclusions: Coordination Failures

This analysis shows that tourism has potential to grow in Nepal, but the NTB does sufficiently coordinate initiatives to develop tourism or complementary sectors or plan because of constraints of infrastructure and political stability. Assessing the relative severity of all of the constraints to tourism is beyond the scope of this report; however, tourism appears especially subject to coordination failures that impede the development of the sector in Nepal.

8.3 Conclusions: Market Failures

This chapter finds that, in general, coordination and self-discovery failures do not appear to be constraining investments in new products. However, in the special case of tourism – an industry that relies heavily on complementary sector development and government coordination and promotion – failure by the government to effectively coordinate the development of tourism appears to hinder a high potential economic sector.

Appendix. Finance⁴³

Introduction

This appendix summarizes the findings of the Jacinto Fabiosa and Min Bahadur Shrestha (2013) report on Nepal's finance sector. In short, they find that the cost of capital is not a proximate binding constraint to investment and economic growth in Nepal. To this end, in a specific application of the four tests in Nepal's finance sector, they observe that:

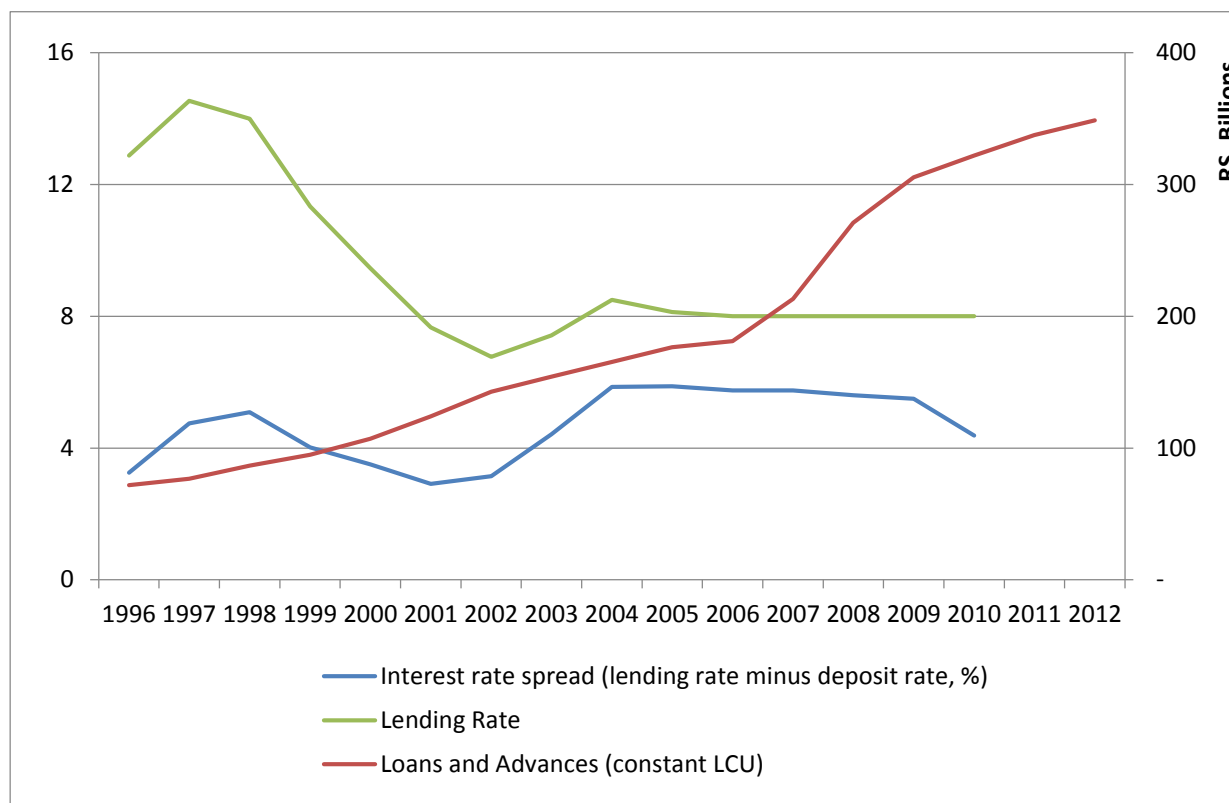
- the shadow price of capital is low;
- investment is not very responsive to changes in the price of capital;
- internal funding is common, and the use of borrowed capital is not fully exploited nor is it widespread; and
- the production structure has increasingly become capital intensive while commercial banks are maintaining liquidity in excess of what is required by regulations.

The Finance Sector in Nepal: A Brief Overview

In 1989, the Government of Nepal initiated the process that restructured the economy. This liberalization facilitated a decrease in lending rates while total loans and advances began a steady upward trend, both in value as well as a percentage of GDP. Figure 1, below, shows these developments, as lending rates (the green line) decreases by about 8 percentage points between 1997 and 2002. During this timeframe, loans and advances doubled, in constant terms, and more than doubled again over the subsequent decade.

⁴³ This Appendix is a brief synopsis of the Finance chapter, authored by Jacinto Fabiosa and Min Bahadur Shrestha. All views are their own and do not necessarily reflect the position of the Government of Nepal, USAID, or MCC.

Figure 1. Loan and lending rate



Source: Economic Survey FY 2011-2012

<http://www.mof.gov.np/contentFiles-Content-dW0=>

It also ushered in an era of growth in the number and reach of its financial institutions. By 2011, there were 1245 branches of commercial banks throughout Nepal’s development districts, although half of these branches remain in the Central region, mostly concentrated in Kathmandu valley. Furthermore, this expansion has brought the supply of formal financial services closer to households. According to the National Living Standard Survey (NLSS), between 2003/04 and 2010/11, there was a 12 percentage point increase in the number of households needing less than 30 minutes to reach the nearest financial institution, while the number of households needing more than 3 hours declined by 9 percentage points.

The growth in total deposits during the transition to a market economy has not been a response to the declining interest rate. Instead, the savings function increased, raising the amount of savings at a given interest rate. The primary driver to savings expansion is the growing inflow of remittances from foreign workers, which exerts a downward pressure on interest rate to decline. Remittances represented a 27% increase of household income in 1995-1996, 35% in 2005-2006, and 31% in 2010-2011.

In Nepal, the lending rate is low and its inflation-adjusted lending rate has actually recently dropped below zero. The latter is associated with low investment, suggesting that a weak investment demand, not a strong supply of savings is driving rates low. Finally, Nepal's gross fixed capital formation as a percent of GDP of around 20% is one of the lowest in compared to selected countries in Asia. Although investment levels do not respond easily to changes in the real interest rate this can be attributed to widespread excess capacity in the economy. In other words, a lower lending rate or a stronger final product demand will not automatically translate to growth in fixed capital investment if firms can first draw down their existing inventory before investing in new capacity. In a review of 3,000 manufacturing firms in 85 categories, by capacity utilization between 2001-2002 and 2006-2007, more than 60% were operating below 60% of capacity. For a particular example, the cement industry was operating at 40% of capacity and the recent surge in the demand for cement due to a construction boom raised capacity utilization to 60% in 2010/11, still very low.

In the case of Nepal commercial banks maintain liquidity above mandated levels, therefore the cost associated with higher levels of liquidity is not too prohibitive to compromise their bottom line. The excess liquidity in commercial banks is seen in their extra compliance to three regulations. First, commercial banks are required to maintain a net liquid asset position that is 20% of deposit. Figure 20 shows that commercial banks are 10 to 15 percentage points above this minimum requirement. Bank managers attribute this outcome to the general business uncertainty in recent period that banks would rather err in the side of compliance to the regulation.

Conclusion

Nepal's finance sector does not currently present as a binding constraint to the country's economic growth. In short, the banking sector has grown in both numbers of outlets as well as proximity to the public. Furthermore, their paper finds that investment is low due to weak demand and many firms report under-utilized capital.

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