



KYRGYZ REPUBLIC

IMPROVING GROWTH POTENTIAL

Takashi Yamano, Hal Hill, Edimon Ginting,
and Jindra Samson

SEPTEMBER 2019



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On the cover: Upper Left to Right: Energy – Toktogul Hydropower Plant (Vlad Ushakov); Road 3 – Reconstruction of Bishkek-Naryn-Torugart Road (Vyacheslav Oseledko); Boy welding–vocational school in Osh city (Kanat Asanakunov); VoTech 2 – Student during her practical lessons in Lyceum in Karakol (Vyacheslav Oseledko); Early EDU – Kindergarden students in Gulcha (Vlad Ushakov). Below Left to Right: Road 1 – CAREC Corridor 3 (Bishkek-Osh Road) Improvement Project, Suusamyr pass (Vyacheslav Oseledko) Agricultural Local Market in Osh (Takashi Yamano). Cover design by Joe Mark Ganaban.

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Foreword

The Kyrgyz Republic Country Diagnostic Study prepared by the Asian Development Bank (ADB) provides a comprehensive analysis of the development achievements and policy challenges facing the Kyrgyz Republic.

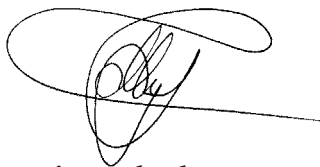
The study notes the country's historical context, particularly the difficult early years, together with geographic isolation. But the study also notes the country's achievements, including the rising living standards throughout most of this century, and the fact that its economy and politics are perhaps the most open among the Central Asian transition economies.

The study acknowledges that the Kyrgyz Republic is on the threshold of graduating from the ranks of the low-income economies to those of the lower-middle-income group. It also emphasizes the need to achieve more rapid economic and employment growth, while maintaining and strengthening the country's social policy framework and achievements.

This diagnostic study presents in-depth analysis and evidence-based policy recommendations covering several key sectors including trade, agriculture, tourism and services, information and communication technology, transport and logistics, energy and human capital.

The study also focuses on some of the country's major ongoing development challenges, including heavy reliance on remittances and mining revenue, the continuing importance of prudent macroeconomic management, and uneven regional development. The study concludes that reform can generate faster, broad-based improvements in living standards.

We welcome the findings of ADB's study, which we believe will stimulate dialogue among the country's key development stakeholders on our major medium-term challenges. The study will also serve as a useful reference for the Kyrgyz Republic's policy makers as they grapple with some of the critical contemporary issues facing the country.

A handwritten signature in black ink, appearing to read 'Sanjar Mukanbetov', with a long horizontal line extending to the right from the end of the signature.

Sanjar Mukanbetov

Minister of Economy and ADB Alternate Governor

Preface

With just over 6 million people and an economy of about \$7 billion, the Kyrgyz Republic has one of the most integrated economies in Central Asia. After the dissolution of the former Soviet Union in 1991, the country began the difficult path of economic transition and nation building. Living standards declined precipitously in the first half of the 1990s, compounded by geographic isolation as a result of the country's "double landlocked" status.

Notwithstanding these challenges, the Kyrgyz Republic has many significant achievements. Over the last quarter century, living standards have returned approximately to those prevailing in the late Soviet period. Social indicators compare very favorably to those of countries with similar per capita incomes. The country is regarded as having the most open economy and society among the former Soviet republics of Central Asia. It is now on the threshold of graduating to the ranks of lower-middle income economies.

The principal policy challenge is to translate these achievements into faster economic and employment growth. Put simply, the economy is not growing fast enough. Almost one-sixth of its population has sought employment abroad, one of the highest ratios in the world.

This country diagnostic study provides a comprehensive, forward-looking analysis of the country's development achievements and policy challenges. The report argues that, notwithstanding the country's geographic isolation, comprehensive reform can lead to accelerated economic growth, while also preserving the country's notable social achievements.

First, diversifying export products and markets can sustain growth and minimize volatility, building on the country's early adoption of economic openness. For example, niche agricultural exports (such as kidney beans) can expand with improved rural infrastructure. Enhanced food safety provisions are necessary to tap into the huge market potential in the People's Republic of China. Garment exports have potential if the business and regulatory environment can be streamlined. Service exports such as tourism also have the potential to grow with improved infrastructure.

Second, with regard to infrastructure, there have been significant improvements in the road network since the 1990s. However, but much remains to be done such as expand the road network and improve maintenance and road safety. More rigorous cost-benefit and project appraisal capabilities would ensure that government and official development assistance resources are invested more effectively. There is also scope for lucrative transborder arrangements connecting to neighboring countries and beyond. Information and communication technology (ICT) services have been improving rapidly, with commensurate extensions in service coverage and quality. These developments have the potential to overcome the country's geographic isolation and the internal barriers to the movement of people and goods.

Third, reform is indispensable in the energy sector. The country is heavily dependent on a few hydropower generation facilities and two aging cogeneration plants that are vulnerable to breakdowns. In fact, most of the assets in generation, transmission, and distribution are aged and in need in replacement. However, investment in the sector is discouraged by the artificially low energy prices and heavy subsidies that cannot be justified on economic, equity, and environmental grounds. The subsidies are also squeezing much-needed government expenditures in economic and social sectors. For example, in 2016 energy subsidies were almost double all social assistance expenditures.

Fourth, education sector reform is needed, both to maintain the historic strengths in the provision of near-universal public education and to ensure that the education system produces graduates that are better attuned to the needs of the labor market, including a greater emphasis on and use of ICT.

Fifth, financial sector reform is also critical to channel the very large remittance flows into productive economic and social investments. Greater financial intermediation would enable the potentially dynamic small and medium-sized enterprises sector to better avail of formal sector credit.

We are grateful for the generous support and cooperation extended by the Government of the Kyrgyz Republic during this study, which we hope will continue to generate dialogue and provide meaningful inputs for the country's future plans and strategies. We at the Asian Development Bank look forward to continued partnership and collaboration.



Yasuyuki Sawada

Chief Economist and Director General

Economic Research and Regional Cooperation Department

Asian Development Bank

Acknowledgments

The Kyrgyz Republic Country Diagnostic Study was prepared by the Asian Development Bank (ADB) under the regional technical assistance project (RETA 9325) on Country Diagnostic Studies in Selected Developing Member Countries. The study examines the country's recent achievements that will lead its graduation from a lower-middle-income economy and analyzes how these accomplishments can help spur strong broad-based economic growth for the country. The study provides policy suggestions for economic and governance reforms needed by key economic sectors to achieve more comprehensive and inclusive growth.

The study was undertaken by the Economic Research and Regional Cooperation Department (ERCD), initially under the guidance of Edimon Ginting, Deputy Director General, ERCD, and was completed under the supervision of Rana Hasan, Director, Economic Analysis and Operational Support Division (EREA). The study was led by Takashi Yamano, Senior Economist, with overall research and technical assistance by Jindra Nuella Samson. Gee Ann Burac, Amanda Mamon, and Aileen Gatson provided project administration services.

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The study is a product of extensive consultations with key government ministries in the Kyrgyz Republic, its think-tank agencies, and research institutions supporting development and strategy planning. The study team would like to express special gratitude to the Office of the Prime Minister; Administration of the President; Ministry of Finance; Ministry of Economy; Ministry of Transport and Roads; Ministry of Culture, Information, and Tourism; Ministry of Labor and Social Development; Ministry of Education and Science; Ministry of Agriculture, Food Industry, and Melioration; State

Committee on Industry, Energy and Subsoil Use; State Agency for Fuel and Energy Complex Regulation; Agency on Investment Promotion and Protection; Vocational Education Agency; National Bank of the Kyrgyz Republic; Center for Economic Social Research; and Bishkek City Development Agency, that shared and provided invaluable information and guidance for the study.

The in-depth sector studies were authored by the following teams: Chapter 1 (The Kyrgyz Economy at the Crossroads) by Hal Hill, Takashi Yamano, and Edimon Ginting; Chapter 2 (Trade, Foreign Direct Investment, and Labor Migration) by Prema-chandra Athukorala and Manisha Pradhananga; Chapter 3 (Reinventing the Agriculture Sector) by Takashi Yamano, Jindra Nuella Samson, and Kanat Tileyekov; Chapter 4 (Leveraging Service Sector Growth) by Jayarethanam Pillai and Kiyoshi Taniguchi; Chapter 5 (Digital Transformation and Opportunities) by Seok Yong Yoon and Michael Minges; Chapter 6 (Transport and Logistics to Support Increased Trade and Inclusiveness) by Richard Pomfret and Aigul Berdigulova; Chapter 7 (Reforming the Energy Sector) by Neil McCulloch, Kee-Yung Nam, and Lotis Quiao; and Chapter 8 (Human Resources Development) by Damir Esenaliev and Kiyoshi Taniguchi.

Overall technical review and economic editing was provided by Hal Hill, to ensure coherence and quality of the chapter studies, with support from Jill Gale de Villa as copy editor. Research and data assistance were provided by Amador Foronda, Daryll Naval, and Reneli Gloria. The Russian translation of the report was by Aigul Dzhaichieva, Nargiza Kudaiberdieva, Victor Kulkov, and Svetlana Chirkova, and coordinated through Olesia Protsenko, Operations Assistant, the Kyrgyz Republic Resident Mission. The graphic design and layout was implemented by Joe Mark Ganaban.

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Abbreviations

ADB	Asian Development Bank
BCP	border crossing point
BRI	Belt and Road Initiative
CASA	Central Asia and South Asia
CHPP	combined heat and power plant
CIS	Commonwealth of Independent States
CPMM	Corridor Performance Measurement and Monitoring
DMC	developing member countries
DT	digital technology
EBRD	European Bank for Reconstruction and Development
EEU	Eurasian Economic Union
EPP	electricity power plant
ERCDD	Economic Research and Regional Cooperation Department
EREA	Economic Analysis and Operational Support Division
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDI	foreign direct investment
FEZ	free economic zone
FTA	free trade area
GDP	gross domestic product
GVC	global value chain
HPP	hydropower plant
ICT	information and communication technology
IMF	International Monetary Fund
ITU	International Telecommunication Union
JSC	joint-stock company
KIHS	Kyrgyz Integrated Household Survey
Lao PDR	Lao People's Democratic Republic
LFS	labor force survey
LIKS	Life in Kyrgyzstan Study
LPI	Logistics Performance Index
MTTP	Medium-Term Tariff Policy
NBKR	National Bank of the Kyrgyz Republic

NEER	nominal effective exchange rate
NEGK	National Electricity Grid of the Kyrgyz Republic
NSC	National Statistical Committee of the Kyrgyz Republic
NSSD	National Strategy of Sustainable Development
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
OJSC	open joint-stock company
PRC	People's Republic of China
REER	real effective exchange rate
RER	real exchange rate
SCITC	State Committee on Information Technologies and Communications
SITC	Standard International Trade Classification
UAE	United Arab Emirates
UK	United Kingdom
UN	United Nations
UN DESA	United Nations Department of Economic and Social Affairs
UN ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
US	United States
WEF	World Economic Forum
WTO	World Trade Organization
WTTC	World Travel & Tourism Council
WUA	water users associations

Units of Measurement

GWh	gigawatt-hour
ha	hectare
Kbps	kilobits per second
kg	kilogram
km	kilometer
ktoe	kiloton of oil equivalent
kWh	kilowatt-hour
m	meter
m ²	square meter
Mbps	megabits per second
MW	megawatt

KYRGYZ REPUBLIC

FAST FACTS

as of 2015 or latest available year

FOREIGN TRADE

Exports (\$): **1.8 billion**
 Imports (\$): **4.6 billion**
 Top 3 imports: Rubber footwear, refined petroleum, light pure woven cotton
 Top 3 exports: Gold, precious metal, other ores
 Top 3 export trading partners: Kazakhstan, Switzerland, United Kingdom

ICT

Mobile cellular subscriber: **131.4 per 100 inhabitant**
 Fixed telephone subscriber: **6.6 per 100 inhabitant**
 Internet use among adults: **38%**

PEOPLE AND RESOURCES

Total population: **6.2 million**
 Total surface area: **198,500 km²**
 Average annual population growth rate: **1.6%**
 Total fertility rate: **3.2** births per woman
 Age dependency ratio: **57%** ratio of persons aged <15 and ≥ 65 to persons aged 15–64 years
 Agricultural area: **10.6 million ha** (of which **1.2 million** is cultivated)
 Forest area: **3.3%** of total land area

TOURISM

Number of tourist arrivals (in international): **6.5 million**
 Total contribution of tourism to GDP: **1.7 billion**

SOCIAL INDICATORS

Unemployment rate: **7.6%**
 Proportion of population living below the national poverty line: **25.6%**
 Gini index: **27.3%**
 Life expectancy at birth: **71.1 years old**
 Infant mortality rate: **18 per 1,000 live births**
 Mean years of schooling: **10.9**
 Proportion of population using safely managed drinking water services: **66.3%**
 Proportion of population with access to electricity: **100%**

ECONOMY

Value added by sector:
 Agriculture: **13.9%**
 Industry: **30.4%**
 Services: **55.6%**
 GDP (constant 2010 \$): **6.6 billion**
 GDP (current \$): **6.8 billion**
 GDP per capita (constant 2010 \$): **1,070**
 GNI per capita (current \$): **1,220**



Boundaries are not necessarily authoritative.

This map was produced by the cartography unit of the Asian Development Bank. It may not reflect the most current information. The map does not imply, on the part of the Asian Development Bank, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.

Chapter 1

Introduction: The Kyrgyz Economy at the Crossroads

Hal Hill, Takashi Yamano, and Edimon Ginting

1.1. Introduction and Overview

One of the world's leading authorities on transition economies recently observed that “the move from a centrally planned economy to a market economy is more complex than often assumed. A wide variety of institutions must be created—often from scratch—when a country transitions from a command system to a market system. The managers of these new institutions must also learn to operate in a very different way than in the old system, and that can take time” (Perkins 2018).

This observation is highly relevant in any evaluation of the Kyrgyz Republic's economic development. The Kyrgyz Republic¹ has managed the transition from a republic in the former Soviet Union to an independent nation-state. After independence from the Soviet Union, the Kyrgyz Republic has not only survived as a nation-state with its territorial integrity intact, it has also developed a parliamentary system with a full set of national institutions. Indeed, on most comparative indicators it is regarded as the most open economy and society among the former Soviet republics in Central Asia.

During the first half of the 1990s, the Kyrgyz economy experienced a catastrophic decline, with real gross domestic product (GDP) estimated to have fallen by almost 50%, one of the sharpest contractions both in Central Asia and among the other former Soviet republics. After a quarter century, per capita

¹ At the time of independence, the country was known as the Republic of Kyrgyzstan; while in May 1993 the country's official name was changed to the Kyrgyz Republic. Throughout this chapter the term “Kyrgyz Republic” is used to refer to the country since its independence, and “Kirgizia” is used to refer to the country prior to its independence.

incomes and living standards have returned to at least those prevailing in the late Soviet era. Social indicators compare very favorably with those of countries at similar levels of economic development. The country is on the threshold of graduating to the ranks of the lower-middle-income economies.

Notwithstanding these achievements, the Kyrgyz Republic faces formidable development challenges. In effect, it has “lost” a quarter of a century of economic and social development. Over such a time period, per capita incomes in many Asian developing countries have at least doubled, and in some cases a good deal more. According to Pomfret (2019), the Kyrgyz Republic’s economic performance has been less than expected. For a low-income country,² the economy is not growing fast enough. Economic growth of about 4% per annum translates into annual per capita growth of 2%. This implies a doubling of per capita income only every 35 years, much too slow for a country with a per capita GDP of just a little over \$1,000. Although poverty incidence in the Kyrgyz Republic has declined significantly this century, most of the population lives marginally and precariously above the poverty line. The major source of employment generation is from the Russian Federation. This indicates that the labor market—the pathway to socioeconomic progress for the great majority of the population—is not functioning effectively, reflecting sluggish economic growth. While overseas employment is an effective short-term poverty alleviation strategy, it does not provide the basis for broad-based sustainable development in the long run. Over time, the horizons of the nation’s most mobile and resourceful citizens are increasingly focused abroad. Some may never return, especially now that the option of working and living in the Russian Federation has been regularized. Moreover, the very high levels of remittances, in some years the highest in the world relative to the size of the economy, squeeze the profitability of tradable goods activities, further limiting employment opportunities at home.

In addition, there are macroeconomic challenges on the horizon that may undermine the growth the Kyrgyz Republic has achieved to date. In the absence of reform, the government has very limited fiscal space, and therefore little capacity to finance productivity enhancing investments in infrastructure, rural development, education, and health. In addition, the option of financing large fiscal deficits through highly concessional development assistance is diminishing as the country approaches

² The World Bank divides the world’s economies into four income groups. The income classification is based on a measure of national income per person, or gross national income per capita, calculated using the Atlas method (World Bank. WDI. Accessed April 2019). According to this method, the Kyrgyz Republic has already graduated to lower-middle-income status. However, the International Monetary Fund considers the country low-income, and it therefore receives more concessional financing.

graduation from the low-income group. Revenues from the Kumtor gold mine are also projected to taper off within a decade. Moreover, the Kyrgyz tax base has narrowed as more of the economically active population seeks employment abroad. There is also strong political resistance to better targeting of the large social transfers and electricity subsidies.

Although the Kyrgyz Republic faces significant geographic barriers, including its isolation from major centers of commerce and its extremely rugged terrain, a key message of this book is that faster economic growth can be achieved with reform.

In essence, the Kyrgyz Republic needs to create a new growth-oriented development model, based on a second round of reforms in its transition from a Soviet republic to a dynamic, globally oriented market economy. The goods sector needs to be reenergized to avoid the heavy reliance on a remittance-driven services economy. While the economy is broadly open, reforms are urgently required to create a more business-friendly environment that overcomes the current problem that small firms find it difficult to grow. Institutional and regulatory reform is the key to an improved business climate.

This chapter is organized as follows. Section 2 sets the scene, drawing attention to the country's historical legacies, unusual geography, small size, and distinctive economic characteristics. Section 3 provides a narrative on the country's socioeconomic development record, where feasible in comparative international context. Section 4 summarizes the principal findings of the chapters that form the core of this volume: international dimension of economic transition including trade, FDI and labor migration; reinventing agriculture; leveraging service sector and tourism; digital transformation; transport and logistics; energy; and human capital. The concluding section summarizes the key arguments and develops a set of policy recommendations going forward.

1.2. Setting the Scene

The history of economic development reminds us that countries are not necessarily “path dependent.” That is, countries that have experienced long periods of economic stagnation or decline can transform through comprehensive policy reform. The three developing Asian giants clearly illustrate this proposition: governments in the PRC (1978), India (1991), and Indonesia (1966) all initiated bold reform programs that resulted in major turning points in their histories, which lifted economic growth and improved living standards.

Nevertheless, history, geography, and other features of a country constitute important elements that shape its development trajectory and policy priorities and options. In spite of its ancient history of human settlement, the Kyrgyz Republic is a young nation-state, having functioned as an independent political entity for little more than a quarter of a century. It is important to bear in mind the country's unusual history and geography as key parameters both in evaluating its development trajectory and in considering policy options. This scene-setting section briefly draws attention to some of these factors.

Legacies of history—the Soviet period and its aftermath

For three-quarters of the 20th century (1917–1991), the Kyrgyz Republic was part of the Soviet Union. The division of labor that evolved under this command economy model reinforced the resource-based endowments of the economy, as Kirgizia served primarily as a supplier of raw materials to the Soviet economy. There was movement towards agricultural collectivization, though not on the same scale as elsewhere in the former Soviet Union, and little industrialization. The economies of the then Soviet republics were geared primarily to the needs of the overall Soviet economy rather than their own development priorities. Consequently, regional integration proceeded slowly, exacerbated by arbitrary geographical and administrative divisions that continue to cause difficulties in the contemporary era. Kirgizia's international engagements were defined by those of the former Soviet Union, which therefore cut it off from the West and, following the Sino–Soviet split, from the PRC after 1960. These factors also meant that Kirgizia remained largely unconnected to the rising Asian economic dynamism before its independence.

To be sure, these historical legacies had their positive elements. Relative to its per capita income, the Kyrgyz Republic remains committed to improving universal education and attainment of basic social policy frameworks, which are substantially a result of the egalitarian Soviet model. The attractive urban amenities of its capital city, Bishkek, have their roots partly in the Soviet era. The country still benefits from many large investments in its energy and transport infrastructure during the Soviet period.

The sudden dissolution of the former Soviet Union in late 1991 therefore created immense economic, political, and social challenges, which are outlined below. Nevertheless, the Russian Federation remains important to the economy of the Kyrgyz Republic (Lewis 2015). The Russian Federation is

a major trading partner³ and the major source of remittances. In spite of the substantial departure of the Russians in the 1990s, they still constitute about 6% of the country's population. The Russian language remains widely used in government, education, and commerce, a fact reinforced by the sizable Kyrgyz diaspora in the Russian Federation, and by the access it facilitates to the wider Russian-speaking world.

Geography

The Kyrgyz Republic is one of the most isolated and geographically challenged countries in the world. It is distant from the world's major commercial centers. It is "double landlocked" as it shares a land boundary with three countries that are also landlocked. Apart from its international isolation, subnational economic integration is impeded by extremely rugged mountainous terrain. Almost 90% of the land area has an elevation above 1,500 meters. Some regions are virtually inaccessible by land transport, especially during the harsh and lengthy winter period. In some respects, the Kyrgyz Republic is two economies—the prosperous north centered on Bishkek and linked more closely with Kazakhstan and the Russian Federation, and the south, bordering but not necessarily open to its other three neighbors. The completion of a sealed road linking Bishkek and Osh has strengthened domestic economic integration, although the land journey remains quite arduous and is subject to closure during severe weather. Other forms of communication at least partly ameliorate this isolation. The government has adopted an "open skies" civil aviation policy, and, as outlined in Chapter 5, the adoption of digital technologies is creating new opportunities for e-commerce and other forms of telecommunication.

The international literature on landlocked economies draws attention to the resulting high transport and logistics costs, which are comprehensively examined in Chapter 6. The severity of this handicap of course depends on both the quality of infrastructure and political cooperation of neighbors. In these respects, the Kyrgyz Republic has made progress, but the ongoing challenges are significant.

³ Switzerland is actually a major trading partner (export destination) because it receives almost all of the country's exported gold. However, Chapter 1 follows Chapter 2's treatment by excluding this special trade connection in discussing the Kyrgyz Republic's international trading patterns.

The implications of the Kyrgyz Republic's unusual geography are at least fourfold. First, the country faces an infrastructure deficit, and it will need to allocate a relatively high proportion of its budget to infrastructure. Second, the transit arrangements with its neighbors will always be critically important. Third, air transport is a vital connection, and the Kyrgyz Republic has sensibly adopted an open skies civil aviation policy with effective gateways to the major cities of Bishkek and Osh. The possibility of direct flights to Europe continues to be restricted because the Kyrgyz Republic's airlines do not meet European safety standards. Fourth, telecommunications development is among the highest development priorities for the country. These interconnected issues are revisited throughout the volume.

A small economy

The Kyrgyz Republic's economy is the smallest in Central Asia. The country's gross domestic product is about \$7 billion. In comparative terms, this is equivalent in size to the economy of a small city in a rich economy. Quite apart from the Kyrgyz Republic's geographic isolation, its small size has obvious implications for its economic policy and broader development considerations.

Small size is not an inherent development obstacle. *The Growth Report* (Commission on Growth and Development 2008) identified the 13 fastest-growing economies for the previous century: five of them—Botswana; Hong Kong, China; Malta; Oman; and Singapore—were very small, mostly with populations smaller than that of the Kyrgyz Republic. The drivers of the strong performance of these economies are diverse, but development experience and the international literature point to possible causal links.

For one thing, small economies are more likely to be open, by necessity, and more open economies typically grow more rapidly, since their economic structure is determined by comparative advantage factors, and the discipline of openness constrains policy mistakes. Such countries are less tempted to embark on costly and prolonged import substitution strategies. This literature is also consistent with the Kyrgyz experience as the first among the five “stan” countries to liberalize its economy.⁴ Nevertheless, the country has yet to demonstrate a further hypothesized link in the openness–performance relationship—that efficient, internationally oriented institutions are essential for an open economy.

⁴ In fact, the Kyrgyz merchandise trade-to-GDP ratio (about 80%–100%) is similar to that of some of the small open East Asian economies.

Another hypothesized factor is that very small economies may have limited monetary policy autonomy, owing to the widespread use of foreign currencies in the national economy. This is in fact the Kyrgyz case, as discussed later in the chapter. While in principle the loss of a key economic policy lever entails costs, dollarization provides a useful monetary policy anchor. Fiscal policy remains prudent and markets are flexible. This issue is also discussed below.

A remittance economy

The Kyrgyz Republic and Tajikistan are the most remittance-dependent economies in the world. Almost one-third of the Kyrgyz workforce is employed abroad, and remittances are the country's largest single source of foreign exchange earnings. Remittances grew very rapidly in the first decade of the 21st century as the Russian economy boomed and its workforce aged quickly. The drivers of this extremely high reliance on remittances are readily apparent: low wages and anemic employment growth at home; a relatively well-educated population; and easy access to, and high cultural and linguistic familiarity with, the main destinations of international employment—the Russian Federation and to a lesser extent Kazakhstan. Membership in the EEU from 2015 further facilitates this access.

High remittance dependence is a contentious development issue around the world. There are obvious short-term benefits. Household income is increased and poverty is reduced. Remittance flows tend to be stable, and even counter-cyclical, especially compared with some other capital flows such as portfolio investment. Overseas employment may also expand broader commercial opportunities, including skill acquisition and knowledge of international markets. The early experience of some newly industrialized Asian economies (notably the Republic of Korea and Taipei, China) illustrate these advantages.

But there are also major long-term costs. Fundamentally, remittances on this scale are symptomatic of a weak economy, and a failure to develop broad-based employment, particularly in the tradable goods sectors. If not addressed, this scale may lead to a “remittance culture” whereby the best and brightest of each generation focus on employment opportunities abroad. This can lead to a “brain drain,” a permanent loss of talent owing to one-way migration. While remittances invariably reduce poverty, they may also exacerbate inequality, to the extent that better-educated households benefit disproportionately. There may also be broader political economy implications, as the overseas employment option may reduce the pressure on governments to undertake the sort of reforms that are needed to stimulate a more dynamic labor market.

In addition, a key medium-term issue is the development of financial instruments, and financial intermediation more generally, that enable remittances to flow to productive domestic investment opportunities. As yet, very little of the Kyrgyz remittances appear to flow through the country's formal banking system, which exhibits a gap between deposit and lending rates, and hence acts as a disincentive for productive investment. Rather, much of the remittances appear to be channeled into the booming construction industry in Bishkek and other major cities. No doubt this construction activity improves housing options for the country's growing urban middle class. But it is also symptomatic of limited financial intermediation.

1.3. Economic Development: An Overview

This section provides an analytical narrative of the Kyrgyz Republic's social, economic, and institutional development during the independence era. It draws mainly on data published by the National Statistical Committee of the Kyrgyz Republic and the National Bank of the Kyrgyz Republic (NBKR), in addition to selected comparative international statistics. Kyrgyz statistics are regarded as relatively good by Central Asian standards. However, they are limited by the presence of a large informal sector, on which reporting is approximate at best.⁵ Longer-term data series are extremely limited owing to the difficulties of comparing contemporary statistics with those of the Soviet era.

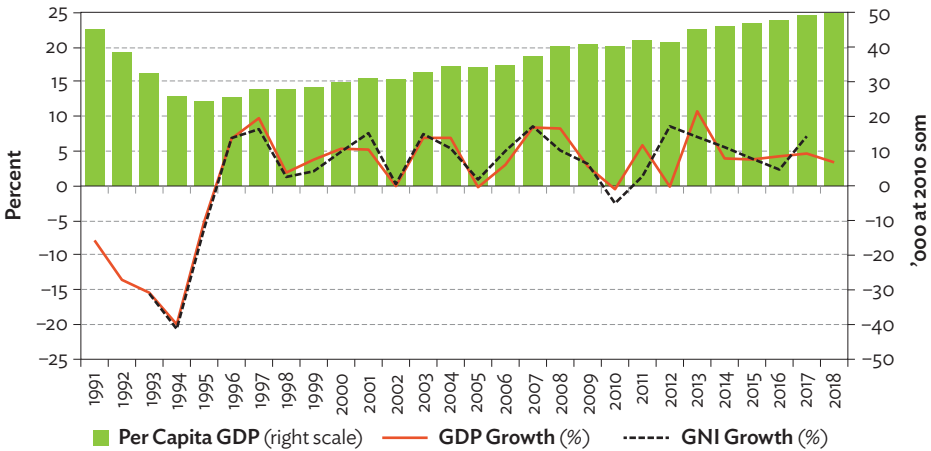
Economic growth

Immediately following the formal dissolution of the former Soviet Union on 25 December 1991, the Kyrgyz economy began to contract sharply. Negative growth was recorded in each of the first 5 years of independence, with economic decline in 1993 and 1994 particularly serious (Figure 1.1).⁶ By 1995 the worst appeared to be over. Positive growth resumed, except for the 4 years—2002, 2005, 2010, and 2012—when the economy experienced negligible or negative GDP growth, although GDP per capita steadily grew over the ensuing 23 years. Pomfret (2019, Table 2.3) estimates that real GDP declined about 45% during 1991–1995, and that GDP in 1999 was about 63% of that a decade earlier. In comparative terms, the estimates that the Kyrgyz economic decline was broadly

⁵ In addition, a widely used check on one dimension of the country's statistics—so-called “mirror data” for its international trade—is not available for the Kyrgyz Republic because several of its major trading partners do not reliably report to the UN Comtrade system (Chapter 2).

⁶ Today Bishkek is thriving, with a flourishing street and cultural life” (Rashid 2014).

Figure 1.1: Economic Growth, 1991–2018



GDP = gross domestic product, GNI = gross national income.

Sources: ADB (2007); ADB (2018); NSC. <http://www.stat.kg/en/statistics/nacionalnye-schema> (accessed April 2019); World Bank. WDI.

<https://databank.worldbank.org/data/reports.aspx?source=world-development-indicators> (accessed April 2019).

similar to that of Kazakhstan (although the latter pulled away during the 21st century oil boom), and larger than that of Uzbekistan. But the Kyrgyz Republic's decline was smaller than that of other "stan" states.

Growth has been volatile, reflecting the effects of exogenous shocks in a small and open economy, and of domestic events. For example, a banking crisis in 1998–1999 explains the dip in growth at that time. The Kumtor gold mine commenced operations in 1997 and it provided an immediate economic boost. During 1997–2009, the mine generated 7%–10% of the country's GDP. Its temporary closure in 2002 is the main reason for the low economic growth in that year. The country's two major political crises in 2005 and 2010 explain the low growth in both these years. The commodity-driven Russian economic boom for the decade through to 2014, and the subsequent recession, spilled over positively and then negatively to the Kyrgyz Republic through export demand, remittances, tourism, and other channels.

As explained by Pomfret (2019), the national accounts need to be interpreted with caution, particularly in the 1990s, owing to (1) diminished public sector capacity, and (2) the transition from Soviet-era statistical concepts, with its distorted set of prices and its understatement of service sector output. Moreover, the estimation of reliable national accounts statistics throughout this period has been complicated by four additional factors: the large informal

sector; the narcotics trade (mainly in and through the Fergana Valley region); significant unrecorded trade across porous international boundaries; and remittances, much of it unrecorded. Nevertheless, the general picture, of a sharp initial decline and gradual recovery thereafter, is considered to be a reasonably accurate indication of trends. Owing to the growth volatility it is not easy to define a “normal” growth rate for the country, in the sense of what might be reasonably expected in the absence of positive or negative shocks. The average growth rate of about 4% since the worst of the 1990s contraction had passed might be the closest estimate of such a growth rate. As noted, due to the slow and erratic recovery since the late 1990s, per capita GDP is only now on the verge of returning to that prevailing in the late Soviet era. In effect, the country has experienced almost three “lost decades” of development in the process of national reconstruction.

The foregoing statistics refer to GDP. But for a country with very large remittances, gross national product (GNP) is a more accurate indication of economic welfare. That is, GDP measures the value of goods and services produced within a country, whereas GNP measures the value of goods and services accruing to a country’s factors of production. Owing to its very large remittances, the Kyrgyz Republic’s GNP will be larger than its GDP. As shown below, the value of its remittances has exceeded foreign direct investment (FDI) by a large margin, and as a corollary the net outflows as a result of its net inward FDI stock. Reliable GNP data (and GDP at purchasing power parity [PPP]) are not yet available, and so the precise quantification of magnitudes awaits the preparation of a more complete set of national accounts statistics.

How does the Kyrgyz Republic’s economic growth compare with that of countries at a similar stage of development and with similar geographical conditions? Owing to its unusual geography and history there are no obvious comparator countries. As points of reference and for illustrative purposes, five countries are selected: the other four Central Asian “stan” economies—Kazakhstan, Tajikistan, Turkmenistan, and Uzbekistan—together with the Lao People’s Democratic Republic (Lao PDR). The four “stan” economies were republics in the former Soviet Union, while the Lao PDR was in the communist bloc from 1975 on and is now governed by the Lao People’s Revolutionary Party, the only political party in the country.

Table 1.1 provides a comparative picture of the economic dynamics of the six countries. Its per capita GDP is only half that of the Lao PDR, one of the poorest countries in the Association of Southeast Asian Nations (ASEAN), and it is less than one-fifth that of Central Asia’s two major hydrocarbon exporters, Kazakhstan and Turkmenistan. The Kyrgyz Republic’s economic growth since

Table 1.1: Comparative Economic Growth

Indicators	Kyrgyz Republic	Kazakhstan	Tajikistan	Turkmenistan	Uzbekistan	Lao PDR
GDP per capita (2017, current \$)	1,219.82	9,030.38	801.10	6,586.63	1,533.85	2,457.38
GDP per capita (2017, constant 2010 \$)	1,070.32	10,867.82	1,020.14	7,317.55	2,031.05	1,730.40
GDP per capita (2017, constant 2010 \$) As a ratio of:						
GDP per capita (2010, constant 2010 \$)	1.22	1.20	1.38	1.65	1.47	1.52
GDP per capita (2000, constant 2010 \$)	1.64	2.42	2.46	3.07	2.50	2.57
GDP per capita (1990, constant 2010 \$)	0.98	1.85	0.79	1.97	2.04	3.75

GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

Source: World Bank. WDI. <https://databank.worldbank.org/data/reports.aspx?source=world-development-indicators> (accessed April 2019).

1990 has also been the second slowest, with per capita GDP in 2017 slightly above that at the end of the Soviet era, although, as shown below, social indicators appear to be higher. Moreover, the Kyrgyz Republic has underperformed relative to the other five for all the subperiods, registering the slowest growth over the period 2000–2017, and the equal slowest since 2010.

The contrast with the Lao PDR is particularly striking, at least with respect to economic indicators. That is, by 1990 the Lao PDR had just commenced the process of economic liberalization, after more than one-quarter of a century of war and isolation. The difference between the two countries reflects both the easier economic transition from centrally planning for the Lao PDR, which was an overwhelmingly agrarian economy prior to the reforms, and dynamic neighborhood effects in the Mekong region.

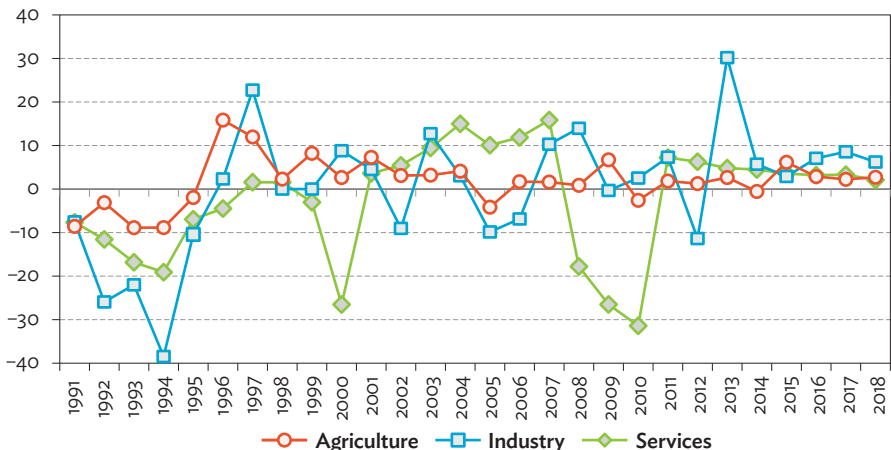
Sectoral growth and structural change

The sectoral growth rates provide further insights into the Kyrgyz Republic's development trajectory and its growth volatility. During the first half of the 1990s the modern, Soviet-connected economy collapsed, particularly the manufacturing sector, as enterprises that were part of the Moscow-based centrally planned economy lost their preferential access to markets and inputs. As this segment

of the economy declined sharply, the principal survival strategy was a return to agriculture, which explains the smaller contraction in this sector than in industry and services, and its rising share of the economy and employment (Figures 1.2 and 1.3). Services declined less than industry as informal trade networks quickly emerged, including the cross-border trade as the Kyrgyz Republic's open economy strategy began to pay dividends. The industry sector began to recover by the mid-1990s, driven by the dominant Kumtor gold mine. Much of the subsequent volatility in industrial output is explained by the fluctuating fortunes of this mine. Over time, small-scale manufacturing also began to recover, mainly producing home goods but also extending to an increasingly vibrant export sector centered on garments (mainly to the Russian market) and firms located in the free economic zones that enjoy fiscal incentives. The construction sector has also been growing rapidly, much of it fueled by proliferating residential projects in the major cities financed by remittances.

As is typically the case, agricultural growth has been slow but stable. Chapter 3 examines the development of this sector, drawing attention to the dominance of the livestock industry, the various cash crops, and some niche export activities such as the Talas kidney bean success story. The growth of services has also been relatively stable, as outlined in chapters 4 and 5. Trade and government services constitute the backbone of the service sectors. The relatively high trade share is in part a result of the Kyrgyz Republic's economic openness: the Dordoi market in Bishkek has for some periods reportedly been the largest of its kind in Central Asia, at its peak employing about 50,000 people, and attracting traders from throughout the region mainly

Figure 1.2: Sector Growth (%)

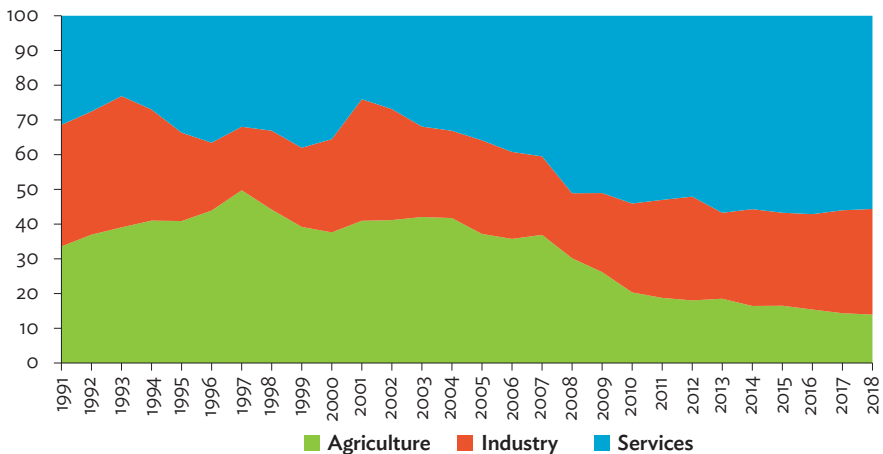


Sources: For 1991–2009: ADB (2010), ADB (2018); and for 2010–2018: NSC.
<http://www.stat.kg/en/statistics/nacionalnye-scheta/> (accessed April 2019).

seeking cheap PRC manufactures.⁷ Tourism has been growing rapidly and has considerable potential, spilling over into handicrafts and food products. There is also a range of smaller niche activities such as information and communication technology (ICT), education, and health.⁸

In some respects, the pattern of structural change portrayed in Figure 1.3 resembles that of an upper-middle-income economy. Agriculture's share of GDP has more than halved since the mid-1990s and was less than 15% in 2018. By contrast, the services share has almost doubled, and contributed 55% in 2018. However, apart from the special case of the Kumtor mine, which boosts the industry share, the main factor explaining this unusually high service share is the remittance economy. The Kyrgyz Republic's large balance-of-trade deficit underlines its lack of competitiveness in the tradable goods sectors, complemented

Figure 1.3: Sector Shares of Gross Domestic Product (%)



Note: Shares based on gross domestic product at current prices.

Sources: For 1991–2009: ADB (2010), ADB (2018); and for 2010–2018: NSC.

<http://www.stat.kg/en/statistics/nacionalnye-scheta/> (accessed April 2019).

⁷ See Kaminski and Raballand (2009) for a study of this transit trade, which has also extended to Osh and other cities in the south. The importance of Dordoi is now declining as a result of the higher trade barriers at the PRC border following the Kyrgyz Republic's decision to join the EEU, and the establishment of Horgos–Khorgos, a large competitor duty-free market on the PRC–Kazakh border.

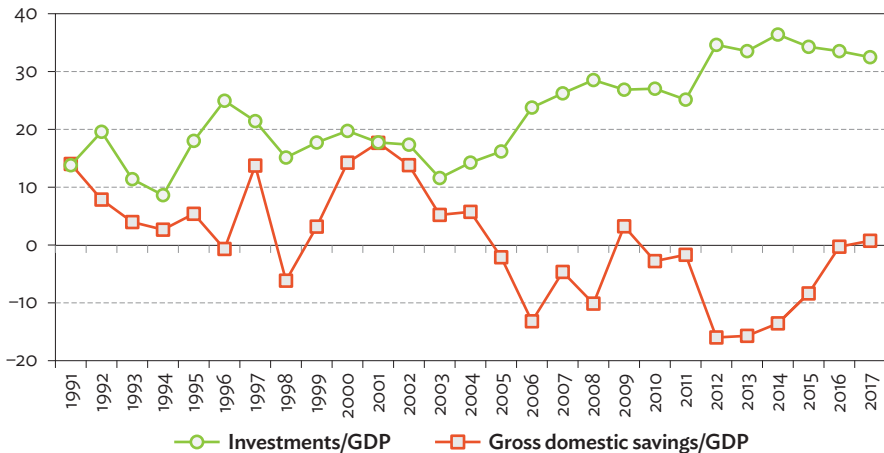
⁸ The Kyrgyz Republic has emerged as a regional higher education hub for Central Asia, reflecting its openness, the earlier education investments in the Soviet era, and its competitive cost of living. Several universities now offer English-language education, targeting regional markets, principally in Central and South Asia. These include the American University of Central Asia, with support from the Soros Open Society Foundation, and the University of Central Asia, which has received support from the Aga Khan Foundation. There is also the multilingual Kyrgyz Turkish Manas University, which receives support from the Turkish government. In addition, the medical faculties in several Bishkek universities also attract international students. Although in aggregate the numbers are still relatively small, they are likely to grow as the country's reputation is established and the region's appetite for higher education increases.

by the large remittance flows into construction, real estate, and trade. Moreover, the country's proximity to highly competitive PRC manufactures renders most manufacturing activities uncompetitive, except for some specialized niche manufacturing for the home market and for export to the Russian Federation.

Investment and savings

As would be expected, investment and savings fell sharply during the early 1990s (Figure 1.4). Negligible savings, and dissaving in some years, was a survival strategy during the years of economic decline and disruption. Public investment fell as the government struggled to maintain its routine commitments. Private investment held back in response to economic decline and an uncertain investment climate. However, investment recovered surprisingly quickly as the political system normalized and the Kumtor mine got under way. In recent years investment has been about 35% of GDP, indicating—in view of the moderately slow growth—an unusually high capital–output ratio. The high incremental capital–output ratio is suggestive of inefficient capital utilization, although large public infrastructure projects with low immediate economic payoff may also be a factor. The negative savings rate for much of the last 10 years is puzzling. Estimated as a residual in the national accounts, it may reflect data limitations in the presence of very high remittances. Whatever the case, the very large savings–investment gap has its counterpart in the large current account deficit. In effect, the Kyrgyz Republic has been able to maintain current consumption levels because of very large capital inflows from remittances, official development assistance (ODA), and FDI.

Figure 1.4: Investment and Savings (% of GDP)



GDP = gross domestic product.

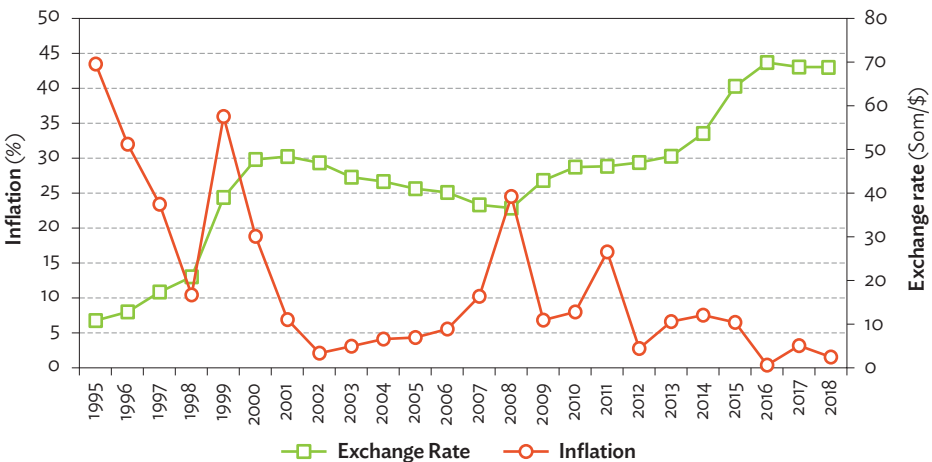
Source: NSC. <http://www.stat.kg/en/statistics/nacionalnye-scheta/> (accessed April 2019).

Macroeconomic survey

Macroeconomic stabilization was a major economic policy challenge for the new government. As independence was achieved, the Russian Federation liberalized prices and the republics were forced to follow suit. Without hard budget constraints and credible central banks, hyperinflation ensued in all five Central Asian republics (Pomfret 2019, Chapter 2). As with its political system, the Kyrgyz Republic was the region's early mover: it was the first to introduce its own currency, the som, in May 1993; it was the first to bring hyperinflation under control; and it was the first to establish relations with the International Monetary Fund (IMF), in May 1992. The Kyrgyz Republic gradually rebuilt its public finances during the 1990s, but at the cost of very large overseas borrowings. The newly independent government had no public debt, the Russian Federation having assumed all the debt of the former Soviet Union. By the end of the 1990s, public debt was equivalent to 100% of GDP and the government was heading for a debt crisis.

Figures 1.5–1.7 provide a summary of the country's macroeconomic outcomes since the mid-1990s. As Figure 1.5 shows, inflation has been kept under control for most of the period, with periodic peaks, such as in 1999 and 2008, mainly explained by looser fiscal settings or imported inflation. The Som/\$ rate has steadily declined, mainly in the 1990s and in the last 5 years. However,

Figure 1.5: Inflation Rate and the Exchange Rate



Note: Exchange rate is the Kyrgyz Republic's Som/\$.

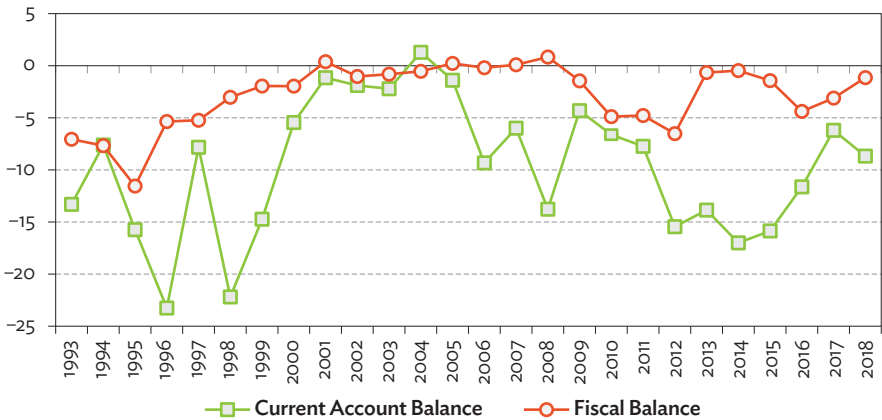
Sources: ADB (2007); ADB (2018); and NSC. <http://www.stat.kg/en/statistics/nacionalnye-scheta/> (accessed April 2019).

the Som/\$ exchange rate presents an incomplete picture of the exchange rate regime: continuing nominal depreciations have been necessary to restore international competitiveness.

The Kyrgyz Republic has run twin deficits throughout its independent history, and earlier, in the Soviet era, through net transfers from Moscow. As Figure 1.6 shows, the current account deficits have been very large, frequently in excess of 10% of GDP. These deficits have been financed principally through ODA, FDI, and other long-term capital inflows. In turn, the balance-of-trade deficit has been larger still, much of it financed by remittances. Summary snapshot balance-of-payments data are presented in Table 1.2. Chapter 2 examines the various components of the balance of payments and their drivers in more detail.

All of the ODA and a sizable proportion of the long-term capital flows have been used to finance the government’s large fiscal deficits. Both the current account and fiscal deficits have generally been sustainable owing to the long-term nature of these capital flows and the highly concessional nature of ODA. The Russian Federation and western partners have on occasion granted debt forgiveness. As a result, for most of this century public debt has remained within the Maastricht guidelines, partially adopted by successive Kyrgyz administrations, that it not exceed 60% of GDP. Almost all public debt is external, and all of it is foreign-currency denominated. There is also rising

Figure 1.6: Fiscal Balance and Current Account Balance (% of GDP)



GDP = gross domestic product.

Sources: ADB (2007); ADB (2018); and NSC. <http://www.stat.kg/en/statistics/nacionalnyye-scheta/> (accessed April 2019).

Table 1.2: Balance-of-Payments Snapshots

Balance of Payment Items	1995	2000	2005	2010	2016	2017	2018
Current account balance	-234.7	-76.1	-37.4	-343.7	-792.0	-477.4	-701.8
Trade balance	-122.0	4.7	-418.7	-1,202.2	-2,136.5	-2,383.3	-2,779.2
Exports	408.9	510.9	686.8	1,778.7	1,607.9	1,813.9	1,815.2
of which: gold (nonmonetary)	0.1	195.3	230.7	668.3	701.6	700.4	664.2
Imports	531.0	506.2	1,105.5	2,980.9	3,744.4	4,197.2	4,594.4
Services balance	-156.0	-86.1	-30.8	-201.2	-203.5	-92.0	-135.5
Exports	39.2	62.0	259.4	600.1	841.0	823.8	833.7
Imports	195.1	148.2	290.3	801.3	1,044.5	915.8	969.2
Net primary income	-35.4	-82.0	-88.2	-331.6	-355.6	-371.6	-208.1
Net secondary income	78.7	87.4	500.3	1,391.3	1,903.6	2,369.5	2,420.9
of which: remittance, net inflows	0.8	1.4	280.4	1,130.7	1,634.3	2,030.5	2,143.0
Capital account, net	2.2	16.2	42.9	-11.1	112.6	133.8	339.4
Financial account, net	340.6	90.8	72.9	509.9	604.5	347.2	218.3
FDI, net inflows	96.1	-6.9	42.6	455.2	579.0	-78.1	48.3
ODA	284.7	214.7	267.5	383.9	516.0	460.8	—
Technical cooperation grants	28.5	37.5	91.2	62.1	60.8	0.7	—
Net errors and omissions	-78.3	0.9	62.4	-48.3	413.4	143.6	139.2
Overall balance	29.8	31.9	140.7	106.8	338.5	147.2	-4.8

— = data not available, FDI = foreign direct investment, ODA = official development assistance.

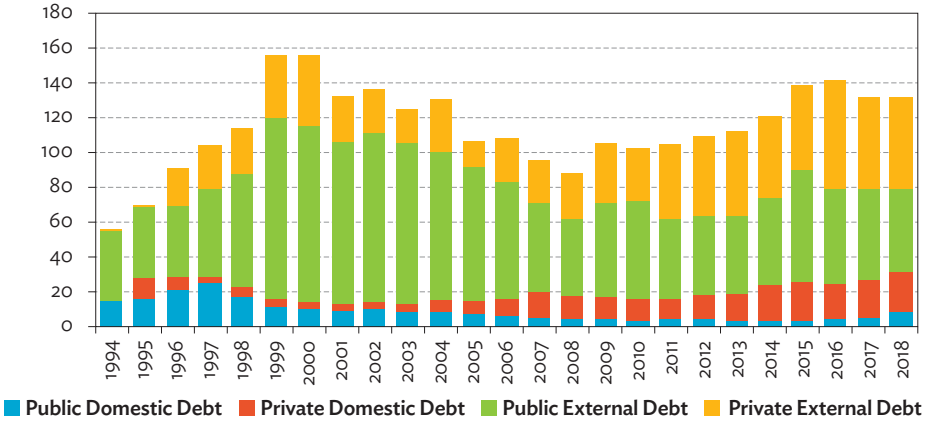
Sources: For 1995–2010: IMF. Balance of Payments Statistics. <http://data.imf.org/?sk=7A51304B-6426-40Co-83DD-CA473CA1FD52> and for 2016–2018: NBKR. <https://www.nbkr.kg/index.jsp?lang=ENG>; for ODA: OECD. <https://stats.oecd.org/Index.aspx?DataSetCode=Table2A>; and for Technical Cooperation Grants: World Bank. WDI. <https://databank.worldbank.org/data/reports.aspx?source=world-development-indicators> (all accessed April 2019).

private external debt, estimated to be 40%–50% of GDP. As Figure 1.7 shows, the country's aggregate external debt, both public and private, now exceeds 100%. This debt has been rising through the last decade, though it remains below the debt crisis years of 1998–2000.

We now examine aspects of the country's macroeconomic policy regime and record.

Fiscal policy. The Kyrgyz Republic's current macroeconomic position is moderately comfortable. With regard to fiscal policy, government expenditure is high by low-income standards, equivalent to about 35% of GDP. Public debt is equivalent to about 56% of GDP, below the government's 60% ceiling,⁹ while the government continues to run large fiscal deficits, typically about 7%–9% of GDP. In the short-run the deficits and debts are manageable because much of the

⁹ The ceiling is expected to be raised soon to 70%.

Figure 1.7: Public Debt and External Debt (% of GDP)

GDP = gross domestic product.

Sources: ADB (2007); ADB (2018); NBKR. <https://www.nbkr.kg/index.jsp?lang=ENG> (accessed April 2019); and World Bank. QEDS: Quarterly External Debt Statistics. <http://datatopics.worldbank.org/debt/qeds> (accessed April 2019).

deficit is financed by grant aid and highly concessional borrowings. As a result, the debt typically has long maturities and hence is not subject to the sudden capital exodus. Currently, ODA receipts include a grant element of about 35%. The average interest rate on the government's public debt is low, in the range of 1%–2%. Over time, the grant element will decline as the country graduates from low-income status.

However, the government's fiscal space is highly constrained. Deficits are rising gradually, especially during election years and periods of political uncertainty. On the revenue side, it is unlikely that the current tax effort could be increased given its high current levels. Indeed, proceeds from the Kumtor gold mine, which provides about 20% of government revenue, is projected to decline within a decade. Moreover, 24%–40% of economy is in the informal sector (IMF 2016) and hence lightly taxed. Therefore, the government's revenue, equivalent to about 30% of GDP, is levied almost entirely on about two-thirds of the economy, implying a high tax burden. Moreover, the tax base is narrow. Tax administration and compliance is lax. The value added tax, which is levied at 12%, has many exemptions and loopholes, while the threshold of Som 8 million turnover is considered to be too high. In fact, many firms engineer turnovers below this level, sometimes by splitting their operations into subbranches that are in effect a single enterprise. The tax base is further eroded by various fiscal concessions offered to

firms, especially those in free economic zones, and the concessions apparently do not have sunset clause provisions. The economic rationale for granting the tax incentives has not been rigorously developed.¹⁰

In addition, there are heavy expenditure commitments. Much of this is an inherited legacy of the Soviet welfare system: pensions account for about 7.5% of GDP, education about 6%, and health about 4%. These three social expenditures absorb about half the government's budget. They play an important role in contributing to the country's social cohesion and the absence of widespread destitution found in countries at similar income levels (for example in South Asia), but these are major challenges related to their fiscal sustainability, the efficiency of these expenditures, and their targeting. In fact, most social expenditures are not means tested and are therefore not specifically targeted at the poor.

Sustainability issues relate particularly to the large national pension scheme and related social transfers that absorb more than 20% of the budget (OECD 2018). The pension scheme has two components: contributory and universal. All citizens are entitled to the latter component, a monthly pension of Som 1,500 for all women aged 58 years and above and all men aged 63 and above, even if they have spent much of their working life abroad. The latter is an important consideration given that about one in six citizens currently work abroad, equivalent to about one-quarter of the working-age population. All formal sector employers are required to pay 17% of salaries into the contribution scheme, while employees contribute 10%. However, as the Organisation for Economic Co-operation and Development (OECD) report observes, the increase in the number of pension beneficiaries continues to outpace the growth of the contributor base.

Going forward, the Kyrgyz Republic has exited IMF programs, and so the government is now free to access international capital markets.¹¹ Given the country's infrastructure deficit, this presents a major fiscal policy challenge. In principle, borrowing long-term for viable capital works projects makes economic sense. However, in practice, much depends on whether rigorous and independent cost-benefit analysis is undertaken for each project; the terms of the international borrowings (interest rates, maturity period, currency composition); and governance challenges. The latter issue is discussed shortly.

¹⁰ For details see Investment Promotion and Protection Agency of the Kyrgyz Republic. Free Economic Zones. <http://invest.gov.kg/en/why-kyrgyzstan/free-economic-zones/> (accessed June 2019).

¹¹ In December 2015, the Kyrgyz Republic received its first ever credit rating of B2 (effectively junk status) from Moody's.

Monetary policy. The Kyrgyz Republic is gradually moving to adopt the modern international practice of inflation targeting and a floating exchange rate regime, in the context of an open international capital account. It has been largely successful in managing the transition from a closed Soviet economy to a small open economy subject to frequent external economic and political shocks, including the 2008–2009 global financial crisis, the intermittent Russian crisis since 2014, and several changes in the Kyrgyz government and cabinet.¹²

The National Bank of the Kyrgyz Republic (NBKR) officially targets inflation with the aim of maintaining it within a band of 5%–7% (which is now relatively high by contemporary standards), mainly through interest rate adjustments. Unofficially, the NBKR appears to be informally targeting a stable Som–United States dollar exchange rate. Thus, for example, in response to declining international oil prices and ebbing relations between the Russian Federation and the European Union (EU) and the United States (US), the Russian ruble (and the Kazakh tenge) has fallen significantly against the United States dollar in recent years. The som also depreciated somewhat against the United States dollar, but by a smaller amount, resulting in a significant appreciation against the ruble, an increase that was somewhat mitigated in real terms by higher Russian inflation. There is considerable volatility in foreign exchange transactions owing to variable remittance inflows (that are in turn influenced by exchange rate expectations) and commodity prices, especially for gold and oil.¹³ The NBKR undertakes market-smoothing operations as revealed by fluctuations in reported foreign exchange reserves. It also has the option, not frequently exercised, of sterilizing large inflows (for example, a surge in remittances) through domestic bond sales.

Running a “strong som” policy has two obvious attractions. It contributes to lower inflation by reducing the relative price of tradables, and it eases the government’s debt service obligations since foreign debt is denominated in foreign currencies (mostly United States dollars). However, the major disadvantage is that it reduces the competitiveness of the tradable sectors, particularly agriculture and manufacturing, both of which have been growing slowly in recent years. Moreover, the inflation-control argument is not particularly relevant in the current domestic (and international) low-inflation environment. The following discussion draws briefly on Chapter 2, which examines these issues in detail.¹⁴

¹² The Kyrgyz Republic has had five presidents and more than 20 prime ministers over the course of its independent history. Under its revised 2010 constitution, presidents may serve for just one 6-year term.

¹³ See for example Berdigulova (2018), who demonstrates empirically the responsiveness of the remittances to higher oil prices, the latter increasing economic growth and hence employment opportunities in the Russian Federation (and also Kazakhstan).

¹⁴ The government’s current 3-year agreement with the IMF and its extended credit facility expired on 8 April 2018.

Three additional factors have shaped the NBKR's monetary and exchange rate management.

First, monetary policy is underpinned by a conservative financial sector. The Kyrgyz Republic's financial sector remains underdeveloped: it is small, dualistic, and concentrated, and the spread between borrowing and deposit rates is large. Small and household enterprises rarely attempt to access it, and instead rely on micro credit at interest rates that are manageable for short-term, working capital needs but are too high for longer-term investment projects. Nevertheless, unlike in the Kyrgyz Republic's neighbors, banking crises have been rare. Financial supervision, which is also undertaken by the NBKR, is regarded as rigorous, competent, and independent.

Second, although the government continues to run large fiscal deficits, there is no pressure on the NBKR to monetize them through expansion of the money supply. As noted, deficits are financed mainly through ODA grants and concessional loans. There is a small domestic bond market, consisting of both government and NBKR bonds. The former are the most important and are typically of medium- and long-term maturity. The latter are short-term maturity, typically up to 3 months, and used sparingly by the NBKR for sterilization purposes in order to achieve the desired exchange rate stabilization objectives. Together these bonds account for 5%–10% of GDP. They are sold to the commercial banks, which are in effect required to purchase them. In principle, they are available for selling on to households and corporations, but in practice, this secondary market is very small.

A third factor is dollarization. Like all very small transition economies with open capital accounts and large international transactions relative to the size of the economy, the Kyrgyz Republic has had to manage the issue of whether to permit the use of foreign currencies as financial instruments for transactions and for savings accounts (stores of value). There is a large international literature examining the pros and cons of extensive dollarization.¹⁵ At the most general level, dollarization implies the loss of a key policy instrument, that is, monetary and exchange rate policy. But a pragmatic acceptance of dollarization in small economies with unstable monetary histories or low trust in the monetary authorities has been demonstrated to be a workable option. These arrangements range from the informal acceptance of dollarization through to the deliberate adoption of a currency board and a hard peg, such as in Hong Kong, China and in Timor-Leste.

¹⁵ See for example Menon (2008) in the case of Cambodia.

The Kyrgyz Republic's experience illustrates the government's uncertainty on this issue. Early in its independence, the country opted for an open international capital account. The foreign exchange market is highly visible and at present apparently operates without restriction. Funds may be remitted internationally without restriction, subject only to a declaration of amounts in excess of \$3,000. During occasional periods of monetary turbulence, the government has sought to curb these foreign exchange transactions, such as the 2015–2016 Russian crisis when it imposed a \$500 limit on each transaction. But these stipulations have been largely ignored. Similarly, the NBKR has issued regulations outlawing the use of foreign exchange for major transactions such as real estate, cars, and other consumer durables. But here also, in practice these regulations are weakly enforced. According to official estimates dollarization is in the range of 35%–40% of broad money, that is, a measure equivalent to M2, including both som and foreign exchange cash holdings and bank deposits. Unofficially, taking account of the large real estate and consumer durable transactions, dollarization is thought to be at least 50%.

Since Kyrgyz citizens and foreign residents may hold bank accounts in both som and foreign currencies, the interest rate differentials within the same bank provide some indication of the anticipated exchange rate depreciation. For example, in April 2018 United States dollar deposit accounts were typically earning about 2%, whereas som accounts were earning 10%–12%.

The current arrangements are unlikely to change. The government might be expected to occasionally restrict the circulation of foreign currencies.¹⁶ But as long as there is an open international capital account, and trade and remittances remain so large relative to GDP, the government's policy options are limited. In effect, the government has limited monetary policy space. Therefore, fiscal policy and investment climate reform are the key areas for accelerating economic development.

Summing up: Are macroeconomic storm clouds on the horizon?

The short-term macroeconomic outlook appears to be comfortable: growth is moderate; public debt is moderately high (approaching 60% of GDP), but mainly funded by long-term, concessional finance; inflation is low; there does not appear to be serious exchange rate misalignment; and the well-regarded NBKR is gradually adopting inflation targeting with a floating rate regime. But this positive outlook conceals some potentially serious macroeconomic challenges.

¹⁶ For example, the NBKR recently introduced a regulation prohibiting borrowing in foreign currencies unless the borrower could demonstrate foreign exchange earnings or assets.

Whether the challenges will result in some sort of economic crisis—such events are notoriously difficult to forecast—or just slower economic growth remains to be seen.

First, while the public debt (and debt service ratio) is manageable, its financing will likely become more difficult in the near-to-medium term. The Kyrgyz Republic will soon graduate from the low-income group of countries, and hence its access to highly concessional finance will decline. It will instead have to finance more of its large (arguably unsustainably large) fiscal deficits through borrowings at higher interest rates and with little or no grace period.

Second, a number of additional factors could also increase the government's fiscal stress. These include:

- the prospects of rising global interest rates;
- the possibility of a stronger United States dollar (in which most of the debt is denominated) relative to the som;
- the increased debt repayment burden on past loans (some possibly with low returns, e.g., the major infrastructure projects) for which repayment is now coming due; and
- a reduction in gold royalties as the Kumtor mine production begins to decline in the coming decade.

Third, there is also substantial private sector external debt, imperfectly measured but estimated to be about 40% of GDP. The external debt is mainly nonconcessional and shorter-term debt. In principle, the “consenting adults” argument might apply to these borrowings: that is, if there are payment problems, they will be sorted out directly by the creditors and debtors through some sort of debt workout arrangements. But this cannot be assumed. All over the world, private sector debtors are frequently bailed out by governments, especially if the debtors are politically influential and/or they make the case that they are in “strategic industries.” The Kyrgyz Republic is unlikely to be an exception to this proposition. Therefore, significant contingent liabilities may further increase the effective level of public indebtedness.

Fourth, the government's fiscal space is restricted by several other factors:

- significant and poorly targeted subsidies (e.g., in electricity, discussed extensively in Chapter 6) that are evidently difficult to reform;
- the burden of age pensions is sizable, especially as much of the tax-paying base is working abroad, but is still entitled to at least the noncontributory portion of the pension; and

- at about 25%–28% of GDP, government revenue is already quite high for a low-income economy.

Fifth, in aggregate the real exchange rate is fairly stable, suggesting no major change in competitiveness in the tradable goods sector. However, as shown in Chapter 2, this conceals divergent trends in the real exchange rate (RER) for the country's two major trading groups; the EEU members and the rest of the world. Following the recent ruble depreciation, the Kyrgyz Republic's RER is appreciating against the EEU group: the degree of nominal effective exchange rate appreciation is far greater than the relatively low rate of Kyrgyz inflation compared with the EEU countries. This is adversely affecting the competitiveness of Kyrgyz exports to its major market. For the rest of the world markets, the RER has not moved adversely, but commercial links, logistics networks, and market knowledge are all limiting factors, especially to the crucial PRC export market.

Sixth, in any case, the Kyrgyz Republic is significantly dollarized—officially about 40% of M2—and thus the potency of this policy tool in any adjustment process is somewhat reduced. There are periodic attempts to reduce dollarization, but the high levels of remittances render these attempts largely futile. Hence the government's monetary and exchange rate policy options are limited.

A final point is that the structure of factor markets further reduces the government's room to move. The ready availability of overseas employment options effectively places a floor under real wages, thus limiting labor market flexibility (combined with limited exchange rate flexibility). In the capital market, there are high levels of concentration in the formal banking sector, resulting in large spreads between deposit and lending rates. Thus the transmission mechanism of monetary policy, that is, changes in the NBKR's main interest rate, may have limited effectiveness.

The implication is that, without reform, the government's capacity to finance development is severely circumscribed, and is likely to become more so in the future.

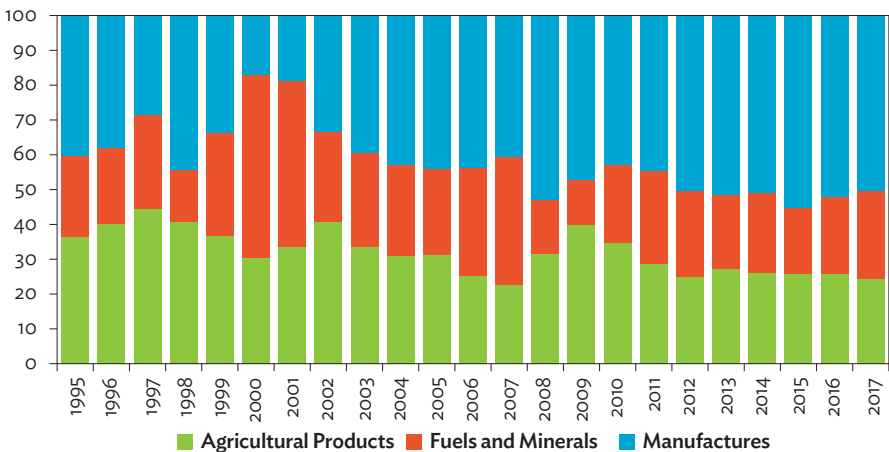
International dimensions

Chapter 2 provides a comprehensive analysis of international dimensions, stressing the country's relative economic openness, its unusual export structure, and the effects of its geographic isolation. Here, we briefly summarize some of the key features.

First, reflecting its historic role in the former Soviet Union and its comparative advantage, the Kyrgyz Republic's merchandise exports consist mainly of agricultural and mineral products (Figure 1.8). Unlike the country's economic structure, export shares have been relatively stable since the late 1990s, with most of the fluctuations caused by variable commodity prices. As noted, the major export is gold, mainly from the Kumtor mine, which typically accounts for about 30% of the total. As Chapter 3 details, the country has a range of minor agricultural exports, including cotton, kidney beans, meat and dairy products, and fruit and vegetables. All these agricultural products have considerable export potential. The data in Figure 1.8 indicate that the Kyrgyz Republic is also a significant exporter of manufactures. While there are flourishing small-scale garment exporters, mainly serving the Russian market (Tilekeyev 2014), the manufactured exports recorded in the trade statistics are mainly reexports of imports from the PRC being coursed through the country's more closed southern neighbors.

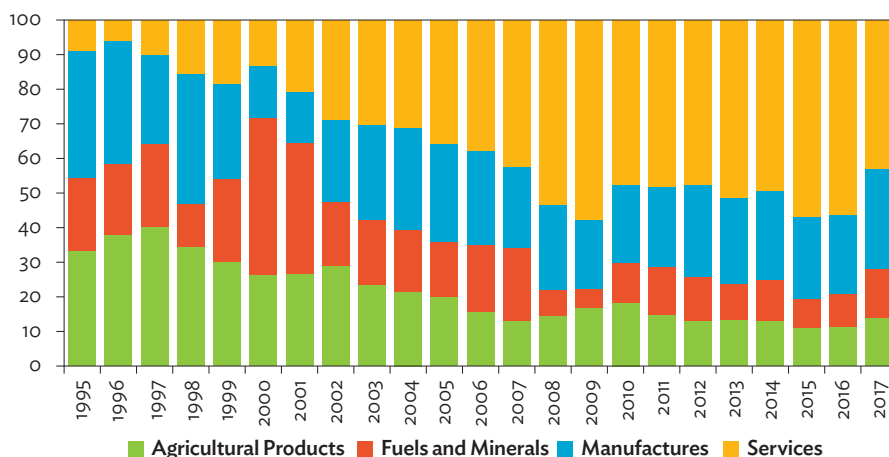
The inclusion of services alters the picture significantly. Services, overwhelmingly remittances, are the country's dominant export (Figure 1.9). In the early years of independence, they accounted for about 10% of the total, but they began to grow very rapidly this century (Figure 1.10). For the last decade, remittances have accounted for about half the total, dwarfing each of the major merchandise export groups. It is therefore no exaggeration to characterize the Kyrgyz Republic as a "remittance economy."

Figure 1.8: Composition of Merchandise Exports (%)



Source: WTO. Statistics on Merchandise Trade.

https://www.wto.org/english/res_e/stat_e/merch_trade_stat_e.htm (accessed April 2019).

Figure 1.9: Composition of Exports (%)

Sources: WTO. Statistics on Merchandise Trade.

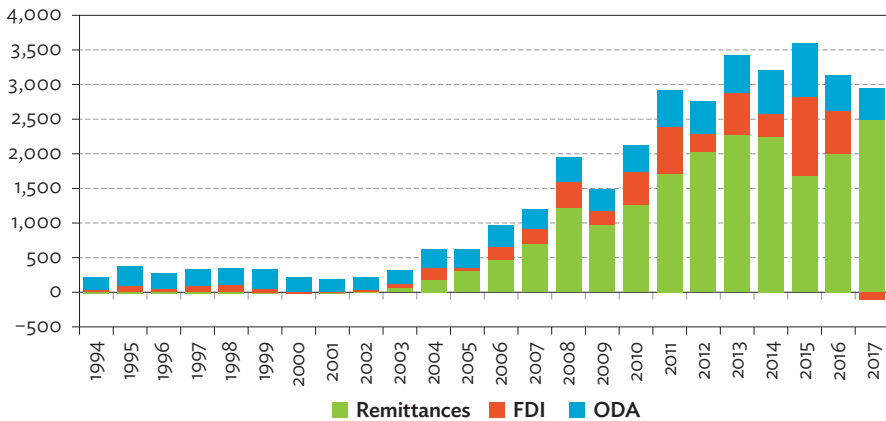
https://www.wto.org/english/res_e/statis_e/merch_trade_stat_e.htm (accessed April 2019).

The export statistics need to be interpreted with caution. First is the issue of reexports. Second, as would be expected for a landlocked country with neighboring relatively closed economies and with a poorly remunerated customs service, there is extensive informal trade both technical and physical. There are no reliable estimates of the magnitude and composition of the informal trade because, as noted, comprehensive mirror trade statistics are not available. Third, with regard to services trade, because very little of the remittances flows through the formal banking sector, estimates of their value are necessarily very approximate.¹⁷

In the early years of independence, ODA was the major source of capital inflow; both FDI (apart from the special case of Kumtor) and remittances were relatively small. But during the current century, remittances have become the dominant source of inward capital flows, in most years constituting over half the total (Figure 1.10). In recent years, remittance flows have also generally been stable, apart from the downturn in 2015 as a result of the Russian economic crisis, which had its effect through both the declining absolute ruble inflows and the declining ruble–United States dollar exchange rate. As would be expected, ODA flows are more stable than FDI. Over time, as the Kyrgyz Republic graduates, FDI is expected to become more important.

¹⁷ Most remittances reportedly go through informal money transfer systems, or are directly carried home by returning migrants.

Figure 1.10: Remittances, Foreign Direct Investment, and Official Development Assistance (\$ million)



FDI = foreign direct investment, ODA = official development assistance.

Sources: For remittances and FDI: World Bank. WDI.

<https://databank.worldbank.org/data/reports.aspx?source=world-development-indicators>; for ODA: OECD. <https://stats.oecd.org/Index.aspx?DataSetCode=Table2A> (accessed April 2019).

Table 1.2 sketches the summary features of the Kyrgyz balance of payments at 5-year intervals commencing in 1995.¹⁸ The country typically runs large balance-of-trade and current account deficits. Exports during 2016–2018 have been less than half of merchandise imports, resulting in balance-of-trade deficits in the range of 30%–40% of GDP. Excluding gold, exports are between one-third and one-half of the imports. The balance on service exports is typically negative but increasingly small. The rapid growth in remittances, supplemented by expanding tourism, has resulted in service exports catching up to service imports. As a result, net secondary income, mostly remittances, very nearly finances the balance-of-trade deficit. In turn, the current account deficit is financed by a capital account surplus, much of it FDI and ODA.

As Chapter 3 explains, there is considerable potential to expand agricultural exports. In spite of its rugged terrain, the Kyrgyz Republic has favorable labor–land ratios compared with much of East Asia. Trade with countries to the west and north is already quite well developed, as documented for example in the success story of kidney bean exports to Turkey and beyond. Membership in the EEU will confer some additional advantages in the Russian market. But agricultural exports to the PRC and other dynamic East

¹⁸ These data draw on the informative annual series of the NBKR, Balance of Payments of the Kyrgyz Republic.

Asian economies, with which the Kyrgyz Republic has considerable potential complementarities, remain minuscule.

The way forward will involve both strategic initiatives to develop closer commercial relations with the PRC and a focus on supply-side issues. As shown in Chapter 7, transport and logistics costs remain high, although these are declining, at least on the PRC side of the border, as the latter proceeds with its massive investments in all forms of transport. The proposed major railway corridor through the Kyrgyz Republic, connecting the PRC to the east and Uzbekistan to the west, are under ongoing discussions between relevant stakeholders.

With regard to supply-side issues, the Kyrgyz Republic's agricultural export potential is limited by food safety and standards issues (see Chapter 3), which will need to be resolved before the country can successfully penetrate markets beyond the EEU. For example, dairy and meat products encounter these barriers, reportedly owing to animal disease and hygiene issues. Horticultural products have to resolve sanitary and phytosanitary and standards issues. Such technical issues can be resolved with foreign technical support and joint venture operations with investors from export destination markets. The many small and dispersed producers, some highly inaccessible, require adaptable and flexible agricultural extension services and trade networks.

The government has been developing responses to these challenges, including the 2017 Food Safety Law and the Dairy Development Program. Traceability mechanisms are being instituted. Inspection procedures are being streamlined, with the 2017 Law reducing the number of agencies from 22 to 11. For high-value perishable food products, expensive air freight remains a problem, while direct flights to the EU are not yet available.

The Kyrgyz Republic and the Eurasian Economic Union

As noted, the Kyrgyz Republic liberalized its economy and opened its borders faster than any other Central Asian economy (see Chapter 2 and Pomfret [2019], and chapters 7 and 10). It was also the first former Soviet republic to join the World Trade Organization (WTO), in July 1998. In addition to the WTO, the Kyrgyz Republic's principal international commercial commitment is its membership in the EEU. The EEU, which also comprises Armenia, Belarus, Kazakhstan, and the Russian Federation, is a WTO-compliant customs union, in principle analogous to the EU. It stipulates free trade in goods and services as well as unrestricted capital and labor mobility inside a common external customs zone. However,

member countries retain independent monetary and exchange rate regimes, and there is no prospect of moving toward a formal monetary union.

This is not the place to examine in any detail the costs and benefits of membership for the Kyrgyz Republic. The usual considerations include the benefits of trade creation versus the costs of trade diversion, alongside broader geostrategic considerations such as diplomatic and commercial relations with neighboring states. With regard to trade, economic theory and empirical analysis clearly demonstrate that unilateral, nondiscriminatory liberalization is the most beneficial strategy for any country, apart from special exceptions that might apply to very large economies whose size creates the opportunity to engage in trade negotiations based on principles of reciprocity (albeit potentially at the cost of undermining a global, liberal rules-based trading system). In a more optimistic scenario, the benefit–cost ratio of a customs union will be greater, the larger the number of member economies and the greater their preexisting trade patterns.

In this context, and as discussed in Chapter 2, several observations are relevant with regard to the Kyrgyz Republic’s membership in the EEU. First, as the most open economy of the five member states, membership in the EEU entails increased trade barriers with the rest of the world, crucially including three of the Kyrgyz Republic’s four neighboring states—the PRC, Tajikistan, and Uzbekistan. This is because the Kyrgyz Republic’s trade barriers are lower than those of the Russian Federation, the dominant member country. This is a clear cost of the membership, particularly as the EEU excludes the five largest economies in the world—the US, PRC, Japan, EU, and India.

Second, the Kyrgyz Republic does of course have close relations with the other four members, principally the Russian Federation and Kazakhstan. They account for about 45% of the Kyrgyz Republic’s nongold exports and 40% of its imports. While the Kyrgyz language is the national language, Russian is also widely used as a language of instruction. Proficiency in the Russian language and being a member of the EEU, enhances access to the Russian labor market. Kyrgyz workers were mostly free to enter the Russian labor market prior to accession, but the new arrangements evidently remove residual restrictions and provide greater formal recognition of Kyrgyz qualifications and skills. Therefore, over time Kyrgyz workers are likely to be able to access a broader and more skilled range of employment opportunities. In fact, remittances were already rising in 2017 and 2018, partly also in response to rising oil prices and the Russian Federation’s economic recovery.

Third, common membership in the EEU has not overcome the Kyrgyz Republic's occasional issues in its relations with Kazakhstan. Kazakhstan is the country's lifeline for all transit trade through to the Russian Federation, the Middle East, and Europe. For example, the major land freight connections with Europe come via Georgia (Chapter 6). In principle, transit trade proceeds unhindered, but in practice political tensions between the two states occasionally result in the imposition of barriers at the border.¹⁹

Fourth, the major trade diversion costs are with the PRC; if the effects are significant and permanent this would have negative consequences for the Kyrgyz economy. Falling import shares from the PRC are already evident in the trade statistics, and reportedly in the informal trade flows. For example, with the imposition of higher trade barriers on PRC imports, the Dordoi market is reportedly losing its preeminent regional role and instead reverting to a market mainly for Kyrgyz consumers.²⁰ Direct trade between the PRC and other members of the EEU is also expanding as some of the latter reduce their trade barriers.²¹ For example, the large Horgos market on the PRC–Kazakh border is a duty-free zone through which much of this informal trade now flows.

Conversely, it is possible that the trade diversion costs may not be as great as was initially feared (Mogilevskii 2012). First, under their WTO commitments, both Kazakhstan and the Russian Federation are gradually lowering their trade barriers, and hence automatically those of the EEU. Second, the improved road network from the PRC into the Kyrgyz Republic is already lowering the costs of trade, both directly in transport costs and indirectly by attracting more traders into the market. This is an important consideration in a region where, historically, cross-border price differences have often been as much to do with high transport and logistics costs as with formal trade barriers. Third, although the new customs arrangements have been formalized, considerable informal trade is still thought to exist.²²

¹⁹ For example, in the autumn of 2017 Kazakhstan imposed restrictions on the movement of goods and people from the Kyrgyz Republic, on the grounds of food safety concerns.

²⁰ An additional factor has been that, as part of its EEU accession, the Kyrgyz Republic converted its customs reporting system from using weight-based calculations to a cost-based system. This reportedly reduced the potential for underinvoicing.

²¹ Although not a member of the EEU, a positive development in the neighborhood has been the political and economic relaxation in Uzbekistan, the most populous of the Central Asian republics, since President Shavkat Mirziyoyev assumed power in December 2016. The first meeting of the Kyrgyz and Uzbek heads of state since 2000 took place in 2017. Border trade and people movement arrangements have also been liberalized, resulting in increased population movements and agricultural trade. The Uzbek som is now freely convertible. See *The Economist* (2017).

²² The authors observed first-hand the extensive micro trade at the Kyrgyz–Uzbek border crossing close to the southern city of Osh.

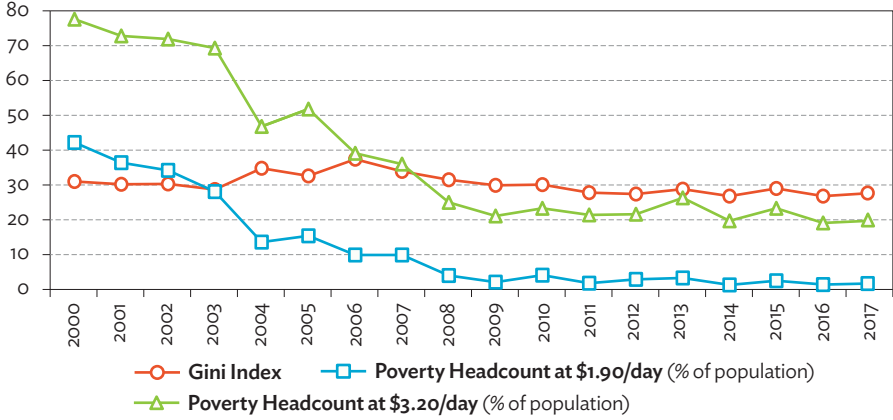
Social indicators

A positive legacy of the Soviet era is the Kyrgyz Republic's commitment to near-universal public education and health systems, and at least a rudimentary system of social transfers, including old-age pensions, although poorly targeted (Mogilevskii 2011). The dissolution of the Soviet Union meant that the welfare system came under great fiscal stress. Pomfret (2019) for example estimates that during the early years of monetary disorder and hyperinflation the real value of public transfer payments fell dramatically, by as much as 90%. Nevertheless, the basic social policy framework is still in place, and Kyrgyz social indicators compare favorably to countries with similar per capita incomes. Its life expectancies, for example, approximate those of an upper-middle-income country. There is universal education in primary and much of the secondary schooling years, although quality is thought to have declined and socioeconomic stratification is increasing with the rise of higher-quality private schools.

Reliable household survey data on which to base poverty and inequality estimates are available only for this century. The scattered and fragmentary data for the 1990s show that poverty increased significantly with the precipitous economic decline. During 2000–2018, living standards were generally restored to at least those prevailing in the late Soviet era. The poverty headcount estimate for the lower World Bank \$1.90 poverty line fell to negligible levels, from over 40% at the start of the century, while at the \$3.20 benchmark the decline was faster still, from almost 80% to about 20% (Figure 1.11). The fall in poverty was much faster than would be suggested by the modest GDP growth rates, indicating that much of the story was a “catch up” phenomenon for households that had slipped temporarily below the poverty line. Most of the poverty decline occurred in the first century of this decade, suggesting that the challenge of removing hard-core poverty has yet to be adequately addressed. This is in spite of quite generous social spending, in turn suggesting that more effective targeting is required.²³ Meanwhile, the expenditure Gini ratio was broadly stable over this period at a relatively low 0.3.

²³ Pomfret (2019) summarizes the fragmentary poverty literature on the Kyrgyz Republic, and its conclusion that capital city residence and education appear to be the key variables explaining which households are above the poverty line. In the 1990s, single-industry regions dependent on the Soviet central planned economy typically suffered the most severe decline in living standards.

Figure 1.11: Poverty and Inequality (%)



Note: Poverty headcount is at 2011 purchasing power parity dollars.
 Source: World Bank. WDI. <https://databank.worldbank.org/data/reports.aspx?source=world-development-indicators> (accessed April 2019).

Tables 1.3 and 1.4 compare the Kyrgyz Republic’s socioeconomic indicators with those of the five comparator countries at the end of the Soviet era and most recently.²⁴ Here also the 1990 data are approximate and need to be treated with caution. The legacy of the Soviet era and the Kyrgyz Republic’s relatively low inequality are clearly evident in 1990. The years of schooling indicator is more typical of an upper-middle-income country, while life expectancy and even infant mortality are at middle-income standards for that era. The gender disparities are also quite mild. The Kyrgyz Republic compares favorably with its neighbors and is well ahead of the Lao PDR. Its Human Development Index ranking approximates that of its GDP per capita, when the sharp economic decline had set in.

In spite of its indifferent economic performance since the 1990s, the Kyrgyz Republic’s social indicators remain relatively good (Table 1.4). Its years of schooling now approximate upper-middle-income norms and the gender gap has virtually disappeared. They are broadly similar to its richer neighbors, and well ahead of the Lao PDR. Life expectancy has increased slightly, in line with its neighbors. Infant mortality is now about one-third of that in the early 1990s, the second lowest among the six, and reflecting the country’s comparatively

²⁴ Although there are data limitations in all the comparative analyses, reflecting its more open society, the Kyrgyz Republic’s socioeconomic statistics are considered among the region’s best. See also Pomfret (2019, Tables 2.1, 2.2, and 2.8) for analyses of a similar set of comparative socioeconomic statistics.

high standards of health.²⁵ The country's stronger social indicators are further illustrated by the large gap between its gross national income and Human Development Index rankings.

Table 1.3: Comparative Indicators in 1990
(estimates before independence)

Indicators	Kyrgyz Republic	Kazakhstan	Tajikistan	Turkmenistan	Uzbekistan	Lao PDR
GDP per capita (constant 2010 \$)	1,096	5,890	1,278	3,713	997	462
GDP (constant 2010 \$, billions)	4.8	96.3	6.8	13.7	20.5	2.0
Population (million persons)	4.4	16.3	5.3	3.7	20.5	4.3
Trade/GDP (% of GDP)	78.8	149.3	63.0	66.1	76.6	35.9
Mean years of schooling						
Female	8.1	7.6	8.7	—	—	1.9
Male	9.1	8.6	10.6	—	—	4.3
Total	8.6	8.1	9.6	—	—	3.1
Life expectancy (years)						
Female	70.2	71.5	66.6	66.5	69.4	54.9
Male	62.3	61.8	59.8	59.1	63.4	52.3
Total	66.3	66.8	63.1	62.8	66.5	53.6
Infant mortality (per 1,000 live births)	54.3	44.4	84.1	69.5	59.4	110.7
Net exports (% of GDP)	-31.4	8.1	-25.2	-8.6	-8.9	-7.1
Remittances (% of GDP)	32.9	0.2	31.3	0.0	—	1.5
HDI rank (X/Y)	76/142	53/142	72/142	—	—	118/142
GNP per capita rank – HDI rank	23	-10	24	—	—	0

— = no data available, GDP = gross domestic product, GNI = gross national income, HDI = Human Development Index, Lao PDR = Lao People's Democratic Republic, X = country at the head of the column, Y = all countries ranked.

Note: Mean years of schooling = average number of years of education of people 25 years and older, converted from education attainment levels using official durations of each level. Trade/GDP and net exports/GDP data are from 1991 for Turkmenistan and 1992 for Kazakhstan. Remittances/GDP data are from 1996 for Turkmenistan.

Sources: For GDP, population, trade, net exports, and remittances: World Bank. WDI. <https://databank.worldbank.org/data/reports.aspx?source=world-development-indicators>; for HDI rank and GDP per capita minus HDI rank: UNDP (2019). <http://hdr.undp.org/en/2018-update> (both accessed April 2019).

²⁵ That the Kyrgyz Republic attracts foreign students to its medical schools, is an indication of their quality and their competitive tuition fees.

Table 1.4: Comparative Indicators in 2017

Indicators	Kyrgyz Republic	Kazakhstan	Tajikistan	Turkmenistan	Uzbekistan	Lao PDR
GDP per capita (2016, constant 2010 \$)	1,071	10,868	1,020	7,318	2,031	1,730
GDP (2016, constant 2010 \$, billion)	6.6	196.0	9.1	42.1	65.8	11.9
Population (million persons)	6.2	18.0	8.9	5.8	32.4	6.9
Trade/GDP (% of GDP)	102.2	60.6	56.7	53.6	68.5	75.8
Mean years of schooling						
Female	10.9	11.8	10.7	—	11.2	4.6
Male	10.8	11.7	10.2	—	11.8	5.7
Total	10.9	11.8	10.4	9.8	11.5	5.2
Life expectancy (years)						
Female	75.1	74.8	74.4	71.4	74.2	68.6
Male	67.1	65.3	68.4	64.5	68.6	65.4
Total	71.1	70	71.2	68	71.4	67
Infant mortality (2016, per 1,000 live births)	18.8	10.1	37.1	43.4	21.4	48.9
Net exports/GDP (% of GDP)	-31.4	8.1	-25.2	-8.6	-8.9	-7.1
Remittances/GDP (% of GDP)*	32.9	0.2	31.3	0.0	3.7	1.5
HDI rank (X/Y)	122/189	58/189	127/129	108/189	105/189	139/189
GNI per capita – HDI rank	26	-4	28	-35	20	-15

— = no data available, GDP = gross domestic product, GNI = gross national income, HDI = Human Development Index, Lao PDR = Lao People's Democratic Republic, X = country at the head of the column, Y = all countries ranked.

* Remittances for Uzbekistan are for 2016.

Notes: Mean years of schooling = average number of years of education received by people ages 25 and older, converted from educational attainment levels using official durations of each level.

Sources: For GDP, population, trade, net exports, and remittances: World Bank. WDI. <https://databank.worldbank.org/data/reports.aspx?source=world-development-indicators>; for HDI rank and GDP per capita minus HDI rank: UNDP (2019). <http://hdr.undp.org/en/2018-update> (both accessed April 2019).

Governance indicators

The Kyrgyz Republic is a resource-poor, young state that had to quickly develop the institutions and organs of a national government at a time of steep economic decline, in a highly uncertain neighborhood, and coping with the exodus of several hundred thousand mostly skilled members of the Russian community. Not surprisingly, therefore, much of the literature on the Kyrgyz Republic draws attention to the indifferent quality of governance. The fact that, notwithstanding its small size, the Kyrgyz Republic attracts a disproportionate share of the

academic literature on Central Asia, should not be interpreted as indicating that such problems are more serious in this country than in its neighbors. Rather, it reflects the relative openness of the country. This openness has spawned the most active and unfettered social media in the region, which will hopefully also contribute to improved institutional quality going forward.

The following briefly summarizes the results of various international cross-country ranking exercises. The estimates are highly subjective and therefore at best only suggestive, especially given that comparisons need to be tailored to the country's unique circumstances.²⁶

Table 1.5 surveys a range of standard business indicators. According to the 2018 World Bank's Ease of Doing Business, the country ranks 70 out of the total 190 countries surveyed. Its ranking is better than neighboring Uzbekistan and much higher than those of Kazakhstan, Tajikistan, and the Lao PDR. The Kyrgyz Republic's stock of FDI (relative to GDP) is also in an intermediate position, again well ahead of the Lao PDR with its large state-owned enterprise sector. In interpreting the figures, allowance needs to be made for the relative share of FDI-intensive activities, such as petroleum in the case of Kazakhstan. The Kyrgyz Republic's corruption perceptions ranking has improved slightly to 132nd from

Table 1.5: Comparative Institutional and Business Indicators, 2018

Indicators	Kyrgyz Republic	Kazakhstan	Tajikistan	Turkmenistan	Uzbekistan	Lao PDR
Ease of Doing Business rank (2018)	70/190	228/190	126/190	—	76/190	154/190
Stock of FDI/GDP (2017, % of GDP)	77.2	90.5	35.1	90.8	19.0	39.2
Corruption Perception Index rank (2018)	132/180	124/180	152/180	161/180	158/180	132/180
Logistics Performance Index rank (2018)	108/160	71/160	134/160	126/160	99/160	82/160

— = no data available, GDP = gross domestic product, FDI = foreign direct investment.

Sources: For ease of doing business: World Bank. Ease of Doing Business Index. <https://data.worldbank.org/indicator/ic.bus.ease.xq>; for FDI and GDP: UNCTAD. <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=96740>; for the corruption perception index: Transparency International. <https://www.transparency.org/cpi2018>; and for logistics performance: World Bank (2018); (all accessed February 2019).

²⁶ In Chapter 6, the authors argue persuasively that several of the logistics indicators employed in the Ease of Doing Business series are of limited relevance to the Kyrgyz Republic's landlocked geography.

135th in 2017; however, it still ranks second to Kazakhstan in Central Asia. Its logistics performance ranking is also poorer than those of Kazakhstan, the Lao PDR, and Uzbekistan. However, as the authors of Chapter 6 argue, the logistics performance index for the Kyrgyz Republic may be misleading.

Another perspective is provided by the widely used World Governance Indicators, which are summarized in Table 1.6. These are presented as percentile rankings. In 2017, the Kyrgyz Republic ranked 25 (i.e., in the 28th percentile), which is second highest in Central Asia. Among the six countries in the table, the Kyrgyz Republic ranks highest for voice and accountability, and second highest on regulatory quality. Among the five Central Asian countries, it ranked second highest for regulatory quality, rule of law and control of corruption; government effectiveness. Thus, the more open political system (as indicated by voice and accountability) has not translated into better government effectiveness and political stability.

Moreover, if the data are to be believed, the Kyrgyz Republic's ranking has been slipping over time, both globally and with respect to the five comparators. That is, in 2000 it ranked higher in the World Governance Indicators, and was the highest among the six countries (Table 1.7). The data suggest, plausibly, that the political system has become more open and contestable. But on the other five indicators it has slipped, in some cases (such as rule of law) significantly.

Table 1.6: Comparative World Governance Indicators, 2017
(percentile rankings)

Indicators	Kyrgyz Republic	Kazakhstan	Tajikistan	Turkmenistan	Uzbekistan	Lao PDR
Voice and accountability	33.0	13.8	4.9	1.0	3.4	4.4
Political stability and absence of violence/terrorism	30.0	45.2	21.9	40.0	34.8	63.3
Government effectiveness	23.1	53.8	13.0	10.1	32.7	38.5
Regulatory quality	38.5	61.1	12.0	1.9	8.7	25.5
Rule of law	17.3	38.5	8.2	6.3	11.1	18.3
Control of corruption	13.0	19.7	7.7	4.3	12.0	15.9
Average	25.8	38.7	11.3	10.6	17.1	27.7

Lao PDR = Lao People's Democratic Republic.

Source: Based on World Bank. World Governance Indicators. <https://info.worldbank.org/governance/wgi/#home> (accessed April 2019).

Table 1.7: Comparative World Governance Indicators, 2000
(percentile rankings)

Indicators	Kyrgyz Republic	Kazakhstan	Tajikistan	Turkmenistan	Uzbekistan	Lao PDR
Voice and accountability	15.4	20.4	10.5	4.0	2.0	11.0
Political stability and absence of violence/terrorism	39.7	49.2	7.4	44.4	12.8	28.0
Government effectiveness	36.4	26.7	7.7	6.2	13.9	22.1
Regulatory quality	50.8	26.2	13.3	3.6	2.1	8.2
Rule of law	25.3	14.9	5.6	8.4	10.9	20.3
Control of corruption	19.8	9.6	5.6	9.1	13.2	21.3
Average	31.2	24.5	8.3	12.6	9.0	18.5

Lao PDR = Lao People's Democratic Republic.

Source: Based on World Bank. World Governance Indicators. <https://info.worldbank.org/governance/wgi/#home> (accessed May 2019).

Although these results need to be treated with great caution, they are broadly consistent with anecdotal information. At its most basic, modestly remunerated and overstaffed civil service manages complex regulatory system, and is overseen by a government with frequent ministerial (including prime ministerial) changes. Most business surveys report that procurement procedures are particularly problematic and vulnerable to corruption. These factors are said to be one reason why the structure of the enterprise sector has dualistic characteristics, with large, politically connected enterprises alongside household and very small enterprises that deliberately stay below the radar screen of government surveillance and exactions.

Against these prognostications, the Kyrgyz Republic has a literate and aware populace with an active social media, and some independent media outlets. The country has displayed a capacity for democratic resilience and change. As the concluding section argues, a range of institutional reforms could be introduced to harness the power of this social activism.

1.4. This Book

This section summarizes the seven chapters that follow.

In Chapter 2, Prema-chandra Athukorala and Manisha Pradhananga examine international dimensions of the process of economic transition in the Kyrgyz Republic, focusing on the roles of trade, FDI, and labor migration. Thanks to the market-oriented reforms undertaken since the early 1990s, the Kyrgyz Republic has emerged as one of the most globally integrated economies in the former Soviet space and the center of transit trade in Central Asia. However, the patterns of global economic integration of the Kyrgyz economy have so far been rather uneven. While some notable changes have occurred in export composition in line with the country's comparative advantage, rapid import penetration in the economy has not been accompanied by structural changes on the export front. This has led to the economy's increased dependence on migrant workers' remittances and external financing. FDI is expected to play a pivotal role in export-oriented production and structural adjustment in the liberalized economy but has so far accounted for only a small share of capital inflows. The composition of external financing has begun to shift from grants and concessionary loans toward borrowing at commercial rates, thus potentially exposing the economy to additional external economic shocks. A major contemporary policy challenge the country faces is broadening the export base. This requires speedy implementation of a wide spectrum of reforms to supplement the significant opening of the economy to foreign trade and investment. Absence of behind-the-border market discipline constrains the economy's ability to reap the beneficial effects of significant trade and policy reforms through private sector initiatives.

In Chapter 3, Takashi Yamano, Jindra N. Samson, and Kanat Tilekeyev describe the changes in the Kyrgyz agriculture sector's transition from central planning to food security and market orientation. The value of vegetable and fruit production, for example, increased from 11% of agricultural production in 1992–1996 to 24% in 2010–2014, while that of industrial crops declined from 11% to 5%. Agricultural productivity, however, remains at a low level, possibly due to deteriorating irrigation schemes and outdated agricultural technology. Given its small size, the Kyrgyz Republic's agriculture must rely on external technological knowledge and inputs to increase its productivity. By joining global value chains, the export destinations for Kyrgyz agriculture products could be diversified beyond neighboring countries. The development of kidney bean production in Talas Oblast embodies good practice, as the second half of this chapter describes. Kidney bean is the country's largest agricultural export product, valued at about \$50 million annually, and more than half is sent to Turkey. The development of

the kidney bean value chain was initiated and has been supported by Turkish importers since the late 1990s. Milk and dairy export from the northern region of the country to Kazakhstan and the Russian Federation is another example examined in the chapter.

In Chapter 4, Jayarethanam Pillai and Kiyoshi Taniguchi investigate the service sector, with particular focus on the tourism industry. The sector is currently the largest and fastest-growing sector in the Kyrgyz Republic. The service sector employs about half of the country's workers and generates 57% of the GDP. The authors examine performance and constraints in financial and transport services and find some room for improvement, which could be achieved by making credit more accessible and affordable, upgrading public infrastructure, promoting human capital development, and improving the overall business environment.

The second half of the chapter examines tourism, which can develop strong backward and forward linkages. Despite the presence of well-known tourist destinations, such as Issyk-Kul Lake, Inylchek Glacier, and the ancient Silk Road sites, tourism has been growing slowly. The authors identify some constraints, such as seasonality, shortage of qualified professionals, and insufficient and unreliable infrastructure. To address these constraints, the authors argue that the country needs a strong marketing strategy to promote its natural beauty and hospitality.

In Chapter 5, Soek Yoon and Michael Minges assess digital development opportunities in the Kyrgyz Republic. They argue that digital technologies can increase transparency, reduce corruption, and enhance efficiency by minimizing contact between citizens and government or businesses and government for the provision of public services. The national development strategies of the government recognize the importance of ICT, giving it top priority, as embodied in the current “Digital Kyrgyzstan Program” initiative. The authors of this chapter review the ICT legal and regulatory environment and examine the availability, quality, and demand for ICT infrastructure in the country. They find that the Kyrgyz Republic is the most “e-ready” nation in Central Asia, apart from Kazakhstan. Despite having no direct access to the sea, its geographic location between the PRC and Europe offers potential to become a digital hub along the Silk Road. Digital absorption in various sectors of the economy (education, trade, business, health, finance, and government) is examined in the chapter. The current Digital Kyrgyzstan Program initiative can both revolutionize the delivery of public services and contribute to the aspiration of lifting per capita income above the world average by 2040.

In Chapter 6, Richard Pomfret and Aigul Berdigulova examine transport and logistics to promote trade and inclusiveness. They maintain that the Kyrgyz Republic faces the dual problem of poor connectivity and inadequate market integration domestically and internationally. At independence, the country inherited good long-distance connectivity within the Russian Federation, but local transport was poor. The northern part of the country was better connected to Almaty in Kazakhstan than to Osh, a major city in the southern Kyrgyz Republic, and Osh was better connected to Uzbekistan than to Bishkek, the capital city located in northern area. The priority in the 1990s was to create a national road system, especially upgrading the Bishkek–Osh road. Domestically, there have been major improvements in the road network since the turn of the century, although maintenance and road safety remain issues. Little change occurred in the domestic rail network, which remains almost nonexistent, despite ambitious plans in the 1990s for north–south links. Air transport, especially on international routes, is limited. The expansion of the Eurasian rail network following the success of “Landbridge” services between the PRC and Europe is creating considerable connectivity potential. Improving road, rail, and air connectivity domestically and internationally will require financing, which is obviously an issue for the country. The authors emphasize the need to improve the soft infrastructure associated with transport in addition to the importance of new physical investment.

In Chapter 7, Neil McCulloch, Kee-Yung Nam, and Lotis Quiao analyze options for reforming the Kyrgyz Republic’s energy sector. The sector is not only a reliable supplier of electricity, which is vital to production, but is also responsible for generating the space and water heating necessary to survive the Kyrgyz Republic’s cold winters. However, despite its immense hydropower potential, high potential for wind and solar power, and substantial coal reserves, the sector has struggled to meet the country’s growing demand for energy. One of the reasons has been the difficulties successive governments have faced in investing in the sector. As a result, the country has very old generation, transmission, and distribution assets that are subject to frequent breakdowns and high, although decreasing, losses.

A key reason for the lack of investment relates to the challenges governments face in adhering to tariff changes proposed by the regulator. The low tariffs for residential users place significant financial strain on all the key actors in the sector and greatly restrict resources for investment, both by public and private sector actors. Low tariffs also discourage energy efficiency—the Kyrgyz Republic has among the highest energy intensities in Central Asia. The implicit subsidy for electricity and heating is regressive, benefiting better-off and urban households much more than rural and poor households, while costing twice as much as the

entire budget for social assistance. Experience from other countries suggests that energy subsidies can be reformed, and to this end the chapter presents examples from Armenia, the Dominican Republic, and Mexico. The tariff reform is feasible if there is clear political will and effective communication and implementation. The Kyrgyz Republic has bold plans for improving the sector. The success of the plans is likely to depend on the government's ability to undertake serious tariff reform as part of a broader package of investment in the sector.

In Chapter 8, Damir Esenaliev and Kiyoshi Taniguchi argue that the Kyrgyz labor market is undergoing a structural shift with labor moving from agriculture to services. The quality of jobs in terms of stability and security is declining because of the presence of a large informal sector. The unemployment rate has been relatively high, though the extent of underemployment has improved somewhat. Female participation in the labor force has declined and a sizable number of workers has gone abroad. Labor migration is a central development in the contemporary history of the country, and it has enormous welfare and social impacts at both macroeconomic and household levels. Migration became an even more viable alternative to domestic jobs with the Kyrgyz Republic's membership in the EEU since 2015, driven by higher incomes in the destination countries, mostly the Russian Federation. However, the Kyrgyz labor migrants mainly hold blue-collar jobs. The education preference has also undergone notable changes, with more young workers opting to enter the labor market earlier or to pursue vocational education than in the early 2000s, and a lower proportion of high school graduates attending higher education. The evidence points to a deteriorating quality of education. The education system lags in equipping graduates with the skills demanded by the labor market, and the school curricula do not sufficiently address gaps in teaching ICT and life skills.

1.5. Summing Up and Policy Inferences

Summing up

Notwithstanding its complex transition challenges, its geographic isolation, and its extremely rugged terrain, the Kyrgyz Republic has many achievements in little over one-quarter of a century as an independent nation-state. It has navigated through an extremely difficult period following the sudden dissolution of the Soviet Union, in the transition from plan to market, and from remote authoritarian rule to democracy. It has maintained its territorial integrity in a challenging neighborhood. Major infrastructure projects are gradually unifying the country geographically and economically. It has maintained some of its “earlier mover”

advantages in its economic policy and its politics. In October 2017, the Kyrgyz Republic achieved a notable first in Central Asia when an elected president was replaced in a peaceful election. The legacy of relatively good social indicators has been maintained and improved. Destitution has been largely eradicated. New opportunities are opening up in agriculture, tourism, and possibly manufacturing and mining.

The principal challenge is to translate these achievements and opportunities into stronger, broad-based economic growth. The economy needs to grow faster to meet the needs of its population. Almost one-sixth of the population is forced to seek employment abroad, one of the highest ratios in the world. While overseas employment and remittances on this scale contribute in the short term to poverty alleviation, they do not provide the basis for long-term economic development. What is needed is faster economic growth and employment generation, especially in the tradable goods sectors. In turn, this requires fundamental economic and governance reform, as outlined in the pages of this book. The government needs to provide a business environment in which there are incentives for firms to prosper. The regulatory complexities and corruption that are endemic to the commercial environment need to be reformed. The current business structures in the modern sector of the economy need to be exposed to greater competition.

Fiscal reform is an urgent priority, to ensure that economic investments in infrastructure are spent more effectively and social spending is better targeted. Public sector debt is high and without reform could increase still further, even while revenue streams are by no means assured. Rising interest rates, both globally and specifically for the Kyrgyz Republic as it begins to graduate from the highly concessional ODA, will likely create greater fiscal stress. Monetary policy alone cannot manage these fiscal challenges, and in any case the effectiveness of monetary policy is limited by the already extensive dollarization.

For an open society, with comparatively good levels of basic education, and linguistic proficiency in Russian (and increasingly in English among the younger generation), and more than one-quarter of its working-age population employed abroad, exit is a readily available option for much of the people. The country's 50 or so universities produce many graduates who are unable to find employment commensurate with their skills. While this may reflect a mismatch between the education sector and the labor market, it also reflects the anemic state of the labor market. The education base and international employment experience is a two-edged sword, both a strength and a vulnerability for the country. In a conducive commercial and political environment, the education and experience can be employed to accelerate internationally oriented development. But if the sluggish growth of the past persists, there could be a permanent exodus of talent

and with it greatly diminished development prospects. Therefore, the Kyrgyz Republic is at a crossroads, with domestic policy choices the key determinant of which path the country ventures down.

Policy implications and recommendations

The following recommendations ensue from each chapter of the book, around the key interrelated themes of the need for accelerated economic growth, macroeconomic prudence, budgetary reform, decreased dependence on remittances, a more business-friendly environment, institutional innovation, and better targeted social spending. These recommendations are broadly supportive of and consistent with the government's long-term National Sustainable Development Strategy 2018–2040.

First, the case of **international commercial policy**, food exports should be promoted with the ongoing compositional shift from conventional primary food products to high-value processed food. Processed food exports could play an important role in narrowing the widening trade gap with the PRC. An important prerequisite for promoting processed food exports is to set up an institutional mechanism to help producers and exporters meet international food safety (sanitary and phytosanitary) standards. Here, international development agencies can play an important role as part of the new emphasis on “aid for trade” initiatives. Vertically integrated foreign investors can also play a role.

Second, the government could explore ways to help its garment industry to “go global” based on the niche it has already carved out in the middle-income markets in Kazakhstan and the Russian Federation. The government should remove administrative and fiscal restrictions that hinder the emergence of large firms, promote FDI in industry, and introduce an import duty drawback scheme for exporters. The garment industry could provide an attractive location for Turkish garment producers who have already started relocating production in low-wage countries in the face of increasing domestic wages in Turkey. To lure FDI, the government could consider introducing an import duty rebate scheme for export-oriented apparel exporters; such a scheme could cushion their profit margins against the increased cost of procuring imported inputs following the Kyrgyz Republic's accession to the EEU.

Third, the government could undertake financial sector reforms aimed at directing migrant workers' remittances to socially and economically desirable investments by introducing policies and institutional reforms to encourage the process of financial intermediation as a vehicle for productive investment of remittances.

With regard to the **agriculture sector**, to expand export destinations and become more resilient against external shocks, the authors provide the following policy recommendations. First, the kidney bean value chain in Talas Oblast is very successful. However, it is highly reliant on the Turkish market and therefore needs to diversify its export destinations. Second, although dairy is a major industry in the northern zone, trade disputes constitute a significant economic risk. Government efforts are needed to reduce transaction costs associated with customs and to facilitate the business environment in the dairy export business. Third, the central zone is dependent on livestock, and is thus vulnerable to animal health risks. However, farmers have little knowledge about disease prevention and control, which leads to concerns about food safety. The vaccination programs need strengthening, and government intervention in this area is clearly needed. Finally, the opening of trade between the Kyrgyz Republic and Uzbekistan, based on an agreement between the two countries in 2017, is expected to increase agricultural trade. Agriculture in the Fergana Valley zone can benefit significantly from increased trade between the two countries. Farmers, processing firms, and traders need to make some adjustments under the new trading environment, and the government may need to nurture this agricultural trade. Increased trade in the southern zone will contribute to balancing trade within the country.

For the **service sector**, ensuring a robust private sector is the key to promoting strong growth and creating more jobs. This in turn requires a strong policy focus on making credit more accessible and affordable, upgrading public infrastructure, promoting human capital development, and improving the overall business environment. Promoting the growth of the financial service sector is also crucial for supporting private sector growth and development. Making credit more accessible and affordable will enable new and existing entrepreneurs to improve their competitiveness and thus expand and upgrade the values of goods they produce and services they offer. Enforcing strong financial regulation and compliance can help reduce the cost of capital by attracting greater private investment. To promote the country's transport and logistics services, simpler and more transparent border control processes are needed to avoid delays and reduce transaction costs. The country's tourism industry, which has strong backward and forward linkages, is a promising source of employment growth and can benefit from a more comprehensive, sustainable, and inclusive tourism strategy. The tourism industry requires developing skilled workers, better transport and ICT infrastructure, and a favorable business environment. The Issyk-Kul Lake Tourism Corridor, one of the Kyrgyz Republic's main attractions, provides plenty of potential opportunities and growth areas. Developing and promoting more attractions and tourism activities for new markets is important to entice more visitors, especially for the winter season when demand is currently low, while

maintaining the traditional summer markets. The country could also become a significant regional center for higher education, building on its achievements to date. In this respect, it could learn from the Malaysian experience as one of the most dynamic higher education hubs in East Asia.

For **ICT**, the success of the new digital transformation program will depend on how effectively the Kyrgyz Republic can harness human and financial resources for its ambitious initiative. It will also be critical to stay on course and ensure that the institutional arrangements for implementing the program can navigate the country's complex political environment. The institutional arrangement for the new program will need to have sufficient capacity, authority, or scope to supervise such a high-level, economy-wide strategic initiative and to monitor and coordinate across different levels of government.

For the successful execution of the new program, it is critical to formulate an implementation strategy providing a sequence of actions. At some stage, the country will need to move to a common protocol and systems for its e-government architecture. The move will entail significant effort to convert existing systems and hence needs to be sequenced. Cost estimates for the entire initiative or identification of individual projects needs to be explicit so that private sector and other development partners can identify projects or areas where development investments or support are most needed.

In the **energy sector**, the first recommendation is to secure long-term financial sustainability by announcing and strictly adhering to a new medium-term tariff plan as part of a comprehensive reform package for the sector. Second, to ensure that customers realize real benefits for the higher tariffs they will pay, the sector needs to invest in service quality improvement. Third, low-income households need to be protected, not by shielding them from tariff increases but by substantially increasing the resources available for social assistance and for services used heavily by the poor. At the same time, it is important that middle-class households receive benefits from providing additional resources to social programs that benefit the entire population (e.g., universal health coverage). Fourth, the sector should tackle corruption by encouraging transparency and engaging civil society in the oversight of the energy sector. The current crisis in the sector can be leveraged to push forward bold reforms for the long term and build a coalition from across the political spectrum in support of that vision. Finally, the sector needs to (1) design an effective communications strategy, endorsed and publicly supported by the highest level of government; (2) explain the need for changes; (3) consult citizens; and (4) take their views on board in the reform process.

With regard to **transport and logistics**, the authors provide four recommendations. First, the government needs to pay attention to maintenance of and safety on existing roads, in addition to constructing new roads. Transport asset management should be implemented properly to sustain a desired state of repair over the lifecycle of the assets at the minimum practicable cost and to streamline investments for new road connections. Second, implement all necessary steps to lift the EU restrictions on Kyrgyz airlines due to safety concerns. This problem could be resolved partly by attracting FDI to the sector. Through FDI, international standards could improve the safety of local carriers. Third, the transport sector should pay careful attention to the route and financing of the proposed Kashi–Andijan rail link through the southern Kyrgyz Republic. Finally, the costs of international trade should be reduced through improved border management.

To improve **skills and training**, the authors provide several policy recommendations. First, regulations on small and medium-sized enterprises need to be simplified to encourage them to move from informal to formal sectors. The options are to equalize taxation for small and large companies, reduce the taxation on wages, and reduce regulatory pressure on large firms. Second, more investment is needed in quality teaching to enhance teachers’ professional and career opportunities and to improve the collaborative culture, mentoring system, performance evaluation, and social benefits. Third, more training in life and ICT skills is needed in the school curriculum. Life skills, such as communication, presentation, time management, money management, and healthy lifestyle, are currently a small part of the school curriculum but have been proved to be important for professional life. ICT teaching standards need to be introduced, and more targeted teaching of computer and programming skills should be implemented.

Fourth, sectoral initiatives on qualification standards and certifications should be strengthened. Some sectoral associations (e.g., textiles and hospitality) are developing a set of work qualification standards to be certified by an independent body. This would allow workers who learn on the job to certify their skills. Finally, it is important to maintain the efforts to equip potential migrants with the skills and information that will help them secure legal employment in Kazakhstan and the Russian Federation. Providing such skills prior to migration would allow them to get better jobs with larger welfare effects at both the household and macroeconomic levels.

In addition to these specific sectoral recommendations, the following broad proposals are also relevant.

First, develop high-quality, arms-length capabilities to undertake cost-benefit analysis of major infrastructure projects as a major priority, for three reasons: the country's challenging geography; the multiplicity of external funding sources, each with its own particular modalities and operations; and the already high levels of public sector indebtedness.

Second, and related, social policy reform needs to be a high priority. The government's commendably high social expenditures have contributed to the country's relatively good social indicators. But more effective targeting and outcomes-based objectives are urgently needed to manage the country's looming fiscal stresses, to create the fiscal space for much-needed infrastructure spending, and to facilitate other high priority reforms in areas such as electricity pricing and taxation.

Third, the country's democratic progress needs to be matched by more effective governance. The system of regulation and licensing has created a dual economy, with a relatively small formal sector coexisting with a large informal sector. The growth of household enterprises is impeded by the complex and high-tax business environment. Without a major overhaul and simplification, employment (and possibly permanent migration) abroad will continue to be the aspiration of much of the citizenry.

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Chapter 2

International Dimensions of Economic Transition: Trade, Foreign Direct Investment, and Labor Migration

Prema-chandra Athukorala and Manisha Pradhananga

2.1. Introduction

The Kyrgyz Republic, one of the 15 independent states that emerged from the breakup of the former Soviet Union, has made good strides, in relative terms, in the transition from a centrally planned to a market-oriented economy. Economic reforms after independence contributed to the creation of one of the most globally integrated economies in the former Soviet Union and the center of transit trade in Central Asia. Following the 1990s, the economy has grown at an average rate of about 4.5% per annum, while virtually eliminating poverty at the standard benchmark of under \$2 a day. However, growth was volatile and has not been up to the country's perceived potential. The economy is faced with increasing challenges resulting from a widening trade deficit and continuing dependence on remittances and accumulation of external debt. The main contemporary policy challenge the country faces is broadening its export base through market-oriented diversification and adoption of a broad spectrum of economic, institutional, and political reforms.

The purpose of this chapter is to examine the process of economic transition in the Kyrgyz Republic, focusing on the role of trade, foreign direct investment (FDI), and labor migration. Attention is paid to the progress achieved so far and policy options for further integration into the world economy through trade and FDI. Relevant variables are uncertain given that the country's data reporting system is still evolving. The coverage of data relating to foreign trade and migrant remittances is uneven over time because of adjustments made to trade and because of remittances through informal channels. The data on FDI are based on investment approvals rather than actual (realized) investment. More importantly, it cannot be assumed

for intertemporal analysis that the magnitude of reporting errors remains constant, for two reasons. First, the share of informal trade and remittances as well as the rate of actual implementation of approved investment projects varies over time. Second, the procedures followed by the data recording and compiling agencies to deal with informal trade and remittances seem to have changed from time to time. For the latter reason, in some cases it takes several years (not just 1–2 years, as in countries with mature data reporting systems) for some data series to be settled.

The chapter begins with a review of the reform process and market-enhancing policies and the incentive structure, with emphasis on the incomplete reform agenda. The next section provides an overview of the country's external payments situation to set the context for the ensuing analysis. This is followed by the three core sections, each dealing with reform outcomes and further reform imperatives relating to trade, FDI, and labor migration. The chapter concludes with a summary of key findings and policy inferences.

2.2. Reforms and the Incentive Structure

Trade policy

Among the Soviet republics that became independent with the dissolution of the Soviet Union on 25 December 1991, the Kyrgyz Republic stands out for embarking on a path of liberalization and global economic integration at an early stage of the transition process. In 1993, the country signed a bilateral cooperation agreement with the United States that paved the way for extensive international assistance. The reform process received strong support from international institutions such as the Asian Development Bank, International Monetary Fund, World Bank, other international development organizations, and major bilateral donors.

State monopolies on foreign trade were eliminated, import licensing requirements were lifted, and tariff reforms were initiated within the first 5 years. To complement trade opening, practically all price controls on domestic trade were removed, apart from public transport, electricity, and municipal services and in July 1998, it became the first among the Soviet successor states to accede to the World Trade Organization (WTO).¹ Trade liberalization and currency

¹ The Russian Federation became a WTO member in 2012. Among the Central Asian countries, Kazakhstan and Tajikistan acceded to the WTO in 2013 and 2015, respectively. Turkmenistan and Uzbekistan are still not WTO members.

convertibility made the country eligible for achieving Article IV status of the International Monetary Fund in 1999. By that time there was also *de facto* convertibility of the currency for capital account transactions subject only to disclosure requirements.

The Kyrgyz Republic eliminated quantitative import restrictions under its commitments for WTO accession. In 2017, simple average and trade-weighted average tariffs stood at 6.9% and 7.7%, respectively (Table 2.1). Most applied duty rates in 2016 at the two-digit product level of the Harmonized System were well below the maximum bound rates. There are generally no permanent duties on exports, other than some temporary duties imposed from time to time on some agricultural products primarily for stabilizing domestic supply in times of temporary supply shortfalls.

In 2015, the Kyrgyz Republic became a member of the Eurasian Economic Union (EEU), as detailed in Box 2.1. Currently, the Kyrgyz Republic is in the process of aligning its tariffs on imports from non-EEU countries with the common tariffs of the Customs Union. According to calculations by the WTO, 30% of Kyrgyz duties are already aligned with the common Customs Union tariffs and 21% can be realigned without violating WTO commitments (because the common tariffs are below Kyrgyz WTO bound tariffs), but aligning the rest requires renegotiation with, and compensation to WTO members. Significant tariff differences exist for meat and meat products, alcoholic beverages, some chemical products, wood and paper, iron and steel, aluminum, and furniture. For these products, the average tariff rates of the Customs Union exceed those of the Kyrgyz Republic by 10% or more (WTO 2014). The Kyrgyz authorities have already started the negotiations.

Compared with the current Kyrgyz Most-Favored Nation applied tariffs, the Customs Union's common tariffs are generally higher on agricultural products and lower on other products.² However, in both cases, duty rate differentials are not large, averaging only about 2 percentage points. So, focusing solely on tariff differentials, the trade policy impact on the Kyrgyz economy of joining the EEU is unlikely to be as significant as commonly thought, particularly when considering "natural" trade costs resulting from landlockedness and distance to markets, and the massive competitive edge of the PRC over the EEU member countries in world manufacturing trade. However, there are concerns in Kyrgyz policy circles that enforcement of the common border regime mandated by EEU membership could significantly diminish the Kyrgyz Republic's role as the center of transit trade in the region.

² The data on Russian tariffs are from WTO, 2018. www.wto.org/statistics (accessed 8 May 2018).

**Table 2.1: Most-Favored Nation Applied Import Duties,
Kyrgyz Republic, 2017**
(%)

Product Group ^a	Final Bound Rates			Applied Rates		
	Average	Duty-Free	Maximum	Average	Duty-Free	Maximum
Animal products	17.1	8.7	95.0	15.0	19.0	55.0
Dairy products	14.4	0.0	15.0	14.9	0.0	18.0
Fruit, vegetables, plants	8.1	0.2	13.0	8.2	4.8	20.0
Coffee, tea	5.4	4.2	20.0	5.4	20.8	3.0
Cereals and preparations	9.6	1.9	15.0	9.4	4.0	20.0
Oil seeds, fats, and oils	5.6	32.0	60.0	6.6	19.1	15.0
Sugar and confectionary	10.2	0.0	233.0	11.1	0.0	54.0
Beverages and tobacco	20.5	2.1	0.0	21.7	4.4	233.0
Cotton	0.0	100.0	10.0	0.0	100.0	0.0
Other agricultural products	5.3	0.8	14.0	4.8	7.4	10.0
Fish and fish products	0.8	88.6	15.0	7.2	4.5	30.0
Minerals and metals	7.0	0.4	5.0	7.6	6.8	17.0
Petroleum	5.0	0.0	12.0	4.4	12.7	5.0
Chemicals	4.7	9.1	15.0	5.0	8.7	13.0
Wood, paper, etc.	5.0	37.6	15.0	8.2	6.4	16.0
Textiles	7.4	0.2	24.0	8.0	0.6	20.0
Clothing	8.9	0.0	15.0	9.1	0.0	24.0
Leather, footwear, etc.	6.0	4.2	15.0	6.2	9.9	20.0
Nonelectrical machinery	6.4	31.1	15.0	2.6	67.3	15.0
Electrical machinery	4.8	41.1	15.0	4.5	45.1	20.0
Transport equipment	7.5	11.6	15.0	8.1	16.8	23.0
Other manufactures	7.0	22.5	15.0	8.0	21.0	20.0
Summary						
Total imports						
Simple average	7.5			6.9		
Trade-weighted average				7.7		
Agriculture						
Simple average	12.7			9.2		
Trade-weighted average				17.9		
Nonagriculture						
Simple average	6.7			6.5		
Trade-weighted average				6.0		

^a Products identified at the two-digit level of the Harmonized System.

Source: WTO. 2018. www.wto.org/statistics (accessed 8 May 2018).

Box 2.1: The Eurasian Economic Union

In 2010, a customs union was established between Belarus, Kazakhstan, and the Russian Federation. The union was superseded by the Eurasian Economic Union (EEU) in 2015. Armenia acceded to the EEU on 2 January 2015 followed by the Kyrgyz Republic on 6 August 2015. The five-member EEU has an integrated single market of 183 million people and a gross domestic product of over \$4 trillion (in purchasing power parity).

To evaluate the impact of the EEU on trade patterns of the member countries it is important to understand the distinction among a free trade area (FTA), a customs union, and an economic union. An FTA is an association of two or more countries under which all import tariffs and quotas and export subsidies and other similar government measures to influence trade have been removed, while each country continues to retain its own international trade measures vis-à-vis countries outside the association. There is no need to have rules of origin—specific criteria to assess each country’s eligibility for the agreed trade concessions—is an integral part of the agreement. This is needed to prevent third countries benefiting from market access to the FTA through the member country with the lowest tariffs (“trade deflection”). The actual degree of trade liberalization achieved under a free trade agreement depends on the nature of the rules of origin and the stringency with which they are applied. A customs union is equivalent to an FTA plus common external tariffs for trade with nonmember countries. There is no need to have rules of origin in this case because the uniform tariffs preclude trade deflection. An economic union is equivalent to a customs union plus the additional feature that additional policies—monetary, fiscal, welfare—are also harmonized, and factors of production are permitted to move freely across the member countries. The EEU has a long way to go with implementing the proposed reform agenda in order to achieve economic union status. The EEU does not even perfectly fit the definition of a customs union: considerable nontariff barriers to trade persist among member countries. Also, the EEU agreement does not cover sanitary and phytosanitary measures relating to food trade among member countries. The member countries can resolve sanitary and phytosanitary issues only through informal bilateral negotiation and/or by resorting to the World Trade Organization dispute settlement procedure.

In addition to duty-free access to the member country markets, the Kyrgyz Republic benefit from the regularization of the status of migrant workers, resolution of issues relating to workers’ pension rights, as well as access to improved north–south transport corridors within the EEU region. The EEU agreement on labor migration involves simplifying the administrative requirements for the entry of migrant workers, increasing the period of uninterrupted stay in a given country, granting social rights to migrant families (especially in education), and providing migrant workers with easy access to information.

On 30 May 2015, the EEU signed a free trade agreement with Viet Nam. The EEU also aims to negotiate comprehensive treaties with its largest trade and economic partners, the European Union, and the People’s Republic of China (PRC). The EEU and the PRC have already started a dialogue on a trade and economic cooperation agreement. Discussions are also under way on the EEU involvement in the PRC-led Belt and Road Initiative.

Sources: EDB (2017); Pomfret (2018); Tarr (2016); and Vinokurov (2017).

In the last 2 decades, trade that moves PRC goods through bazaars in Bishkek and Osh to markets in Kazakhstan and the Russian Federation has been a significant source of economic dynamism in the Kyrgyz Republic. Shuttle traders have particularly benefited from the Kyrgyz Republic's uniform weight-based specific duty system, which is to be replaced by the value-based (ad valorem) EEU common border tariffs.

Given that imports destined to any member country can enter the Custom Union through any other member country, an arrangement for sharing customs duty is an integral part of a customs union. Under the EEU revenue sharing agreement, the Kyrgyz Republic is to receive 1.9% of the total EEU duty collection.

Foreign direct investment policy

Opening the country to FDI was an integral part of the liberalization reforms in the Kyrgyz Republic, and since the mid-1990s it has remained one of the most open countries to FDI in Central Asia and Eastern Europe. Apart from the domestic and international air transportation sector, in which foreign ownership is limited to 49%, other sectors are fully open to foreign capital participation (except that foreigners are not allowed to own land). Kyrgyz legislation provides for equal treatment of domestic and foreign investors with respect to ownership of local companies. Foreign-invested enterprises are free to open and maintain bank accounts in foreign currency. There is no minimum capital requirement. Free repatriation of capital and profit is permitted.

Five free economic zones (FEZs) have been established as focal points for attracting foreign investors—in Bishkek, Karakol, Leilek, Maimak, and Naryn. Incentives offered to FEZ enterprises include exemption from all taxes, duties, and other charges for their entire period of operation within FEZs, and simplified and accelerated registration of business entry and customs procedures. FEZ enterprises are permitted to sell up to 30% of total production on the domestic market free of tax. Sales beyond this limit are subject to taxation in accordance with Kyrgyz tax legislation.

Macroeconomic policy and international competitiveness

The first 3 years of nation building was a period of hyperinflation in the Kyrgyz Republic. The introduction of a national currency in 1993 was instrumental in establishing a functioning market economy needed for taming inflation. This—coupled with (1) a managed floating exchange rate regime backed by

concessionary capital inflows, and (2) the open trade regime that helped meet pent-up domestic demand through imports—helped bring the annual inflation rate below 50% by the mid-1990s and down to 4%–6% during the ensuing years.

From about early 2000 to 2015, the real effective exchange rate (REER) moved basically in line with the nominal effective exchange rate (NEER) as the rate of domestic inflation was much in line with that of the trading partner countries (Figure 2.1). However, since then the REERs for trade with the EEU countries and the rest of the world have exhibited divergent patterns.

The NEER for EEU countries appreciated during this period given the massive depreciation of the ruble against the United States dollar following the ending of the resource boom. However, the REER has continued to depreciate, driven largely by relatively low Kyrgyz inflation vis-à-vis the EEU countries.

The REER appreciated continuously vis-à-vis the non-EEU countries through this period, driven by the appreciation of the nominal exchange rate against their currencies. Disaggregated data (not shown here for brevity) show that from the beginning of 2016 the som strengthened against the euro, renminbi, Kazakh tinge, Turkish lira, and United States dollar, while there was some devaluation against the Russian ruble. Given the contrasting patterns of NEER movements vis-à-vis the EEU and other countries, the aggregate REER has shown a moderate rate of appreciation (by about 10%) between 2015 and 2016 (Figure 2.1).

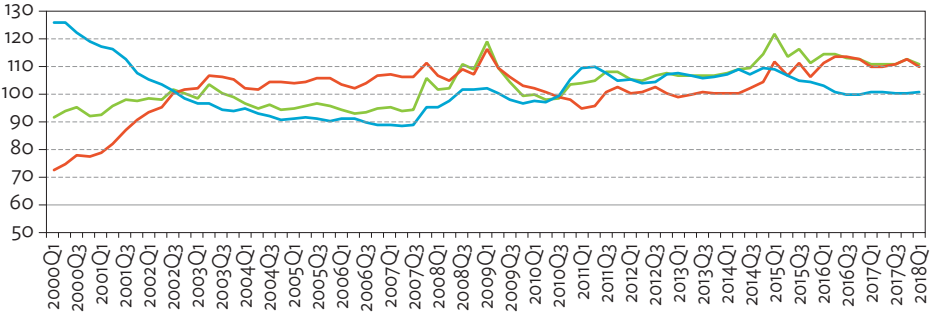
The NEER time pattern has been basically driven by migrant workers' remittances and other capital inflows. A comparison of changes in foreign exchange reserves and the som–United States dollar exchange rate suggest that the central bank (the National Bank of the Kyrgyz Republic) intervened in the foreign exchange market only to avoid excessive volatility: there is no evidence of the National Bank “leaning against the wind.”

Trade customs reforms

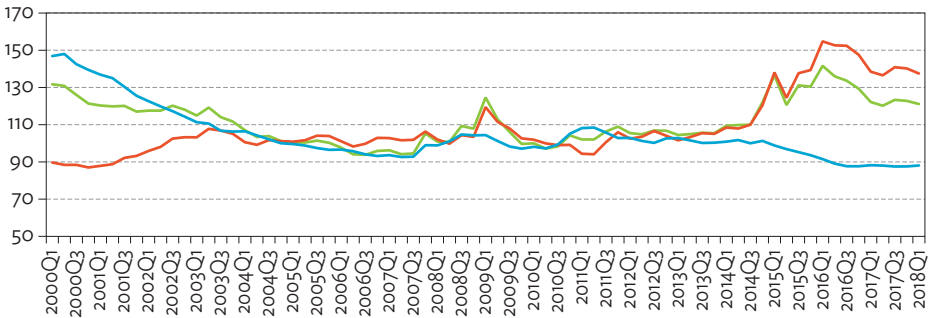
Notwithstanding significant trade customs reforms and macroeconomic stabilization, there has been limited progress with the more complex institutional and legal reforms needed to create “an environment in which market forces could produce socially desirable outcomes” (Pomfret 2018: 180). The economic transition indicators constructed by the European Bank for Reconstruction and Development are summarized for the EEU member countries in Table 2.2. The indicators evaluate policies on a scale of 1 (no reform) to 4 plus (meeting standards of high-income market economies).

Figure 2.1: Nominal Effective Exchange Rate, Relative Price, and Real Effective Exchange Rate, Kyrgyz Republic, 2000–2018
(2010 = 100)

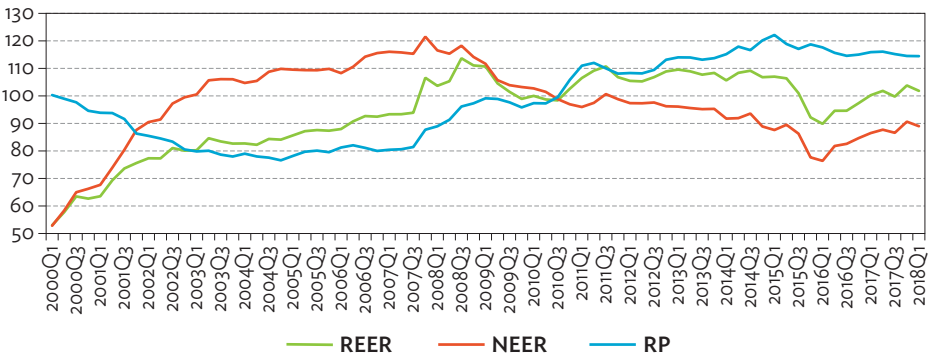
a. World^a



b. Eurasian Economic Union Countries^b



c. Other Countries



NEER = nominal effective exchange rate; REER = real effective exchange rate (computed as $NEER \times RP$); RP = price level of the Kyrgyz Republic relative to its trading partner countries. An increase in the REER indicates real appreciation (reduction in the economy's international competitiveness) and vice versa.

^a Covers the Kyrgyz Republic's total trade (imports and exports) with the 17 largest trading partner countries.
^b Strikingly similar to the three data series for the Commonwealth of Independent States given the dominance of Kazakhstan and the Russian Federation in both country groups.

Source: Compiled from NBKR, Monthly Statistical Bulletins, 2000–2018. <http://www.nbkr.kg/DOC/07122017/00000000048812.xls> (accessed 6 May 2018).

The Kyrgyz Republic has achieved the standard of high-income market economies in terms of small-scale privatization, price stabilization, and liberalization of trade and forex systems. However, on the other indicators, its ranking is not very different from rankings of the other EEU countries.

The Kyrgyz Republic also ranks low in the areas of governance, entrepreneurial restructuring, and competition policy according to various global surveys and rankings. The Kyrgyz business environment is not conducive to attracting foreign investment and, generally, for the diversification of the economy from its primary commodity dependence through private sector initiatives. Absence of behind-the-border market discipline inhibits the beneficial effects of the significant trade and investment policy reforms.

Infrastructure, geographical disadvantage, and trade costs

Lack of connectivity with the outside world remains a major obstacle to global economic integration in the Kyrgyz Republic. The old trade routes to Asia through Tajikistan and Afghanistan have remained virtually closed for many years because of the civil war in Afghanistan. Currently, the main land transport route that links the Kyrgyz Republic to global markets is through Kazakhstan, the Russian Federation, and Georgia to Turkey and from there to other European destinations. The standard cargo truck (22 tons) takes 7–8 days to reach Turkey and 10 days to reach other European Union countries, and the shipping cost per truck varies from \$4,000 to \$5,000. Transport to the Russian Federation takes 3–4 days and, delivery by a standard truck, costs \$2,000–\$2,400 (Tilekegeev et al., 2018).

The eastern border with the PRC, which remained closed for over 30 years during the Soviet era, was reopened after the collapse of the former Soviet Union. The country's road networks to the PRC border have also been improved with help from international financial institutions and bilateral donors. The new road from Bishkek to Naryn and on to Torugart at the PRC's border (mostly an ADB financed two-lane all-year highway) facilitates transport from Bishkek to the PRC border without transiting through Kazakhstan. Authorities in the PRC are also striving to increase the economic development of Xinjiang Uygur Autonomous Region by expanding trade with the Kyrgyz Republic and other Central Asian countries.

Table 2.2: Economic Transition Indicators, 1995, 2010, and 2014

Country	Year	Large-Scale Privatization	Small-Scale Privatization	Governance and Enterprise Restructuring	Price Liberalization	Trade and Forex System	Competition Policy
Armenia	1995	2.0	2.7	2.0	3.7	3.0	1.0
	2010	3.7	4.0	2.3	4.3	4.3	2.3
	2014	3.7	4.0	2.3	4.0	4.3	2.3
Belarus	1995	1.7	2.0	1.7	3.7	2.0	2.0
	2010	1.7	2.3	1.7	3.3	2.3	2.0
	2014	1.7	2.3	1.7	3.0	2.3	2.0
Kazakhstan	1995	2.0	3.0	1.0	4.0	3.0	2.0
	2010	3.0	4.0	2.0	4.0	3.7	2.0
	2014	3.0	4.0	2.0	3.7	3.7	2.0
Kyrgyz Republic	1995	3.0	4.0	2.0	4.3	4.0	2.0
	2010	3.7	4.0	2.0	4.3	4.3	2.0
	2014	3.7	4.0	2.0	4.3	4.3	2.0
Russian Federation	1995	3.0	4.0	2.0	3.7	3.0	2.0
	2010	3.0	4.0	2.3	4.0	3.3	2.3
	2014	3.0	4.0	2.3	4.0	3.7	2.7
Tajikistan	1995	2.0	2.0	1.0	3.3	2.0	2.0
	2010	2.3	4.0	2.0	4.0	3.3	1.7
	2014	2.3	4.0	2.0	4.0	3.7	1.7
Turkmenistan	1995	1.0	1.7	1.0	2.7	1.0	1.0
	2010	1.0	2.3	1.0	2.7	2.0	1.0
	2014	1.0	2.3	1.0	3.0	2.3	1.0
Uzbekistan	1995	2.7	3.0	2.0	3.7	2.0	2.0
	2010	2.7	3.3	1.7	2.7	2.0	1.7
	2014	2.7	3.3	1.7	2.7	1.7	1.7

Source: EBRD. <http://www.ebrd.com/what-we-do/economic-research-and-data/data/forecasts-macro-data-transition-indicators.html> (accessed 27 May 2018).

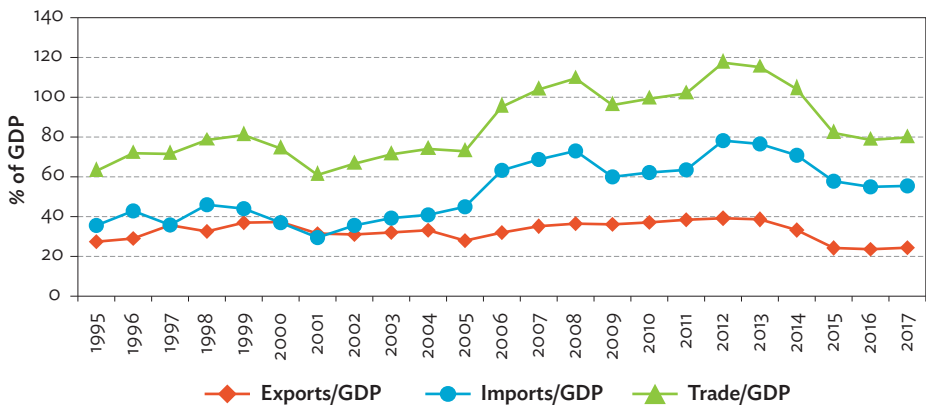
2.3. External Payments Position

The degree of the Kyrgyz economy's trade orientation, as measured by the standard ratio of trade to gross domestic product (GDP), increased continuously following the years of economic adjustment in the early 1990s until about 2013. Since then, there has been a notable reversal in the trend (Figure 2.2). Both the increase in trade orientation and the subsequent decline have been largely determined by the behavior of the import–GDP ratio (the economy's import orientation). The export–GDP ratio varied in the range of 30%–40% during 2000–2013 and then declined to about 25% in 2016–2017.³

³ To minimize possible random shocks and measurement errors, 2-year averages are used in intertemporal comparisons throughout this chapter.

The widening gap between the import–GDP and export–GDP ratios, which shows the trade deficit relative to GDP, increased from about 5% in 2003 to over 27% in 2017. As can be seen in Figure 2.3, over two-thirds of the widening trade deficit has been filled from migrant remittances during this period. Consequently, the current account deficit remained at manageable levels, about 3.5% of GDP. But this aggregate figure is not a good indicator of sustainability of

Figure 2.2: Trade Openness of the Kyrgyz Economy, 1995–2017
(%)

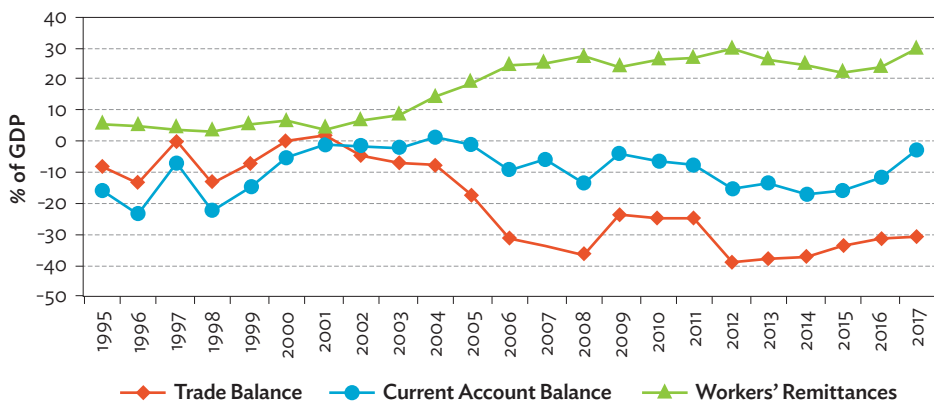


GDP = gross domestic product.

Source: Compiled from NBKR, Monthly Statistical Bulletins 1995–2017.

<http://www.nbkr.kg/DOC/07122017/00000000048812.xls> (accessed 28 May 2018).

Figure 2.3: Trade and Current Account Balances, and Workers' Remittances (net) as a Share of GDP, Kyrgyz Republic, 1995–2017 (%)



GDP = gross domestic product.

Source: Compiled from NBKR, Monthly Statistical Bulletins 1995–2017.

<http://www.nbkr.kg/DOC/07122017/00000000048812.xls> (accessed 28 May 2018).

the external payment position. What is more important is the way the deficit has been financed. In the 1990s and well into the first decade of this century, grants and concessionary institutional lending (soft loans) helped the Kyrgyz Republic to smooth out consumption shocks from the dissolution of the Soviet Union and reduced the pressure to bring current revenues in line with expenditure. However, in the last decade or so, the composition of capital inflows has shifted from concessionary flows to loans at commercial rates. Foreign capital inflows in the form of commercial credit to the private sector have increased significantly given the virtually open capital account regime, coupled with the high cost of domestic bank credit (over 10% per annum). FDI, which is the most desirable form of capital inflows and has the potential for strengthening the external position by expanding tradable production in the economy, has not emerged as a significant source of capital inflows (Table 2.3).

Between 2008 and 2016, the stock of government debt increased by 80% (from \$2.084 billion to \$3.740 billion), and that of the private sector doubled (from \$3.423 billion to \$6.830 billion). Consequently, the debt-to-GDP ratio stood at 103% in 2016 (the highest in Central Asia), up from 67% a decade earlier. The debt service ratio (debt repayment and interest payment as a percentage of goods and services exports), which is about 30%, is not yet alarming (Table 2.4). But this is because the public debt service ratio is still small as the debt composition is dominated by long-term debt. However, the debt service ratio is bound to increase as the accumulated debt reaches maturity, and, more importantly, because most of the borrowed money has so far been spent on long-term projects that have little capacity to generate foreign exchange earnings in the short to medium terms.

The conventional reserve adequacy measure, the import-months equivalence of the end-of-year reserves, has remained above the critical level of 3 during the last 5 years. In the Bretton Woods era, given the combination of fixed exchange rate and binding controls on capital flows, the worst situation that could be imagined relating to balance-of-payments management was that a country could lose access to trade credit (which normally matures in 3 months). However, this import-based reserve adequacy measure is not an appropriate yardstick for measuring the reserve adequacy of a country with a virtually open capital account and an external debt exposure that has increased significantly in recent years (Athukorala and Warr 2002).

Table 2.3: Balance of Payments, Kyrgyz Republic, 2000–2017
(\$ million)

Item	2005–2006 ^a	2010–2011 ^a	2012	2013	2014	2015	2016	2017 ^b
<i>Trade balance</i>	-653	-1,379	-2,577	-2,780	-2,808	-2,241	-2,137	-2,347
Export (FOB)	796	2,080	2,588	2,833	2,483	1,619	1,608	1,840
Import (FOB)	1,449	3,458	5,165	5,614	5,290	3,860	3,744	4,187
<i>Services balance</i>	-57	-152	-336	-51	-331	-188	-204	-28
Current transfers	628	1,615	2,061	2,238	2,176	1,628	1,904	2,366
<i>Current account balance</i>	-149	-398	-1,020	-1,016	-1,269	-1,059	-792	-232
Capital account balance	145	758	872	1,013	618	805	717	155
Foreign direct investment (net)	-86	687	240	608	-565	359	135	-280
Loans to the government (net)	38	173	285	178	443	261	257	229
Loans to private sector (net)	8	65	68	14	257	-28	-145	-19
Other liabilities	75	75	-53	110	71	1	57	1
Errors and omissions	111	-242	333	104	414	212	413	224
Overall balance	107	118	184	101	-238	-41	339	147
<i>Financing</i>	-107	-118	-184	-101	238	41	-339	-147
NBKR reserves (“–” increase)	-125	-108	-166	-91	257	56	-326	-141
IMF loans	-18	-24	-21	-17	-20	-15	-13	-13
Exceptional financing	37	14	3	7	2	0	0	6
Other		-25	-21	-17	-20	0	0	0
<i>Memo item</i>								
Foreign exchange reserves (\$ million)	715	1,777	2,067	2,238	1,958	1,778	1,969	2,176
Import-months equivalence of reserves	8	4	4	4	4	4	4	4*
Exchange rate (annual average, \$/som)	40.6	46.1	47	48.4	53.7	64.5	69.9	68.9

FOB = free on board, IMF = International Monetary Fund, NBKR = National Bank of the Kyrgyz Republic.

^a Two-year average.

^b Provisional.

Source: Compiled from NBKR, Monthly Statistical Bulletin 2008–2017, <http://www.nbkr.kg/index1.jsp?item=137&lang=ENG> (accessed 17 May 2018).

2.4. Trade Patterns

Initial conditions

During the Soviet times, the Kyrgyz Republic was primarily a supplier of primary products, mainly cotton, and some strategic minerals (uranium and mercury). Its heavy industry was primarily limited to production of agricultural machinery, designed for Kirgizia’s and neighboring republics’

Table 2.4: External Debt and Debt Servicing, Kyrgyz Republic, 2008–2017

Item	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 ^b
Total external debt (\$ million)	3,423	3,947	4,209	4,731	5,229	5,930	6,371	6,670	6,830	7,026
As a percentage of GDP	66.6	84.6	90.0	80.5	81.0	83.4	94.4	119.5	103.2	92.8
Debt service ratio	25.8	44.1	24.5	10.7	16.8	20.3	26.9	42.2	32.1	34.0
Total public external debt	2,084	2,503	2,616	2,803	3,032	3,159	3,437	3,601	3,743	4,081
As a percentage of GDP	40.6	53.7	55.9	47.7	47.0	44.4	50.9	64.5	56.6	53.9
Debt service ratio (%)	2.8	3.6	3.8	3.0	2.7	2.4	3.4	5.3	5.9	5.4
Share of public debt in total external debt (%)	60.9	63.4	62.1	59.2	58.0	53.3	54.0	54.0	54.8	58.1

GDP = gross domestic product.

^a Debt repayment and interest payments as a percentage of exports of goods and services.

^b Provisional.

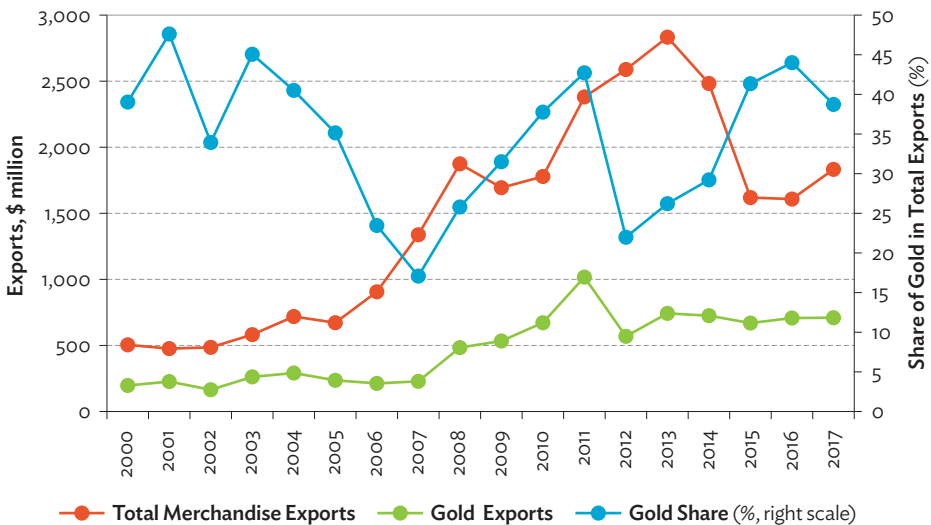
Sources: Compiled from NBKR, various years. Bulletin of the National Bank of the Kyrgyz Republic. <http://www.nbkr.kg/index1.jsp?item=137&lang=ENG> (accessed 17 May 2018).

rugged terrain, and some military-related machinery and its parts and components. The food industry had several large sugar factories and meat and vegetable canneries. Emphasis was also given to the primary processing of cotton and other fibers. Other manufacturing included textiles and garments, and leather goods. Trade took place at artificially set prices that severely undervalued energy and other raw material vis-à-vis manufactured goods. Kirgizia, therefore, ran a chronic trade deficit with the rest of the Soviet Union, which was covered through budgetary transfers from the center. There were no direct links to the global economy as all international trade went through the central trading offices in Moscow (Kauffman and Hardt 1993, Rumer 1989).

Export performance

A striking feature of the Kyrgyz Republic's export structure during the last 2 decades is the role of nonmonetary gold as the single most important export earner (Figure 2.4). The share of gold in total merchandise exports averaged about 30% during 2000–2017, with sharp fluctuations reflecting world price volatility and domestic output disruptions. Kumtor gold mine accounted for

Figure 2.4: Gold in Total Merchandise Exports, 2000–2017^a
(\$ million and %)



^a Data for 2017 are provisional.

Source: Based on data compiled from NBKR, various years. Monthly Statistical Bulletin. <http://www.nbkr.kg/DOC/07122017/00000000048812.xls> (accessed 28 May 2018).

almost 98% of total gold exports and is by far the single most important enterprise in the country, contributing about 10% of GDP and 20% of government revenues (Box 2.2).

Almost all of the country's gold output is shipped by air. The mining industry in the Kyrgyz Republic also produces some nonferrous metals (antimony, mercury, and rare earth minerals) in small quantities. The country has unexploited deposits of gold, tin, tungsten, coal, and possibly oil. In moving to exploit these resources, policy should focus on how easily the products could be transported to international markets at competitive world prices.

2.5. Trends and Patterns of Nongold Exports

Given the well-known peculiarities of gold as an internationally traded product (high price volatility and the locational specificity determined by the country's resource endowment), it is necessary to separate other ("nongold") products for a meaningful analysis of export performance. This separation is particularly important for understanding the extent to which the production stature inherited from the Soviet era has changed since independence.

Box 2.2: Kumtor Gold Mine

The Kumtor gold mine is in the Tien Shan Mountains in Issyk-Kul Oblast. The mine is about 350 kilometers southeast of Bishkek and about 60 kilometers north of the international border with the People's Republic of China, and is one of the world's largest gold mines. In 1978, a geological expedition of the state Kyrgyz Geology Department discovered gold deposits in Kumtor, but mining the deposit was not considered economically feasible because of the low recovery rate from the hard rock deposits. The newly independent Government of the Kyrgyz Republic sought involvement of foreign developers, and in December 1992 the Canadian uranium mining company, Cameco, submitted a feasibility study based on cyanide heap leaching technology, which can profitably process ores containing as little as 0.01 troy ounces per ton; the estimated production costs at Kumtor were around \$200 per ounce.

In 1992, a joint venture company, Kumtor Gold Inc. (Kumtor), was formed between Kyrgyzaltyn (the state-owned mineral exploration company) and Cameco to undertake gold exploration and mining. Kyrgyzaltyn owned two-thirds of Kumtor and Cameco Canada the rest. The company started commercial production in 1997. In 2004, the joint venture was taken over by Centerra, a newly established company listed on the Toronto Stock Exchange. By the end of 2014, Centerra's ownership was Cameco, 54%; Kyrgyzaltyn, 16%; the European Bank for Reconstruction and Development, 4%; and other shareholders, 26%.

During 2016–2017, Centerra and the Kyrgyz government were involved in lengthy negotiations on Kumtor's profit sharing agreement. The negotiations ended in September 2017 with a \$60 million settlement agreement to be honored by Cameco by the end of May 2018. Under the agreement, Cameco was permitted to transfer frozen funds from the country.

On 1 May 2018, London-based Chaarat Gold Holdings bought Kumtor. The deal involved paying \$400 million in cash and exchanging \$400 million worth of Centerra shares held by Kyrgyzaltyn for a 50% direct preferred economic interest in the mine. Chaarat would own all the common equity of Kumtor and take control of managing and operating the mine. The government, in turn, would hold all the preferred equity of Kumtor and be entitled to 50% of profits. Additionally, Chaarat agreed to invest up to \$600 million in the country's mining industry during the next 5–7 years. Chaarat has been involved since 2017 in gold exploration in the Sandalash River Valley in the northwestern Kyrgyz Republic. The area is part of the Tien Shan gold belt, which contains several major world-class gold deposits including the Muruntau deposit and the Kumtor deposit.

From 1996, when Kumtor began commercial operation, to 2014, the mine had produced 308 tons of gold. As of 31 December 2014, the remaining gold reserves were estimated at 68.5 million tons of ore containing 6.1 million ounces of gold. Based on these mineral reserves, mining is projected to continue to 2023 with milling operations concluding in 2026. The total net earnings of Centerra from Kumtor during 2009–2013 was \$767 million. Of this, \$480 million went to the Kyrgyz government as revenue-based tax. A substantial share of total cost takes the form of wages, payments to local contractors, and other domestic costs.

As of January 2014, Kumtor employed 2,617 local workers and 103 expatriates. In addition, 470 local contractors were working on the site. The average wage of local workers was 11 times the average wage in the country. A recent computable general equilibrium modeling exercise put the mine's contribution to the economy at 23% of gross domestic product (Mogilevskii et al., 2015). Other intangible benefits, such as skill transfer, access to capital markets, and building the country's international image, help attract investors. Of course, there are also negative externalities such as hazardous material spills and pollution of rivers, and even adverse impacts on institutional quality through nurturing cronyism and misuse of funds (Tiainen et al., 2014, Kronenberg 2014).

Sources: Chaarat. Chaarat Gold Holdings. <https://www.chaarat.com/project> (accessed 8 June 2018); Kronenberg (2014); Mogilevskii et al., (2015); Pomfret (2018), and Tiainen et al., (2014).

In analyzing trends and patterns of nongold exports it is important to pay attention to the country's role as the center of transit trade in Central Asia (Kaminsky and Raballand 2009, Kaminsky and Mitra 2012, Pomfret 2018). In the 2000s, transit trade that moves PRC goods through bazaars in Bishkek and Osh to markets in the other countries in the region has been a significant source of trade expansion and economic dynamism in the Kyrgyz Republic. Official (reported) trade data lump together domestic trade and transit trade. For this analysis, domestic exports were roughly separated from the reported data by drawing on the available circumstantial evidence relating to the commodity composition of bazaar trade.⁴ Table 2.5 summarizes data for total exports and domestic exports (total exports less transit exports) for comparison. The following discussion specifically focuses on the latter.

The notable changes in the export structure in the last 2 decades include a decline in the export shares of electricity and cotton and an increase in the shares of food products and manufactured goods. Within food products, the share of sugar, which was a key export during the Soviet era, has declined sharply⁵ with a notable shift in product composition toward dairy products, fruits, and vegetables. Within the fruits and vegetables category, kidney beans have emerged as the most dynamic export product. The increase in manufactured goods has primarily been driven by a notable expansion in garments exports. The share of resource-based manufactured goods, which dominated the export composition during the Soviet era, has declined.

Electricity

With glacial rivers flowing from high mountains, the Kyrgyz Republic has significant potential to expand hydroelectric production: its production capacity is estimated at 150,000 gigawatt-hours (GWh). However, the country's electricity export has declined dramatically. While over 90% of domestic electricity demand is met by hydropower, the country is currently using less than 10% of its hydropower potential. Exports have declined from about 8,000 GWh during 1990 to less than 2,000 GWh by 2012 (ADB 2014, Figure 45). The expansion of the country's electricity production is constrained by annual intergovernmental

⁴ The commodity disaggregation used here treat bazaar trade as predominantly (if not totally) concentrated in the following seven two-digit categories of the Standard International Trade Classification (SITC): office machines and automatic data processing machines (SITC 75); telecommunications and sound recording and reproducing apparatus and equipment (SITC 76); electrical machinery and appliances (SITC 77); road vehicles (SITC 78); other transport equipment (SITC 79); professional, scientific, and controlling equipment (SITC87); photographic and optical products (SITC88).

⁵ This is to be expected because the Kyrgyz Republic does not have a comparative advantage in sugar production.

Table 2.5: Commodity Composition of Merchandise Exports, Kyrgyz Republic, 1995–1996 and 2015–2016^a (%)

SITC Codes	Total (Reported) Exports		Domestic Exports	
	1995–1996 ^a	2015–2016 ^a	1995–1996 ^a	2015–2016 ^a
Food, beverages, and tobacco	25.3	30.6	30.5	31.6
0 Food and live animals	18.8	15.5	22.6	26.1
1 Meat and meat products	0.6	0.2	0.7	0.3
2 Dairy products	0.5	3.0	0.6	5.0
4 Cereals and cereal preparations	1.7	0.3	2.1	0.5
5 Vegetables and fruit	5.7	10.3	6.8	17.3
5423 Kidney beans	0.0	6.6	0.0	11.1
6 Sugar and sugar preparations	8.5	0.3	10.3	0.4
1 Beverages and tobacco	6.5	3.3	7.8	5.5
111 Mineral water	0.0	0.2	0.1	0.3
12 Tobacco	4.6	2.9	5.5	5.0
Primary material	29.0	12.8	35.0	21.5
2 Crude material except fuels	15.6	11.6	18.8	19.6
263 Cotton	6.5	2.4	7.8	4.0
3 Mineral fuel, lubricants, and related material ^b	13.3	1.1	16.0	1.9
35 Electric current	12.5	0.0	15.0	0.0
4 Animal and vegetable oil, fats, and wax	0.1	0.0	0.1	0.0
Manufactured goods	40.1	47.2	34.5	46.8
5 Chemicals and related products	13.0	3.5	15.7	5.9
68 Nonferrous metals	5.4	0.9	6.5	1.5
6 Manufactured goods classified by material ^c	13.2	8.9	9.6	13.4
65 Textile years, fabric, and related products	5.2	1.0	6.3	1.6
7 Machinery and transport equipment	9.6	22.7	4.2	9.3
71 Power generating machines	0.5	2.7	0.7	4.5
72 Agricultural machinery	1.1	1.3	1.3	2.2
73 Specialized industrial machines	0.4	0.0	0.5	0.0
74 General industrial machines	1.5	1.5	1.8	2.6
75 Office machines and data processing machines	0.0	0.3		
76 Telecommunication and sound recording equipment	0.4	0.1		
77 Electrical machinery	4.0	2.8		
78 Road vehicles	1.5	7.8		
79 Other transport equipment	0.1	6.2		
8 Miscellaneous manufactured articles	4.3	12.1	5.0	18.2
84 Apparel and clothing accessories	1.8	7.3	2.1	12.4
87 Professional and scientific instruments	0.1	1.3		
88 Photographic apparatus watches and clocks	0.1	0.1		
Total	100	100	100	100
\$ million^d	459.5	748.8	405.4	451.5

Notes:

^a Two-year averages.^b Mostly processed minerals (excluding gold) and basic metal products.^c Excluding nonferrous metal (SITC 68).^d Excluding nonmonetary gold and other “special” export items (SITC 9).Source: Compiled from the UN Comtrade database (SITC Revision 3). <http://comtrade.un.org> (accessed May 2018).

agreements with neighboring downstream countries concerning the control of Naryn River water resources, especially water releases from the Toktogul Reservoir. And production varies significantly from season to season and year to year depending on weather conditions.

The industry is also burdened with aging infrastructure that is at the end of its life span. The average productive age of electricity infrastructure is estimated at 34 years. Only three of the hydropower plants, which account for 11% of generation capacity, have been in service for less than 20 years, more than half of the transmission substations are older than 30 years, and about one-fifth of transmission lines have been in service for more than 45 years (ADB 2013). Dilapidated infrastructure and years of insufficient maintenance result in frequent outages and transmission losses.

Cotton

Among the commercial crops promoted during the Soviet era, cotton is perhaps the main agricultural product in which the Kyrgyz Republic has a comparative advantage in international markets. Baled cotton (after ginning) has a far lower transport cost than is the case for most agricultural products. Cotton is also a regionally important commercial crop for the southern parts of the country, where soil and climatic conditions are similar to those in Uzbekistan, the region's major cotton producing country.

The share of cotton in Kyrgyz Republic's exports declined from 7.8% in 2005–2006 to 4.2% in 2015–2016, when the world price for cotton was buoyant and cotton exports from the neighboring Uzbekistan continued to increase. The main factors behind poor export performance are (1) competition for cultivable land from other commercial crops (mostly fruits and vegetables); and (2) failure to modernize dilapidated cotton processing factories, leading to considerable waste, thus lowering quality in the ginning process (Mogilevskii et al., 2017).

Food products

Exports of dairy products, vegetables, and fruits have shown impressive growth in the last 2 decades. The share of dairy products in total exports increased from 0.6% in 1995–2006 to 5.2% in 2015–2016. The increase in the share of vegetables and fruits was even more impressive, from 6.3% to 18.1%. Within this product group, the most dynamic export item has been dried beans (kidney beans).

Emerging trends in food exports from the Kyrgyz Republic are in line with emerging global trade patterns. The last 3 decades have witnessed a notable compositional shift in world food trade. The relative importance of “classical” food products (coffee, tea, sugar, cocoa, and so on) has been sharply eroded by the rapid expansion of trade in products such as fresh fruits and vegetables, poultry, fish, and dairy, which are exported as processed foods after technologically sophisticated processing⁶ (Athukorala and Jayasuriya 2003, Jongwanich and Magtibay-Ramos 2009).

Powerful forces on both the demand and the supply sides have underpinned this structural shift. On the demand side, the internationalization of food habits—the increased importance of imported processed items in consumption patterns in developed countries as well as among large sections of the population in many developing countries—appears to play a key role. Factors such as international migration, the communications revolution, and international tourism have contributed to this phenomenon. The Kyrgyz Republic is well placed to benefit from this structural shift in world food trade given its rich agricultural resource base and ample availability of labor in the rural economy.

For a number of reasons, opportunities to export processed food deserve special attention in the export development policy of countries rich in agricultural resources. First, income and price elasticities of demand for processed food are much higher than for most traditional primary agricultural products. Therefore, diversifying the export mix into this commodity category can hasten export growth and bring significant gains in terms of trade.

Second, the final stages of food processing are labor intensive, in contrast with the production processes of other resource-based products such as minerals and agricultural raw materials. This implies that expanding the processed food sector can have a strongly positive effect on employment generation. Third, in terms of potential net balance-of-payments implications (net export earnings) and addition to the national income, processed food appears superior to conventional manufactured exports. Most conventional manufacturing exports from developing countries are based on simple domestic processing of imported inputs. Processed food products typically have greater domestic input content, and hence greater domestic value added. Finally, the expansion of such exports is a powerful vehicle for linking the rural economy in a positive way with the ongoing process of economic globalization.

⁶ The term “processed food” refers to food items that undergo substantial processing in the country of origin before being exported and that are typically high value and subject to increasingly stringent food safety standards. Widely used alternative terms are “ready-to-eat food” and “high-value foods.”

Garments

During the Soviet era, textile and garment production was a key focus of industrial production in Kirgizia. At the time the Soviet Union dissolved, textiles and garments accounted for 65% of Kirgizia's light manufacturing, with over 100,000 workers employed in 14 major state-owned factories (Botoeva and Spector 2013).

In the aftermath of the Soviet Union's disintegration, textile and garment production collapsed owing to the breakdown of the centrally planned supply chains. The textile industry never recovered because it is a capital-intensive industry not suited to the Kyrgyz Republic's resource endowment. But the garment industry, the quintessential starter of export-oriented industrialization in a low-wage country, re-emerged in the 2000s in the liberalized economy as the country's major manufacturing export. The share of garments in total merchandise exports increased from 2.0% in 1995–1996 to 11.7% in 2015–2016 (Box 2.3).

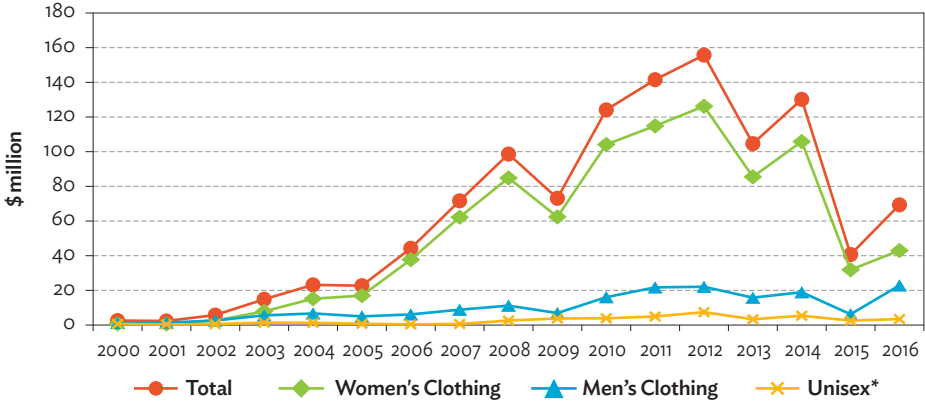
Almost all garment exports from the Kyrgyz Republic are destined for Kazakhstan and the Russian Federation. The key determinants of the successful penetration of Kyrgyz apparel in these markets are relatively low labor cost, ability to produce better quality items to meet customer preference in middle-level markets and easy access to imported fabric (mostly from the PRC, but also from Turkey) through the bazaar-centered trade networks (Box 2.3).

A striking feature of the composition of Kyrgyz garment exports is the heavy concentration in women's garments (Figure 2.5). During 2000–2016, women's garments accounted for over 90% of total garment exports, whereas this share in total garment exports from developing countries during the same period (calculated from the United Nations Comtrade database) was only 68%.

Direction of trade

Since 1997, when commercial production began in Kumtor mine, Switzerland has been by far the largest destination country for total Kyrgyz merchandise exports. Switzerland's share in total merchandise exports varied in the range of 30%–33% during this period. The only product exported from the Kyrgyz Republic to Switzerland is gold, and Switzerland accounts for 97% of the gold exported from the country. Data excluding exports to Switzerland are, therefore, representative of the geographic profile of nongold exports from the Kyrgyz Republic. This is the focus of the following discussion.

Figure 2.5: Garment Exports from the Kyrgyz Republic, 2000–2016
(\$ million)



Note: * Baby clothes, t-shirts, underwear, headgear, etc.

Source: Data compiled from UN Comtrade. <http://comtrade.n.org> (accessed 8 May 2018).

Kazakhstan and the Russian Federation, in that order, are the two largest export markets. In 2016–2017 the two countries accounted for over 45% of the Kyrgyz Republic’s exports.⁷ There are no notable trade links between the Kyrgyz Republic and the other two EEU member countries (Armenia and Belarus). The share of exports to the Commonwealth of Independent States (CIS) countries declined from nearly 90% in the early 1990s to about 60% at the beginning of the 2000s and remained around that level throughout the ensuing years (Table 2.6 and Figure 2.6). This shift in export composition away from the CIS countries is consistent with the patterns of REER behavior depicted in Figure 2.1. During the last 5 years, the Kyrgyz REER compared with that of CIS countries remained significantly appreciated from the previous 10 years or so.

The share coming from the CIS countries has declined at a faster rate, from 93.0% in 1993–1994 to 45.1% in 2016–2017 (Table 2.7). By 2017, the PRC had become the largest source country of imports (35%), surpassing the erstwhile trading partner: the Russian Federation (26.3%). The PRC now accounts for almost two-thirds of extraregional Kyrgyz imports. Exports to the PRC too have increased in recent years, but still account for only 10% of total exports. Turkey is the only other non-CIS country with which Kyrgyz trade links have increased during the mid-1990s. In 2016/2017, Turkey accounted for 10.0% and 4.9% of Kyrgyz exports and imports, respectively.

⁷ Some of the exports to Kazakhstan may be transshipments to the larger Russian market.

Box 2.3: The Garment Industry

Garment production has been the fastest-growing segment of the manufacturing industry in the Kyrgyz Republic for the last 2 decades. The industry is concentrated in Bishkek (with over 95% of the total production) and Osh. As of 2013, the country had 740 officially registered enterprises, but unofficial sources indicate that there are over 3,000 small and medium unregistered factories. The largest factory operated with about 300 sewing machines, and the average firm uses about 15 machines. According to official records, total employment was 120,000, but other estimates placed the figure at about 300,000, or 12% of the country's total labor force (Birkman et al., 2012). The monthly wage of an average sewer was \$240–\$300 and a fast sewer could earn \$340–\$500. The majority of business owners are women (about 70%–85%).

Most factories do simple stitching based on designs provided by their buyers. The buyers generally pick popular styles from the PRC and Turkey. Some large firms undertake all stages of the garment production chain, from design through production to sale, and some have switched to computer-based designing (Jenish 2014).

Belarus is the Kyrgyz Republic's main competitor in middle-class garment markets in Kazakhstan and the Russian Federation. The biggest advantage that Belarusian clothing producers have over their Kyrgyz counterparts is access to a strong domestic fabric production. Belarus is the fourth largest linen producer in the world (Jenish 2014). So far, Kyrgyz producers have been able to compete mainly because of the easy access to fabric from the PRC at low cost thanks to the liberal trade regime, the weight-based tariff system for imports through the bazaar trade, and Kyrgyz firms' capability to produce clothing to suit customer taste and preference. The large Kyrgyz diaspora in Kazakhstan and the Russian Federation also helped expand the market for Kyrgyz-produced garments. Labor cost in the Kyrgyz Republic is also significantly lower (about \$0.50 per hour) than in Belarus (\$1.20), the PRC (\$1.50), and Turkey (\$ 2.10).

Following the emergence of export-oriented garment production as a spontaneous response to liberalization reforms, the government introduced a multitiered tax system. The country has a simplified tax system for sole proprietors employing less than 30 workers. Above this, a company faces higher taxes, more cumbersome regulatory procedures, and the cost of “pay offs” associated with regular visits by tax agents (Birkman et al., 2012, Jenish 2014). The high cost of complying with administrative procedures and regulations drives informality and persuades firms to remain small.

Bazaars constitute a crucial node of the apparel production networks. Most producers buy textile, other inputs, and machinery from a bazaar that specializes in inputs from the PRC. Over 90% of production is exported via logistics agents engaged in intraregional trade based in bazaars in Bishkek and Osh, and the balance is sold to “shuttle” traders associated with these bazaars (Kaminski and Mitra 2012, Spector 2018). There are concerns in the business community that the Kyrgyz Republic's accession to the Eurasian Economic Union could substantially increase the cost of apparel production. The common Eurasian Economic Union tariff, which is a value-based (*ad valorem*) tax, is bound to be larger than the current weight-based tax applied to imports of bazaars. The major advantage of a weight-based tax to an importer is that the actual tax incidence is negatively related with the quality of the product. Moreover, the common *ad valorem* duty is likely to be more systematically implemented under the border control procedure of the Customs Union.

Sources: Birkman et al., (2012); Jenish (2014); Kaminski and Mitra (2012); and Spector (2018).

Table 2.6: Geographic Structure of Merchandise Exports, Kyrgyz Republic, 1993–2017 (selected years, %)^a

Country	1993–1994	2000–2001	2010–2011	2016–2017
CIS countries	88.6	59.6	65.9	60.6
Belarus	1.3	0.7	0.5	0.5
Kazakhstan	25.9	27.6	32.5	24.8
Russian Federation	25.4	13.7	22.9	20.1
Tajikistan	1.3	1.5	1.9	2.1
Turkmenistan	2.4	0.5	0.5	0.5
Ukraine	3.5	0.4	0.4	0.3
Uzbekistan	10.1	14.5	6.3	12.2
Other	18.6	0.8	0.9	0.1
Other (non-CIS) countries	11.4	40.4	34.1	39.4
Afghanistan	0.1	1.1	1.2	0.5
Canada	0.5	2.2	0.6	0.1
PRC	0.0	0.2	2.6	8.0
Germany	0.2	0.6	0.6	0.5
Iran	7.2	6.7	0.6	0.9
Turkey	0.0	1.6	3.4	10.0
UAE	0.1	16.7	16.5	3.1
US	0.6	0.1	3.3	0.1
Other	2.7	10.1	9.3	15.1
Total share	100	100	100	100
Amount (\$ million)	315	474	1,368	1,110

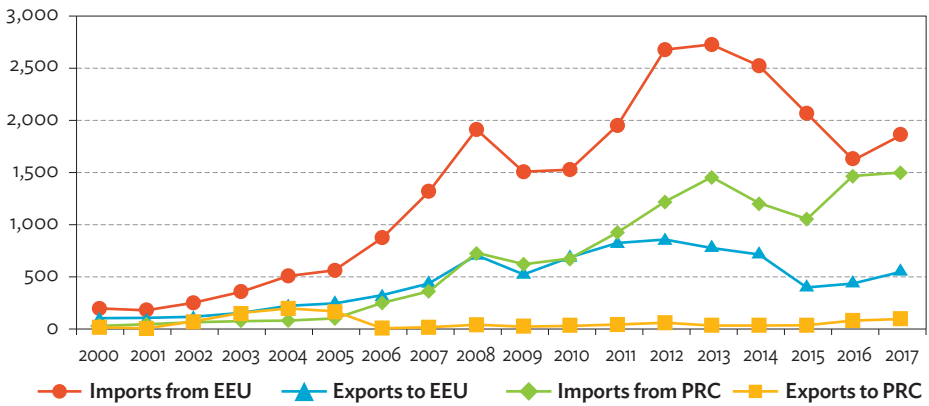
CIS = Commonwealth of Independent States, PRC = People's Republic of China, UAE = United Arab Emirates, US = United States.

Source: NBKR, various years. Balance of payments. <http://www.nbkr.kg/index1.jsp?item=138&lang=ENG> (accessed 18 May 2018).

An important development in Kyrgyz trade patterns from about 2005 is the widening of the trade deficit with the PRC, surpassing the deficit with the EEU countries. In 2005–2005, the Kyrgyz–EEU deficit was about five times that of the deficit with the PRC (\$431 million and \$84 million, respectively). By 2016–2017, the pattern had reversed, with a deficit of \$2.8 billion with the PRC versus a \$2.5 billion deficit with the EEU countries.

What would be the impact of the entry into the EEU for Kyrgyz–Sino trade? This is an issue for further study, a modest increase in the border tariff resulting from a transition to the common ad valorem tariffs from the weight-based tariffs coupled with presumably more stringent border control is unlikely

Figure 2.6: The Kyrgyz Republic's Trade with the Eurasian Economic Union and the People's Republic of China, 2000–2017
(\$ million)



EEU = Eurasian Economic Union, PRC = People's Republic of China.

Source: Compiled from NBKR, various years. Monthly Statistical Bulletins.

<http://www.nbkr.kg/DOC/07122017/00000000048812.xls> (accessed 28 May 2018).

to have a major impact. This is because the country's trade complementarity as predominantly a primary producer is much stronger with the PRC, which is now the world's manufacturing powerhouse, than with Kazakhstan and the Russian Federation. Moreover, the Kyrgyz Republic has the potential to expand exports of processed food and various primary material inputs for which there is a strong demand in the PRC. This crucially depends on supply-side reforms to exploit the country's latent comparative advantage in these product lines and improved trade relations with the PRC.

Data on the direction of trade by commodity group available in the recent issues of the National Bank of the Kyrgyz Republic's Balance of Payments help elucidate the impact of the "tyranny of distance" (distance-related trade cost) on trade patterns. The data (not reported here for want of space) indicate that the two most prominent products exported to distant markets, other than gold, are cotton and kidney beans, and Turkey is the main non-CIS market for cotton. These are "high value per unit weight" products that are not highly perishable. By contrast, almost all other Kyrgyz food exports are to the regional markets, predominantly to Kazakhstan and the Russian Federation. Some of these food products might meet the "high value per unit weight" criterion, but are more perishable, and reliable land transport infrastructure with modern refrigeration and/or air transport to deliver these products to distant markets are not available.

Table 2.7: Geographic Structure of Merchandise Imports

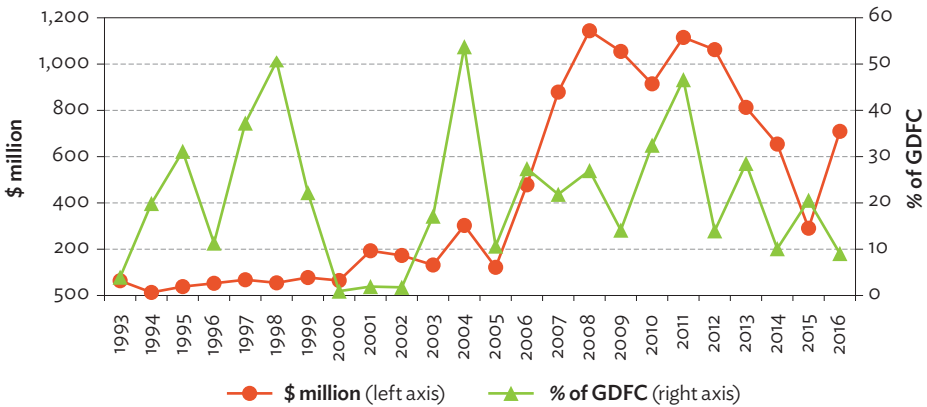
Country	1993–2004	2010–2011	2016–2017
CIS countries	93.0	52.0	45.1
Belarus	0.8	2.2	1.5
Kazakhstan	20.7	10.6	13.2
Russian Federation	30.3	33.6	26.3
Ukraine	1.4	2.8	0.9
Uzbekistan	17.2	2.4	2.7
Other CIS countries	22.7	0.4	0.4
Non-CIS countries	7.0	48.0	54.9
Canada	0.2	0.6	0.2
PRC	0.8	21.2	35.0
Germany	0.8	3.1	1.5
Iran	0.9	0.2	0.2
Japan	0.4	3.4	0.6
Korea, Republic of	0.5	1.5	0.9
Netherlands	0.1	0.9	0.3
Switzerland	0.1	0.4	0.4
Turkey	1.5	2.7	4.9
UAE	0.0	0.2	0.1
UK	0.1	0.5	0.3
US	0.1	5.4	3.6
Other non-CIS countries	1.6	8.0	6.3
Total share	100	100	100
Amount (\$ million)	358	3,742	4,245

CIS = Commonwealth of Independent States, PRC = People's Republic of China, UAE = United Arab Emirates, UK = United Kingdom, US = United States.

Source: NBKR, various years. Balance of Payments. <http://www.nbkr.kg/index1.jsp?item=138&lang=ENG> (accessed 18 May 2018).

2.6. Foreign Direct Investment

During the first decade of independence, annual FDI in the Kyrgyz Republic recorded an upward trend, from \$10 million in 1993 to \$109 million in 1999 (Figure 2.7 and Table 2.8). This trend was severely disrupted by political instability during the early 2000s: the average annual FDI plummeted to a mere \$5 million during 2000–2002. The subsequent years show significant increase, though with significant annual variations. The total volume of FDI during 2010–2016 was \$558 million, up from \$174 million during the preceding 7 years. The share of FDI in total gross domestic capital formation increased from 25% to 28% during these two periods. The volume of FDI flows into the Kyrgyz Republic has been much smaller throughout compared with the resource-rich Central Asian

Figure 2.7: Foreign Direct Investment in the Kyrgyz Republic, 1993–2016

FDI = foreign direct investment, GDFC = gross domestic fixed capital formation.

^a The year 2000 is omitted. In that year, FDI was $-\$2.4$ million and the FDI-GDFC ratio was -0.94 .

Source: UNCTAD. World Investment Report database. <http://www.unctad.org> (accessed 15 March 2018).

Table 2.8: Foreign Direct Investment in Central Asian Countries
(\$ million)

Years	Kazakhstan	Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
1993–1999	1,136	61	15	117	88
2000–2004	2,591	46	75	231	97
2005–2009	9,387	200	310	1,567	525
2010	11,551	438	155	3,632	1,636
2011	13,973	694	227	3,391	1,635
2012	13,337	293	262	3,130	563
2013	10,321	626	168	3,528	629
2014	8,406	248	408	3,830	632
2015	4,012	1,142	545	4,398	65
2016	9,069	467	434	4,522	67

Source: UNCTAD. World Investment Report database. <http://www.unctad.org> (accessed 15 March 2018).

countries of Kazakhstan and Turkmenistan, but is broadly comparable to flows into Tajikistan and Uzbekistan (Table 2.8).

FDI in the Kyrgyz Republic shows heavy regional concentration. In 2016 and 2017, 84.4% of total FDI was in the northern regions. Bishkek, the capital city area and Chuy Oblast together accounted for 67.5% of FDI. Of the southern share (15.6%), Jalal-Abad Oblast had 13.2% and the southern capital area (Osh) accounted for a mere 0.4% (Table 2.9).

Table 2.9: Regional Distribution of Foreign Direct Investment, Kyrgyz Republic, 2016–2017

Oblast/City	Share (%)
Batken	1.0
Jalal-Abad	13.2
Issyk-Kul	16.8
Naryn	0.1
Osh	0.4
Talas	0.9
Chuy	26.6
Bishkek	40.9
Total	100
Amount (\$ million)	1,404.1

Source: Data provided by the Foreign Investment Division, Ministry of the Economy, Kyrgyz Republic.

FDI is heavily concentrated in manufacturing (including minerals processing) and finance and insurance (Table 2.10). The market orientation of manufacturing FDI cannot be systematically assessed, although it contributes both to export expansion and meeting domestic demand. Of the five Kyrgyz FEZs, only the Bishkek FEZ has been successful in attracting FDI. The Bishkek FEZ was opened for investors in July 1995. It is in the Chuy Valley on sites covering a total 347.09 hectares (ha): on the National Exhibition Centre in Bishkek (43 ha), Ak-Chiy village in the Alamudun region of Chuy Oblast, 10 kilometers north of Bishkek (204.09 ha) and Kara-Balta town of Jaiyl Region

Table 2.10: Approved Foreign Direct Investment by Economic Activity, Kyrgyz Republic, 2002–2017 (%)

Sector	2004–2005	2010–2011	2012	2013	2014	2015	2016
Agriculture, forestry, and fishing	-1.1	0.0	0.6	0.0	0.0	0.0	0.0
Mining	34.6	2.3	8.6	1.6	-0.4	1.2	4.3
Manufacturing ^a	13.8	60.6	16.6	33.2	21.2	41.9	27.4
Electricity, gas, and water	1.6	0.0	0.0	2.1	0.0	11.1	19.6
Construction	0.9	-0.9	0.6	-1.2	0.9	5.2	3.6
Trade and vehicle repair	-10.5	4.2	4.1	2.3	4.1	2.8	-2.8
Transport and communications	4.2	0.9	0.4	0.4	-0.4	-0.2	0.0
Hotels and restaurants	2.3	-0.1	0.5	0.1	0.9	0.4	0.1
Finance and insurance	38.9	5.7	14.1	9.9	35.5	25.2	28.1
Real estate operations	9.1	27.2	54.3	51	0.7	0.2	0.0
Education and professional activities	1.1	0.0	0.0	0.7	25.9	12.2	19.5
Total	100	100	100	100	100	100	100
Amount (\$ million)	46	566	293	758	348	1,142	616

^a Includes processing of gold and other minerals.

Source: Compiled from NBKR, various years. Monthly Statistical Bulletins. <http://www.nbkr.kg/DOC/07122017/00000000048812.xls> (accessed 28 May 2018).

of Chuy Oblast (100 ha). Currently, 120 firms operate in the three locations, employing about 3,000 workers. Most of the firms in the FEZs, except a medium-size garment factory and a firm processing minerals for export to the PRC, are involved in producing consumer durables, soft drinks, confectionary, and building materials for the domestic market. Kyrgyz authorities anticipate that accession to the EEU will help attract investors to produce specifically for exporting to the other EEU countries in the future.

During the 1990s and the first decade of the 2000s, over 90% of total FDI in the Kyrgyz Republic came from non-CIS countries (Table 2.11). The share then declined with the increase in investment from CIS countries, driven predominantly by increased investment by Russian companies. During 2012 and 2015, the share of CIS countries increased from 10.9% to 44.9%, with the Russian Federation accounting for 98% of the increment. Among the non-CIS countries, Canada, the PRC, and the United Kingdom stand out as the major foreign investors. The PRC's FDI is in mining and manufacturing. Canadian and United Kingdom investment is solely in gold mining. As discussed, the joint venture of Cameco with the government-owned mining company, Kyrgyzaltyn, was the largest foreign investment in the country until recently. The United Kingdom-based gold company, Chaarat, has been involved in gold exploration in the Tien Shan gold belt since 2016. In 2018, after buying the Kumtor gold mine from Cameco, Chaarat became the largest foreign investor in the Kyrgyz Republic (Box 2.2).

Following the Russian Federation's exit from the Kyrgyz hydroelectric sector, the PRC's State Power Investment Corporation appears poised to take the role of top investor. In 2013, Bishkek agreed to become part of Line D of the Central Asia–PRC gas pipeline running through the Kyrgyz Republic, Tajikistan, and Uzbekistan. The pipeline is expected to bring \$40 million in annual transit fees to the country. PRC firms are also involved in manufacturing consumer goods for the domestic Kyrgyz market and in gold exploration. There are early signs of PRC manufacturing setting up production bases in the Kyrgyz Republic to produce for the EEU market, but as yet there no official data of FDI in agriculture and agricultural product processing.⁸

⁸ Turkish investment in kidney bean production in Talas Oblast (Tilekeyev et al., 2018) has taken place through informal channels.

Table 2.11: Sources of Foreign Direct Investment in the Kyrgyz Republic

Country	1996–1997	2000–2001	2010–2011	2012	2013	2014	2015	2016
CIS countries	3.1	41.7	6.7	10.9	10.7	42.6	44.9	45.4
Belarus	0.0	0.0	0.0	-0.2	0.3	-0.5	1.5	-2.9
Kazakhstan	1.3	7.2	1.9	4.9	-0.3	3.5	0.5	2.6
Russian Federation	1.5	30.3	4.8	6.2	10.7	39.6	42.9	45.6
Non-CIS countries	96.9	58.3	93.3	89.1	89.3	57.4	55.1	54.6
Australia	0.0	79.0	2.4	2.7	0.5	-0.9	0.1	0.6
Canada	37.7	19.6	57.2	3.4	0.8	34.7	11.4	16.7
PRC	0.5	25.9	14.9	23.3	60.3	13.2	31.6	28.4
Cyprus	0.4	1.8	0.1	0.3	4.1	4.1	2.3	2.0
Germany	3.8	-18.4	-0.3	4.5	0.0	-0.1	0.4	-0.1
Japan	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Korea, Republic of	0.2	13.2	1.5	-0.3	2.1	0.0	0.0	0.0
Netherlands	0.3	1.6	0.0	3.8	1.5	1.9	1.2	1.5
Pakistan	0.0	-5.0	1.0	1.5	0.9	1.1	0.1	0.4
Switzerland	3.9	-1.8	2.4	7.1	1.8	-12.1	0.4	0.4
Turkey	20.2	43.3	-0.9	3.0	-0.2	3.2	6.3	4.2
UAE	0.0	-6.6	0.5	0.6	0.4	0.1	-0.1	0.3
UK	8.1	-7.4	7.1	23.2	12.9	15.3	0.8	0.0
US	7.8	-6.6	0.7	1.7	0.4	1.6	0.8	0.4
Total	100	100	100	100	100	100	100	100

CIS = Commonwealth of Independent States, PRC = People's Republic of China, UAE = United Arab Emirates, UK = United Kingdom, US = United States.

Source: Compiled from NBKR, various years. Monthly Statistical Bulletins. <http://www.nbkr.kg/DOC/07122017/00000000048812.xls>, (accessed 28 May 2018).

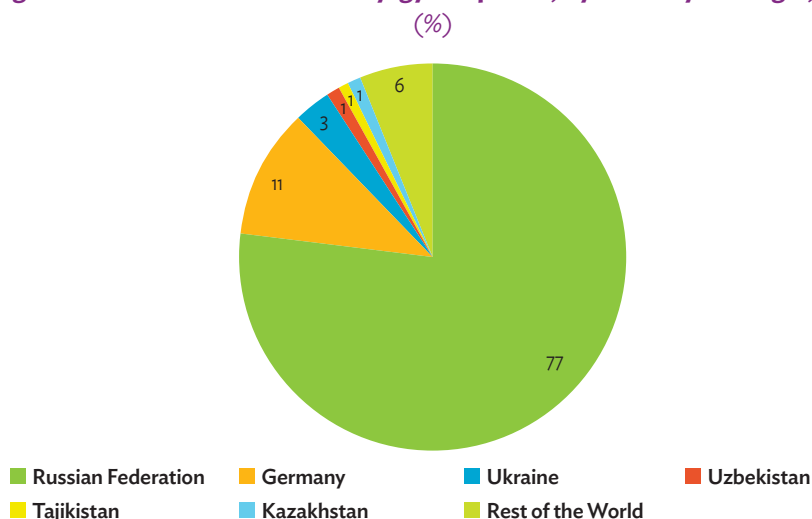
2.7. Labor Migration and Remittances

International migration has been a key influence on the Kyrgyz economy since independence. The first outmigration was the permanent departure of ethnic Russians and other groups of European origin. This was followed by increasing labor migration. The latter has included a growing number of ethnic Kyrgyz and Uzbeks, two groups that in the Soviet era had very low migration rates (Agadjanian and Gorina 2018; Schmidt and Sagynbekova 2008). The number of Kyrgyz workers migrating for employment has grown rapidly as the oil boom fueled demand in the Russian Federation and, to a lesser extent, in Kazakhstan. The other two destinations are Turkey and the United Arab Emirates, in that order.

The stock of Kyrgyz migrant workers in 2013 was 738,300, of which 572,678 were in the Russian Federation (World Bank 2016). Other estimates are higher—over 1 million (ADB 2014, Brück et al., 2018). All the estimates should be taken with caution because of the difficulty of defining “migrant worker”: many workers visit their homes several times during their overseas employment, resulting in duplicate counting, and many work illegally in the labor-receiving countries. Nevertheless, even the lower estimates are strikingly large for a country whose population is 5.8 million and domestic workforce is 2.7 million.

The overseas employment profile of migrant workers is broadly similar to that of such workers in other parts of the world: most of them are engaged in unskilled occupations with even professionally trained workers often performing unskilled labor (Athukorala 2006, Lucas 2005). There is, however, an important difference between Kyrgyz migrant workers and their counterparts elsewhere in the world, especially in Asia. The bulk of Asian migrant workers are largely “contract migrants” who work overseas for a specific period and then return home permanently; they are saving for their future at home. Most Kyrgyz workers, by contrast, work in the destination countries for a longer period with several intermittent visits home, facilitated by the relatively shorter distance from their country of employment to their home country and the absence of strict limits on the duration of employment. Thus, many Kyrgyz workers see overseas employment as a pathway to permanent relocation, especially to the Russian Federation. This has implications for their expenditure patterns and saving behavior and the remittance-receiving families.

According to the balance-of-payments records, migrant workers’ remittances to the Kyrgyz Republic increased from an average annual level of about \$80 million during 2000–2005 to nearly \$1.8 billion in 2014. Following a significant contraction in 2015 (to \$1.5 billion) owing to the economic downturn in the Russian Federation, remittance inflows surged to a historical high of \$2.2 billion in 2017 (Figure 2.8). This surge seems to reflect the Russian Federation’s favorable treatment of Kyrgyz workers occurred after the country became an EEU member, relative to migrants from Tajikistan or Uzbekistan. From about 2000, remittances as a percentage of GDP varied in the range of 24.0% to 29.5%, amounted to 60%–80% of total merchandise exports, and covered more than two-thirds of the country’s annual current account deficit. In terms of these indicators, the Kyrgyz Republic is the second highest remittance-dependent country in the World, after the neighboring Tajikistan.

Figure 2.8: Remittances to the Kyrgyz Republic, by Country of Origin, 2016

Source: World Bank. Migration and Remittance Data.

<http://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittance-data> (accessed 12 March 2018).

About 88% of remittances come from the Russian Federation (77%) and Germany (11%). Ukraine is the largest extraregional source country, accounting for about 3% of total remittances in 2016. Indeed, Moscow's threat to curtail the flow of migrant workers to the Russian Federation from non-EEU countries could be a decisive consideration for Tajikistan to join the EEU (Quinn-Judge and Strinski 2016).

Private systems remain the main mode of money transfer for migrant workers (Table 2.12). Only a small share of the remittances finds its way through the formal banking system or the government-run postal service. The money transfer systems are more popular due to their accessibility, safety, and low cost (Kyzy et al., 2015). Money transfer operators have offices all over the country and the transfers can take less than a few hours. The average cost of sending money to the Kyrgyz Republic is much lower than the world average of 7.13% of remittance.⁹ For example, in 2018 sending money from the Russian Federation costs less than 1.5% of remittances. The money transfer system is considered as a "formal" institution by the National Bank of the Kyrgyz Republic, but the system is actually "quasi formal" because such money transfers do not enter the country's formal financial intermediation process through the banking system. Migrant households receive

⁹ World Bank. Remittance Prices Worldwide database. <http://remittanceprices.worldbank.org/en> (accessed May 2018).

Table 2.12: Migrant Workers' Remittances, by Mode of Money Transfer, 2009–2016 (\$ million)

Mode of Transfer	2009	2010	2011	2012	2013	2014	2015	2016
Money transfer systems ^a	967.0	1,252.6	1,695.4	2,017.9	2,268.2	2,235.9	1,683.6	1,991.3
Commercial banks ^b	11.0	9.2	9.0	9.7	6.5	4.8	2.9	2.4
Postal service	4.3	4.4	4.2	3.8	3.4	2.2	1.2	0.9
Personal ^c	90.0	113.1	152.0	177.4	0.0	0.0	134.4	0.0
Total	1,072.0	1,379.3	1,859.7	2,208.8	2,278.0	2,242.8	1,822.1	1,994.6

^a Anelik, Baziko, Contract, Migom, MoneyGram, Western Union, Unistream, Zolotaya Korona, Leader, Bystraya Pochta, Fast Post, Allure, and many others.

^b Money transfers exceeding \$3,000 are not covered.

^c A National Bank of the Kyrgyz Republic estimate of remittances that migrant workers bring in cash. Source: NBKR, various years. Balance of Payments. <http://www.nbkr.kg/index1.jsp?item=138&lang=ENG> (accessed 18 May 2018).

remittances in cash through money transfer operators. The money is used to meet household needs, and most of the rest enters the microfinance system, which has grown rapidly from about 2000, quadrupling its lending volume and tripling the number of customers (ADB 2014). Given stringent collateral requirements and other difficulties involved in obtaining bank loans, more than one-third of credit in the economy comes from microfinance intuitions at high interest rates, ranging from 20% to 69% per annum.

Labor migration acts as a safety valve for domestic labor market pressure and helps lift remittance-receiving households above the poverty line. While the remittances are a vital source of foreign exchange for the country, the net impact of labor migration on the country's socioeconomic development remains debatable. Kyrgyz household surveys indicate that remittances are largely used to support consumption, rather than for investment or as an addition to national savings. Anecdotal evidence points to shortages of semiskilled and middle-level labor in the economy because of the massive outmigration of workers from these categories. Moreover, individuals from remittance-receiving households are less likely to enter the labor market, putting additional pressure on the domestic labor supply. Prospective labor market entrants prefer to acquire skills required for the lower rungs of the labor market in labor-receiving countries, and the use of professionally trained migrant workers in unskilled occupations abroad has an adverse impact on human capital development in the sending country. Finally, widely discussed social costs involve adverse psychological effects on family members and negative effects on children's education (ADB 2014, UNDP 2015).

An important issue relating to the impact of labor migration on the economy of the sending country is whether labor migration stimulates domestic entrepreneurship—whether returned migrant workers use their savings and experience to set up businesses at home. A recent study of occupational choices of returned migrant workers in the Kyrgyz Republic has two interesting findings relating to this issue (Brück et al., 2018). First, return migrants who were self-employed before migrating are less likely to opt for self-employment on return. Second, occupational choices of returnees are less stable than those of nonmigrant workers: those who seek self-employment often consider that as temporary primarily because remigration remains an option. The findings cast doubt on whether returnees make lasting contributions to Kyrgyz economic development through entrepreneurship.

2.8. Concluding Remarks

During the last quarter century, the Kyrgyz Republic has made significant progress in its economic transition to global economic integration. However, the patterns of global economic integration have been rather lopsided: rapid import penetration of the economy has not been matched by structural changes on the export front. There have been some notable changes in the export composition in line with the country's comparative advantage. But in recent years, the export earnings have been sufficient to meet only about half of the total value of merchandise imports. This has led to the economy's increased dependence on remittances and external financing. Remittances have filled over two-thirds of the trade deficit during the last 15 years.

The composition of external financing has begun to shift from grants and concessionary loans toward borrowing at commercial rates, thus potentially exposing the economy to additional external economic shocks. The country's debt servicing commitments remain within manageable limits, but are bound to increase with the compositional shift in external financing. FDI, which is expected to play a pivotal role in export-oriented production and structural adjustment in the liberalized economy, in addition to its direct contribution to strengthening the external payments position, has so far accounted for only a small share of capital inflows.

Given the country's rich mineral resource endowment and the distance-related trade cost as a landlocked country, the Kyrgyz Republic has a comparative advantage in the production of gold and other high value per unit weight minerals. As was evident from the long-running profit sharing dispute pertaining to the Kumtor gold mine, designing an effective mechanism for mineral leasing

and taxing resource rent remains a major policy challenge. This is vital for maximizing national gains from resource extraction while improving the country's attractiveness for global high-quality investors. The idea of mineral rent taxation is to collect a high proportion of value over and above the level necessary to attract investment, without deterring marginal investments. Addressing investors' concerns may require surrendering some local control. This compromise would be politically palatable only if the government systematically embodies policy for the mining sector within a well-conceived national development strategy (Garnaut and Clunies-Ross 1975 and 1983).

An important development relating to nongold exports, which deserve policy focus, is the emergence of food products (dairy, fruits, and vegetables) and garments as dynamic export lines. The expansion of food product exports is in line with the ongoing compositional shift in global food trade from conventional primary food products to high-value processed food. With the improvement in trade relations with the PRC and transport networks, food exports have the potential to play an important role in narrowing the widening trade gap with the PRC. Processed food has become one of the most dynamic items in PRC imports as domestic demand patterns change in line with increased household income levels. A prerequisite for promoting processed food exports is to set up an institutional mechanism to help producers and exporters meet international food safety standards (such as sanitary and phytosanitary standards). International development agencies can play an important role in such areas as part of the new emphasis on "aid for trade" initiatives.

In the last 2 decades, the Kyrgyz garment industry has carved out a niche in middle-income markets in Kazakhstan and the Russian Federation. It is important to look for ways to help the industry to "go global" based on this impressive record. Removing administrative restrictions that hinder the emergence of large firms, promoting FDI in the industry, and introducing an import duty scheme are the policy options that deserve high priority consideration.

The Kyrgyz Republic's large extraregional trading partner, Turkey, emerged as the second largest garments exporter (next to the PRC) in the world after the Multifibre Arrangement was abolished with effect from 2015. The Kyrgyz Republic may be an attractive location for Turkish garment producers, which have already started relocating their production in low-wage countries in the face of increasing domestic wages.

Before accession to the EEU, a key determinant of the Kyrgyz garment production's profitability/competitiveness was the availability of imported fabrics under specific (weight-based) duties through the bazaar-centered trading

networks. The cost of production is bound to increase following the introduction of value-based import tariffs under the EEU customs administration. In this context, it is important to introduce an import duty rebate scheme for export-oriented apparel exporters to cushion their profit margins against the increased cost of procuring imported input. The role of a well-functioning duty rebate scheme is to provide producers with access to imported input at the world market price. This is vital for maintaining competitiveness in the export market, particularly for producers in a country such as the Kyrgyz Republic that lacks a strong domestic textile base.

What are the policy options for directing migrant worker remittances to socially and economically desirable investments? The early literature and policy recommendations argued in favor of implementing entrepreneurship development schemes (Bohning 1984). The basic strategy was to guide workers (or their remittance-receiving families) to set up business ventures on an individual or collective self-help basis in line with national development priorities. However, many attempts to adopt this strategy in various labor-exporting countries failed. The reason was that migrant workers without business skills lacked the ability to identify, develop, and/or manage a project. Moreover, even migrant workers in high-level labor categories either did not have adequate savings or were unwilling to invest in business owing to risk considerations.

This consideration lends support to the now widely accepted view that, instead of focusing on “migrant-specific” investment programs, labor-exporting countries should try to use the financial intermediation process as the vehicle for channeling remittances into productive investments. Instead of trying to convert migrant workers into investors, governments could design policies to transfer remittances through financial intermediation to entrepreneurs who are both able business people and can bear business risk. Savings schemes and investment instruments specifically designed to suit workers’ income patterns can play a role, but the key to the success of such initiatives depends crucially on broader financial sector policies to promote the role of the formal banking system. Thus, in the final analysis, the policies needed to maximize developmental gains from migrant remittances are the same as those required to effectively mobilize domestic savings for economic development.

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Chapter 3

Reinventing the Agriculture Sector

T. Yamano, J. N. Samson, and K. Tilekeyev

3.1. Introduction

The extent and depth of the agricultural reforms differ significantly among the former Soviet Union countries. During the initial period of the agricultural transition, the productivity of agriculture declined in the newly independent countries (Swinnen and Vranken 2010). In Central Asia, the Kyrgyz Republic has been among the most advanced countries in agricultural reform since independence (Csaki 2000). The reform included land privatization, trade liberalization, state marketing privatization, liberalization of input and output markets, and dismantling of compulsory orders for outputs. After a significant decline in agricultural value added from 1990–1995, Kyrgyz agricultural production recovered, surpassing the prereform level before 2000.

During the Soviet era, Kirgizia had been part of larger agricultural planning within the Soviet Union. Sheep production for fine wool and cotton were among Kirgizia's specialties, which was dependent on wheat and other food items. The loss of public support after 1990 in addition to low wool prices resulted in the number of sheep being reduced from 10 million head in 1991 to 4 million in 2003 (Akramov and Omuraliev 2009); it has since rebounded to 6 million. Farmers in areas favorable to growing food shifted from cultivating cotton and other industrial crops to food and high-value crops, as they became concerned about protecting food security and maximizing their income. Some value chains have recently emerged that connect Kyrgyz farmers with international markets; however, critical constraints remain.

Kyrgyz Republic's agriculture is being “reinvented” by adopting modern production systems and joining global value chains. Given its small size, Kyrgyz agriculture must rely on technological knowledge and inputs from outside to increase its productivity. By joining global value chains, the export destinations for Kyrgyz agriculture products could be diversified beyond neighboring countries, and farmer groups and cooperatives could obtain knowledge and inputs with international assistance from both public and private sectors. The Kyrgyz government can play an important role in facilitating the integration of Kyrgyz agriculture with global value chains. In addition, government investments in infrastructure such as irrigation and logistics facilities can ease the constraints farmers and traders face, but such investments need to be demand based. This chapter first describes the Kyrgyz agriculture sector and discusses the export potential of its subsectors. A few successful cases illustrate the options, and lessons are drawn from the cases. Policy recommendations at the end of the chapter aim to facilitate further development of agriculture's export potential.

3.2. The Kyrgyz Republic's Agriculture

Historical overview of agriculture policy

The various phases of agrarian reform in the country brought on crucial transformations in the agriculture sector (Table 3.1). During the first reform phase, 1991–1993, the transfer of agriculture landownership to farmers was the focus of the agriculture policy. Collective farms were reorganized into joint-stock companies, agriculture cooperatives, and peasant farm associations, although most of their farm operations resembled those of the former socialist ways (Mogilevskii et al., 2017). Many farmers remained dependent on government subsidies despite the collapse of the state budget. In 1994, about 12% of the Kyrgyz Republic's land was distributed to individual farmers despite a lack of clarity on landownership. Land shares and assets had been distributed on paper, and many collective farm workers could claim land shares in separate locations and establish an individual peasant farm (Sebates-Wheeler and Childress 2004). In the same period, deregulation of agriculture prices coupled with the process of land distribution resulted in a slow decline of agricultural output.

The second phase of the reform started in 1994, after the proclamation of a new presidential decree that initiated new measures and procedures to implement the Agrarian Reform Program. The program successfully reorganized about 262 state and 190 collective farms (Akramov and Omuraliev 2009). During this period, about 75% of the arable land was distributed to individual farmers (Bloch et al., 1996), 68% of state farm livestock was given to individual farmers,

Table 3.1: Agricultural Reform Measures, Policy, and Strategy Milestones in the Kyrgyz Republic

Phases of Reforms in Agriculture	Date	Reform Measures, Policies, and Strategies
Post-Soviet		
First phase	1991	Law on Peasant Farms, Law on Enterprises, Law of Land Reform, Land Code
	1993	New Constitution
Second phase	1994	Measures on Deepening Land and Agrarian Reform, Creation of the National Land Fund (renamed to Land Redistribution Fund)
	1998	Referendum on Private Land Ownership Presidential Decree on Private Land Ownership Law on State Registration of Immovable Property Rights and Transactions
	1999	Land Code, Law on Peasant Farms
	2001	Law on Agricultural Land Management (lifting of moratorium on land sales)
Third phase	2004	New Directions and Measures of Land and Agrarian Reform, Law on Cooperatives
	2008	Tax Code on Land Taxation
	2009	Law on Pastures
	2013	National Strategy of Sustainable Development
New strategy policies	2016	Food Security and Nutrition Program
	2017	Forty Steps to New Era: 2018–2023
	2018	Development Program of the Kyrgyz Republic for the period of 2018–2022 “Unity, Trust, Creation.”

Sources: Lerman and Sedik (2009) and Mogilevskii et al., (2017).

and 16% of tractors and buildings went to private farms. Akramov and Omuraliev (2009) noted that the centrally planned irrigation systems also started to be decentralized, involving farmers in the on-farm irrigation networks. A legal base paved the way for the creation of water users associations (WUAs) and on-farm irrigation ownerships; however, the interfarm irrigation system remained state property. About 920,000 hectares (ha) of arable land were redistributed to peasant farms and household plots, while less than 400,000 ha were left to large agricultural enterprises and other users. The average farm size decreased from 15 ha in 1994–1996 to 3 ha in 2002. Under the new water reform act of 2002, the WUAs were given a legal entity as noncommercial organizations, allowing them to manage and maintain irrigation systems in rural areas, collect water fees, allocate water within their service areas, and take charge of the operation and maintenance of irrigation systems using the fees collected. However, WUA management remained weak and the WUAs faced significant challenges in collecting water fees, which gave a few better-off farmers the opportunity to take advantage of better access to water.

During the third phase of the agrarian reform, starting in 2004, the focus turned to enhancing agricultural extension services and increasing investments in infrastructure (Lerman and Sedik 2009). Development of cooperatives, peasant farms and agribusinesses, water, and pasture, and village social development were the government's central priorities. The Rural Advisory Service was established as the main extension provider—receiving substantial support from external funding agencies. The level of public investment financed by external agencies raised serious concerns about institutional sustainability—the low allocation of budget support from the national government meant that operation and maintenance of the investments and programs were unlikely to be sustained.

In 2013, the National Strategy of Sustainable Development (NSSD) of the Kyrgyz Republic for 2013–2017 was approved under the Decree of the President No. 11, which provided midterm government strategies that identified agro-industrial sector development as one of its priorities. Targets for the sector include (1) to ensure food security through growth in output and productivity, (2) to enhance the efficiency and competitiveness of agriculture and the agroprocessing industry, (3) to improve the efficiency with which government budget resources are used, and (4) to provide a resolution to address peasant's social issues.¹

The NSSD's policy statements have been too ambitious. Mogilevskii et al., (2017) noted that the only NSSD agricultural policies that were fully implemented were (1) support for the provision of critically important public goods for agriculture (veterinary services, seed breeding, etc.); (2) rehabilitation of infrastructure (e.g., irrigation and roads) through donor funding; (3) improvement of market access through the Eurasian Economic Union (EEU) that facilitated Kyrgyz farmers' access to Kazakh, Russian, and other EEU markets; (4) provision of cheaper credit to farmers and agribusinesses through government subsidy programs and commercial bank loans to producers and processors; and (5) implementation of tax rates and exceptions favorable for agribusiness enterprises and individual farmers.

In 2017, the Kyrgyz Republic government announced a new 5-year policy—Forty Steps to New Era: 2018–2023. The policy comprises nine reform programs and nine development programs. Three programs were identified as key investment items in multiple meetings with government officials: (1) Taza Koom (which means “Transparent Society” and is a policy vision aimed at a “digital nation,” including e-governance); (2) provision of clean drinking water,

¹ The Appendix describes the specific measures that the NSSD aims to use to comprehensively plan to attain these targets.

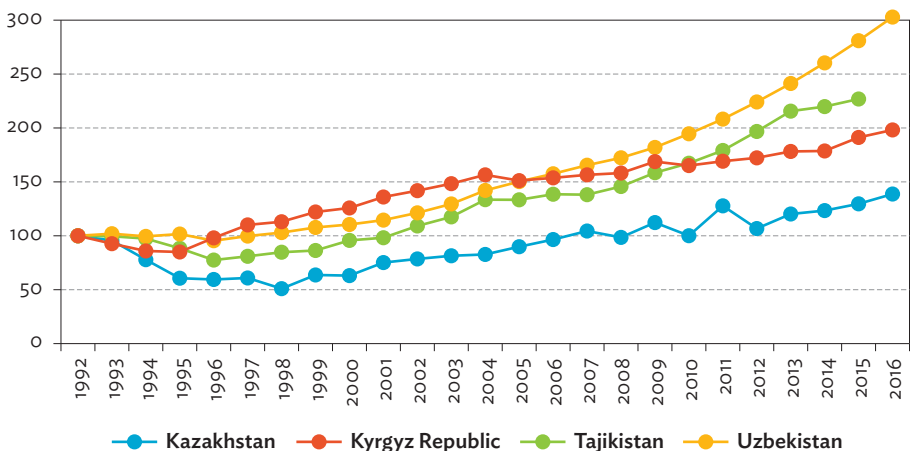
especially in rural and remote areas; and (3) irrigation for agricultural production. Development of the agribusiness sector and cooperative systems were also included in the policy. The following sections will examine these programs.

Agriculture in Central Asia

Agricultural production suffered from the breakdown of the former Soviet Union in 1991. The total value added of agriculture in all Central Asian countries started to decline in 1992, except in Uzbekistan (Figure 3.1). Kazakhstan's agriculture suffered the most, with agricultural value added declining by 50% from 1992 to 1998, and the country took 15 years to rebound to its 1992 level. Kyrgyz agriculture recovered much faster than that in the other Central Asian countries. By 1997, its total agriculture value added had surpassed its 1992 level, and reached almost 150% of that level in 2003. The Kyrgyz Republic was the first of the five Central Asian countries to reach that level. Since 2004, however, Kyrgyz agriculture's growth has slowed, while that in Tajikistan and Uzbekistan has increased to 200% of the 1992 levels; Uzbekistan's agriculture has tripled its total value added from the 1992 level.

During the Soviet era, agricultural production and food consumption were centrally controlled and were interdependent across subregions. For example, a large share of wheat was produced in the northern Kazakhstan wheat belt and exported to the southern regions, where Tajikistan and the Kyrgyz Republic are located (Pomfret 2016). The irrigated lands of the southern regions were devoted

Figure 3.1: Evolution of Agricultural Production Value in Central Asia
(1992=100)



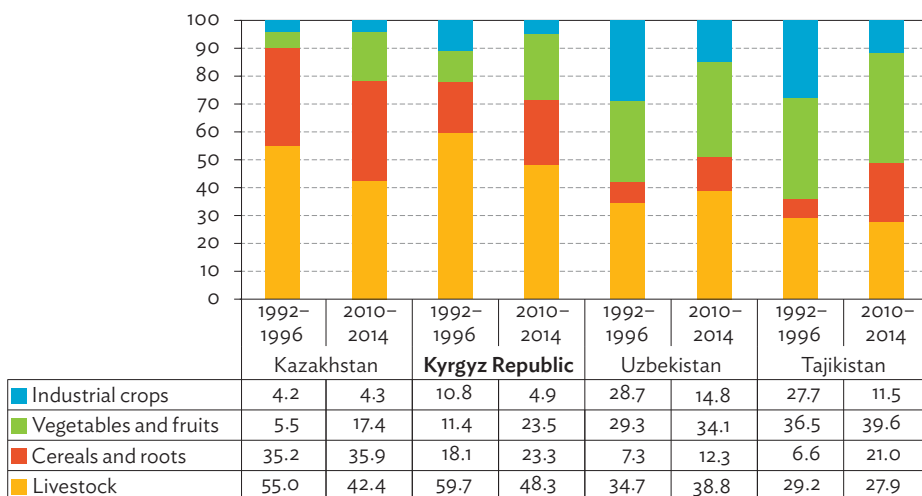
Source: FAO. FAOSTAT. <http://www.fao.org/faostat/en/#data> (accessed March 2018).

to cotton, especially in Tajikistan, Turkmenistan, and Uzbekistan. Relatively high cotton prices from 1992–1995 helped ease the three countries' transition.

Deteriorating or nonexistent state support for cotton and other industrial crops has pushed farmers away from industrial crops. As a result, the gross production value of industrial crops declined in three of the four Central Asian countries (Figure 3.2). In the Kyrgyz Republic, for example, the industrial crops' share of the gross production value declined from more than 10% to less than 5%; in Tajikistan and Uzbekistan, it declined from about 30% to 10%. Only in Kazakhstan did the production of industrial crops remain at about the same share.²

Individual farmers who had obtained land after the agrarian reform period became decision makers for their farm production and were concerned about their food security, so they started allocating more land to food crops. In the southern Central Asian countries, the production of cereal and root crops increased significantly as they no longer relied on imports from Kazakhstan and other former Soviet Union countries. In the Kyrgyz Republic, the share of

Figure 3.2: Shares of Gross Agricultural Production Value in Central Asia, 2016 (%)



Source: FAO. FAOSTAT. <http://www.fao.org/faostat/en/#data> (accessed March 2018).

² The use of child labor in cotton production and harvest, unfavorable incentives for farmers, and overuse of water in cotton production have contributed to the declining production of cotton in these countries (Pomfret 2016).

the production value of cereal and root crops increased from 18% to 23% of the total agricultural production value, and that of vegetables and fruits increased from 11% to 24%. Similarly, the production values of these crops increased in Tajikistan and Uzbekistan.

The status of agricultural production in Central Asia in 2016 is presented in Table 3.2. Central Asian countries privatized land gradually in several stages after the collapse of the Soviet Union, with countries taking different paths. In all countries except Kazakhstan, land privatization is mostly complete. Notably, more than 90% of agricultural land is owned by individual farmers in two countries—the Kyrgyz Republic and Uzbekistan. In Kazakhstan, only 39% of the land is owned by individual farmers. Furthermore, Kazakhstan has vast agricultural land areas, but the lowest land productivity and the highest labor productivity among the four countries. In Uzbekistan, the total agricultural value added is more than \$10 billion, and both the land and labor productivities are high.

Land productivity in the Kyrgyz Republic is low compared with that in Tajikistan and Uzbekistan. The value added is only \$90.8/ha in the Kyrgyz Republic, versus more than \$300/ha in Tajikistan and Uzbekistan. The main reason for their high land productivity is their reliance on vegetable and fruit production, with the gross production value share of vegetables and fruits at about 34% of agricultural production in Tajikistan and 40% in Uzbekistan.

Contribution to gross domestic product and employment

Immediately after the collapse of the Soviet Union, workers returned to their home villages looking for temporary employment in the agriculture sector. Consequently, the share of agricultural employment increased from about 33%

Table 3.2: Agriculture Land Use and Value in Central Asia, 2016

Country	Land Use (million ha)	Land in Individual Farms (%)	Total Agriculture Value Added (constant 2010 \$ million)	Agriculture Value Added per Hectare (constant 2010 \$)	Agriculture Value Added per Worker (constant 2010 \$)
Kazakhstan	217.0	39	8,574	39.5	7,766
Uzbekistan	26.8	98	10,493	391.5	4,072
Kyrgyz Republic	10.6	95	963	90.8	1,968
Tajikistan	4.9	83	1,528	311.8	1,936

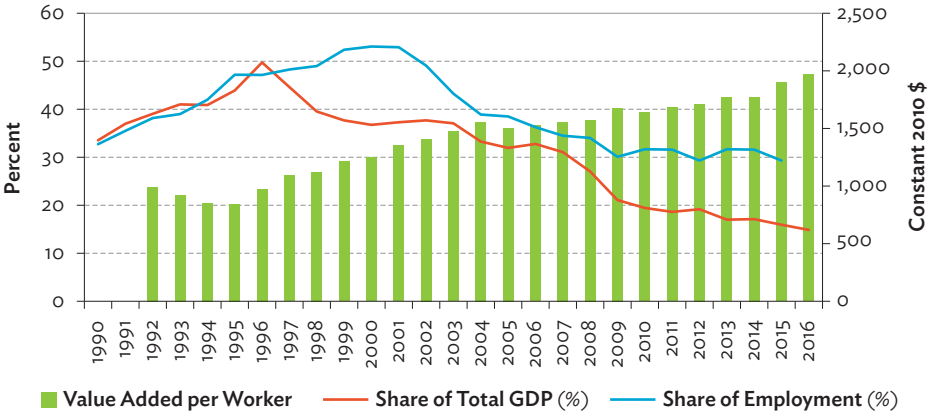
\$ = United States dollar, ha = hectare.

Note: For agricultural value added, Kazakhstan and the Kyrgyz Republic use 2016 figures, Tajikistan uses 2016, and Turkmenistan, 2010.

Source: World Bank. WDI. <https://datacatalog.worldbank.org/dataset/world-development-indicators> (accessed February 2018).

of the total in 1990 to 52% in 2001 (Figure 3.3). The agricultural gross domestic product (GDP) also increased until 1996 and the GDPs of the service and industry sectors declined significantly. The increase in agriculture’s GDP and employment shares was a passive reaction to economic turmoil; this is evident in the decline of the average labor productivity, measured in value added per worker in the agriculture sector, in 1995. A similar decline was common among the former Soviet Union countries (Swinnen and Vranken 2010). As the Kyrgyz economy recovered, workers found jobs in the other sectors and agriculture’s share of employment declined to below 30% in 2016. As workers left agriculture, the average labor productivity doubled during 1992–2016. The Kyrgyz agricultural labor productivity remains low compared with that in Kazakhstan and Uzbekistan.

Figure 3.3: Agriculture’s Share of GDP and Employment, and Value Added per Worker

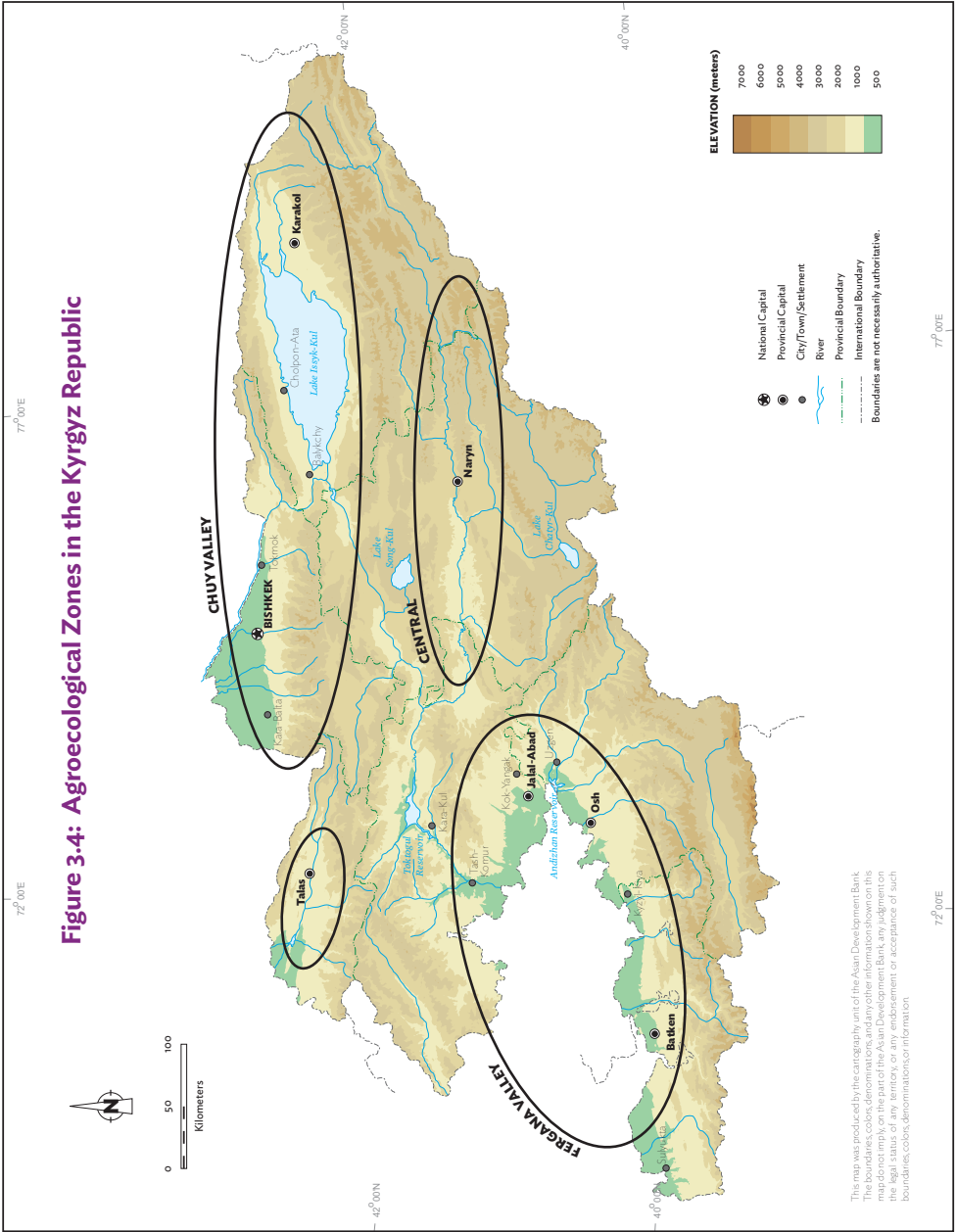


GDP = gross domestic product.

Source: World Bank. WDI. <https://data.worldbank.org/data-catalog/world-development-indicators> (accessed October 2017).

Kyrgyz Republic’s agroecological zones

The Kyrgyz Republic has numerous mountainous areas, with most of its 198,500 square kilometers higher than 1,000 meters above mean sea level, and an average altitude of 2,750 meters. Although about 55% of the land (11 million ha) is classified as agricultural land, only 7% of that, about 1.2 million ha, is cultivated. The cultivated areas are along river valleys, and about 60% of the cultivated areas are irrigated (NSC 2016). The rest of the agricultural land is grazing land. The agricultural land can be classified into four agroecological zones (Figure 3.4).



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Chuy Valley zone. This zone includes the Chuy River valleys and outskirts of a large lake, Issyk-Kul. About 66% of the cultivated areas in this zone are irrigated (Table 3.3). This zone includes Bishkek, the country’s capital and most populous city (about 1 million people). Because the northern zone has ready access to major urban markets and irrigation, it produces high-value crops. Livestock are kept in hilly areas and produce milk for the urban areas. By value, livestock and livestock products comprise about 47% of the zone’s agricultural production. Dairy production serves both domestic and export markets. The rural population is about 1.1 million. The value of the total agricultural production in 2016 was about \$1,603 million, or \$978 per rural person. Kazakhstan and the Russian Federation are the second and third largest export markets for Kyrgyz agricultural products, and a significant portion of the export to them is produced and processed in the northern zone.

Fergana (Southern) Valley. Three countries share the Fergana Valley, which covers 22,000 square kilometers and has 14 million people. Uzbekistan takes up the largest portion of the Fergana Valley, and the Kyrgyz Republic and Tajikistan occupy outskirts of the valley. Two Kyrgyz rivers—the Naryn and the Kara Darya—meet in the valley to form the Syr Darya River in Uzbekistan. Only 42% of the Fergana Valley is irrigated, and the valley is highly populated, with cities in the Kyrgyz Republic (such as Osh and Jalal-Abad) and Uzbekistan. On the Kyrgyz side, the total rural population exceeds 2.5 million, however, the total value of the southern zone’s agricultural production is only 23% more than that of the northern zone, and about half of it comes from livestock production.

Central (Naryn). Naryn is located along the Naryn River, and is surrounded by steep hills. The river flows from Karakol Lake, collecting glacier water from surrounding mountains. Unexpected floods can cause major damage,

Table 3.3: Characteristics of Agroecological Zones in the Kyrgyz Republic, 2016

Zone	Cropland ('000 ha)	Irrigated Land (%)	Rural Population ('000)	GAO in 2016 (\$ million)	Proportion of Livestock GAO in 2016 (%)	Crop GAO in 2016 (\$ million/ha)
Northern	479.5	65.7	1,087.0	1,063	46.7	1.2
Fergana	373.7	42.6	2,517.0	1,303	50.9	1.7
Central (Naryn)	92.4	94.3	242.0	203	75.5	0.5
Talas	89.6	81.8	219.0	255	30.1	1.9
Total	1,035	61.3	4,066	2,824	49.2	1.4

GAO = gross agricultural output, ha = hectare.

Source: NSC. Agriculture. <http://stat.kg/en/statistics/selskoe-hozyajstvo/> (accessed February 2018).

and there is concern about future flood damage exacerbated by climate change. The total rural population is about 242,000 and the total value of agricultural production is \$203 million. More than three-quarters of the value comes from livestock production, and over 1 million sheep are raised in this zone.

Talas. Located along the Talas River valley at the northwest corner of the country, this zone is remote and isolated, away from major cities in the Kyrgyz Republic. The total cropland is about 90,000 ha with the total value of agricultural production at Som17.8 billion (about \$255 million). Only 30% of that comes from livestock. This zone has the highest land productivity from crop production, mostly due to the development of export-oriented dry kidney bean clusters.

Irrigation development

Before independence from the Soviet Union, the total area of Kirgizia served by irrigation was estimated to be 1.1 million ha, covering over 80% of the cropland. However, not all irrigated schemes were functional, and some areas reverted to rainfed agriculture because of damaged irrigation schemes (FAO 2012). The Soviet-built schemes were difficult to maintain due to the high price of electricity and absence of spare parts. As shown in Table 3.3, only 61% of the cropland was irrigated in 2016, suggesting the total irrigated area was 634,455 ha. This finding is very close to what the Asian Development Bank reported. By using the 2011 data of WUAs, ADB (2013) estimated the total irrigated area under WUAs at 636,400 ha.

Factors directly affecting water supply such as seasonal water availability and social factors (limited access to credit, seed, or fertilizer) help to explain why some oblasts fail to irrigate 100% of their command areas. In Chuy, for example, crop production area has declined due to land loss, salinity, and waterlogging. An estimated 283,700 ha of irrigated areas were not managed by WUAs, but there are no data for these areas. Information on the status and performance of irrigation schemes remains limited and has not been updated. ADB (2013) reported that much of the country's irrigation infrastructure had deteriorated since the 1990s due to (1) substantial reduction in investments and operation and maintenance budgets for irrigation systems, and (2) limited funding to support and build the institutional capacity of the main agency to effectively oversee and manage the systems.

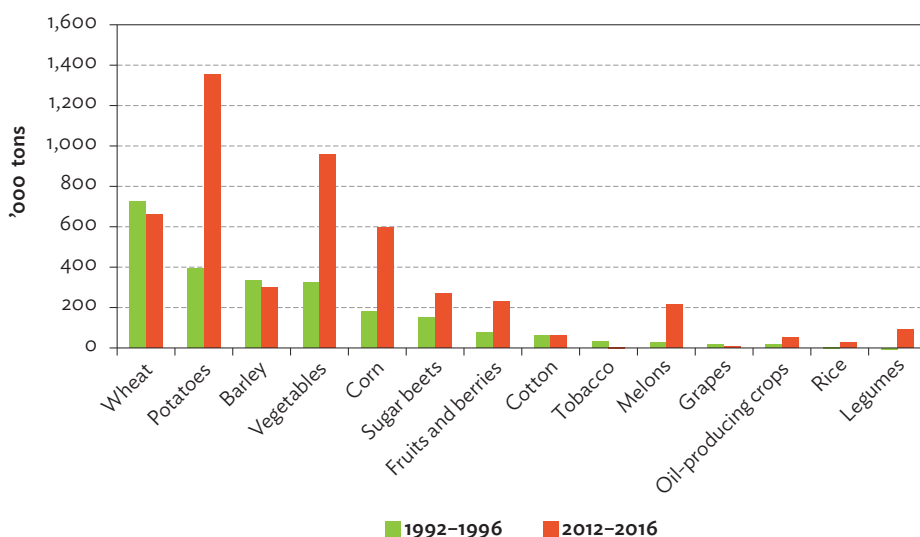
Irrigation systems need maintenance and upgrading; however, a careful needs assessment is required to identify the appropriate irrigation systems for different ecological and economic conditions and to prioritize investments. In

the Naryn Oblast, for example, irrigation systems are needed that can mitigate extreme weather risks such as drought and flood because the region is vulnerable to such events. Further, economic returns from irrigation investments are not likely to be high in a remote, sparsely populated area. Irrigation systems for the northern and Fergana zones could be designed for high-value crop production and investments from private sources could recover their costs.

Agricultural production and trade

Crop production. Wheat and cotton were regarded as the most important economic crops during the Soviet Union times and until the early years of the Kyrgyz Republic's independence. During the Soviet era, crops were produced by collective farming, with production highly controlled and subsidized by the state. Wheat production was the basic source of food security and wheat has remained a priority crop for many farmers during the difficult periods of economic transition. From 1992–1996, wheat comprised more than 30% of the country's total crop production, followed by potatoes (16%), barley (14%), and vegetables (13%). The share of industrial crops fell—cotton to 2% and tobacco to 1%—due to significant reductions of their cropped areas (Figure 3.5). The decline resulted from the increased transfer of land ownership to individual farmers.

Figure 3.5: Annual Average Crop Production, 1992–1996 and 2012–2016
(‘000 tons)



Source: NSC. Agriculture. <http://stat.kg/en/statistics/selskoe-hozyajstvo/> (accessed February 2018).

From 1998 on, cropping patterns shifted toward more market-oriented production. From 2012 to 2016, the average production of and land areas under potatoes, vegetables, corn, sugar, dry beans (mostly kidney beans), and fruits have increased as farmers' orientation has become more market-driven. This was boosted by reform initiatives that supported the privatization of land, improved market access, increased investments in irrigation, and enhanced agricultural extension on modern production technologies (e.g., planting materials, fertilizers, expansion of irrigation systems, etc.).

The Kyrgyz Republic's total agricultural production doubled from 1992–1996 to 2012–2016. Between the two periods, the average annual production increased about three times for potato, vegetables, and corn. Potato has started to penetrate the export market, along with vegetables and fruits. Potato is considered the country's second most important food security crop, after wheat. The average potato yield is less than 16 tons/ha, limited by factors such as a relatively short growing season and high temperatures in spring and summer (Abdulhamidov et al., 2015). Seed potatoes are imported from Europe, particularly from the Netherlands. Bean production (particularly kidney beans) has grown tremendously, triggered by good export demand from Turkey. The development of dry beans is discussed later as a case study in section 3.3.

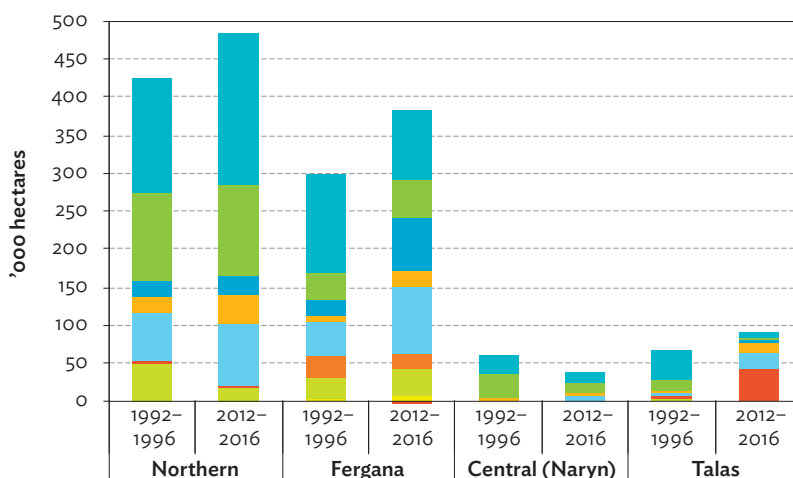
Changes in cropping patterns. The changes in areas under different crops differ across the country's agroecological zones. In all agroecological zones, except for the Naryn zone, the total cultivated areas increased between 1992–1996 and 2012–2016 (Figure 3.6). In the northern zone, the total cultivated area increased from 425,000 ha to 480,000 ha. The area under wheat increased by more than 30% in the northern zone, while decreasing in all other zones. In the northern zone, the area with high-value crops, such as potatoes, vegetables, and fruits increased, taking advantage of the market access to Bishkek and other populous cities. At the same time, the area under industrial crops declined from 50,000 ha to 18,000 ha.

In the Fergana zone, an important fertile valley in Central Asia, the total cropped area expanded by 30% during the same period. Although the area under wheat declined significantly, from 132,000 ha to 93,000 ha, the areas with vegetables and fruits doubled, from 46,000 ha to 86,000 ha, and the area under corn tripled, from 21,000 ha to 68,000 ha, with the high demand for quality feed to support the country's increasing livestock production. Cotton is still produced in Fergana, on about 22,000 ha during 2012–2016 and Fergana is the only zone growing cotton.

In the Talas zone, the area with dry beans increased significantly to 41,300 ha in 2012–2016 from a negligible level in 1992–1996. In this zone, potatoes, vegetables, and fruits also gained areas during the two periods. The development of dry bean clusters in Talas was started in about 1995 by farmers connected to buyers in Turkey (see section 3.3 of this chapter). Only in the Naryn zone did the total cultivated area decline during the two periods. Wheat and barley areas decreased, and livestock was the main agricultural activity.

Livestock production. The share of the value of gross livestock production in total agriculture production increased from 42% in 2005 to 48% in 2015. Sheep,³ beef cattle, dairy cattle, horses, and poultry are the four main types of livestock produced in the Kyrgyz Republic. Cattle and poultry are raised mostly by rural households and kept in barns adjoining homes, while horses

Figure 3.6: Cropped Area by Crop and Zone



	Northern		Fergana		Central (Naryn)		Talas	
	1992–1996	2012–2016	1992–1996	2012–2016	1992–1996	2012–2016	1992–1996	2012–2016
Wheat	151,370	199,080	132,045	93,384	25,744	14,224	37,872	8,999
Barley	116,160	120,454	32,460	49,490	32,340	12,080	11,965	1,928
Corn	19,936	24,448	21,353	67,600	6	67	1,212	4,544
Potatoes	23,382	37,956	7,143	23,302	2,549	5,923	3,090	14,233
Vegetables and fruits	61,437	81,601	46,350	86,099	534	6,715	6,066	21,516
Beans	4,073	2,497	1,508	440	163	84	653	41,295
Cotton	1	0	26,636	21,717	0	0	0	0
Industrial crops	50,738	18,427	29,904	35,007	534	12	6,066	1,511
Others	6	12	3,434	8,349	0	0	0	0

Source: NSC. Agriculture. <http://stat.kg/en/statistics/selskoe-hozyajstvo/> (accessed February 2018).

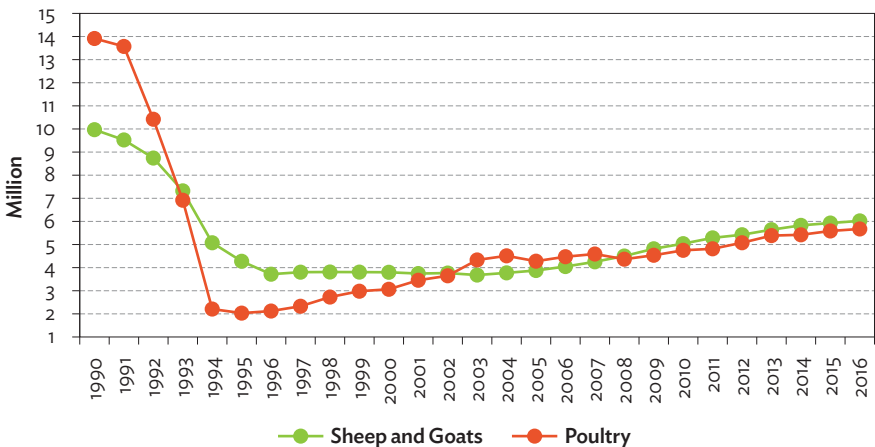
³ The category “sheep” includes goats, which were 14.6% of the category in 2015.

and sheep are raised by peasant farms and depend on pastures for forage. The sheep and horse herds migrate seasonally from remote summer pastures to winter pastures near villages. However, some of the animals stay in the winter pastures during the summer. As a result, winter pastures have been overgrazed, while summer (remote) pastures remain underutilized. The sheep population was about 10 million head, mostly of sheep for fine wool in 1991, but declined drastically to below 4 million in the late 1990s and early 2000s (Akramov and Omuraliev 2009), then increased to 5.9 million in 2015 (Figure 3.7).

The number of cattle and horses has also increased gradually after some years of decline since 1990, while the number of pigs declined from 400,000 in 1990 and has never recovered (Figure 3.8). The increasing number of grazing animals has worsened the overgrazing of the winter pastures. A serious investment in appropriate studies of carrying capacities and how to renew pasture productivity is needed for the whole country (FAO 2018).

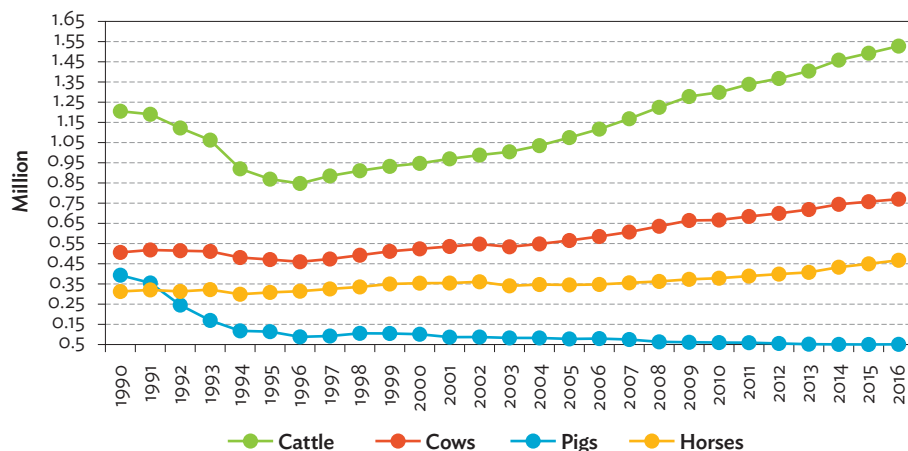
Livestock distribution across zones. Table 3.4 shows the distribution of livestock across agroecological zones. The northern and Fergana zones are well suited for rural households to raise cattle. The Chuy and Osh oblasts are densely populated and have rural households, whereas mountainous areas in Jalal-Abad and Naryn are more sparsely populated, and nomadic farmers move their animals to mountain pastures during the summer. The Naryn (central) and northern zones are the country's main sheep breeding areas—in 2015 they had 72% of registered sheep. Growth rates of sheep flocks vary among oblasts, with the lowest increase in Batken, at only 16% from 2006 to 2015. At the same time, sheep herds in the Jalal-

Figure 3.7: Sheep and Poultry Population, 1990–2016



Source: NSC. Agriculture. <http://stat.kg/en/statistics/selskoe-hozyajstvo/> (accessed February 2018).

Figure 3.8: Livestock Ownership: Beef Cattle, Dairy Cows, Horses, and Pigs, 1990–2016



Source: NSC. Agriculture. <http://stat.kg/en/statistics/selskoe-hozyajstvo/> (accessed February 2018).

Abad Oblast almost doubled, with a 98% increase. Jalal-Abad Oblast's share of the country's sheep increased from 16% in 2005 to 21% in 2015. Sheep concentration across the oblasts mainly depends on the availability of pasture.

Horse ownership varies even more widely. Osh, Jalal-Abad, Naryn, and Issyk-Kul oblasts breed 80% of the horses in the country, while Batken maintains only 2% of the horses. The number of horses has increased by 25% in Jalal-Abad and 67% in Chuy. Chuy Oblast's share of the country's horses increased from 10% to 13% during 2005–2015, and Issyk-Kul Oblast's share increased from 18% to 21% in the same period. In Naryn and Jalal-Abad, peasant farmers are the main breeders of horses.

Table 3.4: Livestock Distribution across Agroecological Zones, 2016

Zone	Beef Cattle (no.)	Dairy Cattle (no.)	Sheep and Goats (no.)	Horses (no.)	Average Annual Milk Yield/Cow (kg)
Northern	496,254	244,918	1,550,925	164,353	2,507
Fergana	810,242	417,302	2,910,563	168,592	1,740
Central (Naryn)	153,570	74,291	1,023,147	108,889	1,471
Talas	66,991	33,250	537,555	25,311	2,253
Total	1,527,057	769,761	6,022,190	467,145	1,980

Source: NSC. Agriculture. <http://stat.kg/en/statistics/selskoe-hozyajstvo/> (accessed February 2018).

Regional distribution of poultry also reveals some interesting evidence. In Chuy, Osh, and Jalal-Abad oblasts, smallholders (including nomads and peasant farmers) keep a significant share of poultry—at 30%, 20%, and 22% respectively; in other oblasts, the smallholder share is minor. In the Naryn (central) zone, poultry decreased by 6% in 2015 from 2005, while in the Talas zone, it increased by 6%. The most significant growth was in the Jalal-Abad Oblast, at 57% where the share of the country’s poultry increased from 19% in 2005 to 22% in 2015. During the same period, poultry in Osh Oblast grew too, from 18% to 20%.

Agricultural trade. The Kyrgyz Republic is a net importer of agricultural goods (Figure 3.9). The total import value increased to \$600 million (in constant 2010 dollars) until 2013, then declined to \$200 million in 2016. The export of agricultural goods also peaked in 2013 at \$200 million and declined to \$80 million in 2016. In terms of value, in 2016, agricultural imports constituted about 16% of total imports and agricultural exports comprised about 14% of total exports.

In terms of imports to the Kyrgyz Republic, the largest exporter of agricultural goods was Kazakhstan in 2016 (Figure 3.10), with a total value of \$159 million. Next was the Russian Federation, at \$146 million. Most of the agricultural import from the Russian Federation comes through Kazakhstan by road, going through customs on the Kyrgyz–Kazakhstan border. The Kyrgyz Republic also exports agricultural goods to Kazakhstan and the Russian Federation, at \$34 million and \$40 million, respectively in 2016, which significantly lower than the value of imports from them.

Figure 3.9: Value of Agricultural Imports and Exports, 2006–2016 (\$ million)



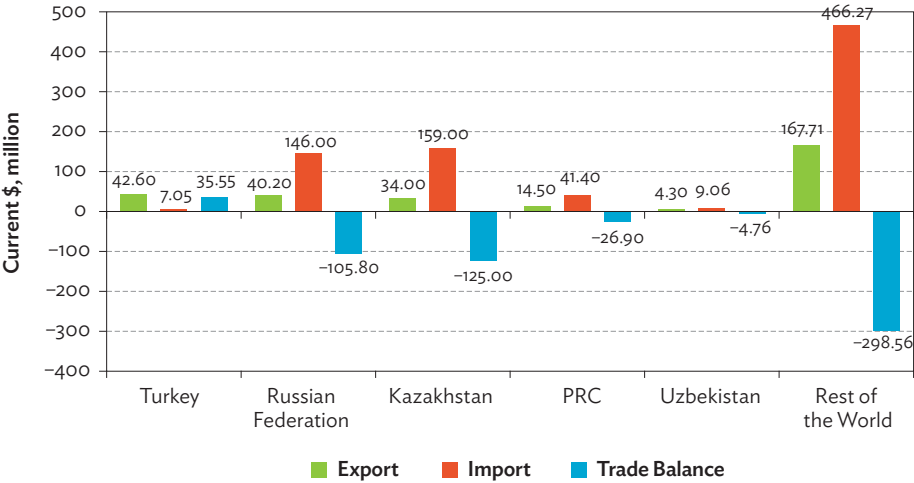
Source: Based on UN Comtrade. <https://comtrade.un.org/db/default.aspx> (accessed October 2017).

Turkey is the largest importer of Kyrgyz agricultural goods and the People’s Republic of China is the fourth largest. The total value of agricultural exports from the Kyrgyz Republic to Turkey was \$42.6 million in 2016. Kidney bean is the main product exported to Turkey, which is the only net importer of Kyrgyz agricultural goods among the five largest agricultural trade partners (Figure 3.10).

Among the five largest trading partners of agricultural goods, Uzbekistan has the lowest share, which is a little surprising because the Kyrgyz Republic and Uzbekistan share a long border in the Fergana Valley. In 2017, the two countries agreed to open trade. The opening of trade between the two countries is expected to increase agricultural trade because the two countries share the Fergana Valley which is famous for its favorable agricultural conditions. Production, processing, and trade of cotton, vegetables, and fruits could expand across the border in coming years.

Agricultural exports and imports. The total export value of dried beans is about \$50 million and they are the country’s top agricultural export (Figure 3.11). About half of it goes to Turkey. Most dried kidney beans are produced in the Talas zone. The dried bean market now includes the Russian Federation and other countries.

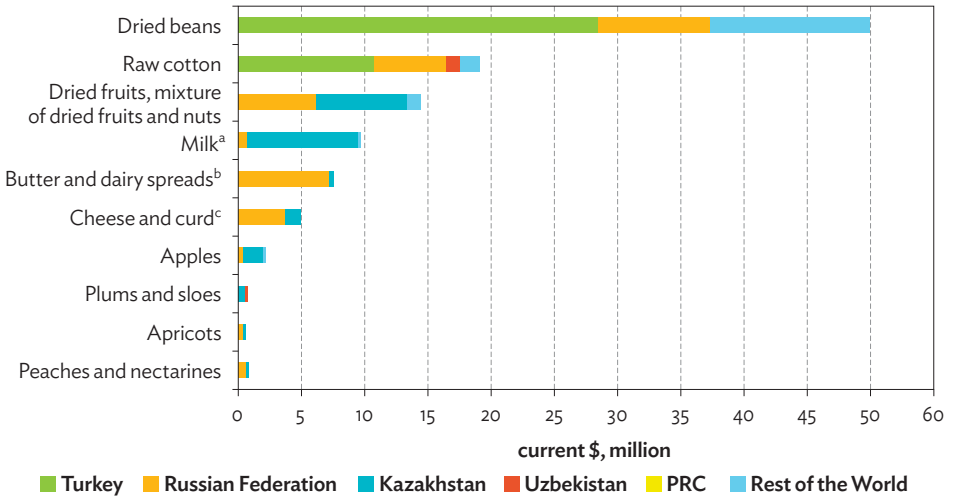
Figure 3.10: Imports and Exports with Selected Neighboring Countries, 2016
(\$ million)



PRC = People’s Republic of China.

Source: Authors’ estimates based on UN Comtrade. <https://comtrade.un.org/db/default.aspx> (accessed March 2018).

**Figure 3.11: Agricultural Exports from the Kyrgyz Republic:
Value and Destinations, 2014 and 2016**
(\$ million)



PRC = People's Republic of China.

Sources: ^a Using 2016 data from NSC. Agriculture. <http://stat.kg/en/statistics/selskoe-hozyajstvo/> (accessed March 2018).

^b Using 2014 data (latest) on butter made from cow's milk only, FAO. FAOSTAT. <http://www.fao.org/faostat/en/#data> (accessed March 2018).

^c Using 2014 data on cheese made from cow's milk only, FAO. FAOSTAT. <http://www.fao.org/faostat/en/#data> (accessed March 2018).

All other data are for 2016, UN Comtrade. <https://comtrade.un.org/db/default.aspx> (accessed March 2018).

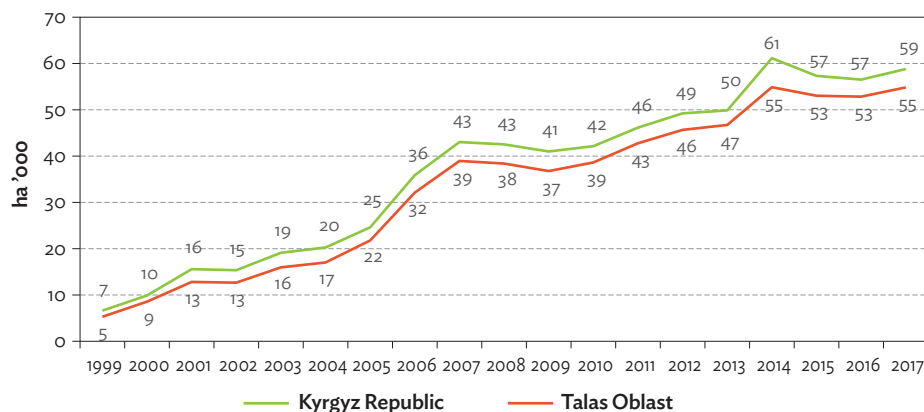
Although the production of raw cotton has declined, it remains an important export product. Turkey is the most important market, taking more than 50% of the Kyrgyz raw cotton. Turkey also imports dry fruits and nuts from the Kyrgyz Republic. The Russian Federation imports dry beans, raw cotton, and dried fruits and nuts, but also imports butter and other dairy products from the Kyrgyz Republic. Some of the milk from the Kyrgyz Republic may be processed in Kazakhstan to be exported to the Russian Federation. The dairy industry in the northern zone has established market channels to Kazakhstan and the Russian Federation. In return, the Kyrgyz Republic imports wheat from the former and natural oils and sugar from the latter. The main agricultural product the Kyrgyz Republic exports to the People's Republic of China is chicken meat.

3.3. Export-Led Development: Two Case Studies

Kidney beans

Sector development. Kidney beans became an export crop through the efforts of Kurdish farmers who had access to Turkish dry bean importing firms.⁴ Initially, the beans were cultivated by the Kara-Buura district's Kurdish people (Figure 3.12),⁵ who comprise 2.5% of the Talas Oblast population and live in the Kara-Buura and Manas districts (NSC 2010). In Talas Oblast, kidney bean is the dominant legume crop. Prior to the arrival of Turkish companies, Kurds cultivated small quantities of kidney beans for their own use. With the emergence of marketing opportunities, Kyrgyz farmers also started cultivating beans in increasing quantities. The sustainable demand for kidney beans from Turkish exporting firms played a key role in promoting them as the oblast's main crop. Some commercial cultivation commenced at the end of the 1990s, and kidney beans were widely cultivated after 2005. Figure 3.12 shows the total area under leguminous crops of the Kyrgyz Republic and that of Talas Oblast. Kidney bean is a leguminous crop and a dominant crop in this group. As is clear in the figure, little land is allocated to leguminous crops outside of Talas Oblast. The total

Figure 3.12: The Growth of Legumes in Cultivated Areas in the Kyrgyz Republic and Talas Oblast, 1999–2017
(’000 ha)



ha = hectare.

Source: NSC. Agriculture. <http://stat.kg/en/statistics/selskoe-hozyajstvo/> (accessed March 2018).

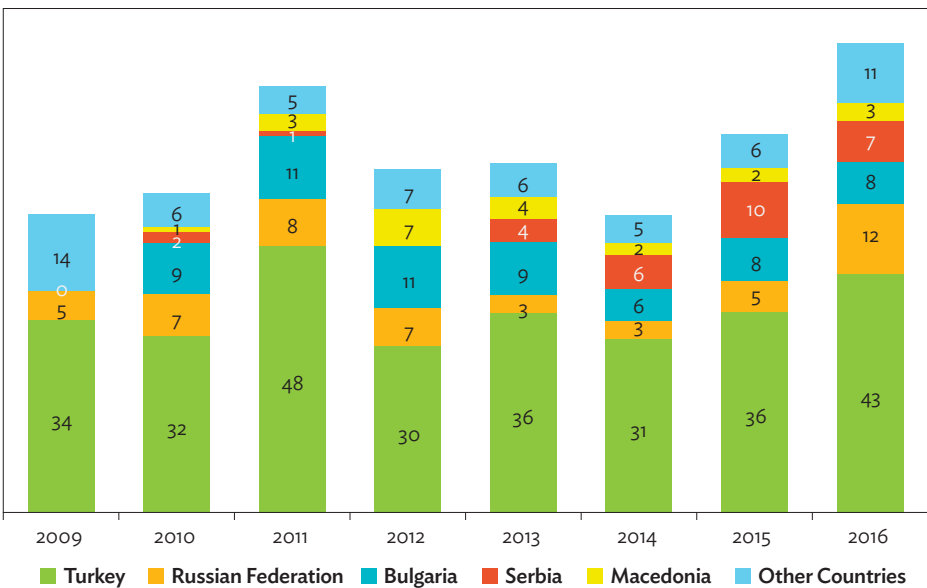
⁴ Kurdish farmers who had connections to the Turkish firm Robin started cultivating kidney beans for export in 1995, on 230 hectares (Bolotova 2010).

⁵ Kurds were removed from the Caucasian republics and interned in Central Asian republics of the former Soviet Union in the 1930s during the Stalinist era (Minahan 2004).

area under leguminous crops increased from 5,000 ha in 1999 to 55,000 ha in 2017. Export destinations include Turkey and Eastern Europe, such as Bulgaria, Montenegro, and Serbia.

In 2009–2016, the Kyrgyz Republic exported 60,000–70,000 tons of kidney beans annually on average. The value of the exported beans varied from year to year due to price fluctuations in international markets. The bean export brought on average \$45 million to \$50 million annually during that period. Bean exports comprised 92%–96% of Talas Oblast’s total exports (NSC 2015). In 2016, Turkey and Eastern Europe took 73% of the exported beans (Figure 3.13). Bean prices peaked in 2013, when purchase prices increased to Som100–Som120 (about \$2.06–\$2.48) per kilogram during part of the buying season, due to a global shortage. In 2014, Turkey started charging a 19.3% customs duty on the imported beans, which contributed to a reduced purchase price for the Kyrgyz beans. As a result, the area under kidney beans in the Kyrgyz Republic declined during 2015–2016.

Figure 3.13: Export of Beans from the Kyrgyz Republic to its Major Markets, 2009–2016
(’000 tons)



Sources: UN Comtrade; State Customs Service, Government of the Kyrgyz Republic.

Kidney bean value chain development. The value chain (Figure 3.14) includes farmers who grow and dry the beans; farmer-purveyors who grow, purchase, and sell beans; commercial bean dealers; bean exporters from the Kyrgyz Republic to foreign markets; bean cleaning workshops; and transport companies. Each participant in the value chain is described in the following text, based on data collected during a field study from November 2016 to February 2017 (Tilekeyev et al., 2018).

Figure 3.14: Value Chain Scheme



Source: Author's estimation.

Farmers and farmer-purveyors. Two types of farmers in Talas Oblast are (1) farmers who produce beans and other agricultural products, and (2) farmer-purveyors who grow beans and purchase beans from neighboring farmers to sell them to market agents. The average kidney bean plot size is about 2 ha of irrigated land, and some farmers rent additional plots to increase their operations. Farmers in the Bakai-Ata and Kara-Buura districts devote about 70% of their land to kidney beans. Beans bring 93% of all revenues from crop production in the two districts. At least 70% of all beans cultivated in the region are white kidney beans. Farmers recognize that good seed, use of fertilizer (both mineral and organic), and stable irrigation are necessary to increase bean yields. Farmers are also aware of the need for crop rotation to maintain soil fertility and hence good yields; however, they seldom follow the practice, afraid of losing short-term gains from lucrative bean production. On average, a farmer-purveyor buys and resells 200 tons–250 tons of beans per season.

Commercial bean dealers. The wholesalers' main assets are warehouses of 50 square meters (m^2) to 1,500 m^2 . Warehouses of 1,000 m^2 or more usually have cleaning and sorting equipment. The annual bean purchase per wholesaler varies from 1,000 tons to 10,000 tons. The postharvest processing of beans has become more mechanized, and bean cleaning workshops are usually registered as a business entity (limited liability companies or sole proprietors) with staffs of 5–30 people, depending on the season.

Exporters. The final stage of the bean value chain is a commercial exporting firm. More than 60 firms in the Kyrgyz Republic sell beans for export, although most of them are owned by 10–15 major founders in the market. This means that one founder, i.e., an individual owner or a parent firm, on average owns 4–5 bean exporting firms. The exporting firms are usually limited liability companies or individual entrepreneurs. Many firms in partnership with trading firms in Turkey. The average declared supply per firm is about 8,500 tons per year.

Transport companies. The main means of delivery is road cargo transport.⁶ Kara-Buura and Bakai-Ata districts have several locations where drivers can wait for transport orders. Transport orders are coordinated and formalized online, and most of the transport companies are foreign. Kazakh freight carriers based in Shymkent or Taraz operate in EEU markets. The cost of delivery ranges from \$2,000 to \$2,400 per 22-ton truck. The route goes through Taraz, Shymkent, Atyrau, and Astrakhan (the Russian Federation). The destination is the Southern Federal District (Rostov-on-Don, Krasnodar Region), and the Kazakh drivers use the Platon (Platon 2019) charging system operating in the Russian Federation, which makes it difficult and expensive for foreign carriers to travel within the Russian Federation. The delivery time to the Russian Federation is 3–4 days. European routes are mainly operated by Turkish freight carriers. The cost of shipping one truck to Europe is \$4,000–\$5,000.

Main challenges and prospects for bean production. For the last 2 decades, bean production in Talas Oblast has become a major source of income in the oblast. The scale and speed of the bean production development is unprecedented in Kyrgyz agriculture. Obviously, the access to export markets has been the decisive factor in the industry's success. Another important factor is the high level of competition at all stages of the value chain. Competition and the accompanying lack of added value being concentrated at any one point in the chain contributes to the equitable division of benefits from exports and the maintenance of reasonable profitability for all participants. An almost complete absence of state regulation has allowed the industry to form as a self-regulating cluster with relatively low transaction costs. Natural and climatic conditions favorable for growing beans, geographical concentration of production, and a convenient location next to international vehicular highways and railways have also played a part in the industry's development.

⁶ An alternative is railway transport from the Maimak railroad station, close to the Kazakh border. Initially, major shipments went by rail (in the early 2000s), but problems with infrastructure and the local population hindered rail development. Currently, only about 10% of the kidney bean exports are shipped by rail.

Although the bean sector has been successful, it still faces production and institutional obstacles and constraints. The obstacles and limitations include the following:

- Talas Oblast has no more land appropriate for extending the cultivation of beans, which have become a monoculture. Without crop rotation, the soil will become depleted, the ecosystem will be damaged, and production will decrease.
- Small-scale farmers' knowledge of agricultural technology is limited. Improper use of fertilizers and chemicals reduces soil fertility and contributes to an increase in plant diseases and the spread of pests.
- The low level of mechanization and high proportion of manual labor hinders the performance and active development of the sector.
- State support for economically effective seed supply and plant protection, and dissemination of agronomic and marketing knowledge to farmers is insufficient.
- There is no domestic demand for beans in the Kyrgyz Republic.

Talas Oblast's kidney bean production is a successful case of regional rural development and provides an excellent chance for further study and the dissemination of knowledge to other parts of the country with the same climatic and soil characteristics. It is also important to provide adequate extension and technical support to enable small farmers to overcome various production constraints.

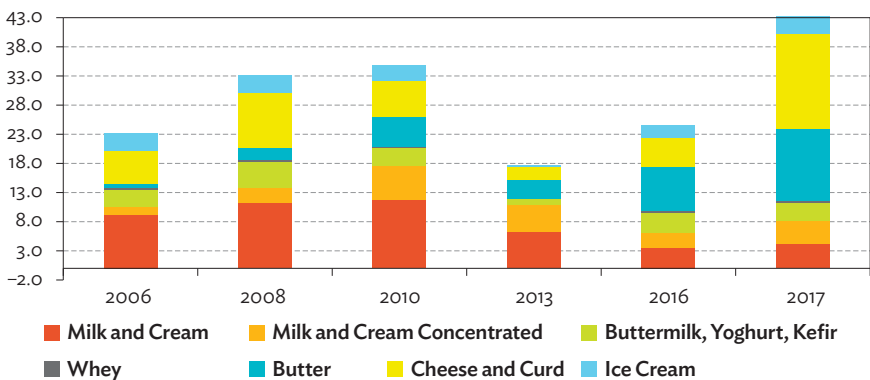
Milk and dairy products

Data from the National Statistical Committee indicate that about 70% of milk production is sold, and mostly as fresh milk. Annually about 1.5 million tons of milk are produced, but only a small proportion is processed. Annual butter production has declined from 12,000 tons to 4,000 tons. A few milk processors operate in the country, primarily in Bishkek and the Chuy Valley, where about 60%–70% of all milk products are processed. Milk processors are emerging in the Talas area. The Issyk-Kul area produces one-third of all cheese in the country. In the rest of the country, most of the milk is consumed by rural households or sold as fresh milk without processing.

The export of milk products from the Kyrgyz Republic includes processed milk and milk products such as cheese, butter, yoghurt, buttermilk, and ice cream. During 2006–2017, export volumes of these dairy products fluctuated (Figure 3.15). In 2017, the total volume of dairy products exported reached over \$40 million, despite a dispute between Kazakhstan and the Kyrgyz Republic. Kazakhstan claims that some Kyrgyz processing firms lack proper laboratories to certify export products. With the entry of the Kyrgyz Republic into the EEU, the country is required to have biolaboratories that can issue certificates of agricultural products' compliance with all-EEU standards. The dispute has been solved and the trade activities have returned to normal. To maintain and scale up dairy exports to Kazakhstan and the Russian Federation, such trade disputes need to be avoided.

Institutional arrangements play an important role in providing technical assistance, veterinary services (such as artificial insemination and vaccines), and milk collection and processing. Although dairy cooperatives provide such services in some countries, Kyrgyz dairy farmers have an incentive to sell their milk to private traders at a higher price in lean milk production seasons, undermining the cooperatives' ability to afford technical and veterinary services. Without proper regulation of milk marketing, dairy cooperatives suffer when member-farmers sell milk to other buyers.

Figure 3.15: Structure of the Export of Milk and Milk Products from the Kyrgyz Republic, 2006–2017
(\$ million)



SITC = Standard International Trade Classification.

Note: Milk products include milk and cream, not concentrated or containing added sugar (SITC code: 0401); milk and cream, concentrated or containing added sugar (SITC code: 0402); buttermilk, curdled milk, yogurt, and kefir (0403); whey (SITC code: 0404); butter (SITC code: 0405); cheese and curd (SITC code: 0406); and ice cream (SITC code: 2105).

Source: Authors' estimates using UN Comtrade data. <http://comtrade.un.org/data/bulk> (accessed 4 March 2018).

3.4. Policy Recommendations

Since the Kyrgyz Republic's independence, its agriculture has achieved remarkable progress. The Kyrgyz government has largely completed land reform and established legislative frameworks for WUAs, pasture management committees, and Rural Advisory Services. Farmers have gradually adopted market-oriented agricultural systems. The development of the dry bean clusters in Talas Oblast is privately led. The government could continue focusing on facilitating the development of the agriculture sector, as specified in its new 5-year program, "Unity, Trust, Creation," while preparing to handle risks to agriculture. Regional development is an important government policy, and agricultural policy has significant implications for regional development, as discussed below.

The successful export of dry beans from Talas Oblast demonstrates the importance of international knowledge and market access. Concerns about the sector include (1) the lack of additional land to expand bean cultivation, (2) the effects of monocropping, and (3) the limited export destinations (the Russian Federation and Turkey) leaving the sector vulnerable to external shocks. Sustaining the bean cultivation is critical for Talas Oblast, which largely depends on it.

Dairy is a major industry for the northern zone. Milk and dairy products are important exports to Kazakhstan and the Russian Federation. Border disputes are a main economic risk, and the government needs to work to avoid them. Ensuring food safety, reducing transaction costs associated with customs, and facilitating the business environment in the dairy sector are the main areas to address.

The central zone is dependent on livestock, and is thus vulnerable to animal health risks. The vaccination programs need strengthening, and farmers have little knowledge about disease prevention and control, which leads to concerns about food safety. Government intervention is clearly needed in this area.

The opening of trade between the Kyrgyz Republic and Uzbekistan, based on an agreement between the two countries in 2017, is expected to increase agricultural trade. Agriculture in the Fergana Valley⁷ zone can benefit significantly from increased trade between the two countries. Farmers, processing firms, and traders need to make some adjustments under the new trading environment, and the government may need to nurture the agricultural trade. Increased trade in the southern zone will contribute to balancing trade within the country.

⁷ A study by the Asian Development Bank on "Identifying Constraints to Cross-Border Horticulture Value Chain Development in the Fergana Valley" aims to analyze business opportunities and identify investments and policy support needed to develop horticulture value chain in the Valley. The study is ongoing and target to be released by 2020.

Appendix: The National Strategy of Sustainable Development of the Kyrgyz Republic

Goals for the Agro-Industrial Sector

- ❖ Increase output of the agricultural complex, improve product quality, and ensure food security of the country.
- ❖ Improve the efficiency of agricultural production and product competitiveness of the entire agricultural complex.
- ❖ Improve the fiscal return from the agricultural complex.
- ❖ Solve social issues of peasants.

Objectives and Implementation Strategies

- (1) Improve the agriculture sector management system and the efficiency and effectiveness of regulation.
 - Institutionalize and promote the cluster approach within the Ministry of Agriculture and its subordinate agencies.
 - Promote a complete value chain of agricultural production.
 - Stop the transformation of agricultural land, particularly plow-land to nonagricultural purposes.
 - Enhance the protection of property rights.
 - Eliminate restrictions on the use of land as collateral in credit institutions.
 - Integrate and consolidate smaller peasant farms into cooperatives.
 - Improve transparency and create an effective system of market and price stabilization.
 - Introduce modern technologies for pasture management and monitoring practices.
 - Promote agricultural products in foreign markets and expand geographic reach of exports.
 - Establish and expand base seed and livestock breeding farms and promote implementation of best practices.

continued on next page

Appendix continued

(2) Improve agriculture services and create prerequisites for the technical modernization of agricultural production.

- Expand and rehabilitate irrigation networks and land reclamation work, and assist soil fertility improvement.
- Develop veterinary science and plant protection through support to private veterinaries and streamlining regulation of private practice; improve veterinary and phytosanitary services to become compliant with regulatory requirements of the Customs Union.
- Increase the availability of agricultural equipment by expanding and improving the quality of services of major agricultural equipment providers, under the principles of public–private partnership to support a transfer of the state’s share to the private sector.
- Renew and replenish seed and pedigree stock by creating economic incentives for producers of seed, livestock, and other agricultural products.
- Improve the availability of financial resources for producers and expand the financial services for rural areas (e.g., develop financial institutions in rural areas, lending, leasing, insurance, etc.).
- Train local rural producers in modern agricultural technologies through organizing regular courses or programs.
- Develop industrial infrastructure in the rural areas (e.g., roads, electricity, and water supply for domestic and irrigation use).

Source: United Nations. UN Comtrade. <https://comtrade.un.org/db/default.aspx> (accessed March 2018).

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Chapter 4

Leveraging Service Sector Growth in the Kyrgyz Republic

Jayarethanam Pillai and Kiyoshi Taniguchi

4.1. Introduction

Since its independence, the Kyrgyz Republic has been highly dependent on agriculture, trade, gold production revenues, remittances, and foreign aid. However, generating a sustainably higher economic growth and more jobs requires higher productivity, as well as a more diversified and broader-based economic growth model. Higher and sustainable growth requires sectors that have good potential for producing high value added products and services that can penetrate new markets and attract more private sector investments while generating more jobs.

This chapter briefly assesses the service sector as an engine of sustainable and inclusive economic growth in the Kyrgyz Republic. The service sector is currently an important source of economic output and growth in the country, and a major provider of jobs. However, information on the quality of jobs in the sector and its positive impact on poverty reduction is lacking. Developing the service sector can be a daunting and challenging task. Creating more competitive services requires effective policy reform toward eliminating a wide range of internal and external market distortions that hamper productivity growth. In addition to policy reforms, complementary investments in physical infrastructure and human capital are necessary to support service sector growth.

4.2. Status of the Service Sector

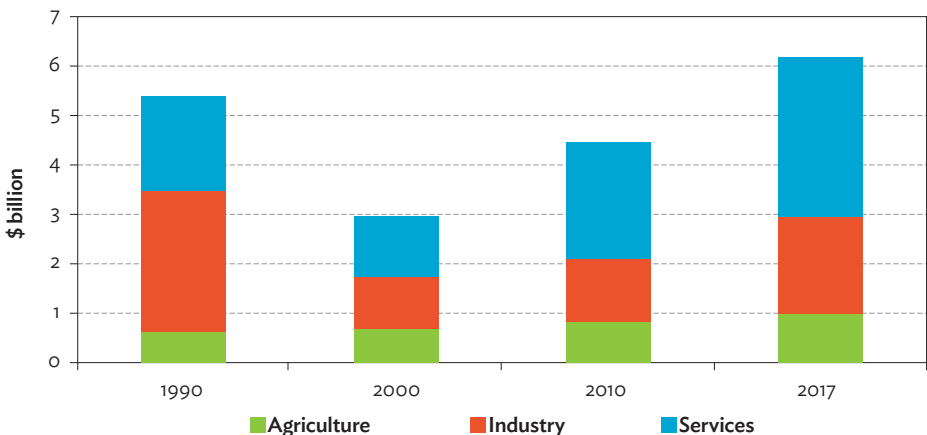
The Kyrgyz economy has been steadily shifting from agriculture and industry to services, which is currently the country's largest and the fastest-growing sector. It has accounted for the largest share of the economy's value added since

2002 and has absorbed the largest number of workers since 2004. The country's membership in the World Trade Organization (WTO) in 1998 expanded its international trade and logistics services, particularly reexports. Although the service sector has expanded, the country needs the sector to be more productive. The Kyrgyz Republic could explore ways to enhance the sector's productivity and increase its employment.

The economy's structural shift toward greater service sector output and employment through time largely mirrors international experience. The policy reforms, which were introduced to facilitate the country's transition from a centrally planned to a market economy since its independence, supported this shift. After a decade of negative growth pursuant to independence, the service sector tripled in size between 2000 and 2017, outpacing the growth of agriculture and industry (Figure 4.1). From contributing less than one-third of the country's gross domestic product (GDP) in 1990 and 2000, services accounted for about 57% of GDP in 2017 (Figure 4.2). The service sector accounted more than half of the country's total jobs in 2017 (Figure 4.3), many of which were occupied by female workers (i.e., the female workers held 57.6% of service sector jobs). The opportunities available to women increased with the sector's rapid growth.

The wholesale and retail trade subsectors largely dominate the service sector (Tables 4.1 and 4.2), and represented 20.3% of GDP in 2016 and 15.5% of total employment in 2015. The transport, storage, and communication subsector accounted for 8.5% of GDP and 8.2% of employment, and the education subsector

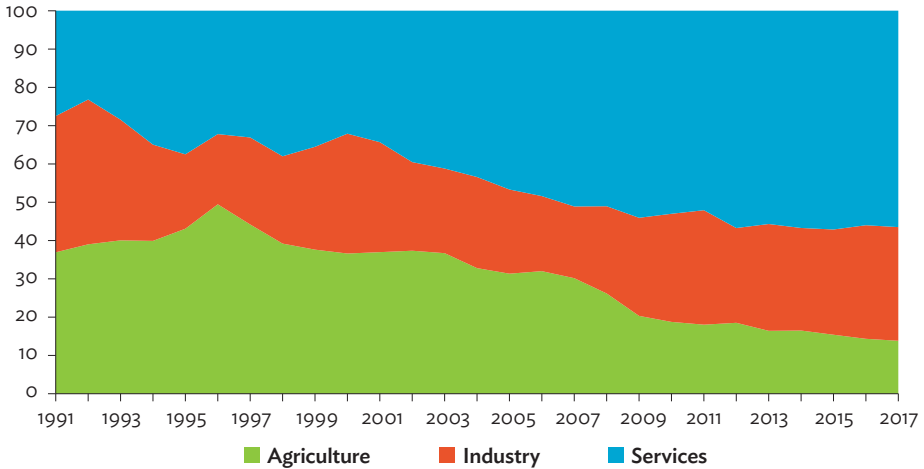
Figure 4.1: Gross Domestic Product by Sector, Selected Years, 1990–2017
(in constant 2010 \$ billion)



Source: World Bank. WDI. <https://datacatalog.worldbank.org/dataset/world-development-indicators> (accessed 05 December 2018).

accounted for 6.7% of GDP. Aside from a large number of small-scale retail traders, several road carriers and freight-forwarding companies in the country provide support services for goods trade in the region.

Figure 4.2: Gross Domestic Product Shares by Sector
(%)

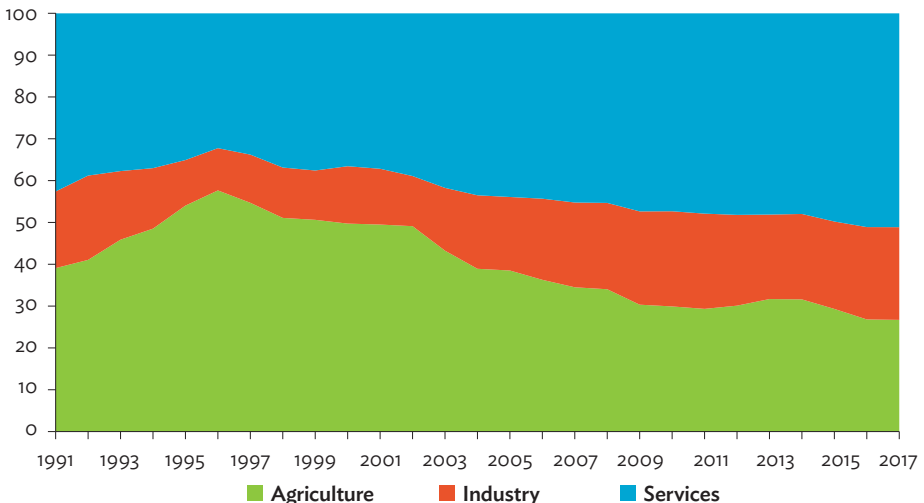


GDP = gross domestic product.

Note: Shares based on GDP at current prices.

Sources: From 1991–2009, *ADB Key Indicators 2010 and 2017*; and from 2010–2017, NSC.
<http://www.stat.kg> (accessed April 2018).

Figure 4.3: Employment Shares by Sector
(%)



Source: World Bank, WDI. <https://datacatalog.worldbank.org/dataset/world-development-indicators> (accessed 5 December 2018).

The Dordoi market—one of Asia’s largest public markets—serves as a major hub for cross-border trade of goods from the People’s Republic of China (PRC) to Kazakhstan, the Russian Federation, and Uzbekistan (ADB 2013). Kyrgyz bazaars, which enjoying a more liberal trade policy than in neighboring countries, serve as platforms for domestically produced export products, and for reexports of PRC manufactures (e.g., fabrics, footwear, and other miscellaneous manufactures) to other countries in the region. The country’s wholesale and retail trade includes the sale of new and second-hand vehicles and vehicle parts, as well as the repair and maintenance of vehicles and motorcycles.

Table 4.1: Gross Domestic Product Shares by Sector
(% of GDP)

Sector and Subsector	Year									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Agriculture	30.2	26.2	20.3	18.8	18.0	18.5	16.4	16.5	15.4	14.4
Industry	18.7	22.8	25.6	28.2	29.9	24.7	27.9	26.8	27.5	28.3
Manufacturing	11.1	14.7	15.4	18.1	19.9	13.4	17.7	15.3	15.4	16.1
Services	51.1	51.1	54.1	53.0	52.1	56.7	55.7	56.7	57.1	57.3
Wholesale and retail trade ^a	20.1	18.2	18.2	17.1	16.5	17.7	18.5	19.9	20.6	20.3
Accommodation and food services activities	1.4	1.5	1.4	1.3	1.6	1.5	1.8	2.0	2.0	2.0
Transport, storage, and communication	8.4	8.8	9.5	9.8	9.2	10.6	9.4	9.0	8.9	8.5
Financial intermediation	3.8	4.1	4.3	4.2	3.8	4.1	4.2	4.4	3.9	3.6
Real estate, renting, and business activities	3.4	4.5	4.9	5.1	4.7	4.9	4.8	5.2	5.0	4.8
Public administration and defense; compulsory social security	4.9	5.1	5.8	6.0	5.5	5.7	5.6	5.9	5.9	6.1
Education	5.0	4.7	4.8	4.7	5.8	6.7	6.0	5.5	5.8	6.7
Human health and social work activities	2.4	2.3	2.8	2.7	3.2	3.8	3.5	3.2	3.0	3.2
Arts, entertainment, and recreation activities	—	—	—	0.7	0.8	0.6	0.7	0.6	0.5	0.6
Other services	1.8	1.9	2.2	1.4	1.1	1.2	1.2	1.1	1.3	1.3

— = no data available.

^a This includes all activities (except manufacture and renting) related to motor vehicles and motorcycles, including lorries and trucks, such as the wholesale and retail sale of new and second-hand vehicles, the repair and maintenance of vehicles, and the wholesale and retail sale of parts and accessories for motor vehicles and motorcycles. It also includes activities of commission agents involved in wholesale or retail sale of vehicles, washing and polishing of vehicles, and others. On the other hand, this excludes the retail sale of automotive fuel and lubricating or cooling products or the renting of motor vehicles or motorcycles.

Source: ADB. Statistical Database System. <https://www.adb.org/data/sdbs> (accessed 28 February 2018).

Table 4.2: Employment Shares by Sector and Subsector
(% of total employment)

Sector and Subsector	Year								
	2007	2008	2009	2010	2011	2012	2013	2014	2015
Agriculture	34.5	34.0	32.4	31.2	30.8	30.1	31.7	31.6	29.3
Industry	20.3	20.5	21.2	21.1	21.0	21.7	20.2	20.4	20.9
Manufacturing	8.3	8.0	7.8	7.8	7.6	7.6	6.9	7.0	7.4
Services	45.2	45.5	46.4	47.7	48.3	48.2	48.1	48.0	49.8
Wholesale and retail trade	14.7	14.4	14.3	15.0	15.2	15.1	15.9	15.1	15.5
Accommodation and food service activities	2.7	3.3	3.7	3.7	3.8	3.7	3.5	3.7	4.2
Transport and storage	6.2	6.0	6.5	6.6	6.5	6.0	6.3	6.3	6.9
Information and communication	—	—	—	—	—	1.2	1.1	1.2	1.3
Financial and insurance activities	0.5	0.7	0.7	0.8	0.8	1.0	1.0	1.1	1.1
Real estate activities	2.1	2.3	2.5	2.6	2.5	0.2	0.3	0.4	0.4
Other	19.0	18.8	18.6	19.0	19.6	20.9	19.9	20.2	20.3

— = no data available.

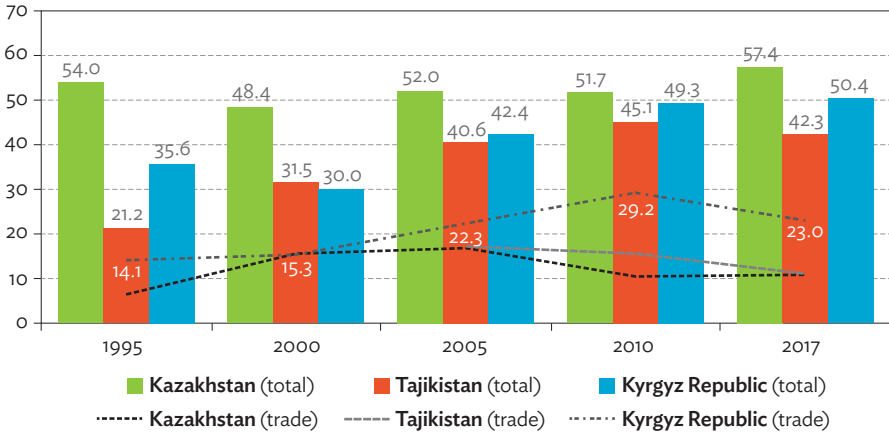
Source: ADB, Statistical Database System. <https://www.adb.org/data/sdbs> (accessed 28 February 2018).

Kazakhstan and Tajikistan have also experienced an upward trend in their service sectors' output shares in the last two decades (Figure 4.4). But, unlike in Kazakhstan and Tajikistan, an upward trend in the Kyrgyz Republic's service sector trade (exports plus imports) was also observed. The share of services trade in GDP more than doubled from 14.1% in 1995 to 29.2% in 2010 before falling slightly to 23.0% in 2017. The country's accession to WTO membership in 1998, along with its private sector reforms, helped expand the value of the country's goods and services exports and imports, including trade-related services such as logistics and financial services. However, the Kyrgyz Republic remains a net importer of both goods and services.

4.3. Strengthening the Service Sector

Economic growth and development typically follow a certain path of structural transformation of output and employment. As industrialization increases, agriculture's shares of employment and output fall, while those of manufacturing and services increase. In East and Southeast Asian countries, the output share of manufacturing expanded after export-oriented trade policies were implemented (Park and Noland 2013). Eventually, the share of manufacturing output peaked

Figure 4.4: Service Sector and Service Trade Shares of Gross Domestic Product in Selected Central Asian Countries
(% of GDP)



GDP = gross domestic product.

Note: Services trade is the sum of exports and imports.

Source: World Bank. WDI. <https://datacatalog.worldbank.org/dataset/world-development-indicators> (accessed 5 December 2018).

and started to decline as the economies rebalanced in response to rising incomes. Another stage of structural transformation occurs when the service component of domestic demand increases in importance. With export-oriented open trade policies, the growth of shares in manufacturing and services will outpace that in agriculture. However, this pattern does not apply for the Kyrgyz Republic and other Central Asian countries due to their lack of economies of scale and comparative advantage.

In many Central Asian countries, transport costs are usually high not only because the countries are landlocked and road conditions are unfavorable, but also because of border delays, multiple clearance processes, and cartels in the trucking industry. Central Asian countries, including the Kyrgyz Republic, lack comparative advantage in manufacturing products. As discussed earlier, the Kyrgyz economy relies heavily on the service sector. This pattern of structural transformation from agriculture directly to services primary stems from generally disadvantageous costs of the manufacturing sector. To achieve more sustainable and inclusive economic growth, it is therefore critical for the Kyrgyz Republic to focus on developing its services and eliminating the constraints to trade, growth, and development.

Strengthening growth and productivity in the service sector requires developing a robust private sector. Robust private sector development can further drive industry and overall economic growth, and make them more inclusive. However, the private sector in the Kyrgyz Republic remains underdeveloped. Achieving strong private sector growth requires promoting greater access to credit, upgrading public infrastructure and human capital, facilitating trade, and improving the business environment (ADB 2013, Park and Noland 2013).

Along with the increasing shortage of qualified workers, the limited availability and high cost of financing continue to limit entrepreneurs' ability to expand and upgrade the value of goods they produce and services they offer (ADB 2013). The link between credit expansion and economic growth remains weak (IMF 2016). Better public infrastructure, more reliable and simpler access to electricity, and effective industrial development coordination can help make the production of output and provision of services more competitive (UNESCAP 2016, EBRD and World Bank 2013).

Continuing policy reforms to further improve the country's investment and business environments and to reduce the cost of doing business are critical for private sector development. Studies suggest that extensive and cumbersome requirements and procedures for business registration, licensing, permits, tax payments, and resolving insolvency are critical constraints for market entry and exit (UNCTAD 2013, IMF 2016). These issues also explain why a large share of employment and output in the Kyrgyz Republic is in the informal market.¹ Understanding why many workers and entrepreneurs thrive and remain in the informal sector can help identify critical constraints to private sector development, and how to address them.

The country should also identify specific industries that have the potential to not only grow by themselves and attract more investment, but also possibly enable the growth of output and employment in other businesses and sectors. For example, financial services and tourism are among the subsectors that can have high forward and backward linkages to other industries, and trigger higher private-sector-led growth. In other words, financial sector development and tourism growth potentially have ripple effects on the rest of the economy: more tourists can help generate demand for manufactured goods as well as entertainment. Diversifying exports and services in terms of both products and markets is also important for sustaining growth and minimizing volatilities (McIntyre et al., 2018).

¹ The size of the informal economy is estimated at 24%–40% of GDP (IMF 2016). Informal market activities are mostly in trade, hospitality, transport, and agriculture.

Financial services

From a strong orientation toward foreign economic activities post-independence, the banking and financial services industry's rapid expansion from 2000 until mid-2012 focused on local financial services, particularly on microfinance institutions (ADB 2013). In 2016, the sector's performance was moderate in terms of asset growth, capitalization, loan portfolio quality and diversification, credit risk, and stability. However, aside from being concentrated in a few sectors, financing is mostly short term, and the cost of financing remains expensive. When compared with other countries, the country's financial development index is at par with Tajikistan but lags behind Uzbekistan and Kazakhstan (Figure 4.5).²

The country's financial subsector assets amounted to Som195.2 billion (about \$2.8 billion) or equivalent to 42.6% of GDP in 2016 (NBKR 2017).³ The banking system accounted for most of the financial subsector's assets—91.2% of total assets in 2016 (NBKR 2017). As of 2017, the banking system was composed of 25 commercial banks with 319 branches operating nationwide (NBKR 2018). Over 47% of the banking system's capitalization is foreign-owned, mainly by Kazakhstan and Russian Federation banks and international financial institutions (NBKR 2018). The deposit-to-GDP ratio is only 18%, and deposits are mostly demand deposits. Only 26% of the country's population owns a bank account, suggesting weak financial inclusion (IMF 2016).

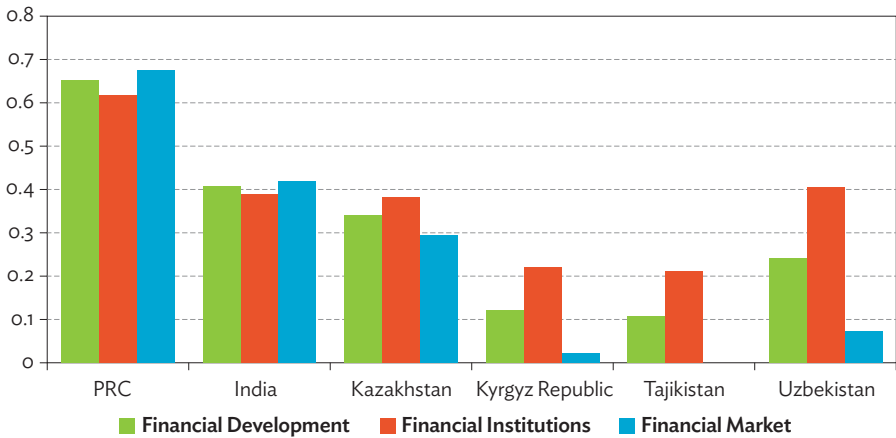
The nonbanking financial institutions, including microfinance organizations, account for only 7% of the financial sector assets, while other financial institutions account for the remaining 1.8%. The number of microfinance organizations grew rapidly from only 147 in 2006 to about 320 in 2012 (ADB 2013, NBKR 2018). Since regulatory action and licensing were imposed in 2012, the number of microfinance organizations declined steadily and, as of 2016, only 162 were left (NBKR 2018).

Although private credit has been growing steadily since 2012, the financial subsector remains underdeveloped and vulnerable to exchange rate depreciation (IMF 2016). In 2016, the financial subsector's loan portfolio amounted to about 22.8% of GDP (NBKR 2018). A majority of the portfolio was accessed by the private sector through bank loans (89.5% of total loans or 20.4%

² Financial development is defined as a combination of depth (size and liquidity of markets), access (ability of individuals and companies to access financial services), and efficiency (ability of institutions to provide financial services at low cost and with sustainable revenues, and the level of activity of capital markets) (Sviryzhenka 2016).

³ This is higher than its relative level in 2009 (40% of GDP) or before it fell to 32% in 2011 because of the contagion from the global financial crisis and the flight of foreign currency deposits associated with the 2010 political unrest in the country (ADB 2013).

Figure 4.5: Financial Development Index, Comparator Countries, 2016 (%)



PRC = People's Republic of China.

Source: Svirydenka (2016).

of GDP). Overall, the financial subsector's loan portfolio is highly concentrated in areas with significant amounts of business activities—Bishkek city, Chui, Jalal-Abad, and Osh—and is very narrow in remote areas (NBKR 2018, IMF 2016). Trade accounts for the highest share of the total loan portfolio at 28.6% (mostly bank loans), followed by agriculture at 21.6% (mostly nonbank financial institution loans). Together, trade and agriculture account for more than half of the financial subsector's loan portfolio.

Reducing the cost of credit and broadening its reach are critical to strengthening the private sector's growth and promoting its competitiveness. Making more financial products and instruments available and medium- or long-term investments more accessible can help encourage greater interbank activities and private investments, including domestically financed investments. This can also help encourage the creation of new enterprises and expansion of existing ones, leading to more jobs. All these require a more focused assessment of (1) what makes financing costly and inaccessible in the country, especially for start-ups and small and medium-sized enterprises; and (2) how to address any binding constraint, while enforcing strong financial regulation and compliance.

Freight and transit

Likewise, efficient transport and logistics are crucial for making economic growth sustainable and inclusive, particularly with the emergence of global value chains (GVCs). GVCs expand global production networks, which leads to

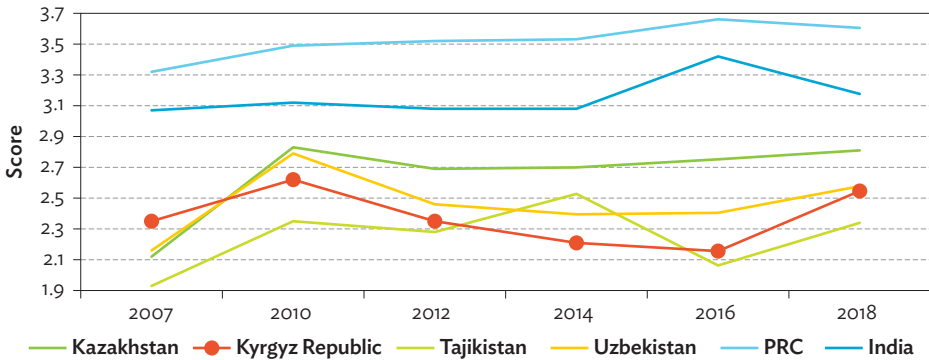
increased geographic fragmentation of production. Multinational enterprises have changed the nature of production drastically. Many manufacturing goods are designed in one country, with parts that are produced in many different locations and are assembled in a final location.

Traditionally, export growth reflects an economy's comparative advantage. If trade is predominantly interindustry in nature, export growth means comparative advantage. The emergence of GVCs facilitates the rapid growth of intraindustry trade flows (Johnson 2014). In particular, as inputs pass through production chains, they cross borders many times through production processes. As a result, gross exports overstate the amount of domestic value added in exports. Countries that are integrated in GVCs are more likely to benefit from trade gains. Under the GVC production processes, trade barriers are far costlier than before as they inhibit industrialization. For example, Amiti and Konings (2007) demonstrate that Indonesia boosted its firm-level productivity through trade liberalization. By opening up the market, firms have access to higher quality yet cheaper intermediary inputs, which support productivity growth at the firm level.

However, having open trade policies alone is insufficient to be integrated into GVCs. To overcome geographic constraints, it is important for the Kyrgyz Republic to simplify transit and border control and procedures and to build an efficient transport infrastructure to secure access to markets and make trade and transport of goods easier. Multinational enterprises in GVCs require efficient transport systems to mobilize inputs and finished products quickly and cheaply, both within and across regions. Due to the Kyrgyz Republic's landlocked nature, its transport networks should have a direct link to countries with seaports. Currently, the best-connected port is the Port of Bandar Abbas in Iran. Once the PRC–Pakistan Economic Corridor is fully established, the Kyrgyz Republic will be linked to Gwadar Port in Pakistan through Kashgar in northwestern PRC.

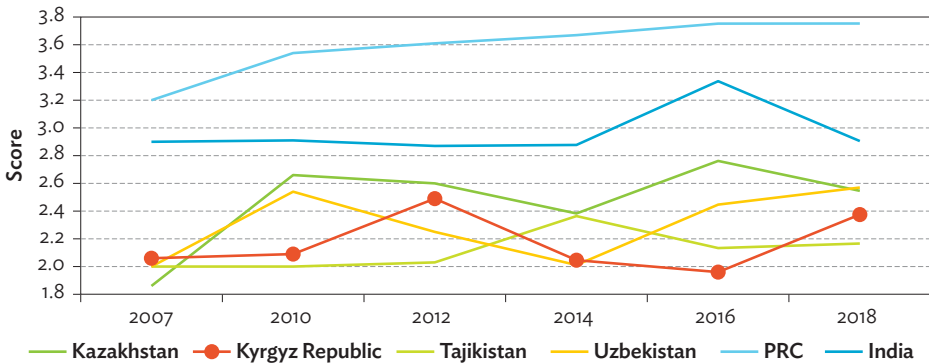
The current condition of Kyrgyz transport infrastructure does not match that of its neighboring countries. The World Bank's 2018 Logistics Performance Index ranked the country's overall performance 108th among 160 participating countries.⁴ Figures 4.6 and 4.7 present the Logistics Performance Index of the Kyrgyz Republic and selected Asian countries. The Kyrgyz Republic's score is

⁴ The Logistics Performance Index is an international comparative index created by the World Bank to help participating countries identify the challenges and opportunities in trade logistics. It is the weighted average of six key dimensions related to trade logistics: (1) efficiency of the clearance process by border control agencies including customs, (2) quality of trade- and transport-related infrastructure, (3) ease of arranging competitively priced shipments, (4) competence and quality of logistics services, (5) ability to track and trace consignments, and (6) timeliness of shipments in reaching destination within the scheduled or expected delivery time.

Figure 4.6: Overall Logistics Performance Index

PRC = People's Republic of China.

Source: World Bank. Logistics Performance Index. <https://lpi.worldbank.org> (accessed 15 September 2018).

Figure 4.7: Quality Trade- and Transport-Related Infrastructure Logistics Performance Index

PRC = People's Republic of China.

Source: World Bank. Logistics Performance Index. <https://lpi.worldbank.org> (accessed 15 September 2018).

higher than that of Tajikistan but lower than that of two large Central Asian countries—Kazakhstan and Uzbekistan—and the Kyrgyz Republic needs to catch up with them to reach its full potential.

4.4. Tourism Potential in the Kyrgyz Republic

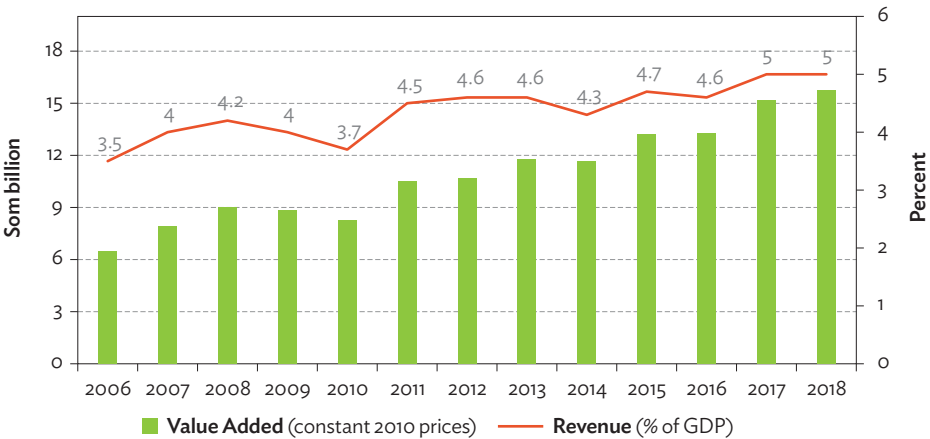
The Kyrgyz Republic's mountainous terrain, lakes, thermal springs, and ancient culture have been attracting tourists since the Soviet period. The main tourist attractions include Issyk-Kul ("Warm Lake" in the Kyrgyz language),

the Inylchek glacier, and the ancient Silk Road. With its rich endowment of natural, cultural, and historical attractions, the country’s tourism is a promising industry that could drive growth of the service sector and the country’s foreign exchange earnings. Between 2006 and 2018, the sector’s gross value added grew at an average rate of 8.2% per year. Figure 4.8 shows that it contributed an average of about 4.7% of the country’s GDP from 2011 to 2018, slightly higher than in 2006–2010 (3.9%). As shown in Figures 4.8 and 4.9, the higher tourism revenues are mainly due to increased arrivals starting 2011. Visitors from neighboring Kazakhstan account for the biggest proportion of these arrivals, followed by those from the Russian Federation and Uzbekistan.

Promoting growth in tourist arrivals and receipts requires expanding and diversifying the market to include more visitors from other parts of Asia and Europe, as well as North America. This will also help stabilize tourism receipts and strengthen the tourism industry’s resilience to adverse shocks in demand. Beyond removing barriers to entry (e.g., visa requirements) and improving physical infrastructure and transport and information and communication technology connectivity, expanding the industry requires a better understanding of the structure and mechanics of the country’s tourism value chain.

Although the tourism industry usually has significant backward linkages to other industries, such may not be the case in the Kyrgyz Republic. Enriching the local content of tourist products and services is critical to maximize tourism’s value added for the economy. An analysis of the industry’s value chain can help

Figure 4.8: Tourism Value Added



GDP = gross domestic product.
 Source: NSC. <http://www.stat.kg> (accessed 29 May 2019).

Figure 4.9: Tourist Arrivals

Source: World Bank. WDI. <https://datacatalog.worldbank.org/dataset/world-development-indicators> (accessed 29 May 2019).

the country explore opportunities for adding value and deepening tourism's backward linkages to other industries. It is also important to identify the bottlenecks to enlarging tourism demand within the chain, and strategies for diversifying service offerings.

A bigger tourism industry requires more people who are capable of working in the industry and willing to do so. For example, the industry requires tour operators and guides who can communicate in various languages, coordinate different services efficiently, and offer a wider range of activities to attract different types of tourists. Different target markets may also require different promotion strategies and media platforms, and, therefore, varied human resources. Limitations on the capacity of small local businesses to contribute to and benefit from the tourism value chain should be addressed. It is also important to mitigate negative cultural and environmental impacts that tourism could have on the recipient communities.

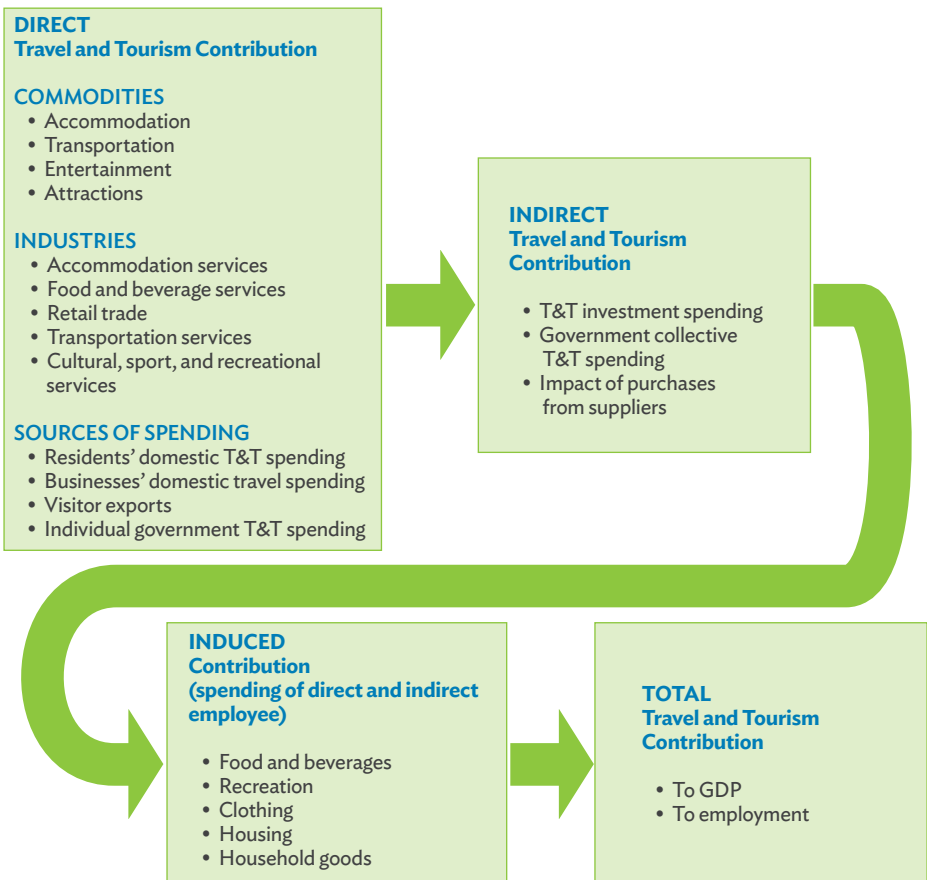
Direct, indirect, and induced impacts of tourism

The travel and tourism sector is an important income source in many countries. In addition to its direct impact on an economy, there are sizable indirect and induced impacts. The World Travel & Tourism Council (2017) presents an overall flow of the process (Figure 4.10). The direct impact includes commodities and services that tourists purchase, including hotel accommodation, food, travel agents, air and other transport services, and other leisure activities.

The indirect contribution of tourism to GDP and employment are as follows:

- capital investment in visitor accommodation, passenger transport equipment, as well as restaurants and leisure facilities for tourists;
- government spending on tourism promotion, visitor information services, administrative services, and other public services; and
- supply chain effects, such as purchases of domestic goods and services directly by travel and tourism industries as inputs to their final tourism outputs.

Figure 4.10: Impact of Direct, Indirect, and Induced Factors on Tourism Sector



GDP = gross domestic product, T&T = travel and tourism.

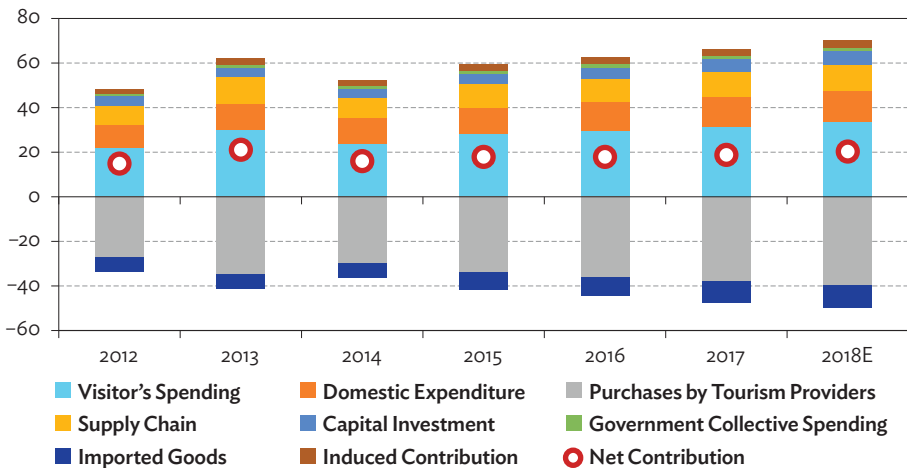
Source: Reproduced from WTTC. Data Gateway. <https://www.wttc.org/datagateway> (accessed 3 December 2017).

The induced contribution includes the broader contribution to GDP and employment through the spending by those who are directly or indirectly employed in the travel and tourism sector.

Figure 4.11 shows the detailed breakdown of direct, indirect, and induced contributions of travel and tourism spending to the Kyrgyz Republic's annual GDP during 2011–2018. In 2017, the sector contributed about Som19.1 billion (in 2016 prices) to GDP, equivalent to about \$277 million. Figure 4.11 and Table 4.3 show that while the direct economic contribution of the travel and tourism sector is only one-third of its total economic contribution, its indirect contribution accounts for almost one-half. The sizable economic impact of the tourism sector suggests that increasing capital investment and implementing government policy that will assist the domestic supply chain to promote tourism growth have important economic growth implications.

Kyrgyz tourism has progressed more slowly than that in its regional partners (Table 4.4). In 2017, the Kyrgyz Republic had 4.6 million tourist arrivals, which is lower than in Kazakhstan (7.7 million), the main competitor

Figure 4.11: Detailed Breakdown of the Contributions of Travel and Tourism Spending, 2011–2017
(som billion, real 2016 prices)



E = estimated, GDP = gross domestic product.

Note: The direct contribution equals total internal travel and tourism spending within a country less the purchases made by those industries including imports. The indirect impact equals domestic supply chain plus capital investment plus government collective spending plus imported goods from indirect spending.

Source: WTTC. Data Gateway. <https://www.wttc.org/datagateway> (accessed 23 November 2018).

Table 4.3: Shares of Direct, Indirect, and Induced Contribution to Total Economic Impact of Travel and Tourism (%)

Contribution	Years						
	2012	2013	2014	2015	2016	2017	2018E
Direct	36	35	35	36	36	37	36
Indirect	50	50	49	48	48	47	47
Induced	14	15	15	16	16	16	16

E = estimated.

Source: WTTC. Data Gateway. <https://www.wttc.org/datagateway> (accessed 23 November 2018).

for the Silk Road business. Under the “sun, sand, and sea” category, the Kyrgyz Republic compares poorly against Turkey, which has become a main competitor in recent times for tourism from the Russian Federation. The Kyrgyz Republic also ranked poorly in other tourism indicators. However, in acknowledging the poor performance in this category in general, the following discussion will open up an area where the Kyrgyz Republic can show potential, if undertaken and motivated accordingly.

Table 4.4: Regional Comparison of Travel and Tourism Sector Performance, 2018

Country	International Arrivals (million)	Visitor Export's Contribution to Exports (%)	Total Contribution to GDP (%)	Total Contribution to Employment (%)
Kazakhstan	7.7	3.0	5.7	5.7
Kyrgyz Republic	4.6	17.8	3.9	3.7
Russian Federation	24.4	3.5	4.8	4.6
Turkey	37.6	16.4	12.1	7.7
Uzbekistan	2.7	3.2	3.4	3.0

GDP = gross domestic product.

Note: International arrivals refer to 2017.

Sources: For international arrivals, World Bank. WDI. <https://datacatalog.worldbank.org/dataset/world-development-indicators> (accessed 29 May 2019); all others from World Travel & Tourism Council. Data Gateway. <https://www.wttc.org/datagateway> (accessed 29 May 2019).

Niche tourism and its potential in the Kyrgyz Republic

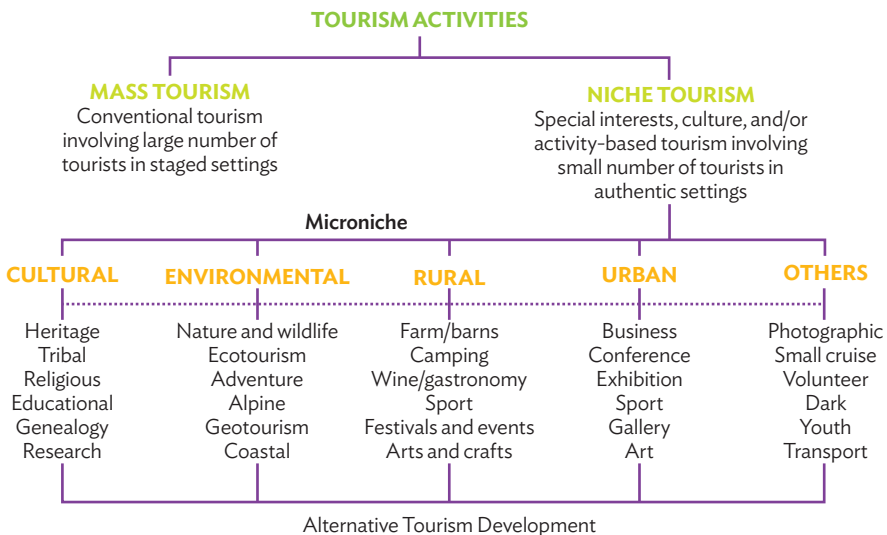
Niche tourism has emerged in recent years as an alternative to the more conventional mass tourism, which involves a large number of tourists (Robinson and Novelli 2005). “A niche in the market is a specific area of marketing which

has its own particular requirements, customers, and products.”⁵ A niche can refer to a particular market segment for which specific products may be tailored. Figure 4.12 provides examples of tourism niches.

The WTO and World Travel & Tourism Council maintain that niche tourism is more beneficial to the host communities than mass tourism (Hall and Lew 1998). What exactly can niche tourism do for the Kyrgyz economy, given that tourism plays an important part in GDP growth? As shown in Table 4.3, approximately half of travel and tourism’s contribution to GDP comes from the induced effect. If the Kyrgyz Republic could successfully attract niche tourists to new destinations, the economy could enjoy the spillover effects as well as additional tourism spending.

The Kyrgyz Republic has a huge potential for niche tourism. However, studies show that more investments are needed before the Kyrgyz Republic will be a world tourist destination. Issyk-Kul has potential for increased tourism. It is the world’s second largest mountain lake at about 182 kilometers long and 60 kilometers wide, and covers about 6,236 square kilometers.⁶ About 118 rivers and streams flow into the lake. It is fed by springs, including many hot springs,

Figure 4.12: Alternative Tourism Segments



Source: Novelli (2005).

⁵ Collins English Dictionary. <https://www.collinsdictionary.com/dictionary/english/niche> (accessed 29 August 2018).

⁶ International Lake Environment Committee. World Lake Database. Lake Issyk-Kol. <http://wldb.ilec.or.jp/Details/Lake/ASI-55> (accessed 22 January 2018).

and by snowmelt. During the Soviet era, the lake was a popular vacation resort, with several sanatoria, boarding houses, and vacation homes along its northern shores, many concentrated in and around the town of Cholpon-Ata.⁷ After the breakup of the Soviet Union, tourism dropped and the town plunged into hardship, before recovering in the late 1990s. Now the town has refurbished hotel complexes and simple bed-and-breakfast places are being established for health and leisure seeking tourists.

Studies, tourist polls, and surveys indicate that the quality of accommodation and services at Issyk-Kul resorts is way below basic international standards (Jenish 2017, Deloitte et al., 2014, SIAR 2012). Issues raised by visitors include absence of or poor Internet connections, lack of swimming pool and related facilities, poor quality food and service, low-quality furniture, unhygienic restrooms, frequent disruptions in electricity and hot water supply, and poorly trained service staff and managers. Other amenities, such as baby-sitting services, children’s entertainment, evening entertainment, and excursions, are likewise limited. Jenish (2017) notes the room and board service component is a major constraint. Another major issue that is not incorporated in the value chain of Kyrgyz tourism practices is environmental pollution, especially from general and food waste. There is no regular waste collection on the beaches, and food, sewage, and cattle waste are sometimes dumped close to tourism sites.

Constraints on tourism development

The National Sustainable Development Strategy for 2013–2017 outlines the development of the tourism subsector (NCSO 2013). Other related national policies are yet to take effect.⁸ The growth prospects for the Kyrgyz tourism sector could be good, especially for some niche markets, but the country needs to address the main challenges to unlock tourism’s growth potential. Some of the constraints that affect the tourism industry are

- seasonality,
- limited market capacity,
- shortage of qualified professionals,
- lack of know-how for running tourist establishments,
- low quality of service providers,

⁷ Sanatoria are former medical facilities intended for people with long-term illness, typically associated with treatment of tuberculosis in the late 19th and early 20th centuries before the discovery of antibiotics.

⁸ This includes (1) the National Strategy for Export Development of the Kyrgyz Republic for 2013–2017, developed by the Ministry of Economy; and (2) the Strategy for Tourism Development up to 2015 proposed in 2012 by the Ministry of Culture, Information and Tourism.

- lack of infrastructure,
- inadequate use of technology to promote tourist establishments,
- environmental degradation,
- inequitable distribution of tourism income, and
- political instability.

For the Kyrgyz Republic, the winter season (October–March) is the slowest season for tourism. The peak season generally starts in June and extends to September, and in Issyk-Kul, it is July to August. The seasonality of demand makes it difficult for the Kyrgyz tourism industry to attract and keep skilled employees, who usually prefer year-round employment. This results in employment of unskilled workers who do not provide the quality of services necessary to satisfy customers. It is also difficult to attract investors, given the seasonality and that most of the accommodation around Issyk-Kul needs upgrading and modernizing, which requires investment.

Another challenge is limited absorptive capacity of the market. The Kyrgyz tourism industry depends primarily on visitors from Kazakhstan, the Russian Federation, Tajikistan, and the Ukraine, along with some from more distant countries such as the PRC and Turkey. These groups are primarily interested in the Issyk-Kul region for resort tourism. Given the distance and cost, resort tourism at the lake is not competitive for clients from other areas who are looking for sea, sun, and sand. However, the region has an outstanding potential for winter tourism for skiers and for adventure and recreation tourism for climbers from other countries if the required infrastructure and services are developed or restructured to meet international standards.

One of the biggest concerns expressed by the niche market tourist sector is the shortage of qualified service staff. In the Kyrgyz Republic, tourism education has been undertaken at the college and university level. However, the schools lack lecturers and practitioners qualified for teaching such courses. The number of lecturers with the skill sets for tourism education is growing but is still insufficient to meet the demand because low salaries in colleges and universities fail to attract skilled lecturers or practitioners. The same constraint applies to areas of retail, food and beverage activities, and the primary hospitality sector.

Good quality industry and certification standards are lacking. In Jordan, the European Bank for Reconstruction and Development formed the country's first Tourism and Hospitality Sector Skills Organization, which promotes the development of specific skills needed to kick-start the local tourism and hospitality sector (Zgheib 2018)—an example that could be implemented in the Kyrgyz Republic. The aim is to help hotels, tour guides and operators, and

food services and restaurants invest in their staff development so that potential employees may gain the skills that are most in demand by the industry. In doing so, such an organization helps to (1) bridge the gaps in technical skills and set up training programs in coordination with vocational institutions and schools, and (2) introduce specific qualifications for and certifications of standards.

During Soviet times, Issyk-Kul received about 800,000 people annually from other republics of the Soviet Union. About 100 health spas, or sanatoria, around Issyk-Kul remain from the Soviet days. These establishments belonged to trade and other institutions, and most of them have been privatized. They now need to be refurbished or remodeled to bring them up to international standards. In the last 10 years or so, new accommodation establishments have been and are being constructed in and around the Issyk-Kul region, but they lack adequate service standards, professional staffs, and knowledge about managing professional tourist businesses. Inequitable distribution of tourism receipts and inadequate environmental management are also major issues needing deeper awareness at a national level.

Tourism firms identify the lack of tourism infrastructure in the country as the main constraint for their growth (Jenish 2017). Poor international air connectivity, delayed or canceled flights, and poor luggage handling in the country gives the tourism sector a bad image. Although investments have poured into rehabilitating roads leading to major tourism spots such as Issyk-Kul, the roads are poorly maintained. In several tourist oblasts, road signs and directions are not in the English language. Other amenities such as pharmacies, first-aid, and rest stops do not have English translations and can be very difficult to find and use, especially for independent and self-driving tourists, including those heading to Issyk-Kul. Frequent power failures, irregular water supply, and rundown sewer systems that leak waste are also among the major issues. Parts of Issyk-Kul's shores are littered and unhygienic.

Unlocking the country's tourism growth potential requires initiatives for marketing the Kyrgyz Republic's natural beauty and promoting the activities it offers. Effective branding strategies are needed to position tourism products in overseas markets to enhance the growth prospects. Although the Department of Tourism has started promotions in overseas markets, its outreach has been limited to Central Asia, the PRC, and India. While the digital platform, Taza Koom, is a major advancement and investment for many tourist firms and tourist agencies, additional appropriate techniques and promotion strategies are important for attracting additional target markets, such as those in many east and southeast Asian countries.

4.5. Summary and Policy Recommendations

The service sector has a huge potential as an engine for promoting sustainable and inclusive economic growth and generating jobs in the Kyrgyz Republic. This diagnosis aims to indicate some ways to unlock development opportunities for the sector. It highlights challenges that need to be addressed in order to promote growth of the country's service sector. Unlocking the potential of the country's service sector requires greater focus on upgrading the sector's value and quality, while expanding its market.

Ensuring a robust performance of the private sector is key to promoting strong service sector growth and creating more jobs. Private sector growth in the country requires strong policy focus on making credit more accessible and affordable, upgrading public infrastructure, promoting human capital development, and improving the overall business environment. Complementary investments in physical infrastructure and human capital are necessary to enable service sector growth. Making access to electricity more reliable and simpler, and reducing the cost of doing business by simplifying registration procedures can help make the production of output and the provision of services in the country become more competitive. Removing barriers to private sector growth will promote growth in the service sector as well as across the economy's other sectors.

Promoting the growth of the country's financial services is also crucial for supporting private sector growth and development. Making credit more accessible and affordable will enable new and existing entrepreneurs to improve their competitiveness, and thus expand and upgrade the value of goods they produce and services they offer. Strongly enforcing financial regulation and compliance can also help reduce the cost of capital by attracting greater private investment.

Likewise, developing the country's transport and logistics services is important for unlocking the country's service sector and overall economic growth potential. This requires simpler and more transparent border control processes to avoid delays and reduce transactions cost. It also requires additional resources to upgrade the quality of roads and ports and expand them to improve regional and international connectivity. By facilitating the exchange and movement of cheaper production inputs, consumption goods, and services, lower transport costs can help generate additional demand for goods and services trade.

Promoting the country's tourism industry is also a promising source of service sector and overall economic growth. For this to eventuate, the country needs to develop skilled tourism workers, better transport and information and communication technology infrastructure, and a favorable business environment. The Issyk-Kul Lake Tourism Corridor, one of the Kyrgyz Republic's main attractions, provides plenty of potential opportunities and growth areas. Developing and promoting more attractions and tourism activities to new markets is important to attract more visitors, especially for the winter season when demand is low, while maintaining the traditional summer market.

More specifically, the tourism industry needs to develop a strategy to address the following objectives. First, the industry needs to attract high-value tourists with long stays and high spending per visit. Because of limited capacities at most tourist destinations, mass tourism should be avoided. Second, backward and forward linkages should be promoted. For instance, high-end hotels and restaurants could be linked with certified organic farmers. Finally, there is a need to invest in the infrastructure of tourist destinations.

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Chapter 5

Digital Transformation and Opportunities in the Kyrgyz Republic

Seok Yong Yoon and Michael Minges

5.1. Introduction

Advances in information and communication technology (ICT) are creating tremendous opportunities to improve service delivery and expand economic opportunities in the Kyrgyz Republic. Digital technologies increase transparency, reduce corruption, and enhance efficiency by minimizing contact between citizens, businesses, and government for the provision of public services. For the Kyrgyz Republic, ICT could address barriers posed by its geographic remoteness and high transport costs (Internet Society 2017). The country's strategic location along major crossroads between Asia and Europe can be an incentive to seriously develop the country's ICT, because the transport corridors will require a wide range of telecommunication and internet services to support day-to-day operations. Direct ICT interventions, such as a single customs window, which can streamline the document processing required to facilitate trade across borders and remote sensing that can be used to monitor goods transported, can hasten, simplify, and facilitate transport and trade. Given the country's plan to develop sectors such as hydropower, tourism, and other services, it will need more sophisticated communication and information processing to help boost the potential of these sectors.

In 2011 and 2013, ICT's share in total gross domestic product (GDP) was estimated at 4.4% and 5.0%, respectively, which was the highest among the Central Asian countries (ADB 2018). In 2016, the telecommunications sector generated revenue of about \$367 million, or 5.6% of GDP (NSC 2017). Although the contribution is relatively high, ICT revenue has been falling as prices drop due to competing domestic markets. Mobile communication has accounted for 81% of total telecommunication industry revenue although its contribution has

also been falling, which suggests a slow but growing take-up of wired broadband services. Value added of the ICT sector, which includes publishing, broadcasting, telecommunications, and computer and information services grew, at an estimated 9.5% in 2016, contributing about 1.9% of the country's GDP, and 0.2 percentage points to the overall GDP growth rate of 3.8% (NBKR 2017). In 2016, the ICT sector employed an estimated 30,000 people, dropping by 3.1% from the previous year. However, the sector has yet to provide a significant source of domestic income, generating only about 1.2% of the country's total employment (NSC 2015).

The Kyrgyz Republic has made considerable effort to develop ICT, creating a relevant legislative framework, implementing programs, and building human capacity for ICT. "Informatization"¹ projects were carried out in various sectors of the economy, led by both the state and private sectors. Internet pages of state and nongovernment organizations have been created, widening the reach of information and promoting transparency. However, because of challenges to ICT implementation, the government realized the need to move away from a one-sided policy (mainly focused on developing communications and information technology) and work toward creating a nationwide strategy to integrate the country into the world information society. The need to interconnect the Kyrgyz information space with the world by developing information resources, data bases, knowledge, and information infrastructures that can be used by both the state and the general public on a uniform basis has been realized as essential. However, for the Kyrgyz Republic to move in such directions will involve the development of information law, technological facilities, and organizational and external support from both within and outside the country (UNECE 2002).

The country's short-term and long-term (to 2040) national development strategies have recognized the importance of ICT, making its development a top priority. This is embodied in the National Digital Transformation Program 2019–2023, which aims to transform the country into a digital economy, highlighting the high-level political commitment to public sector modernization and reforms.² The program has the overarching goals of digitizing the economy and public sector activities through widespread use of digital technologies, thus optimizing the interaction of citizens, businesses, and government; eradicating corruption; increasing investment attractiveness; and improving infrastructure for development.

¹ "Informatization" is the adoption of information technology or computerization.

² Taza Koom. <http://tazakoom.kg>

5.2. The Kyrgyz Republic's E-Readiness: An Overview

This section reviews the ICT legal and regulatory environment and the availability of, quality of, and demand for ICT infrastructure and services in the Kyrgyz Republic (its "e-readiness"). Understanding a country's e-readiness is essential for gauging its capacity for successfully absorbing digital interventions.

Policy, regulatory, and market dimensions

The main body responsible for regulation, policy, and oversight relating to ICT in the Kyrgyz Republic is the State Committee on Information Technologies and Communications (SCITC). The committee was formed in July 2016 to incorporate the State Communications Agency and the Center for Electronic Governance, as well as to harmonize the cross-cutting ICT responsibilities of other agencies. The SCITC's creation was driven by the government's desire to centralize all key ICT activities, avoid duplication of agencies' roles, and develop more focused programs in the country. The State Communications Agency remains responsible for regulatory functions in the areas of electronic and postal communications, including use of radio frequency spectrum and numbering. The SCITC implements the overall state policy and executes the interministerial coordination in areas of informatization; e-government; and electronic and postal communications, including radio and television broadcasting. However, the SCITC, which is considered to be below the ministry level, continued to face challenges in leading the policy direction on ICT and receiving acceptance from the higher ministerial agencies.

Since 2002, the Kyrgyz Republic has included the development of ICT in its national policies and strategies (Table 5.1). However, the initial development strategy in 2002 failed to set tangible outputs, terms, and indicators to measure its achievement. This was rectified during the succeeding 2009–2011 Country Development Strategy, which listed the construction of a Kyrgyz national data transmission network as one of the priorities. To date, the country has not fully formed a document with the detailed ICT plans and strategy directions. So far, only the National Strategy for Sustainable Development of the Kyrgyz Republic, 2013–2017 is the core national planning document that sets out the country's ICT targets, focusing on three areas: (1) e-government, (2) transition to digital broadcasting, and (3) universal internet access.

Table 5.1: Policies and Strategies on Information and Communication Technology in the Kyrgyz Republic

Year	Policy and Strategy	ICT Priority Areas
2002	Comprehensive Development Framework for the Kyrgyz Republic	Governance through ICT, ICT education, ICT economy (e.g., e-trade development)
2009–2011	Country Development Strategy	National data transmission network construction, integration of national network into the internet, telephone services, analogue to digital network transition, laying of optical fiber lines, etc.
2013–2017	National Sustainable Development Strategy for the Kyrgyz Republic	Modern technology implementation in the state customs service, education and banking
2017	The Taza Koom Initiative	Improve people's lives through the power of technology, digital infrastructure, and data development
2019–2023	National Digital Transformation Program, "Digital Kyrgyzstan"	Mainstream digital technologies in the public administration and services; create competence centers and innovative clusters.

ICT = information and communication technology.

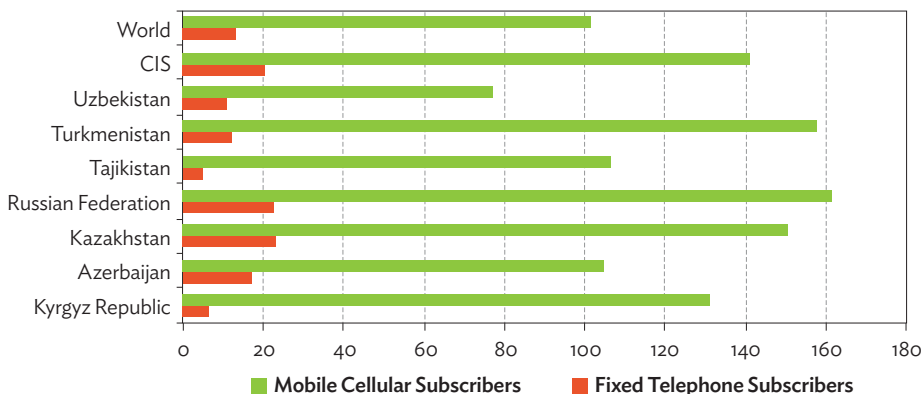
Sources: ITU (2017) and Bakenov (2019).

Kyrgyz Telecom has been the country's longest-lasting telecom operator. It has 90% government ownership. Kyrgyz Telecom offers fixed telephone lines, internet access, and television over the internet. Although it is the country's major provider of fixed telephone lines, it faces increased competition, particularly in the retail and wholesale market areas. Although Kyrgyz Telecom has a license to operate mobile cellular telephones, it has not been active in that market, which is served by three competing private companies. In many developing countries, incumbent operators have stalled the liberalization of telecoms, but this is not the case in the Kyrgyz Republic.

Access to information and communication technology

Telecommunication technology. Fixed telephone line penetration in the Kyrgyz Republic has remained one of the lowest in the region, next to Tajikistan (Figure 5.1). In 2017, the country had 362,288 fixed telephone lines—a penetration of just 6.6 per 100 people. This attests to the difficulty of deploying fixed infrastructure in mountainous rural areas. Only 27.0% of households had a fixed telephone line, and in the rural areas, it was 3.6% (NSC and UNICEF 2016). Further, the number of fixed telephone lines is declining due to the popularity of mobile phones. Fixed telephone subscriptions dropped by 18% or 80,896 subscriptions between 2014 and 2017. Electricity has not been a barrier to ICT take-up because almost all rural homes have access to electricity and 98.9% of the households own a television.

Figure 5.1: Telecommunication Subscriptions: Commonwealth of Independent States and the World (per 100 inhabitants)



CIS = Commonwealth of Independent States.

Source: ITU. ICT Statistics Database. <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx> (accessed 12 October 2018).

As in many other developing countries, mobile communications have grown tremendously in the Kyrgyz Republic during the last decade and ownership of a mobile phone is almost ubiquitous in the country. Mobile-cellular subscription in the country is 131.4 per 100 inhabitants, greater than in, for example, Azerbaijan, Tajikistan, Uzbekistan, and the world average. The competitive mobile market, with three major operators, has driven growth by boosting coverage and reducing prices.³ Third-generation (3G) network coverage has reached about 60% of the total population. The International Telecommunication Union estimated that a basket of mobile voice calls and text messages cost an average 4.1% of per capita income in 2017 (ITU 2017).

The number of mobile subscriptions has exceeded the population for some years. As of 31 December 2017, the Kyrgyz Republic had 7.3 million mobile subscriptions, representing a penetration rate of 116%. In 2014, 98% of households had a cellphone, with no statistically significant difference between urban and rural areas (NSC and UNICEF 2016), and 95% of the population aged 15 and older had a mobile phone (World Bank 2014).

The latest mobile broadband technologies are available from all three mobile operators, although the coverage has not been as high as with the narrowband mobile. 3G mobile, which was launched in 2011, has only covered

³ Locally owned Alfa Telecom (branded Megacom, <https://www.megacom.kg>) is the largest operator based on subscriptions. The Sky Mobile, branded as the Beeline (<https://beeline.kg>) is the second largest, half owned by the regional operator Veon. Locally owned Nur Telecom, branded as OI, (<https://o.kg>) is the third ranked mobile operator in the country.

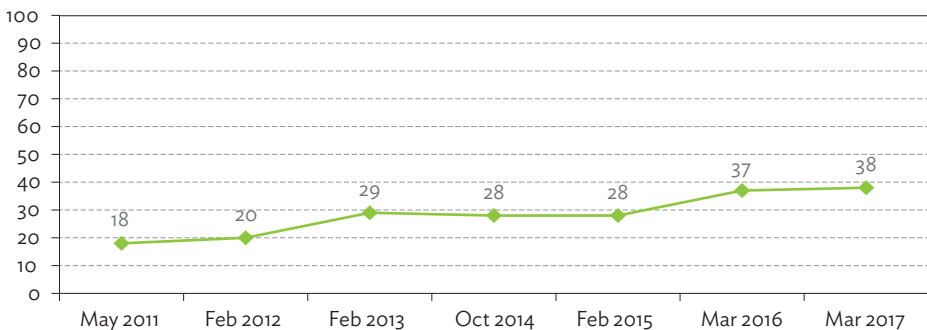
three-fifths of the population, and the fourth-generation (4G) Long-Term Evolution (LTE) mobile service, deployed in 2014, has reached only about a third of the population. While mobile broadband coverage is widely available in urban areas, it has remained limited in many rural zones. Access to fixed broadband is generally restricted to urban areas with a penetration of just 4.1 subscriptions per 100 people, compared with over 30% of the population for mobile broadband. Mobile broadband can be had for a monthly package (500 megabytes of data included) equivalent to 1% of income, which is much cheaper than the 8.4% of income for a fixed broadband subscription (Terabit Consulting 2014).

Internet access. Despite the high level of literacy and attainment of secondary education in the country, only 38% of the adult population has used the internet, based on a 2017 survey (IRI 2017). However, this is an impressive increase of 20 percentage points from 2011 to 2017 (Figure 5.2). While most people have mobile phones, only 29% of Kyrgyz households—44% in urban areas and just 19% in rural locations—have access to computers and tablets (NSC and UNICEF 2016). Thus, access to the internet is primarily through mobile phones. A 2014 survey found that 69% of internet users, or just over a quarter of the adult population (26%) accessed the internet on their phones (IRI 2017). Internet access in rural areas is limited by the limited mobile broadband coverage and the lack of smartphones and computers.

Backbone infrastructure and connectivity

National and international connectivity has been a great challenge for the Kyrgyz Republic. Its mountainous terrain hampers extending fiber backbones in a cost-effective way, and the country must rely on neighboring countries (some of

Figure 5.2: Internet Use Among Adults, 2011–2017 and Young Women, 2014, Kyrgyz Republic (%)



Source: Center for Insights in Survey Research. 2017. Public Opinion Survey: Residents of Kyrgyzstan. PowerPoint presentation. https://www.iri.org/sites/default/files/wysiwyg/kyrgyzstan_february-march_2017_-_public.pdf (accessed 16 October 2018).

which are also landlocked) for access to submarine fiber optic cables. Abundant backbone connectivity and cross-border connections are important for the Kyrgyz Republic to become the regional hub of the digital Silk Road.

In 2000, a fiber link was constructed to the Kyrgyz Republic border, connecting Bishkek to the Trans Asia Europe cable system from Frankfurt to Shanghai (ESCAP 2014). There had not been much further development of domestic fiber until 2009, so the country was heavily reliant on “microwave backhaul”—the transport of traffic (voice, video, and data) between distributed sites and a centralized point via a radio link (Terabit Consulting 2014). Since 2009, fiber optic connections have been provided to the People’s Republic of China (PRC), Tajik, and Uzbek borders as well as a ring connecting Bishkek, Naryn, Osh, and Jalal-Abad (Figure 5.3).⁴ Kyrgyz Telecom owns most of the national fiber network but Megacom⁵ has also deployed on major routes, including the national ring, and ElCat⁶ has fiber on some major routes.

Although the Kyrgyz Republic is now connected by fiber to the PRC and there are plans for fiber network through Tajikistan, Afghanistan, and Pakistan to reach submarine cables in Pakistan, currently the main routes to the internet are via Kazakhstan and on to the Russian Federation. Any licensed operator in the Kyrgyz Republic can build a fiber network, and as many as half a dozen operators transmit data through the Kazakh border (Internet Society 2015).

By 2015, there were 4,841 route-kilometers of fiber optic transmission cable across the country. However only 42% of the population lived within 10 kilometers of fiber optic cable backbones (Figure 5.3). The World Bank’s Digital Central Asia and South Asia (CASA)⁷ Project aims to expand the fiber optic backbone infrastructure in the country by supporting the government to procure bandwidth, hence greatly increasing demand. It is hoped that this will attract operators to invest in expanding their domestic backbone networks and establish new cross-border connections. The project will also encourage infrastructure sharing and work with electric utilities and railways to leverage their fiber

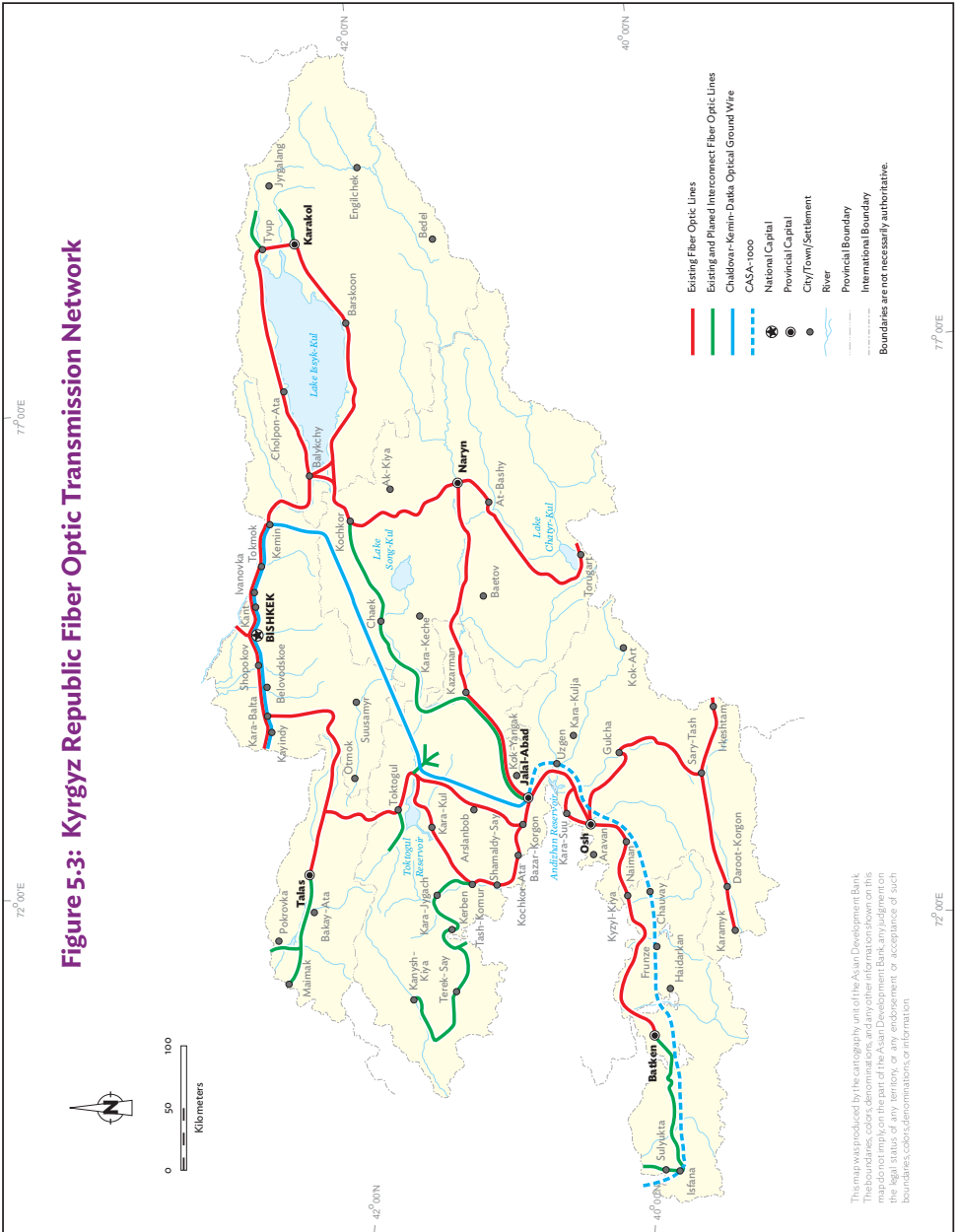
⁴ ITU. Interactive Transmission Map. <http://www.itu.int/itu-d/tnd-map-public> (accessed August 2017).

⁵ Megacom, the first and largest mobile communication operator in the Kyrgyz Republic, provides cellular services in GSM (2G) standards in the 900 and 1,800 megahertz (MHz) bands, WCDMA/UMTS (3G) in 2,100 and 900 MHz and LTE (4G) in the frequency bands 800, 1,800, and 2,100 MHz. Mobile communication covers up to 99% of the country’s populated territory and serves more than 3 million subscribers (Megacom. <https://megacom.kg/pages/o-kompanii>).

⁶ ElCat. <http://www.elcat.kg/en/about/history/about-us>.

⁷ The World Bank provided a grant of \$25 million for the Digital CASA–Kyrgyz Republic Project, to support increased access to more affordable internet, crowd-in private investment to the sector, improve the government’s capacity to deliver digital government services, and contribute to the development of integrated digital infrastructure and an enabling environment in the region (World Bank. 2018a. <https://www.worldbank.org/en/news/loans-credits/2018/03/20/digital-casa-kyrgyz-republic-project>).

Figure 5.3: Kyrgyz Republic Fiber Optic Transmission Network

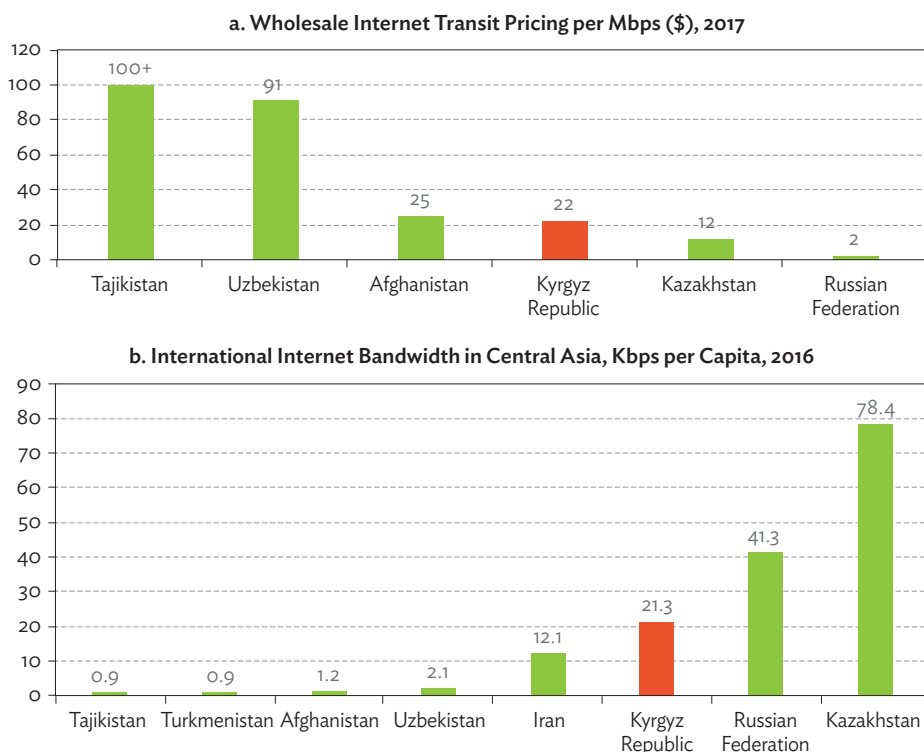


This map was produced by the cartography unit of the Asian Development Bank. The map does not imply on the part of the Asian Development Bank any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.

assets. This is expected to extend the fiber backbone to all districts and most municipalities of the Kyrgyz Republic.

While wholesale internet connectivity prices in the Kyrgyz Republic are relatively cheap—\$22 per megabits per second (Mbps) in 2017—compared with that in most other Central Asia countries (Figure 5.4a), they remain more expensive than in Kazakhstan (\$12) and the Russian Federation (\$2). International internet bandwidth in the Kyrgyz Republic has been steadily increasing, reaching 130 gigabits per second (Gbps) by 2016 or 21.3 kilobits per second (Kbps) per person. Recent capacity growth has been driven by the uptake of mobile broadband. The Kyrgyz Republic has more international internet bandwidth per capita than most of its neighbors but still significantly less than in Kazakhstan (Figure 5.4b). The World Bank’s Digital CASA project targets both reducing the cost of international bandwidth (to \$10/Mbps in 5 years) and increasing international internet bandwidth (to 50 Kbps per person).

Figure 5.4: International Internet Bandwidth, Wholesale Costs, and Bandwidth per Capita: Selected Countries



Kbps = kilobits per second, Mbps = megabits per second.
Source: World Bank (2018b).

An internet exchange point (IXP) is managed by the Kyrgyz Association of Telecommunication Operators in a Kyrgyz Telecom data center.⁸ The IXP is accessible for members of the association, four of which exchange traffic at the IXP. Nonmembers, including international internet service providers (ISPs) and content providers are not allowed to use the IXP. This results in increased reliance on more costly international bandwidth affecting development of local content and government e-services (Internet Society 2015).

The country's registered internet top-level domain code for the Kyrgyz Republic (the “.kg” domain)⁹ has been delegated to the ISP AsiaInfo. It acts as the registry and is the sole registrar for second-level domains, which cost Som2,292 (\$33), although other firms can provide third-level domains.¹⁰ Almost 10,000 domains were registered under .kg in April 2017, the second lowest in the region after Tajikistan.¹¹ The Kyrgyz chapter of the Internet Society is encouraging lower pricing to grow the digital economy in the country.

5.3. Achievements of and Constraints on ICT Implementation in Various Sectors

Several institutions compile ICT-related indexes that measure aspects of a nation's e-readiness. The International Telecommunication Union's ICT Development Index consists of several infrastructure and education indicators. The Kyrgyz Republic ranked 110th in 2016, mainly affected by a low level of wired infrastructure: fixed telephones and fixed broadband (Figure 5.5a).

Another popular ICT ranking is the Net Readiness Index (NRI) of the World Economic Forum (WEF 2016). The NRI consists of 10 pillars ranging from the legal and business climate to affordability, infrastructure, and usage. The NRI is composed of both hard indicators and opinion surveys. The NRI ranked the Kyrgyz Republic 95th (of 139 countries) in 2016, a gain of three places over the previous year. The country's results are generally close to the average for the lower middle-income group, and outperform this group in affordability, skills, and individual usage, but lag in business and government usage and achievement of economic impacts from ICT (Figure 5.5b).

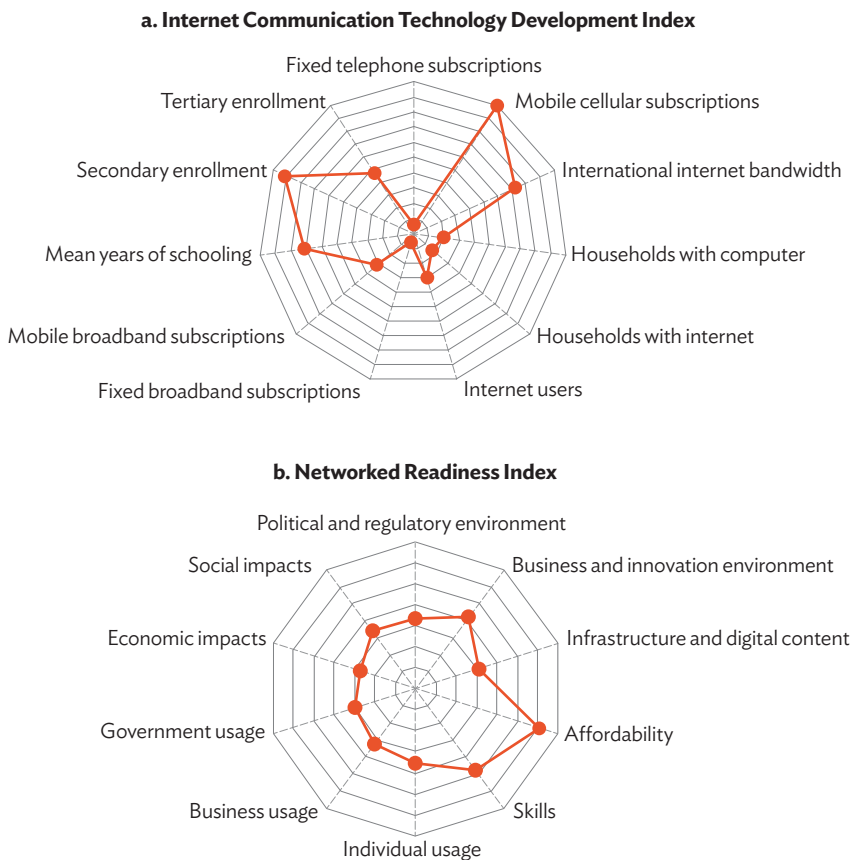
⁸ KG-IX. <http://kg-ix.net/#about>.

⁹ “.kg” is the internet country code top-level domain for the Kyrgyz Republic. Registrations are normally at the second level, while there are some specialized third-level registrations such as those under gov.kg.

¹⁰ Asia Info. Rates. <http://www.asiainfo.kg/rates/domain-name-registration.html>

¹¹ Domain Tools. WhoIsLookup. <http://research.domaintools.com/statistics/tld-counts/> (accessed September 2017).

Figure 5.5: Kyrgyz Republic Information and Communication Technology Rankings, 2016



Sources: ITU. ICT Development Index. <https://www.itu.int/net4/ITU-D/idi/2017/#idi2017economycard-tab&KGZ>; WEF. <http://reports.weforum.org/global-information-technology-report-2016/economies/#economy=KGZ>.

Sectoral digital absorption

Education. ICT availability in schools remains low. Refer to Chapter 8, section 8.5 on information, communication technology, and skills for a detailed discussion. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), just 6% of schools had an internet connection in 2014 and the ratio of students per computer was 57:1 with wide differences between urban and rural areas (UIS 2014). The government recognizes the importance of ICT for education, and creating the "conditions for the development of ICT infrastructure in schools (equipment, technical support, in-service teacher

training, etc.)” is one of the 15 priority policy areas in the Education Development Strategy.¹² The strategy also calls for using ICT in administrative areas such as analyzing the labor market, study processes, and management of educational institutions. The strategy aims to boost internet penetration in schools to 20% and decrease the student/computer ratio to 30:1 by the year 2020. These are relatively modest targets, reflecting the limited resources available in the ministry and poor internet connectivity in rural areas. The Ministry of Education and Science is also developing an ICT program for its 2040 Education Strategy.

A major challenge the education sector faces is quality. Despite comparatively high levels of education among the population, there is a sense that quality has dropped since independence. The Kyrgyz Republic ranked last in a number of subjects among nations participating in the Programme for International Student Assessment (Hou 2011). To better monitor the quality of education, the Ministry of Education and Science plans to create a center for quality education. The center would feature a digital platform to monitor quality through online testing and will electronically dispatch multimedia materials to underperforming schools, which are designed to address the specific areas of weakness in students’ learning.

Demand for ICT specialists is outstripping the capacity of the higher education sector to provide them. Resources are limited for expanding training in computer software and related areas. Some joint programs with overseas universities and ICT organizations are being developed. The feasibility of establishing an academy that specializes in providing tertiary level ICT education and training is being examined.

Transport. The Kyrgyz Republic relies overwhelmingly on road transport. Snow, ice, and avalanches in winter affect road conditions, and damage to roads from earthquakes and landslides severely affects the transport sector. The government has found that road maintenance is a major challenge, and now urgently calls for the implement of comprehensive road asset management. Under the current Central Asia Regional Economic Cooperation Corridors 1 and 3 Connector Road Project, the Asian Development Bank plans to support a pilot road asset management system where high-level technologies will more efficiently monitor road conditions on the long regional corridors and local roads (ADB 2017). Regarding maintenance, control of vehicle axle loads is important for road sustainability. The Kyrgyz Republic has about 23 checkpoints for vehicle weight control. However, tests are conducted at random, and consistent

¹² Government of the Kyrgyz Republic. *Education Development Strategy of the Kyrgyz Republic 2012–2020*. <https://www.globalpartnership.org/content/education-development-strategy-kyrgyz-republic-2012-2020>.

enforcement has been a challenge. The government is looking for an ICT solution to minimize the impacts on the traffic at the weigh bridges (check points).

The Kyrgyz Republic joined the Eurasian Economic Union (EEU) in 2015. This will have a huge impact on the transport sector, including the liberalization of road cargo transport and the common transport (road transport) control on the EEU border. The accession to the EEU will require standardizing traffic and logistical information and exchanging information among relevant government agencies. The Central Asia Regional Economic Cooperation Regional Improvement of Border Services project enhanced physical infrastructure and working facilities at two border crossing points in the Kyrgyz Republic and Tajikistan, and the Asian Development Bank also supported the assessment of the Single Window Center for Foreign Trade covering business processes and technical and functional requirements of the ICT system. Increasing demands on trade facilitation and logistics in the region require the introduction of additional ICTs.

Business. The use of ICT in the business sector is slightly above the world average. A 2013 World Bank survey of 270 firms in the Kyrgyz Republic showed that about 57% of them had a website and about 86% used e-mail to communicate with suppliers and clients (Table 5.2). However, there was a notable gap between the small and medium-sized enterprises and larger firms, which underscores the need for assisting the former to apply ICT in their businesses.

Table 5.2: Information and Communication Technology Use in the Kyrgyz Republic Firms, 2013
(%)

Internet Use	Kyrgyz Republic	Eastern Europe and Central Asia	All Countries
Firms with their own website	56.9	62.2	44.4
Small (5-19)	54.1	56.2	36.1
Medium (20-99)	53.3	70.9	56.1
Large (100+)	72.8	83.8	74.6
Firms using e-mail to interact with clients and suppliers	85.9	84.7	71.7
Small (5-19)	82.8	81.5	65.3
Medium (20-99)	83.8	90.1	82.8
Large (100+)	98.2	93.8	92.3

Source: World Bank. Enterprise Surveys, Kyrgyz Republic. <http://www.enterprisesurveys.org/data/exploreeconomies/2013/kyrgyz-republic#innovation-and-technology>

The Kyrgyz Software and Services Developers Association lobbied for legislation, which was passed in 2011, leading to the launch of the High Tech Park (Abakirov 2017). Companies located in the park benefit from low income tax (5%) if they export at least 80% of their output. As of 2017, the park hosted 32 companies with a turnover of \$7.4 million and employed 434 people (Pillai 2018). The largest export markets are Ireland, Kazakhstan, Japan, the Russian Federation, and the United States. Despite the growth of the High Tech Park, the Kyrgyz Republic continues to run a notable balance-of-payments deficit in computer and information services (Figure 5.6), highlighting constraints with domestic capacity to develop ICT applications.

A robust tech start-up ecosystem is developing in the Kyrgyz Republic. The KG Labs Public Foundation (<https://kglabs.org>) maintains a list and a map of start-ups and related resources,¹³ and is active in organizing contests, hackathons, and incubation and mentoring sessions, and Ideagrad.com runs an incubation program.

The country has good potential to develop and boost its e-commerce retail industry. Goods and services are increasingly available for sale online, however most of e-commerce shops simply offer online brochures of their products.¹⁴

Figure 5.6: Trade in Computer and Information Services, Kyrgyz Republic
(\$ million)



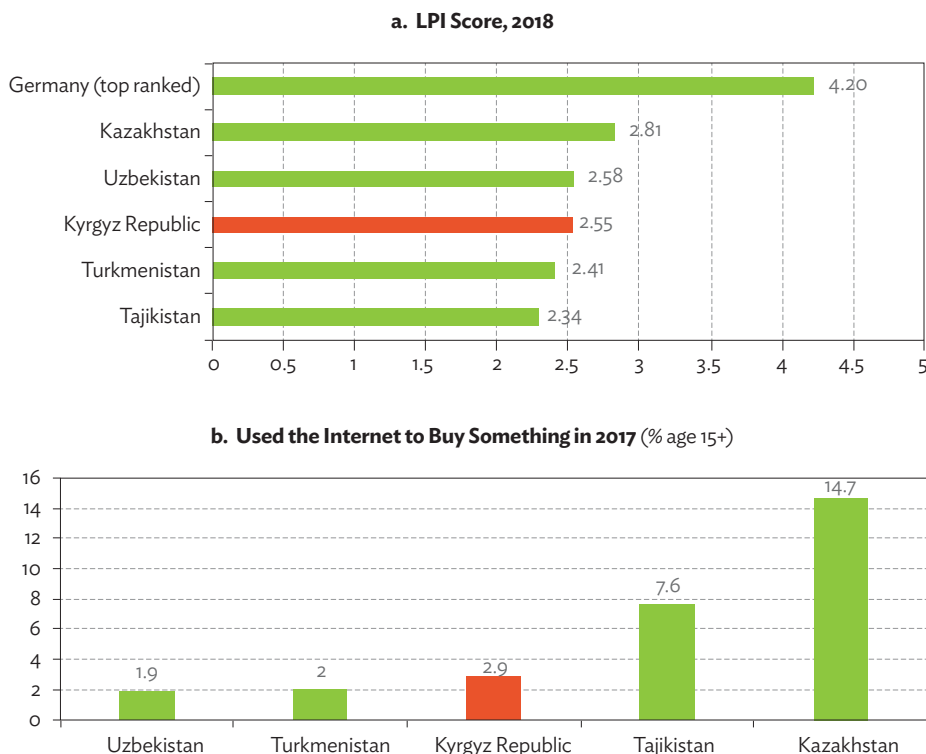
Source: National Bank of the Kyrgyz Republic.

¹³ KG Labs Public Foundation. 2018. Tech Ecosystem Map of Kyrgyzstan. <https://kglabs.org/index.php/about-kyrgyzstan/startup-ecosystem-map-kyrgyzstan/>

¹⁴ United States Department of Commerce, International Trade Administration. 2017. Kyrgyz Republic–Ecommerce. <https://www.export.gov/article?id=Kyrgyz-Republic-Ecommerce>

There are opportunities in this area for digital start-ups. Companies with business-to-consumer (B2C) e-commerce sites offer retail, taxi, and food delivery services in Bishkek. Cash-on-delivery remains the most common practice due to limited reliance on credit cards and data privacy concerns (DiCaprio and Procač 2016). Product delivery is also a huge challenge, as the Kyrgyz Republic's logistics performance lags. In 2018, the country ranked 108th out of 160 countries in the Logistics Performance Index—below Kazakhstan and Uzbekistan (Figure 5.7a). The low rank is attributed to transaction and logistics constraints. Survey results from the World Bank's Global Findex found that only 2.9% of the population age 15 and older had purchased a product online in the last year (Figure 5.7b).¹⁵

Figure 5.7: Logistics Performance Index, 2018, and Online Shoppers, 2017



LPI = Logistics Performance Index.

Sources: For 5.7a, World Bank. Logistics Performance Index. <https://lpi.worldbank.org/international> (accessed 16 October 2018); for 5.7b, World Bank. Online Shoppers. Global Findex. https://globalfindex.worldbank.org/index.php/#data_sec_focus

¹⁵ World Bank. https://globalfindex.worldbank.org/index.php/#data_sec_focus

Health. In 2016, the Kyrgyz Republic had 185 hospitals and health and diagnostic centers. Most health centers are connected to the internet. Those located in oblast centers are connected by fiber optic, while those in rayons that are outside the oblast centers use asymmetric digital subscriber line (ADSL),¹⁶ and family centers in villages use the mobile phone network. The Ministry of Health recently launched a draft digital health strategy for feedback from stakeholders. Several ICT projects are being prepared or planned. This includes connecting all databases in a unified system and introducing electronic medical records (available in about a dozen hospitals, with plans to include up to 40 hospitals); telemedicine (introduced in six hospitals); and a national pharmaceutical drug tracking and monitoring system. Other projects include online medical appointments and a patient portal.

Finance. There is significant potential for mobile money services given the high level of mobile penetration, high level of remittances, shortage of banking services in rural areas (Hermans 2014), and relatively low level of bank accounts. The law on payment systems was passed in December 2014 and covers credit cards as well as mobile banking and electronic money (NBKR 2014). Mobile banking is available from several banks in the country and mobile operators have launched mobile money (Central Asian Cellular Forum 2018). A mobile “app” is available for paying utility and other bills.¹⁷ Mobile banking is important for reaching small businesses (ADB 2016).

Credit/debit card penetration is rising, reaching 40% of the population aged 15 and above (NBKR 2017). International credit cards are available, and a domestic debit card called Elcart accounts for over 40% of payment cards in circulation.¹⁸ A major driver has been the movement of government salaries and benefits from cash to bank accounts. However, the public remains leery of using payment cards for transactions and most activity comprises ATM withdrawals.

Although there is an encrypted signature law legitimizing online transactions, there are issues with its implementation (Government of the Kyrgyz Republic 2004). Only biometric identification cards issued for the 2017 presidential election can currently fulfill the law’s identification requirements.

¹⁶ The ADSL is a technology for transmitting digital information at a high bandwidth on existing phone lines to homes and businesses. ADSL is generally offered at downstream data rates from 512 Kbps to about 6 Mbps.

¹⁷ Online Wallet. <https://www.mobilnik.kg/#/start>.

¹⁸ Elcart is a national payment system (ATM card) in the Kyrgyz Republic intended for noncash payment of wages, pension, and benefits of government agencies.

Government. An implementation plan for 2014–2017 has guided the recent development of e-government in the country.¹⁹ The National Sustainable Development Strategy 2013–2017 states that the “Internet will play a greater role in the activities of government bodies, there will be a modern system of ‘e-government’ for the efficient and cost-effective administration, improvement in democracy, and increase in the accountability of the government to its people.”²⁰

Most ministries operate stand-alone systems devoting significant resources to develop, implement, operate, and maintain services. Government ministries in Bishkek are connected via fiber optic cable, but outside the capital connectivity is uneven. Although the Kyrgyz Republic has progressed in computerizing government processes, e-government is still nascent. Interoperability is limited; there are no standards for architecture, data sharing, and software; and there are few fully transactional online services with e-payment functionality available for citizens and businesses. Another challenge is the need to revise or create laws for introducing online services.

More than a dozen public services are available on the State Portal of Electronic Services.²¹ They include procedures for obtaining an identification card, civil registration, driver’s license, etc. Access for users without internet connection or who need assistance is provided through information kiosks deployed in 363 village communities (*aiyl aimak*) by leveraging the offices of Kyrgyz Post. A trained government employee staffs each kiosk. Services that require payment must for now be paid in cash. Kiosks will be installed in the remaining 90 communities once suitable internet connectivity is available.

The United Nations e-government index,²² an indicator of the depth and functionality of public e-services ranked the Kyrgyz Republic between 91st and 101st place in 2001–2018: currently it is ranked 91st out of 193 economies (Figure 5.8a). In the online service rank, the country is in the middle compared to its neighbors, and is some distance behind the leader, Kazakhstan (Figure 5.8b). The ranking is likely to improve in the coming years with infrastructure such as data centers and cloud computing.

¹⁹ Program of the Government of the Kyrgyz Republic for the implementation of e-governance (“e-government”) in the state bodies of executive power and local government of the Kyrgyz Republic 2014–2017, 17 November 2014.

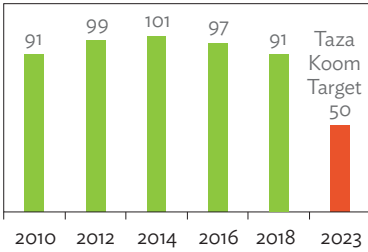
²⁰ Government of the Kyrgyz Republic. NSSD 2013–2017. <http://www.donors.kg/en/strategy/172-national-sustainable-development-strategy-2013-2017#.XMjQxugzY2w> p. 18.

²¹ Taza Koom. <https://portal.tazakoom.kg>

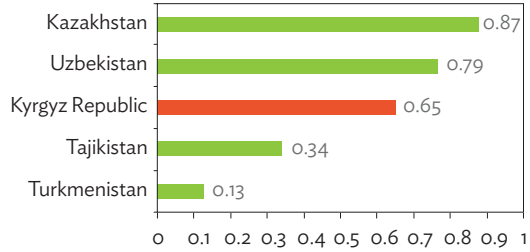
²² UN DESA. UN E-Government Knowledgebase. <https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/91-Kyrgyzstan> (accessed 16 October 2018).

Figure 5.8: UN E-Government Index

a. Kyrgyz Republic E-Government Rank



b. Online Service Index, 2018



Source: UN DESA. UN E-Government Knowledgebase. <https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/91-Kyrgyzstan> (accessed 16 October 2018).

5.4. National Digital Transformation Program

Under the present government, the National Digital Transformation Program, “Digital Kyrgyzstan 2019–2023” has been proposed to create conditions for the emergence of the digital economy by mainstreaming digital technologies in the public administration and services, creating competence centers and innovative clusters that will provide new opportunities and economic breakthrough using digital innovations.

In 2019, the government has announced its intent to bring the country in the forefront of digitalization in the region. The Kyrgyz Republic’s digital economy will be implemented within these three priority areas: (i) business process in the financial and banking sector, and the improvement of the efficiency and competitiveness of domestic companies, (ii) development of digital strategies in cooperation with partner countries including the Digital Agenda 2025 of the Eurasian Economic Union and creation of the digital Great Silk Road through the One Belt, One Road program, (iii) reduction of barriers in the development of digital technologies. These initiatives aim to support market expansion for the private sector in order for them to develop new lines of products and services, as well encourage the formation of new economic clusters in the country. Earlier this year, the Security Council of Kyrgyzstan approved the digital transformation concept “Digital Kyrgyzstan 2019-2023” and its roadmap, to ensure the conditions for investments under its new national digital infrastructure.

Some of the initiatives and programs identified under the Digital Kyrgyzstan 2019-2033 concept include the following:

Establishment of the Tunduk system (Center for Electronic Interaction).

This program aims to streamline information technologies to increase the efficiency of public service provision and increase their efficiency by creating a single point of access to all information resources of the state bodies. Under the *Tunduk* system, ministries, state enterprises, municipal authorities and other organization will be able to exchange information directly. And through this system, it is expected that public administration will be enhanced, and that unnecessary documentary procedures on document approvals are reduced, while increasing transparency in government process.

Safe City project and data centers. Initiatives started under the Digital CASA project, such as the provision of internet within regions and the construction of regional data centers, will be further accelerated. This program aims to enhance cooperation among academic and business structures developed under the innovation centers, to allow entrepreneurs to continuously develop pilot projects and innovative solutions for businesses and the State. Partnership with higher educational institutions as host sites for training, start-up testing and demonstration will be established. Through this project, the government aims to promote broader participation of citizens in the process of state and municipal decision-making.

Creation of favorable business climate for IT companies.

Telecommunication companies are the main force and provide huge contribution to the sector's development. Modern technologies are introduced in personalization of mobile subscribers, e-commerce, and mobile payments in the Kyrgyz Republic. Creation of favorable business climate, strong industry administration and regulators and updating of the regulatory frameworks for information technology are needed to attract investments.

Regional out-reach on communication technology. One of the objectives of Digital Kyrgyzstan is to ensure that no region of the country will be left without communication. To achieve this goal, gradual transfer of the income tax share to the local budgets will be allocated. Information technology companies who are open to subsidize regions will have incentives from income tax, sales tax, land tax and property tax for a period of five to ten years. While entrepreneurs involved in the import of technological equipment will be exempted from customs duties.

Promotion of IT technologies in healthcare. Healthcare centers that can serve the population around the clock will be streamlined. These centers will provide online counseling services via the internet and telephone. The use of automated control system for ambulance service will initially be rolled-out in Bishkek starting 2019, and later be introduced in other cities like Osh and Karakol cities from 2020.

Smart School project. The program aims to connect all schools to the Internet. Basic processes such as digitalizing admission process and enhancement of learning process among school teachers and student through use of multi-media will be streamlined. All other socially significant institutions will also benefit from this program.

Eliminating barriers to business development. Through information technologies, the government aims to eliminate hurdles to business development. Transition to electronic provision of licenses and permits from government offices will be accelerated. Procedures on business such as registration, business closure, tax reporting, and payments will be enhanced and made more convenient for all enterprises. Single window processing units will be established within various agencies. Creation of electronic archives among all government agencies had been made mandatory to enhance transparency.

Several development agencies have indicated interest to assist the government in building up the country's digital economy. The largest commitment by far is the \$25 million World Bank Digital CASA project (Box 5.1). The Department for International Development of the United Kingdom (DFID) plans to develop a Smart City strategy (Kabar 2017a). The European Bank for Reconstruction and Development (EBRD) is supporting projects involving business licenses and registration and electronic notary services (Kabar 2017b). The Japan International Cooperation Agency (JICA) is interested in cooperating on human development aspects (JICA 2018). The United Nations Development Programme (UNDP) is assisting with the creation of a government "innovation lab" (UNDP 2018).

Additional support for the National Digital Transformation program include building hard and soft digital infrastructure, including the ICT infrastructure; the national identity; a geospatial database; and specific sector and thematic digital development programs. A national spatial data infrastructure within the State Registration Services that could integrate diverse data sets, including missing data, and introduce new functionalities.

Box 5.1: Digital CASA–Kyrgyz Republic Project

The Digital CASA (Central Asia–South Asia)–Kyrgyz Republic Project was approved in March 2018. The overall objective of the project is to increase access to more affordable internet, attract private investment in information and communication technology, and improve the government's capacity to deliver digital government services. The Digital CASA–Kyrgyz Republic Project has four key components. The Regional Digital Connectivity Infrastructure component (42% of the funding), aims to promote affordable and high-quality internet access for citizens, businesses, and government by incentivizing private sector network infrastructure investment. By purchasing bandwidth in advance, the government hopes to create a high-level demand that would incentivize the private sector to expand the required level of infrastructure. The second component, Regional Datacenters, Digital Platforms, and Smart Solutions (36% of the funding), aims to construct cloud-based shared datacenter infrastructure and platforms for the government and the private sector to securely deliver better services to citizens. The third component, Enabling Environment for Digital Economy (17% of funding), aims to strengthen and harmonize the laws and regulations related to the digital economy across the region, including in the context of the Eurasian Economic Union, and develop policies and strategies, digital leadership, digital economy skills, and strategic communications. The final component, Project Management, supports project activities and monitoring of results. The implementing agency is the State Committee of Information Technologies and Communications.

Sources: World Bank (2018a) and 24.kg (2017a).

A geographic information system is a critical foundation for e-government with applications such as managing assets (e.g., land, forestry, water, building, and roads); valuing real estate; and facilitating private sector investment.

The government's encrypted signature law legitimizes online transactions, but its implementation is hampered by problems with identifying users. This relates to the requirement for a common identification database to which diverse applications can link. The identification database, along with the national spatial data system, comprise the foundational blocks for efficient development of e-government services.

Tracking medicine is a high priority of the Ministry of Health to monitor prices and reduce misuse. The Ministry of Health would like to develop a pharmaceutical monitoring system to trace the flow of drugs from the border through the entire supply chain. The system would link to pharmacies, health practitioners, and insurance companies.

The Ministry of Education and Science has discussed the importance of monitoring the quality of education in the country. To improve the monitoring, the ministry plans to create a center for educational quality. The center would feature a digital platform connecting all schools. The aim is to oversee education

quality through online testing and to electronically dispatch multimedia materials to underperforming schools, designed to address specific areas of weakness.

5.5. Conclusion and Policy Recommendations

Although confronted with significant development challenges, exacerbated by being landlocked, the Kyrgyz Republic has tremendous opportunities that could be unlocked through the application of digital technologies. The Kyrgyz Republic is the second most e-ready nation in Central Asia. And despite having no direct access to the sea, its geographic location between the PRC and Europe offers potential for the country to become a digital hub along the Silk Road. Recognizing these opportunities, the government launched the Taza Koom initiative in 2017 with the aim of transforming the Kyrgyz Republic into a digital nation in a little more than 2 decades. Under the current government, these past initiatives were revised and adopted in the renewed National Digital Transformation Program, “Digital Kyrgyzstan” 2019–2023. The new program aims to create conditions that will (1) revolutionize digital technologies in public administration and public service delivery—reducing corruption, increasing transparency, and making life easier for citizens and businesses—, and (2) creation of competence centers, innovative clusters, promotion of new opportunities that can contribute to the aspiration of lifting per capita income in the country and induce economic breakthroughs.

The success of the new digital transformation program will depend on how effectively the Kyrgyz Republic can harness human and financial resources for such an ambitious initiative. It will also be critical to stay on course and ensure that the institutional arrangements for implementing the program can navigate the country’s complex political environment. The institutional arrangement for the new program will need to have sufficient capacity, authority, or scope to supervise such a high-level, economy-wide strategic initiative and to monitor and coordinate across different levels of government.

For the successful execution of the new program, it is critical to formulate an implementation strategy providing a sequence of actions. At some stage, the country will need to move to common protocol and systems for its e-government architecture. The move will entail significant effort to convert existing systems and hence needs to be sequenced. Cost estimates for the entire initiative or identification of individual projects needs to be explicit so that private sector and other development partners can identify projects or areas where development investments or support are most needed

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Chapter 6

Transport and Logistics to Support Increased Trade and Inclusiveness

Richard Pomfret and Aigul Berdigulova

6.1. Introduction and Historical Background

Development of the modern transport system started when the Kyrgyz Republic was part of the Soviet Union. The Soviet Union was a self-sustaining closed economy, guided by geopolitical considerations and geographic features¹ that played a crucial role in crafting the transport system of what is now the Kyrgyz Republic. After the Sino–Soviet split in 1960, the border with the People’s Republic of China (PRC) was generally closed until 1992, and the mountainous Kirgizia (the Kyrgyz Republic’s name prior to independence) was the end point of the Soviet Union’s main rail lines and major roads. The high Kyrgyz mountain ranges naturally divide the country into the north and south, and open borders between the former Soviet republics made it economically and technically feasible to build a bypass route to connect the north and south. Transport routes were built to support economic clusters of the Soviet Union as a whole.

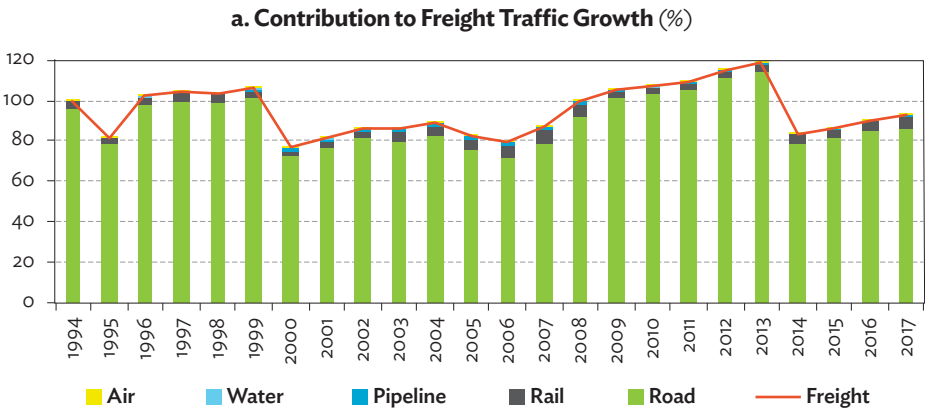
On gaining independence in December 1991, the Kyrgyz Republic inherited a transport system that provided good long-distance connectivity within the Soviet Union, but local transport was often poor. The northern part of the Kyrgyz Republic was better connected to Almaty and Dzhambul (now Taraz) than to Osh; while Osh was better connected to Uzbekistan than to the northern Kyrgyz Republic. The most convenient route between the two largest cities, Bishkek and Osh, is through its old road system built in the 1960s. Another way is through its railway connection, however this requires crossing Kazakhstan, Uzbekistan, Tajikistan, and then back into Uzbekistan before finally

¹ Among landlocked countries, Tajikistan and the Kyrgyz Republic are at the third and fourth highest average elevations, behind Bhutan and Nepal (Lissovolik et al., 2017).

returning to Kyrgyz territory just before Osh. However, the emergence of the newly independent states and national borders exposed the need for a national road system, especially for upgrading the Bishkek–Osh road. There were virtually no flights to destinations beyond the Commonwealth of Independent States (CIS) in the 1990s, although domestic flights and flights within the CIS continued to operate using inherited Soviet aircraft.² In 1993, the Kyrgyz Republic became a member of the International Civil Aviation Organization and the first non-CIS flight (Bishkek–Istanbul) was opened in 1994. During the winter of 2017–2018, international destinations of Kyrgyz air passenger carriers were limited to several cities in the Russian Federation and Turkey, Urumqi (PRC), Delhi (India), Almaty (Kazakhstan), and Dushanbe (Tajikistan). Rail connections from Bishkek to the main Almaty–Tashkent line were maintained, but there was no domestic rail network. Year-round water transport for freight was maintained on Issyk-Kul (which translates as “Warm Lake”), which has 200 kilometers (km) of waterway (IRTU 2013), but had stalled by 2017. Natural gas was delivered by pipeline to several districts of Batken, Chuy, Jalal-Abad, Osh, and Talas Oblast. Transport was overwhelmingly by road (Figure 6.1).

A principal feature of the Kyrgyz economy in the 2000s was the role of the Dordoi and Kara-Suu bazaars as transit, mainly selling PRC and Russian manufactures to customers from across Central Asia. Transport from the PRC

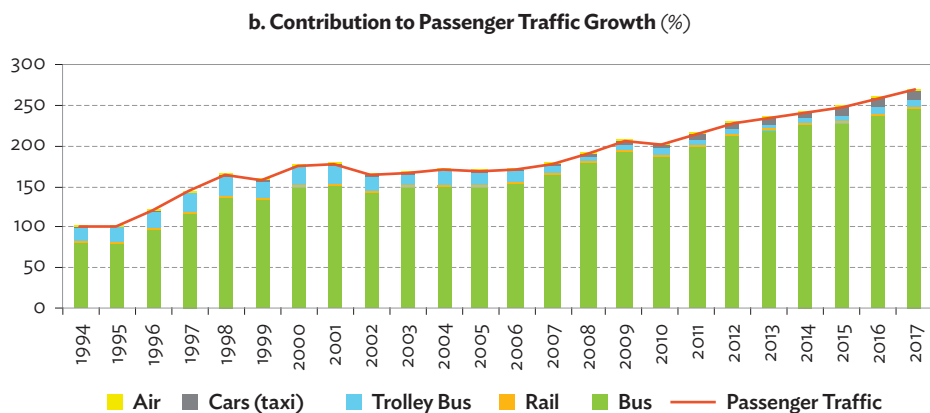
Figure 6.1: Contribution of Transport Modes to Growth in Freight and Passenger Traffic



continued on next page

² During the Soviet era, Tashkent was an international airport; Almaty–Urumqi flights began in 1989–1990.

Figure 6.1 continued



Source: Authors' estimates based on NSC. Transport and Communications.
<http://stat.kg/en/statistics/transport-i-svyaz/> (accessed 24 February 2018).

was by road or rail through Kazakhstan, and customers transported goods by road to other former Soviet republics. A positive externality of these trade linkages was the development of garment and bean exports. From early 2000s and until 2014, with United States military involvement in Afghanistan as a catalyst, Manas International Airport (and Transit Center) became operational.

During the 2010s, Kyrgyz road network was continuously upgraded, however, the network has started to run down after 2014. The government recognized the need to diversify the economy and looked to better external connectivity as a prerequisite for export diversification. The decade also saw steps to upgrade the country's airports and to create new rail links, as well as new energy trade initiatives—gas imports via pipeline or hydropower export via electricity transmission lines (see Chapter 7).

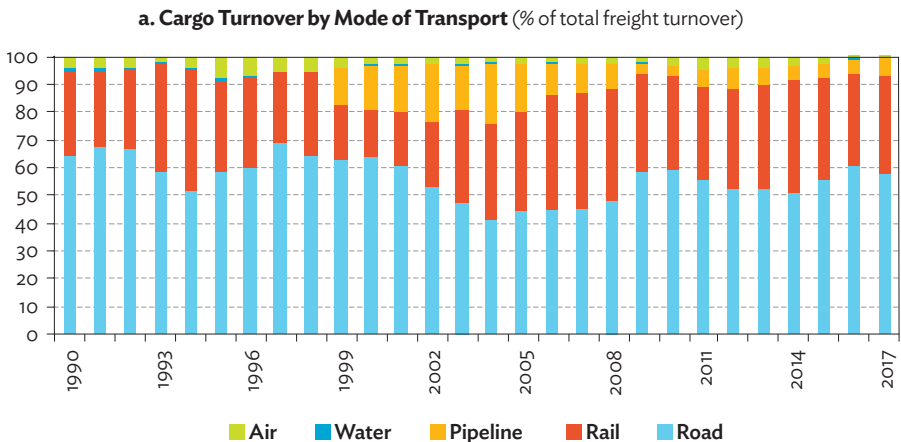
Despite the fact that in some years the growth rate reached double digits, the role of the transport sector in the economy remained limited, contributing just 0.3 percentage points to the growth of gross domestic product in 2017. By comparison, in 1996 the transport sector's contribution to the growth of gross domestic product was 0.4 percentage points. Approximately 6%–7% of the workforce is engaged in transport. During the independence period, the sector was mainly driven by urban passenger traffic, while cargo volume only exceeded the 1994 level in some years.³ This could be partly because in the early years of independence almost all passenger traffic was privatized, while

³ In the aftermath of the breakup of the Soviet Union, macroeconomic stability was achieved in 1994, which is why it is selected as the base year.

privatization in the cargo sector developed at a slower pace (the share of cargo road transport by individual entrepreneurs grew from 8.8% in 1995 to 61.9% in 2010). By 2015, the transport sector primarily comprised small enterprises or self-employed individuals, more than half of them with secondary school education. Proliferation of personal vehicles, as well as increased in taxi services, resulted in the rapid growth of vehicle registrations, from 285,000 in 2002 to 1,146,780 in 2017. In 2015, 85% of enterprises' passenger carriers were used for intracity journeys. The predominance of small-scale businesses lacking in skilled labor force and capital investments limits the potential for the cargo sector to develop.

Despite the dominance of road transport, the efficiency of rail for cargo transport and air for passenger journeys is noticeable. In 2017, 29.8 million tons of cargo was transported by road and 1.9 million tons (6.1% of total cargo weight) by rail. In the same year, freight turnover by rail amounted to 973.3 million ton-km (35.5% of total freight turnover), while by road it was 1.5259 billion ton-km. In 2017, 650 million passengers traveled by bus and 1.5 million people by air. Air passenger turnover was 2.626 billion passenger-km (21.4% of total passenger turnover), and passenger turnover by buses was 8.931 billion passenger-km (Figure 6.2). From 2002 to 2016, freight turnover almost doubled, from 1.660 billion ton-km to 2.643 billion ton-km, and passenger turnover increased by 125% from 5.466 billion passenger-km to 12.290 billion passenger-km.⁴

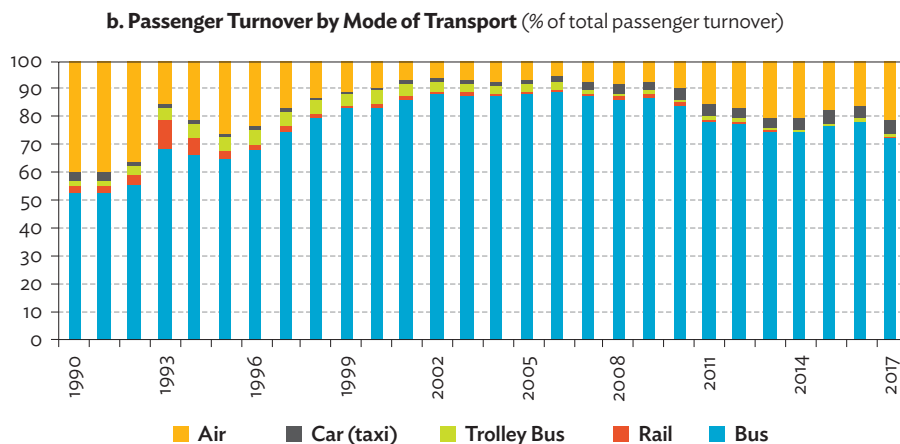
Figure 6.2: Freight and Passenger Turnover by Mode of Transport



continued on next page

⁴ Data from the National Statistical Committee.

Figure 6.2 continued



Source: Authors' estimates based on NSC. Transport and Communications.
<http://stat.kg/en/statistics/transport-i-svyaz/> (accessed 24 February 2018).

6.2. Domestic and International Connectivity

This section provides an inventory of current road, rail, and air connections. Almost all domestic passengers and most cargo travel by road. The country's rail network is split in half, with the northern region connected to the main TurkSib line to Almaty and to the Russian Federation, and some towns in the southern region connected by spurs to Uzbekistan. Rail and air are important for international connections, the former for goods trade and the latter for passenger arrivals and tourism.

Roads

The country has about 34,000 km of roads.⁵ The Ministry of Transport and Roads is responsible for maintaining 4,163 km of international roads, 5,678 km of national roads, and 8,969 km of provincial roads. Other secondary, rural, and urban roads (15,190 km) are maintained by local governments or by agricultural or industrial enterprises (Government of the Kyrgyz Republic 2015). Of the international and national roads, "33% are in poor condition and need rehabilitation and reconstruction," including the main Bishkek–Osh road that

⁵ The total length of public roads with hard surface is 7,228 km, including 11 km with cement concrete, 4,969 km with asphalt concrete, and 2,248 km with black gravel. The graveled roads cover 9,061 km and dirt roads, 1,621 km. Ministry of Transport and Roads (MTR) of the Kyrgyz Republic. <http://mtd.gov.kg/dorogi-2> (accessed 24 February 2018).

requires constant maintenance due to climate-induced impacts (ADB 2013). The National Statistical Committee noted the high incidence of road accidents: 4,248 crashes reported in 2009 and 7,066 in 2015, resulting in 1,060 deaths.⁶

The 2013 Asian Development Bank (ADB) sector assessment noted that although development partners have invested about \$1 billion in the road network since 1994, “its condition has not improved significantly” (ADB 2013). This seems too critical, especially as ADB’s own assessment of the initial Bishkek–Osh road rehabilitation, for which ADB provided \$140 million in financing, is that travel time was reduced from 20 hours to 9 hours, and the number of vehicles using the road increased from 800 per day before the rehabilitation to 8,500 per day after it. Since the road upgrade was completed in the early 2000s, however, segments have deteriorated, especially at high altitudes. Traffic along the road is often blocked by avalanches and landslides due to the absence of protection galleries (rigid snow-supporting structures over roads threatened by avalanches and rockfalls).

The government’s medium-term national strategies for 2009–2013 and 2013–2017 explicitly prioritized support for access to regional markets and provision of transit capacity. To achieve this goal, the government identified six key corridors that need rehabilitating and the need for constructing railroad:

- (1) Osh–Sary–Tash–Irkeshtam, connecting the PRC border crossing with Osh, which is close to the Uzbek crossing border;
- (2) Suusamyр–Talas–Taraz, linking the northwestern Talas Oblast to the Bishkek–Osh highway and to the main road through southern Kazakhstan;
- (3) Bishkek–Naryn–Torugart, linking the second PRC border crossing point to the capital;
- (4) Sary–Tash–Karamyk, a road to Dushanbe;
- (5) Osh–Batken–Isfana, connecting Batken Oblast and going to Khujand in Tajikistan;
- (6) Karakol–Tyup–Kegen, a road to Kazakhstan; and
- (7) railway: PRC–Kyrgyz Republic–Uzbekistan (section 6.4 of this chapter).

The Issyk-Kul ring, which is a circle rather than a corridor but is crucial for attracting visitors to the country’s top tourist attraction, was added after the National Strategy for Sustainable Development of the Kyrgyz Republic for 2013–2017 was adopted. However, financing for road construction must be tied to resources for maintaining the roads and improving their safety.

⁶ Data from the National Statistical Committee.

The road from Torugart on the PRC border through At-Bashi and Naryn to Bishkek is now an improved highway (no. 3 on the list above). The project was funded by ADB, the PRC, the Islamic Development Bank, and the Arab Coordination Group. Construction of the second north–south road from Jalal-Abad to Balykchy began in 2014, long stretches have been built, although tunnels through the most difficult terrain still have to be completed.⁷ The general picture is of substantial improvement in the national road network, although some projects remain incomplete. The government appears to be prioritizing the Bishkek–Osh and Bishkek–Torugart roads by running separate road corridor management departments for them and allocating sufficient budget for their maintenance (about \$7,000 per km for the former road and \$5,000 per km for the latter).⁸

A process of institutional reform has been set in motion, including separation of road maintenance from the Ministry of Transport and Roads. The ministry’s road maintenance units may continue to be state-owned enterprises, but they will compete with other, private or foreign, companies on tenders. Urban, suburban, and rural roads are not addressed here because they come under local government rather than transport ministry jurisdictions, but issues such as traffic congestion and road maintenance in Bishkek and poor conditions of the “last mile” to the farmgate have economic implications.

Another institutional reform envisaged in the 2015 Road Sector Development Strategy up to 2025 is public–private partnership. The first pilot project involves making the Kubaky Pass section of the Bishkek–Naryn–Torugart road a toll road. This section will reduce the length of the route by 41 km. The private partner will establish a measurement station that will calculate the toll depending on the overall weight and dimensions of a vehicle. The toll fees will cover maintenance of the road and the private partner’s investment in the measurement equipment. A feasibility study has been undertaken for the public–private partnership Uzgen bypass, while for the direct Almaty–Issyk-Kul road, conduct of the study has not yet started.

⁷ Investment Projects Implementation Group. Alternative North–South Road. <http://piumotc.kg/ru/p1861900> (accessed 24 February 2018).

⁸ Repair and maintenance of public roads is carried out by 57 road-operating enterprises. There are six regional road-operating enterprises, three departments that manage international roads (Bishkek–Naryn–Torugart, Osh–Sary-tash–Irkeshgam, and Osh–Batken–Issfana), and the State Direction of the Highway Bishkek–Osh. The general management of the nine road departments is carried out by the State Department of Road of the Ministry of Transport and Roads. <http://mtd.gov.kg/dorogi-2> (accessed 24 February 2018).

Rail

The Kyrgyz Republic has 424.6 km of railway track, in two unconnected sets of lines (Figure 6.3).⁹ The northern line (323.4 km) runs from Kazakhstan to Bishkek and from Bishkek to Balykchy on the shores of Issyk-Kul (literally, “Warm Lake”). The Bishkek–Balykchy line is scenic but slow, taking 4.5 hours and only operates in summer. The much shorter southern lines (101.2 km) connect Osh, Kara-Suu, Jalal-Abad, and Kyzyl-Kiya to the Uzbekistan network for freight only.¹⁰

The only operator of the railways is the state company Kyrgyz Temir Jolu, which handles passenger and freight traffic. Rail transport plays a small role for the Kyrgyz Republic, with virtually no domestic rail transport other than the Bishkek–Balykchy tourist train. During the years of independence, passenger journeys by rail have decreased 4.6-fold, unable to withstand price competition from road carriers,¹¹ whereas cargo traffic tripled its share up to 6.1% in 2017 from 1990 (Figure 6.4a). Rail is used mainly for bulk international shipments (Figure 6.4b).

Fragmented and dead-end railways do not support intracountry trade and limit international trade development. Further development of the rail sector is limited by lack of the investment needed to upgrade capital assets and rolling stock, absence of research and development, shortage of skilled labor, and the poor financial position of the Kyrgyz Temir Jolu. The Rail Sector Development Strategy for 2014–2020 is mostly aimed at renovating and modernizing assets inherited from the Soviet Union.¹² The strategy outlines plans for a shift from diesel fuel to electricity, and prioritizes conducting a feasibility study for constructing the north–south railway. Plans to create a new route linking the PRC to Uzbekistan through the southern Kyrgyz Republic are discussed in section 6.4.

Air

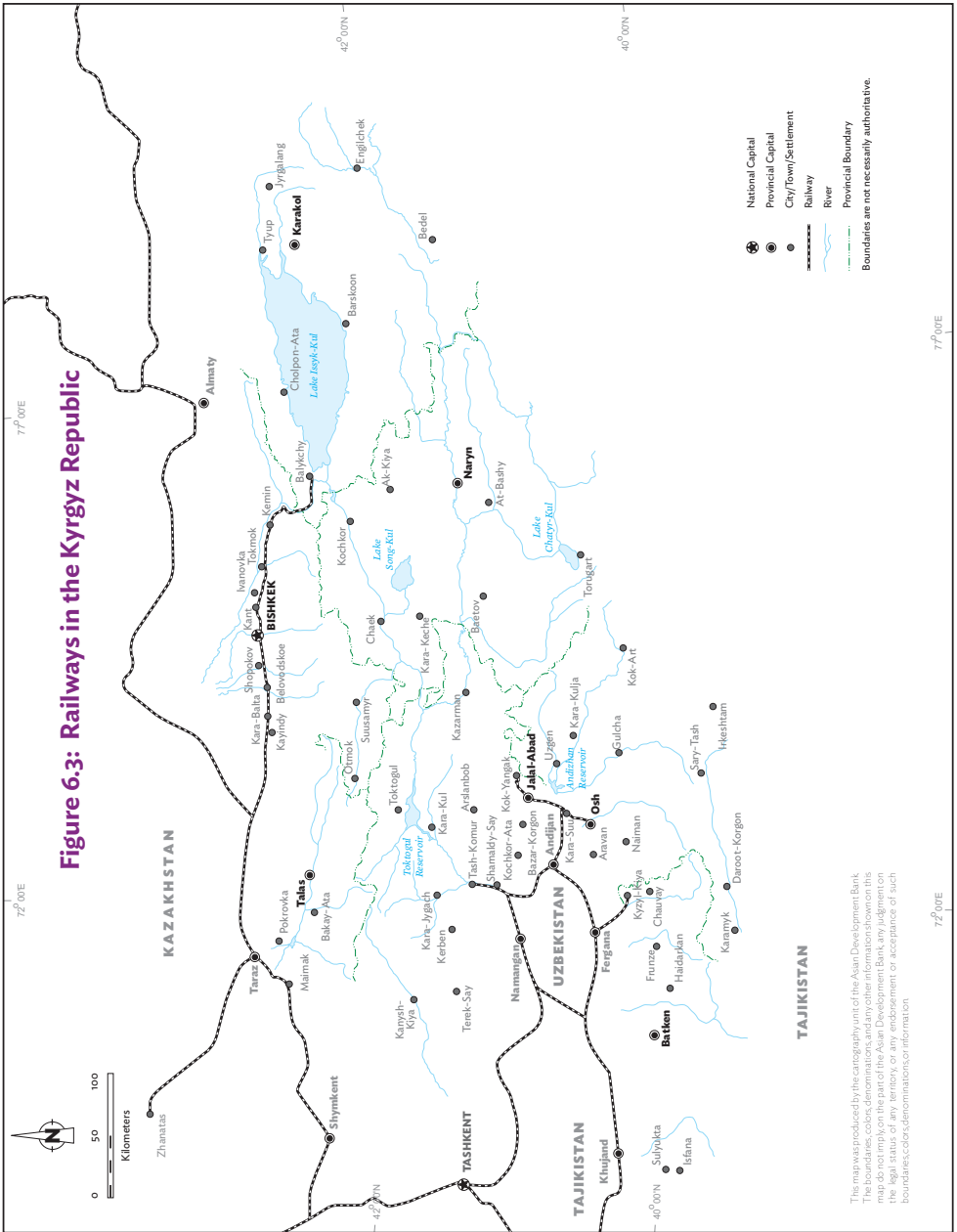
After the collapse of the Soviet Union, the national airline Kyrgyz Aba Joldoru was created and was the only company providing the whole range of air services. From 1997 until 2001 it was reorganized into three independent companies. The resulting national airline Kyrgyz Aba Joldoru and Manas International Airport

⁹ Kyrgyz Railways. General Information. <http://www.kjd.kg/ru/about/strategiya-razvitiya-zeleznih-dorog/>

¹⁰ The line between Jalal-Abad and Osh via Kara-Suu passes through Uzbek territory.

¹¹ On 23 March 2018, the inaugural passenger train Tashkent–Bishkek–Balykchy was launched, and could spur the development of passenger transport by rail.

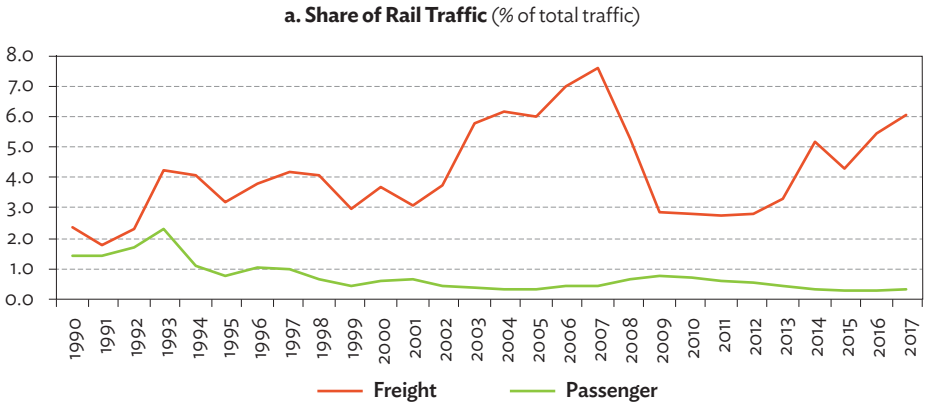
¹² Government of the Kyrgyz Republic (2014).



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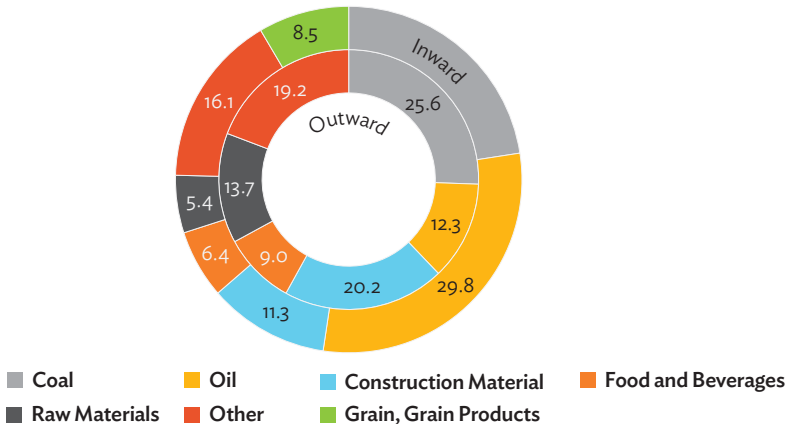
Open Joint-Stock Company were organized as joint-stock companies, while the air navigation services provider Kyrgyzavianavigatsia is a state enterprise.¹³ Manas International Airport Open Joint-Stock Company manages 11 airports (Figure 6.5).

Figure 6.4: Share of Rail in Total Traffic Volume, 1990–2017, and Commodity Structure of Rail Freight, 2012–2013



Source: Authors’ estimates based on data from NSC. <http://stat.kg/en/statistics/transport-i-svyaz/> (accessed 24 February 2018).

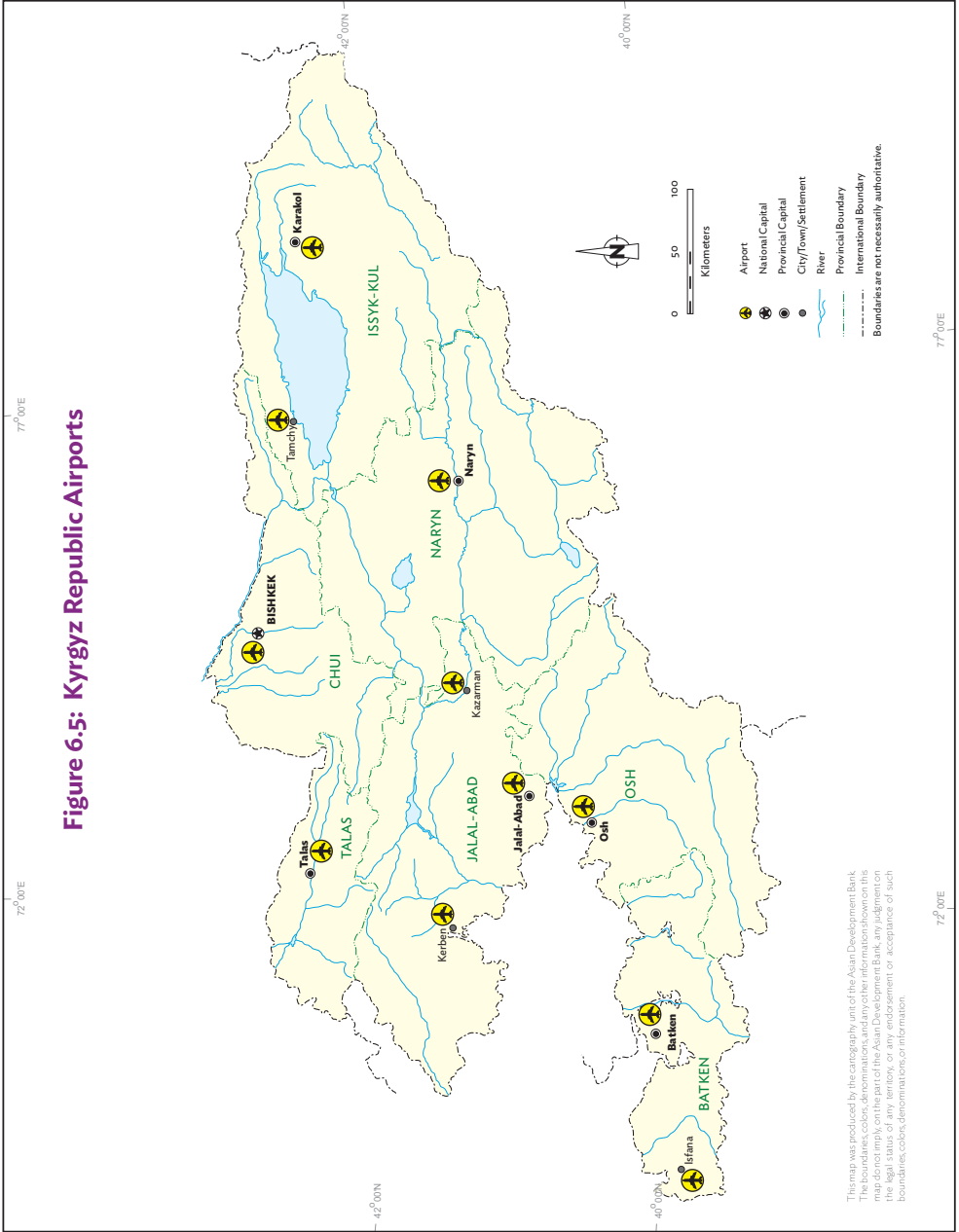
b. Rail Cargo Traffic, by Commodity (% of total rail traffic, average 2012–2013)



Source: Authors’ estimates based on data from Kyrgyz Temir Jolu. <http://www.kjd.kg/> (accessed March 2018).

¹³ Gradual modernization of air navigation equipment and continuing professional development of Kyrgyzavianavigatsia employees allows it to maintain the necessary level of air navigation services. In 2016, the company serviced more than 40,000 aircraft, including 11,000–12,000 planes requesting transit support. Kyrgyzavianavigatsia serves 15 national air carriers and more than 50 international airlines (Kyrgyzavianavigatsia. <http://www.kan.kg> accessed 3 March 2018).

Figure 6.5: Kyrgyz Republic Airports



This map was produced by the cartography unit of the Asian Development Bank. The boundaries, colors, denominations, and other information shown on this map do not imply, on the part of the Asian Development Bank, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.

Of the 86 airports, aerodromes, and landing strips ever built in what is now the Kyrgyz Republic, only 29 now have functioning runways. Eleven have had scheduled service on commercial airlines (Table 6.1), although many services were discontinued after the dissolution of the Soviet Union. Even the country's main international gateway, Manas International Airport, became derelict in the decade after independence, when most international visitors arrived by road from Almaty Airport. Only Manas, Osh, and Issyk-Kul airports have International Air Transport Association (IATA) international codes.

Manas International Airport, the country's main airport, replaced the old Bishkek city airport during the 1970s. The first plane landed at Manas in October 1974 and the first scheduled flight from Moscow–Domodedovo arrived in May 1975. After independence, the airport was neglected until renovations began in 1996–1998, with financial assistance from Japan.

After 11 September 2001, the United States and its coalition partners sought permission from the Kyrgyz government to use the airport as a military base for operations in Afghanistan. The derelict aircraft were rolled into a pasture next to the ramp, and large, semipermanent hangars were constructed to house fighter aircraft. The operational upgrades included a new parking ramp to make room for larger refueling and transport aircraft, a large cargo depot and several aircraft maintenance facilities, and lighting to facilitate night landing. Temporary accommodation across from the passenger terminal housed over 2,000 troops,

Table 6.1: Airports with Scheduled Commercial Services

City	Oblast	ICAO	IATA	Airport
		Code	Code	
Bishkek	Chuy	UCFM	FRU (БИШ)	Manas International Airport
Osh	Osh	UCFO	OSS (ОШШ)	Osh International Airport
Jalal-Abad	Jalal-Abad	UAFJ	(ДЖБ)	Jalal-Abad Airport
Kazarman	Jalal-Abad	UAFZ	(КЗМ)	Kazarman Airport
Kerben	Jalal-Abad	UAFE	(КРФ)	Karavan Airport
Batken	Batken	UAFB	(БАТ)	Batken International Airport
Isfana	Batken	UAFI	(ИФА)	Isfana Airport
Naryn	Naryn	UAFN	(НЫН)	Naryn Airport
Talas	Talas	UAFT	(ТЛС)	Talas Airport
Tamchy	Issyk-Kul	UCFL	(ИКУ)	Issyk-Kul International Airport
Karakol	Issyk-Kul	UCFP	(КПЖ)	Karakol International Airport

IATA = International Air Transport Association, ICAO = International Civil Aviation Organization.

Note: IATA Russian codes are in parentheses. IATA codes for Bishkek and Osh are in English and Russian; for all other airports, the IATA codes are only in Russian.

Source: Authors' compilation based on ICAO, IATA, and Manas International Airport data.

and the Kyrgyz government expanded the passenger terminal to include restaurants, gift shops, and barber shops. The airport terminal underwent major renovation and redesign in 2007, funded with external assistance. In 2012, the airport handled 1 million passengers.

The Manas Air Base was renamed the Transit Center at Manas in 2009. It was closed and handed over to the Kyrgyz Republic's authorities in 2014. At the same time its operational facilities were upgraded with Japanese assistance.¹⁴ A second terminal was built for “very important people.” Manas International Airport is believed to be profitable, but the route network is limited for a capital city airport. There are 24 scheduled international passenger destinations (among them, only 3 world hubs: Dubai, Istanbul, and Moscow); 6 local destinations; and 5 international cargo destinations. In 2017, the number of flights had increased 1.7 fold from 2010. The number of passengers reached 3.5 million in 2017, having increased by 3.2 times from the 2012 level.

Osh International Airport is the other major passenger airport. In 2012, a total of 0.8 million passengers passed through the airport, and in 2016 the number had increased to 1.2 million, although facilities remained basic. In March 2018, the arrival hall was reconstructed. Seven airlines provide domestic services (several flights per day to Bishkek) and flights to Russian cities and to Urumqi. The passengers going to the Russian Federation are primarily migrant workers, including many from northern Tajikistan and the Uzbek portion of the Fergana Valley. In 2017, Osh had 10,269 flights, almost half of which were international.

The other airports began as landing strips built in the 1930s, 1940s, and 1950s to serve local communities, hydroelectricity projects, and mining operations. Runways and terminals were built in the 1970s and a network of domestic air services was created. Many of the services were discontinued in the 1990s. They are regional class 3C airports¹⁵ whose runways have a weight limit of 22 tons, and they have no instrument landing facilities, operating only during daylight hours. In the 2000s, the government began to rehabilitate some of the airports, including granting “international” status and installing immigration and customs services at three airports.

¹⁴ In 2014, the Japanese government provided very high frequency omnidirectional range (VOR) and distance measuring equipment (DME).

¹⁵ For each airfield an operator uses, either as a destination or nominated as a suitable alternate, there is a regulatory requirement to carry out a risk assessment. The consequence of this is to categorize the airfield as A, B, or C (highest risk). A Category C airfield is considered to pose certain problems for the approach, landing, and/or take-off.

Tamchy Airport started operations in 1975 as a reserve airport for the nearby Cholpon-Ata Airport. The current runway and terminal were built in 2003, when the airport replaced Cholpon-Ata Airport, which had regular links with Bishkek, Osh, and Jalal-Abad until 2003. In the same year, the Kyrgyz government renamed Tamchy Airport as **Issyk-Kul International Airport**. In 2015–2016, the first two stages of airport reconstruction were completed. Scheduled flights in summer serve Osh, Almaty (Kazakhstan), Novosibirsk (Russian Federation), and Tashkent (Uzbekistan).

Karakol International Airport started operations in the 1940s and the current runway and terminal were built in 1978. In November 2011, the Kyrgyz government awarded international status to the airport. The first international flight, SCAT Air's flight from Almaty on 2 December 2011, was also the airport's first scheduled flight since 1991. There are plans to start flights to Bishkek, Jalal-Abad, and Osh in the Kyrgyz Republic as well as to Omsk and Novosibirsk in the Russian Federation, and to promote the airport as the gateway to the ski region of the Kyrgyz Republic. However, current use is minimal.

Batken International Airport started operations in 1958 as a landing strip. The current runway and terminal were built in 1984. Batken Airport was given international status on 19 April 2014. Customs and border control checks will be installed and the current runway will be extended by 400 meters. Domestic flights operate to Isfana, Jalal-Abad, and Osh.

Isfana, Jalal-Abad, Kazarman, and Kerben airports have local commercial services but no facilities for international flights. The Kyzyl-Kiya, Tamga, and other airports appear to be primarily used as reserve airports (set aside for special use) in their regions.

Regarding airline services, as of March 2018, five passenger carriers and one freight airline held valid air operator certificates from the Civil Agency under the Ministry of Transport and Roads of the Kyrgyz Republic. Most airlines registered in the country since independence have had a short lifespan. Domestic airlines have diversified scheduled flights to Russian cities, primarily serving the migrant labor market. The most popular domestic route is Osh–Bishkek, and service to the other nine airports is poor.

The domestic airline with the longest lifespan, Kyrgyzstan Air Company was founded in September 2001 as Altyn Air and rebranded as Air Kyrgyzstan in July 2006, after taking over the former national carrier Kyrgyzstan Airlines. Air Kyrgyzstan is based in Bishkek and is owned by Al Sayegh Airlines from Sharjah, United Arab Emirates. In the winter of 2017–2018, Air Kyrgyzstan operated

scheduled passenger flights to Osh, and to Belgorod, Chelyabinsk, Moscow, Krasnodar, Krasnoyarsk, and Surgut in the Russian Federation.

Another relatively long-lasting airline, Avia Traffic was founded in 2003 by citizens of the Kyrgyz Republic and started by providing charter and scheduled domestic flights. Since 2008, it has expanded its activity to international flights. In the winter of 2017–2018, Avia Traffic served 4 cities in the Kyrgyz Republic, 11 cities in the Russian Federation, Almaty in Kazakhstan, Dushanbe in Tajikistan, and Istanbul in Turkey.¹⁶

Air Manas was created in 2006 as a charter company. In 2012, the Turkish company Pegasus Airline bought a 49% share of Air Manas, brought in new technologies, and ran it as a low-cost airline under Pegasus Asia. Rapid development allowed Air Manas to return to its own brand name in 2015. The company maintains flights to domestic (Bishkek and Osh) and international (Delhi, Moscow, Tashkent, and Urumqi) destinations. On 1 March 2018, Air Manas became the first Kyrgyz airline that received the IATA Operational Safety Audit (IOSA) certificate, confirming Air Manas' compliance with the strict international safety requirements.¹⁷

Tez Jet was founded in 2013 and serves Batken, Bishkek, Isfana, Jalal-Abad, and Osh.¹⁸ Some other airlines are small charter companies, and others are hard to track. All Kyrgyz airlines are listed as banned from the European Union for safety reasons.¹⁹

International airlines using Manas International Airport provide passenger services to the PRC (China Southern); Kazakhstan (Air Astana); Dubai (Fly-Dubai and Emirates); Russian Federation (Aeroflot, S7, Sibir, and Ural); Tajikistan (Tajik Air); Turkey (Pegasus); Turkey and Mongolia (Turkish); and Uzbekistan (Uzbekistan Airways). Cargo services are provided by MNG Airlines (to Almaty), RUS Aviation (to Sharjah), Silk Way (to Baku and Urumqi), and Uzbekistan Airways (to Navoi). Turkish Airlines Cargo offers services to destinations on its extensive route network, although its operations on nonpassenger flights are often subcontracted.²⁰

¹⁶ Avia Traffic Company. <https://www.aero.kg/o-nas> (accessed 3 March 2018).

¹⁷ Air Manas. <https://airmanas.com/en/about-airmanas.html> (accessed 3 March 2018).

¹⁸ Tez Jet. <http://tezjet.kg/about.html> (accessed 3 March 2018).

¹⁹ The first version of the list was published in 2006, on the legal basis of European Commission Regulation No. 474/2006 issued on 22 March of that year. The current version of the list was published on 30 November 2017.

²⁰ A Turkish airfreight company (rebranded MyCargo after selling a 49% share to the PRC's HNA Group), and the plane was leased from LCI Freighters One Limited (Ireland).

The government has liberalized Kyrgyz airspace by granting “fifth freedom rights,” i.e., the right of an airline to carry passengers on a flight from the airline’s home country as well as from countries at stops en route to the flight’s final destination.

Hard and soft infrastructure

The Kyrgyz Republic’s inherited transport infrastructure went through a decade of decline in the 1990s as the impoverished new state faced major problems following the end of central planning, dissolution of the Soviet Union, and hyperinflation. After 2000, the situation gradually improved as roads were built or upgraded and airports were restored to effective use.

A general problem in Central Asia resulted from the once integrated region being divided by national borders and measures that hampered international trade. The problem highlighted the observation that the benefits of improved hard infrastructure (road, rail, airports, etc.) can be limited if not accompanied by improvements in the soft infrastructure. The Kyrgyz Republic’s entrepôt role was helped by its accession to the World Trade Organization and low tariffs, but the costs of doing business and conducting international trade were high throughout Central Asia, including the Kyrgyz Republic.

The main roads used for international freight by domestic carriers are

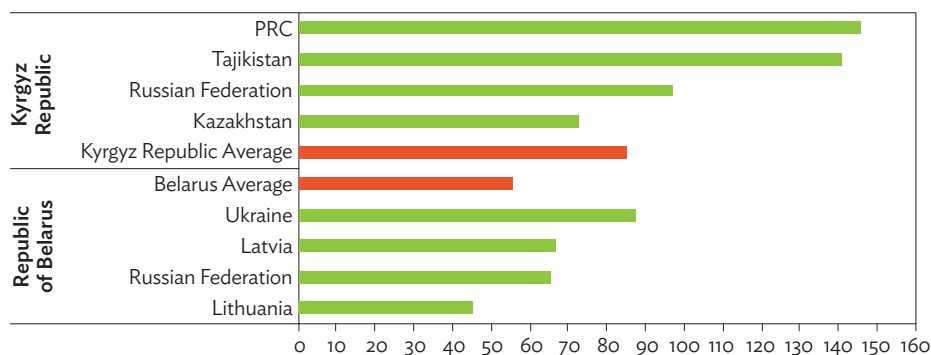
- Bishkek–Jalal-Abad–Osh;
- Bishkek–Naryn–Torugart–Kashi (PRC);
- Osh–Sary–Tash–Irkeshtam–Kashi (PRC);
- Osh–Kok–Tala–Pulgon (Uzbekistan)–Batken–Isfana;
- Bishkek–Taraz (Kazakhstan)–Shymkent (Kazakhstan)–Tashkent (Uzbekistan);
- Osh–Jalal-Abad–Andijan (Uzbekistan);
- Bishkek–Almaty (Kazakhstan)–Karaganda (Kazakhstan)–Astana (Kazakhstan)–Petropavlovsk (Russian Federation); and
- Bishkek–Shymkent (Kazakhstan)–Kyzyl-Orda (Kazakhstan)–Aktyubinsk (Kazakhstan)–Russian Federation.

The PRC’s recent ratification of the United Nations Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention) could significantly increase the volume of international trade along the route Tashkent (Uzbekistan)–Andizhan (Uzbekistan)–Osh (Kyrgyz Republic)–Irkeshtam (Kyrgyz Republic)–Kashi (PRC). The UN TIR is already operational in the Kyrgyz Republic and Uzbekistan (IRTU 2017).

The World Bank's Logistics Performance Index (Figure 6.6b) ranks the Kyrgyz Republic among the countries with underdeveloped logistics. In the 2018 Logistics Performance Index Global Ranking, the country's overall score was 2.55, and it ranked 108 out of 160 countries. Its lowest-performing areas were international shipments and quality of trade and transport-related infrastructure. Belarus, which ranked 103rd, is also landlocked, shares the Soviet legacy, and is a member of the Eurasian Economic Union (EEU) Moreover, Belarus has lower trade costs on average compared to the Kyrgyz Republic (Figure 6.6a).²¹

Figure 6.6: Trade Costs and Logistics Performance

a. Kyrgyz Republic International Trade Cost vis-à-vis Neighboring Trade Partners, 2011–2015 average

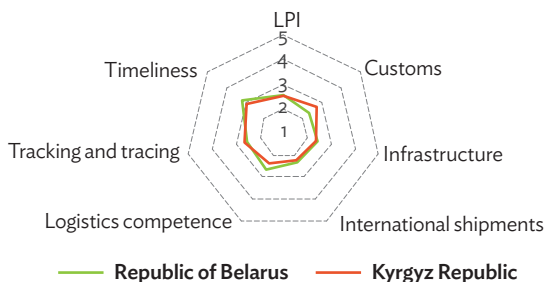


PRC = People's Republic of China.

Note: Uzbekistan is not in the database.

Source: UNESCAP–World Bank. Trade Cost Database. <http://www.unescap.org/resources/escap-world-bank-trade-cost-database> (accessed 10 March 2018).

b. Logistics Performance Index, 2018



LPI = logistics performance index.

Note: 1 = low, 5 = high.

Source: World Bank. Logistics Performance Index. <https://lpi.worldbank.org> (7 February 2019).

²¹ Belarus is closer to international routes than is the Kyrgyz Republic and outperformed it by custom and infrastructure criteria. This is partly reflected in a notable difference in international trade costs. On average, trading costs with neighboring countries of Belarus were 1.5 times lower than those of the Kyrgyz Republic (UNESCAP–World Bank. Trade Cost Database. <http://www.unescap.org/resources/escap-world-bank-trade-cost-database>, accessed 10 March 2018).

6.3. Kyrgyz Republic's Trade Costs vis-à-vis Central Asia

Trade costs are notoriously high in Central Asia, and the Kyrgyz Republic is no exception, as exemplified by the delays at Kyrgyz land borders. Quantifying the costs of doing international trade (trade costs for brevity) is, however, difficult. Formal barriers, including import duties, are often low. Moreover, Kyrgyz trade is mixed, with gold presumably having low ad valorem trade costs due to its high value/weight ratio, while agricultural and manufactured goods often travel in batches, so that their trade costs are hard to compare. Added to the complexity, a significant amount of trade is informal and unrecorded.

The most popular measures of trade costs are those in the World Bank's *Doing Business* database. In *Doing Business 2015*, the Kyrgyz Republic ranked 102 out of 190 countries for overall ease of doing business, and was one of the seven worst places in the world for ease of conducting international trade (Table 6.2). In *Doing Business 2019*, the Kyrgyz Republic had moved to a substantially higher rank for ease of doing business (from 102nd to 70th place), and for ease of international trade (from 183rd to 70th place).

Table 6.2: Ease of Doing Business, 2014–2019

Country	Overall Ease of Doing Business ^{a, b}						Ease of International Trade ^b					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Kazakhstan	50	77	41	35	36	28	186	185	122	119	123	102
Kyrgyz Republic	68	102	67	75	77	70	182	183	83	79	84	70
Tajikistan	143	166	132	128	123	126	188	188	132	144	149	148
Uzbekistan	146	141	87	87	74	76	189	189	159	165	168	165

^a Overall rank based on the unweighted average of scores in 10 areas.

^b 189 countries in 2014 and 2015, and 190 countries in 2016–2019. Turkmenistan is not included in the database.

Source: World Bank. www.doingbusiness.org (accessed 7 February 2019).

The pictures offered in 2015 and 2016 are misleading. The situation was not as bad as the 2015 rankings imply. The Doing Business methodology is based on asking informed people in national capitals about the cost of shipping a container in dollars and in time from the country's commercial center, which may be appropriate for a country such as Singapore but is less appropriate for the Central Asian countries where a small share of trade is by container and where there is a large variation between what an observer in the capital city may hear and what happens on the ground. The huge improvement recorded in costs of international trade between 2015 and 2016 is not credible. Although the relative position of the Central Asian countries in 2015 and in 2016 is plausible

and corresponds to casual observation, the *Doing Business* numbers tell us little about the magnitudes of costs of international trade in Central Asia.²²

The Corridor Performance Measurement and Monitoring (CPMM) program conducted by freight forwarders under the aegis of the Central Asia Regional Economic Cooperation secretariat produces the most reliable measures of trade costs in Central Asia and some neighboring countries.²³ The CPMM program has been operating since 2010, with 2,000–3,000 observations per year, e.g., the 2016 sample consisted of 2,756 trips, 70% by road and 26% by rail. For each trip, a reporter in a truck or on a train traveling along major corridors tracks the cost and time taken. The CPMM indicators of cost and speed provide detailed information about the difficulties of conducting overland trade in the Central Asia region.

The general picture from the CPMM data is of fairly long delays and nontrivial charges at the border, but with large variations. The data in Table 6.3 suggest that border costs have been falling, while Tables 6.4 and 6.5 indicate that the variation is large even when entry points are from the same neighboring country. The large number of observations helps to illustrate the uncertainty and variability of costs and time, and the averages suggest how trade costs can be affected by policy changes such as establishment of the Eurasian Customs Union, later the EEU. However, the large variation reveals that the process of reducing trade costs has been patchy, and that truck drivers approaching a border crossing point (BCP) face substantial uncertainty about how long it will take and how much it will cost to cross the border.

Table 6.3: Average Time at Selected Border Crossing Points, 2011–2015 (hours)

Crossing Point	Direction	2011	2012	2013	2014	2015	2016
Chaldovar	inbound	5.1	4.9	6.6	6.5	6.5	5.2
Irkeshtam	inbound	12.0	9.9	7.2	6.1	5.2	5.7
Karamyk	outbound	7.9	3.2	2.2	—	4.8	3.7

— = data not available.

Source: CPMM (2016) pp. 42 and CPMM (2018) pp. 44–45.

²² The *Doing Business* indicators have come under increasing scrutiny and the trading across border component has been especially criticized for appearing to give concrete numbers for time and cost. Researchers continue to use *Doing Business* because the country coverage is wide and the indicators appear to be standardized. However, *Doing Business* data are often from people in consultancy or law firms who are mostly not traders and who refer to laws and regulations on the books, rather than the implementation on the ground.

²³ For a description of the CPMM program, see ADB (2014). In 2016, the Kyrgyz partner, the Association of the International Road Transport Operators of the Kyrgyz Republic (AIRTO), monitored 116 trips, and the number of monitored trips passing through Kyrgyz border crossing points also involved trucks from other countries.

Table 6.4: Time (hours) and Cost (\$) at Selected Border Crossing Points, 2015

Crossing Point	Direction	Observations	Time (hours)		Cost (\$)	
			Mean	Median	Mean	Median
Chaldovar	inbound	13	6.5	6.4	120	120
Ak-Tilek	inbound	152	0.3	0.3	20	17
Irkeshtam	inbound	132	5.2	5.2	138	110
Torugart	inbound	61	2.3	2.5	34	37
Karamyk	outbound	6	4.8	4.8	113	113
Torugart	outbound	9	0.4	0.2	31	32
Ak-Tilek	outbound	60	0.3	0.3	20	19

Source: CPMM (2016), pp. 61–62.

Table 6.5: Time (hours) and Cost (\$) at Selected Border Crossing Points, 2016

Crossing Point	Direction	Observations	Time (hours)		Cost (\$)	
			Mean	Median	Mean	Median
Chaldovar	inbound	10	5.2	5.2	75	78
Ak-Tilek	inbound	79	0.2	0.3	12	13
Irkeshtam	inbound	157	5.7	5.6	343	170
Torugart	inbound	1	0.2	0.2	18	18
Karamyk	inbound	6	0.6	0.7	31	31
Karamyk	outbound	62	3.7	4.4	75	95
Torugart	outbound	1	0.2	0.2	18	18
Ak-Tilek	outbound	23	0.2	0.3	14	13

Source: CPMM (2018), pp. 44–45.

The Kyrgyz Republic joined the EEU in August 2015, after which customs controls were eliminated on the border with Kazakhstan. At the BCPs, phytosanitary controls were removed in November 2015, leaving only border security and veterinary controls. These changes are reflected in the Chaldovar data in Table 6.3, which show increased delays in 2013 when the Customs Union was implemented by Kazakhstan and the Kyrgyz Republic was not a member, and reversal of the increase after the Kyrgyz Republic's accession to the EEU. However, Kyrgyz traders still face behind-the-border costs to ensure preclearance at the border and operators report frequent checkpoint stops in Kazakhstan to confirm the transit status of their cargo (CPMM 2018, p. 21).

A surprising feature of the CPMM data on the Kyrgyz–Kazakh BCPs is the big difference between Chaldovar and Ak-Tilek. Ak-Tilek is the main crossing point for Almaty–Bishkek road freight, displacing the Ak-Zhol BCP, which had become too congested and is now reserved for passenger traffic. While in 2015,

Chaldovar was one of the slowest BCPs in Central Asia, and costs were in the middle range, the Ak-Tilek BCP (also inbound from Kazakhstan) was one of the fastest and least expensive (Table 6.4); the large expenses at Chaldovar were customs clearance (\$43), border security (\$33), phytosanitary fees (\$20), and weight inspection (\$20), all of which were minor costs at Ak-Tilek. The costs at Chaldovar were lower in 2016 (Table 6.5), but still included an average payment of \$44 for customs clearance and \$32 for border security.

Similarly, for trucks entering from the PRC, there is a big difference in time and cost between the Irkeshtam and Torugart BCPs.²⁴ In 2015, the main costs at Irkeshtam were similar to those at Chaldovar, apart from visa fees (customs clearance, \$61; border security, \$20; weight inspection, \$24; and visa/immigration, \$22), while at Torugart, average visa fees were \$16 and other charges were lower than at Irkeshtam. In 2016, delays at Irkeshtam were slightly longer and financial costs much higher than the previous year: customs clearance, \$137; border security, \$16; weight inspection, \$93; and visa/immigration, \$23. At Torugart, average visa fees were still \$16 and other charges were trivial.

The difference may reflect that much of the Torugart traffic is going to Kyrgyz destinations, while at Irkeshtam 90% of shipments are in transit abroad. The situation is even worse than Table 6.5 suggests, due to long queues at the PRC border. Furthermore, although customs controls are conducted at Irkeshtam, truckers with payments to make have to stop at the Kara-Suu Customs House where the cargo may be reassessed to ensure that the declared values are acceptable before the duty is paid.

The CPMM 2016 report contains a box on the Irkeshtam BCP based on a visit in April 2016, when the team counted a queue of 50 trucks. The BCP is open from 9 a.m. to 8 p.m. in winter and from 8 a.m. to 6 p.m. in summer; it closes from 12 noon to 2 p.m. for lunch. A Kyrgyz law requires electronic declaration of goods to customs 2 hours before arrival at the BCP, which permits clearance at the BCP within 30 minutes assuming no errors. However, electronic data exchange between customs brokers and PRC counterparts is poor and an estimated 70% of declarations do not meet the 2-hour requirement, which means that data have to be entered manually at the BCP.

²⁴ There may be a selection bias depending on when the 61 journeys through Torugart took place in 2015. The CPMM report (2016, p. 37) points out that the waiting time at Irkeshtam in the first 7 months of 2015 was 4–8 hours per truck, but in the last 5 months it was 16–22 hours. The Kyrgyz Republic's accession to the EEU took effect in August 2015. There is also the issue that the sample size at Torugart in 2016 was small.

Unfortunately, the CPMM reports have little information about Kyrgyz–Tajik BCPs and none about Kyrgyz–Uzbek BCPs. Karamyk is on the most direct route from Karshi to Dushanbe, but the Kyrgyz Republic has declared it to be a bilateral BCP for Kyrgyz and Tajik users only, which disrupts transit trade along this route. The Kyrgyz–Uzbek border has been closed frequently and has many informal crossing points.

The overall picture is extremely mixed. On paper, the situation at Kyrgyz borders can be very good, with only short delays and fairly low costs of crossing through important BCPs such as on the Bishkek–Almaty road or the Torugart BCP between Kashi and Naryn and Bishkek. However, there are also major black spots, where delays and charges are high and unpredictable. The situation may be improving with Kazakhstan because of shared EEU membership, with Uzbekistan after the change of president, and with the PRC given the prospect of joint infrastructure projects. However, the main issue appears to be domestic rules and, most importantly, their implementation.

6.4. The Eurasian Landbridge through Improved Rail Systems

One of the most exciting transport developments in Central Asia in the 21st century has been the establishment of regular rail freight services between the PRC and Europe. Initial trials consisted of block trains of containers taking components to European carmakers’ assembly operations in the PRC, using the Russian TransSiberian railway in the late 2000s.²⁵ In 2011, following the implementation of the PRC’s “Go West” policy and opening of large electronic assembly operations in Chongqing by companies such as Foxconn (for Apple products), HP, and Acer, a route via Kazakhstan–Russian Federation–Belarus–Poland to Duisburg in Germany was established. The electronics companies had originally planned to export via the Yangtze River, but with increased river traffic the locks became congested. Rail proved much faster and more reliable than river and sea, offsetting the higher cost per container.

Since 2011, new routes have been tried and the volume of traffic has increased. The PRC news service reported in December 2017 that freight trains had made a total of 6,235 trips on 57 routes since the PRC–Europe services began in 2011, connecting 35 PRC cities with 34 European cities in 12 countries

²⁵ Similarly, the Daewoo car factory in Andijan (Uzbekistan, close to the Kyrgyz border) sourced components from the Republic of Korea on ad hoc block trains via Lianyungang and Tashkent. These arrangements have continued since the operation became GM Uzbekistan.

during 2011–2017 (*China Daily* 2017). In 2017, more than 3,270 journeys were made between cities on the two continents, and the number of such train trips is expected to reach 4,000 in 2018.

The “Landbridge” has been built along preexisting track. It required initial coordination among the national rail companies, led by the Deutsche Bundesbahn and China Railway Corporation, but the win–win outcomes enthused the intervening rail companies. The Kazakh rail company earned over a billion dollars in transit fees in 2015 (CPMM 2016, p. 43). The efficiency of the Landbridge has been enhanced by continued improvement of services offered by freight forwarders and companies such as DHL, FedEx, and UPS, e.g., combining part-container orders, organizing connecting transport, providing refrigerated containers, ensuring problem-free transit for goods under European Union or Russian sanctions, and so on.

The Landbridge concept has been incorporated into the PRC’s One Belt One Road program announced in September 2013, and now known as the Belt and Road Initiative (BRI). The BRI has become a centerpiece of PRC policy, ensuring a high profile (e.g., at the Belt and Road International Forum in Beijing in May 2017) and promising substantial infrastructure funding through the Asian Infrastructure Investment Bank (announced in October 2013 and officially opened in January 2016) and the Silk Road Fund (created in 2014). A significant part of the BRI is the PRC’s commitment to alternative routes beyond the existing land bridges through Kazakhstan and the Russian Federation. PRC maps of the BRI typically show the main rail link passing south, rather than north of the Caspian Sea.

Especially important for the Kyrgyz Republic among the PRC proposals to strengthen and diversify Landbridge rail links is a Kashi–Osh–Andijan rail link, which would provide the missing link in a potentially major PRC–Iran–European Union rail line. The PRC’s 1,446-km South Xinjiang Railway from Turfan to Kashi was completed in December 1999, and in the early 2000s the PRC proposed extending the railway with a Kashi–Andijan line, linking to Uzbekistan’s rail network.²⁶ The PRC–Kyrgyz Republic–Uzbekistan railroad would traverse and tunnel from the PRC’s far western rail terminus at Kashi to the Kyrgyz–Uzbek border town and trade hub at Kara-Suu, 20 km north of Osh, and would then connect with the Fergana Valley’s rail network, which links the region’s major cities and the GM Uzbekistan plant in Andijan. However, the project was dormant between 2005 and 2010.

²⁶ This was supported by Uzbekistan, for example, at the UNECE–UNESCAP Third Expert Group Meeting on Developing Euro–Asian Transport Linkages held in Istanbul on 27–29 June 2005 (UNECE–UNESCAP, 2005. https://www.unece.org/fileadmin/DAM/trans/main/eat/docs/3rd_EGM_Doc3_e.pdf)

In June 2016, the Angren–Pap railway was opened. The 19-km Qamchiq Tunnel eliminates the need for Uzbek trains to transit Tajikistan to reach the Fergana Valley from Tashkent and provides an all-weather alternative to the road over the 2,267 meter Angren Pass. The inaugural train from Angren to Pap passed through the tunnel in 16 minutes.²⁷ By improving the onward connection to Tashkent and the main trunk lines of Central Asia, the Angren–Pap link increases the attractiveness of a railway from Kashi to the Fergana Valley. The PRC–Kyrgyz Republic–Uzbekistan railway network could be integrated into the PRC’s BRI via connections to ports in Pakistan, Iran, and Turkey.²⁸

6.5. Trade Initiatives and Export Potential

How important are better rail, road, and air connectivity for Kyrgyz exports? The answer depends on having the appropriate soft and hard infrastructure and domestic policies (ease of doing business, etc.). The specifics will depend on the nature of the traded goods, but if the country wants to diversify its economy from reliance on gold and remittances, then reduced trade costs will be needed to take advantage of existing and new infrastructure.

Particularly, for the Kyrgyz Republic to expand its fruit and vegetable exports, trade costs in terms of money, time, and uncertainty will have to be reduced. Agreement with neighboring and transit countries is needed to have green channels through which preapproved traders could expect to pass without obstruction or hindrance. More generally, an attitude of risk assessment rather than control at BCPs will be necessary. The new presidency in Uzbekistan and greater collaborations with EEU countries have contributed to opening a window of opportunity for such change. If the Kyrgyz Republic can develop manufacturing capacity by performing tasks in global value chains, the same requirements for reduced costs will apply; having to hold inventories to deal with potential delays is anathema to value chains.

²⁷ The rail line, built by the China Railway Tunnel Group, includes 25 bridges and 6 viaducts.

²⁸ Kashi is the northern terminus for the Karakoram Highway, which the PRC has upgraded to create a viable road route to the ocean port of Gwadar; the PRC has long-term plans for a railway parallel to the highway. A Dakha–Istanbul freight train tested a route through Iran to Turkey and the Bosphorus tunnel to Europe in 2017.

6.6. Concluding Remarks and Policy Implications

The literature on the relationship between transport improvements and economic development points to a strong positive effect not only through the direct link between transport costs and the level of trade, but also because widening the market encourages innovation and other productivity improvements. The Kyrgyz Republic faces the dual problem of poor connectivity and market integration both domestically and internationally.

Domestically there have been major improvements in the road network since the turn of the century, although maintenance and road safety remain issues. There has been no change in the domestic rail network, which remains minuscule despite ambitious plans in the 1990s for north–south links.

International road connectivity has improved, illustrated by the emergence of dairy and other agricultural products and clothing exports that mostly travel by road to the Russian Federation, Turkey, Eastern Europe, and the PRC. Rail connectivity inherited from the Soviet era remains poor. However, the expansion of the Eurasian rail network following the success of Landbridge services between the PRC and Europe, and the PRC's commitment to the BRI, could provide an important window of opportunity for the Kyrgyz Republic.

Improving road, rail, and air connectivity domestically and internationally will require financing, which is obviously an issue for a small poor country with inhospitable terrain. However, even more important than new investment is the need to improve the soft infrastructure associated with transport.

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Chapter 7

Reforming the Kyrgyz Republic's Energy Sector

Neil McCulloch, Kee-Yung Nam, and Lotis Quiao

The energy sector in the Kyrgyz Republic is critical to the success of the entire economy. Not only is a reliable supply of electricity vital to productivity, but the subsector is also responsible for generating the space and water heating necessary to survive the country's bitter winters. This chapter starts with an overview of the energy sector as a whole. The following section then details the current status, structure, and performance of the electricity subsector. Next is a description of the current tariff setting methodology and the following section looks at the implications of the current approach to tariff setting for power sector development, consumption, and the government's fiscal position. The chapter then looks briefly at lessons that can be learned from electricity subsidy reform in other countries. The final section puts forward a set of possibilities for making progress on the contentious issue of subsidy reform.

7.1. The Structure of the Energy Sector in the Kyrgyz Republic¹

Energy resources, reserves, supply, and demand

The Kyrgyz Republic has huge hydropower resources, estimated at 142.5 terawatt-hours, of which 42% is economically exploitable. There is a huge potential for further utilization of hydro as only 20%–25% of the economically exploitable resources have been utilized during the recent years. The country has a significant

¹ This section draws heavily on ADB (2017).

amount of coal, with a proven resource of approximately 27.5 billion tons and proven recoverable reserves of 971 million tons (Table 7.1). At the current level of production, coal reserves could last for 2,110 years. The country also has a modest endowment of oil and natural gas, but primarily imports these forms of energy from Kazakhstan and the Russian Federation. The Kyrgyz Republic has renewable energy in the form of solar, wind, geothermal, and biomass. Yearly sunshine duration ranges from 2,100 hours to 2,900 hours, and direct normal irradiation from 1,600 kilowatt-hours per square meter (kWh/m²) to 2,000 kWh/m² in the Naryn and Issyk-Kul Oblasts and 1,600 kWh/m² in the most populated area around Bishkek.² The duration of active wind in the mountainous areas is 5,000–7,000 hours per year, with an energy density of 2,000 kWh/m², although the remoteness of potential sites poses a challenge to the development of wind energy. Geothermal energy reserves are estimated at 613 billion gigajoules

Table 7.1: Energy Resources and Reserves
(2016 unless stated otherwise)

Resource	Unit	Latest
Hydroelectric, gross theoretical	GWh	142,500 ^a
Hydroelectric, economically exploitable	GWh	55,200
Coal	mt	27,528
Crude oil, NGL ^b	mbl	73
Natural gas ^c	mcm	20,000
Reserve		
Coal	mt	971
Crude oil, NGL ^d	mbl	41
Natural gas ^e	mcm	500
Production		
Hydro ^f	GWh	11,095
Coal ^g	mt	0.46
Crude oil	mbl	1.02
Natural gas	mcm	.00003

GWh = gigawatt-hour, mbl = million barrels, mcm = million cubic meters, mt = million tons, NGL = natural gas liquid.

Notes: ^a A data from the Institute of Water Problems and Hydropower of the National Academy of Sciences of the Kyrgyz Republic

^b Conventional crude oil, NGL resources.

^c Conventional natural gas resources.

^d Conventional crude oil, NGL proved reserves.

^e Proved conventional natural gas reserves.

^f 2015.

^g 2014.

Source: Enerdata. Enerdata Database. <http://www.enerdata.net> (accessed 7 March 2018).

² World Bank. Global Solar Atlas. ESMAP, SOLARGIS. <http://globalsolaratlas.info>

per year and are concentrated in the northern region. Biomass from animal and plant waste and other organic materials is estimated at 1.61 billion cubic meters of combustible methane per year (MEI 2013).

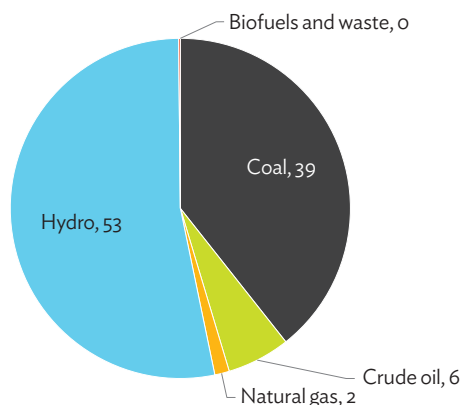
In 2015, the Kyrgyz Republic's total energy production was 1,798 kilotons of oil equivalent (ktoe)—53% from hydro and 39% from coal (Figure 7.1). However, domestic production accounted for only 45% of the 3,981 ktoe of total primary energy supply in 2015 (Figure 7.2). Imported energy of about 2,800 ktoe comprising oil, coal, natural gas, and electricity complements domestic production. The country also exports about 227 ktoe in the form of oil, coal, and electricity.

Of the total energy supply, about 41% was from oil and oil products, which was mostly imported. Local production of crude oil yields only 108 ktoe or approximately 6% of total energy production. Coal and hydro had almost equal shares in total primary energy supply at 28% (1,128 ktoe) and 24% (955 ktoe), respectively. While the Kyrgyz Republic produced about 708 ktoe of coal, it imported about the same amount (680 ktoe).

Looking at final energy consumption, almost half consists of oil products (1,564 ktoe), close to a quarter is electricity (910 ktoe), and approximately 14% is coal. The residential sector is the largest energy consumer—37% of the total at 1,255 ktoe; transport comes second at 925 ktoe, while industry is third at 730 ktoe (Figure 7.3).

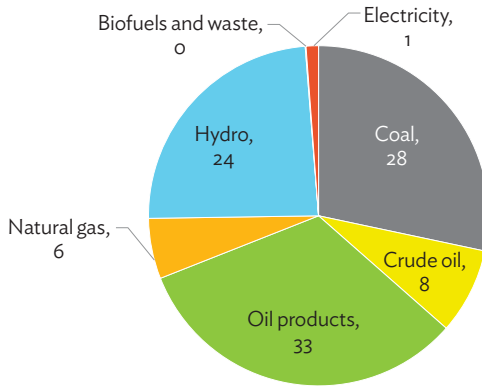
The Kyrgyz Republic's electricity subsector relies predominantly on hydroelectricity. In 2015, 85% of the total electricity generation came from hydro

Figure 7.1: Energy Production, 2015 (%)

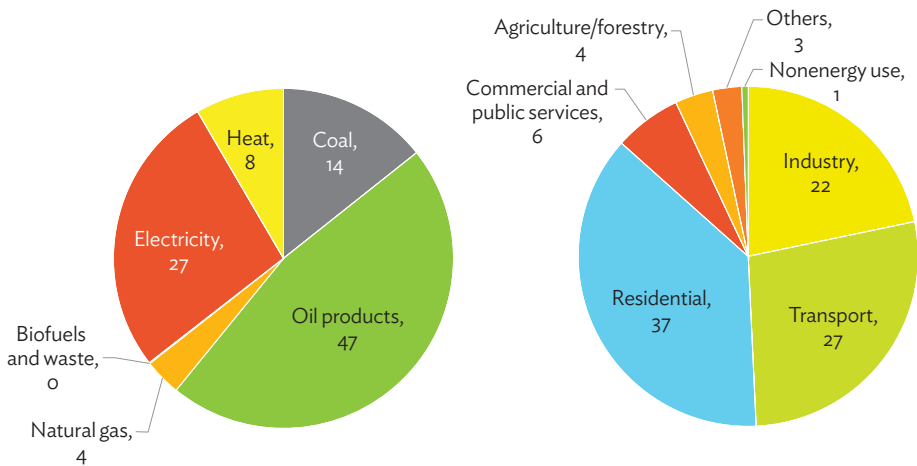


Source: IEA. Kyrgyz Republic: Balances for 2015.

<http://www.iea.org/statistics/statisticssearch/report/?country=Kyrgyzstan&product=balances> (accessed 23 March 2018).

Figure 7.2: Total Primary Energy Supply, 2015 (%)

Source: IEA. Kyrgyz Republic: Balances for 2015.
<http://www.iea.org/statistics/statisticsearch/report/?country=Kyrgyzstan&product=balances>
 (accessed 23 March 2018).

Figure 7.3: Final Energy Consumption by Type and by Use, 2015 (%)

Source: IEA. Kyrgyz Republic: Balances for 2015.
<http://www.iea.org/statistics/statisticsearch/report/?country=Kyrgyzstan&product=balances>
 (accessed 23 March 2018).

power (compared with a world average of 16%); 3,068.5 megawatts (MW) of the 3,920 MW total installed capacity in the country was hydroelectric power.³ The remaining electricity production comes from two combined heat and power plants (CHPPs)—Bishkek CHPP and Osh CHPP. Most of the hydroelectric generation comes from the Naryn cascade with five large power plants and a

³ IEA (2017); data provided to author by the Kyrgyz Open Joint-Stock Company Electric Power Plants.

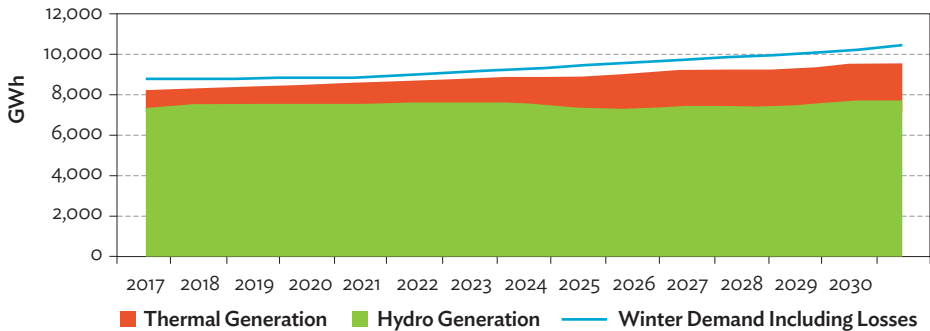
total installed capacity of 2,870 MW, however the untapped technically feasible hydro potential is estimated at about 18,000 MW. Almost 100% of the population is connected to the electricity grid.

Another important component of the energy system is the availability of energy for central heating, hot water, and cooking. There is a large difference between the energy resources available in urban areas, notably in the capital Bishkek, and in the rest of the country. Over half of the population of Bishkek and almost a quarter in other urban areas receive central heating from CHPPs in Bishkek and Osh. Moreover, almost three-quarters of the population of the capital can access piped gas, but such access is almost absent in rural and mountainous areas (Gassmann 2014). As a result, the main source of heating for the 64% of the population that live in rural and mountainous areas is their own stove, fuelled primarily by coal. One factor driving the increasing seasonality of electricity demand is households' increasing use of electricity as a heating source. Over a fifth of urban populations outside Bishkek use electricity as their main source of heating. In a survey in 2016, 49% of respondents said that they used electricity as one of their sources of heating (M-Vector 2017).

The Kyrgyz Republic imports oil from Kazakhstan and the Russian Federation and gas through the Russian majority state-owned firm, Gazprom, because the country's modest petroleum and natural gas reserves are insufficient to meet local demand. In 2014, Gazprom took over the KyrgyzGaz distribution utility, formerly owned by the government, and is responsible for gas import, transport, distribution, and sales.

In addition, the Kyrgyz Republic starts to import coal during autumn to ensure coal reserves before the heating period between November to March, and continue to import until winter when supply remain short. Although the country has vast coal reserves, its local coal production remained constrained due to its undeveloped production and transport facilities, and technological and capacity constraints. Hydropower generation is highest during winter months. The CHPP generates not only heat during the winter months, but also produce electricity when generation of other existing hydropower plants is not enough to cover the demand.

In 2015, unmet winter electricity consumption totaled 581 gigawatt-hours, which had to be satisfied by imports. While in the past, the Kyrgyz Republic has been a net exporter of electricity to neighboring countries, it became a net importer in 2014 and, notwithstanding planned investments, the country is likely to need to import electricity during the winter for some time to come (IMF 2017). Whether the country has to import electricity during the winter

Figure 7.4: Winter Supply Gap

GWh = gigawatt-hour.

Source: Gassner, K., N. Rosenthal and D. Hankinson (2017).

depends greatly on the weather because the flow of water from the mountains during the winter depends on the extent of the winter freeze. The winter supply gap (Figure 7.4) and the country's high dependence on hydropower therefore represent a strategic vulnerability because policy makers cannot tell from year to year the extent to which the country will need to import much more expensive electricity from abroad. The gap also creates challenges with the management of water resources, because the country has a strong incentive to store water during the summer to minimize its vulnerability during the winter—but this can create disputes with downstream countries that wish to use the water for irrigation.

Legal, institutional, and regulatory structure

In 2001, the vertically integrated state-owned utility, Kyrgyzenergo, was unbundled into a generation company, a transmission company, four electricity distribution companies, and a district heating company. However, the state retains a 93% stake in the sector. More recently, there has been a flurry of activity around the restructuring of the industry. Between 2013 and 2014, the Action Plan for Reforming the Energy Sector was implemented with the support of development partners.⁴ This supported work on the electricity law which was amended at the end of 2014 as well as the development and approval of a Medium-Term Tariff Plan 2014–2017,⁵ and establishment of a regulator (the State Agency for Regulation of Fuel and Energy) to authorize tariff setting and

⁴ Government of the Kyrgyz Republic. 2013. Order number 299. Action Plan for Reforming the Energy Sector 2013–2014. Bishkek.

⁵ From 1 August 2015, by order of the State Agency dated July 31, 2015 No. 142 and from April 2015, by order of the State Agency dated December 15, 2014 No. 46 the current tariffs for electric and thermal energy have been established by Resolution of the Government of the Kyrgyz Republic. On Approval of Medium-Term Tariff Policy of the Kyrgyz Republic for Electric and Thermal Energy for 2014–2017" dated 20 November 2014 No. 660.

licensing.⁶ A settlement center was established in 2015 to collect and provide metering data, energy flow data, and information on financial settlements. The settlement center is expected to become responsible for allocating revenue among energy companies. The Ministry of Energy and Industry (MOEI) was abolished in November 2015 following a government reorganization, and its function as executing agency under the Project is transferred to the Ministry of Economy (MOE). In July 2016, another government reorganization took place where State Committee for Industry, Energy and Subsoil Use (SCIESU) was created and designated to assume function from MOE.

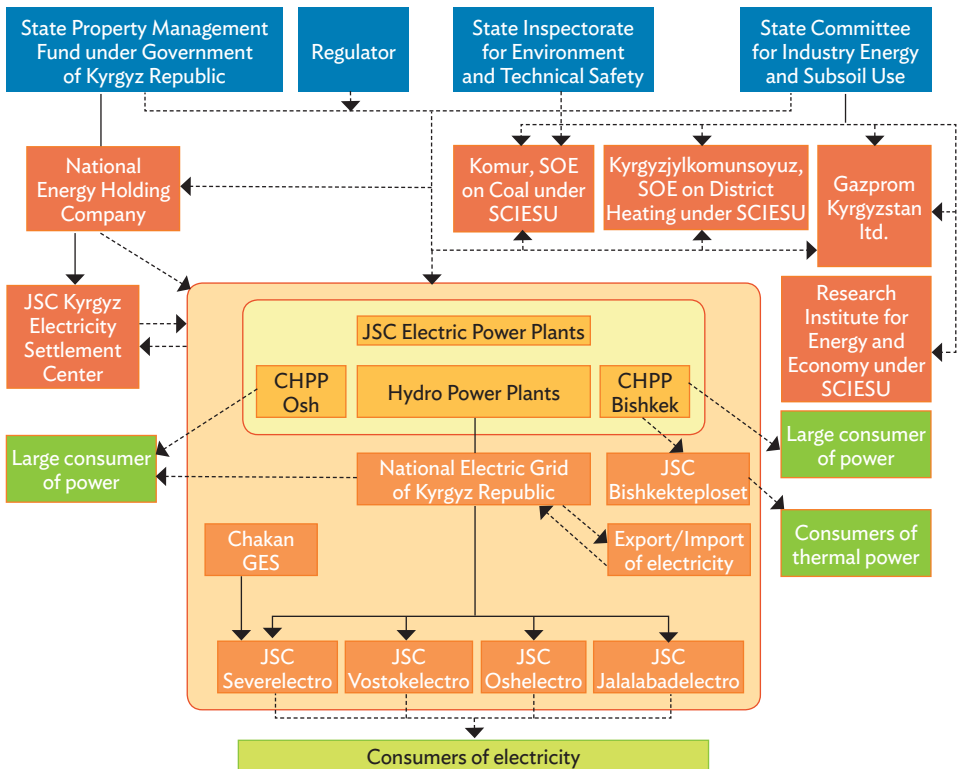
The State Agency is developing a draft Medium-Term Tariff Policy for Electric Energy for 2019–2023, where the issue of phasing tariffs for residential customers to cost recovery level and designation of energy intensive consumers (“mining farms” and “data centers”) in a separate group of electricity consumers is being worked out and setting separate electricity tariffs.

Figure 7.5 shows the structure of the industry. The key actors and the relationships between them are as follows:

- **The National Energy Holding Company** is a management body established by Resolution of the Government of the Kyrgyz Republic dated 6 January 2016 No. 4 in order to reform the management of the energy sector.
- **The State Agency for Regulation of the Fuel and Energy Complex** is an executive body authorized by the government to regulate the activities of entities of the fuel and energy complex by licensing and setting tariffs for electricity, thermal energy and natural gas.
- **The State Committee on Industry, Energy, and Subsoil Use** is the executive body authorized by the Government of the Kyrgyz Republic to carry out functions for the development and implementation of state policy on energy.
- **The State Inspectorate for Environment and Technical Safety**, an executive body authorized by the government to carry out functions ensuring technical safety; reliability and uninterrupted generation, transmission, distribution and consumption of electricity, thermal energy; and natural gas; as well as efficiency of their use.

⁶ Currently, by Ordinance of the Government of the Kyrgyz Republic dated 27 December 2018 No 459-r, tariffs for electric and thermal energy have been set at the level of tariffs in force in 2017 and will remain until adoption of the new tariff policy for the next medium-term period.

Figure 7.5: Policy and Management Structure of Energy Sector of Kyrgyz Republic



CHPP = combined heat power plant, JSC = joint-stock company, SCIESU = State Committee for Industry, Energy and Subsoil Use, SOE = State Owned Enterprise.

Source: State Committee for Industry, Energy and Subsoil Use (2019).

- The Kyrgyz Electricity Settlement Center (KESC)**, carry out the functions of collection and provision of accurate, transparent and timely performance of metering data, energy flow data and information on monitoring of financial settlements under bilateral agreements between energy companies. KESC is already operating, but at the moment activities performed manually as the hardware and software for the Metering Data Management system, the main tool of KESC's data collection and processing, is under development. The functions on allocating revenues across the electricity subsector companies has not been transferred to KESC and is still done by the State Agency for Regulation of the Fuel and Energy Complex.
- The State Property Management Fund**, ensures the efficient use, management and privatization of state property.

Technical performance of the electricity subsector

Table 7.2 shows the Kyrgyz Republic's generation assets. The country's electricity system is small, heavily dependent on a few hydropower generation facilities, and, during the winter, on two CHPPs. This makes the country extremely vulnerable, both to the water level in the Toktogul Reservoir and to breakdowns or disruptions associated with key plants.

Such disruptions have occurred. The country's heavy dependence on hydropower led to a major energy crisis during 2007–2009 when the water in Toktogul Reservoir fell below the critical level, resulting in rolling black-outs across the country. Similarly, insufficient investment in reserve capacity meant the failure, in December 2012, of one 300-MW hydropower turbine, which resulted in extensive load shedding in the winters of 2011/12

Table 7.2: Electricity Generation Assets

Generation	Capacity (MW)	Generation Output (million kWh)
HPP		
Naryn Cascade		
Toktogul HPP	1,200	4,400
Kurpsai HPP	800	2,630
Tashkumyr HPP	450	1,555
Shamaldysai HPP	240	902
Uch-Kurgan HPP	180	820
Kambarata 2 HPP	120	500
At-Bashy HPP	40	160
Total for JSC Power Plants	3,030	10,967
JSC Chakan GES	35	234
Total hydropower	3,065	11,201
	(78%)	(92%)
CHPP		
Bishkek CHPP	812	1,000 ^a
Osh CHPP	50	0
Total thermal	862	1,000
	(22%)	(8%)
Total for the Kyrgyz Power System	3,927	12,201

CHPP = combined heat power plant, HPP = hydropower plant, kWh = kilowatt-hour, JSC = joint-stock company, MW = megawatt.

^a Based from OAO Electric Power Plants.

Note: Installed capacity for Bishkek CHPP reflects the recent rehabilitation; figures for generation output are not yet available.

Sources: World Bank (2017a: Table 1.1). See also Government of the Kyrgyz Republic (2017), which includes slightly different figures for JSC Chakan HPP: 9 small HPPs, including 8 HPPs of the Alamedinsky cascade (29.7 MW) and Bystrovskaya HPP (8.7 MW); as well as private small HPPs: Tegirmentinskaya HPP (3 MW), Issyk-Ata (1.6 MW), Kalininskaya (1.4 MW), Ak-Sui (0.5 MW), and Kyrgyz-Ata (0.25 MW).

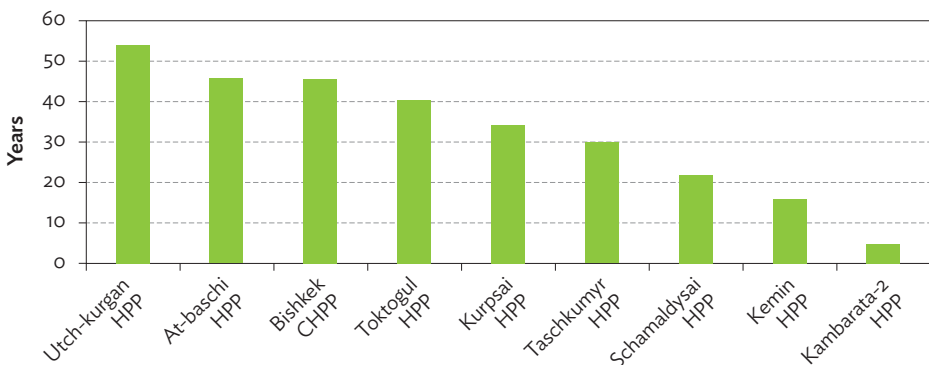
and 2012/13 (Kurmanbek 2016). Another breakdown due to low water levels in Toktogul Reservoir in the winter of 2015 resulted in brief consumption limitations (which were removed the day following their imposition) and there was another short-lived breakdown in December 2016.

In fact, the vast majority of the Kyrgyz Republic's electricity assets are working far beyond their economic life and, as a result, suffer from increasingly frequently problems of reliability. Figure 7.6 shows the age of the country's generation assets. As the figure indicates, some of the generation capacity has been operating for an extraordinarily long time.

The transmission and distribution assets are also old and frequently fail. This results in very high technical and nontechnical losses. The literature gives various figures for the size of losses. In 2016, losses were reported to be 12%–13% for distribution and a further 7% for transmission. The latest official data are shown in Figure 7.7, suggesting generation losses of 0.3%, transmission losses of 5.7%, and distribution losses of 13.9%—a total of 19.9% across the system.

The result of all these challenges is that the subsector was performing very poorly, particularly during the winter. For example, in 2012 the distribution company supplying Bishkek said that 85% of its 0.4 kilovolt lines and equipment urgently needed repairs. Distributors reported 43 outages per day on average from 2009 to 2012 due to low water levels in Toktogul Reservoir and breakdowns in the system (World Bank 2014). In 2013, 73% of manufacturing firms experienced electrical outages (which prompted 39% of firms to own or share a generator—almost double the average for East and Central Asia) costing about 4% of sales

Figure 7.6: Age of Generation Assets in the Kyrgyz Republic



CHPP = combined heat power plant, HPP = hydropower plant.

Source: World Bank (2017a).

Figure 7.7: Generation, Transmission, and Distribution Losses, 2012–2016
(%)



Source: Author's calculations and technical data provided to the author by energy companies.

value (Sydykova 2015).⁷ However, rehabilitation and other investments during the last 5 years have improved performance. The most recent data showed 16 outages per day during the winter months of 2015 and 15 outages per day during the same period in 2016.⁸ Notwithstanding this recent progress, the Kyrgyz Republic still performs poorly by international standards. The World Bank's 2018 Doing Business index includes a measure for getting electricity that has an index of tariff transparency and outage mechanisms that scores these factors on a scale of 0–8 (8 indicating total reliability of supply and transparency of the tariff). The Kyrgyz Republic received 0 compared with an East and Central Asia average of 5.2. The country's overall ranking for getting electricity was 164th of 187 countries.⁹

Quality has also suffered, with regular fluctuations in voltage and frequency. More than half of respondents in a 2013 survey reported problems with voltage and 18.9% of respondents reported damage to electrical appliances because of poor electricity quality (Abdyrasulova et al., 2013). Many firms not only use their own generators but also change their operation hours to nighttime to benefit from access to more voltage (ADB 2014); 40% of firms reported being willing to pay 25% to 100% more for better power supply. Customer service—the quality of billing and assistance to customers—is also poor. And securing new access to electricity is costly and time consuming. Although access is almost at 100%, it still takes 125 days to acquire a connection and costs 858% of per capita income (World Bank 2018).

⁷ World Bank. Enterprise Surveys. <http://www.enterprisesurveys.org/>

⁸ The regulator also reports that the system average interruption frequency index fell to 2.1 in 2017, although the equivalent index for the duration of outages was still over 600 minutes (information from restricted access site: <http://regulator.ortek.kg/ru/content/pokazateli-saifi-saidi-i-caidi-oao-severelektro-za-1-kvartal-2017-goda>).

⁹ The index includes the duration and frequency of power outages, mechanisms for monitoring and reducing them, and transparency and accessibility of tariffs—see World Bank (2018).

The next section describes the current mechanisms for setting tariffs (and therefore determining subsidies).

7.2. Mechanism for Setting Tariffs and Subsidies

Overview

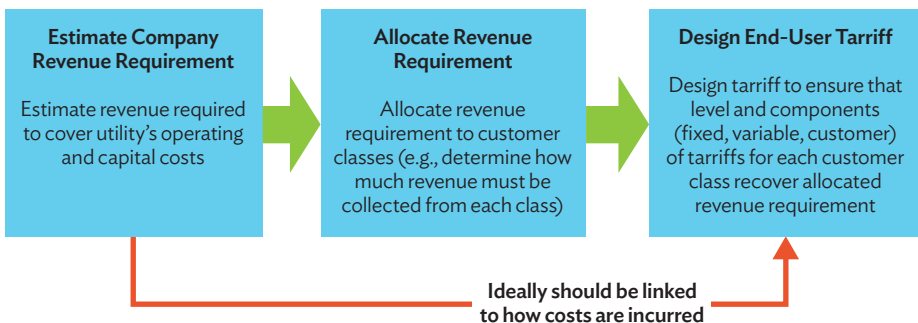
The detailed methodology for setting tariffs (and therefore determining the level of subsidy) is provided by the State Agency for Regulation of Fuel and Energy¹⁰ and consists of three stages (Figure 7.8). First, costs are aggregated into a total; then, portions of the total are divided and assigned to each customer class; and, finally, tariffs are designed to recover the portion of costs assigned to each customer class.

Estimating the revenue requirement. The first stage is to estimate the revenue requirement for each company. This depends on the “prime costs” (effective cash needs) of each company in the sector. The traditional application of this approach was strongly criticized (USAID 2011) because it did not include

- return on net fixed assets,
- return on working capital (allowance for inventories and arrears—allowed days receivables), and
- allowed reasonable cost of nonpayment of electricity bills and losses.

Returns on assets and working capital were excluded from the prime cost because most assets in the Kyrgyz Republic have already been heavily depreciated. Hence, using a rate-of-return approach would result in a figure that was far too low relative to the need for ongoing repair, maintenance, and

Figure 7.8: Stages of the Tariff Setting Methodology



Source: World Bank (n.d.) based on information from the State Agency for Regulation of Fuel and Energy.

¹⁰ World Bank (n.d.) also has a detailed description.

replacement of assets. Also, the traditional approach did include energy losses (because it took the required revenue and divided it by the billed amount minus estimated losses)—but this approach gave no incentive for companies to reduce their losses. This mattered because there are differences between the level of losses across companies, as well as differences in collection efficiency.¹¹

The new tariff methodology attempts to improve on the traditional approach by adding some new elements into the formula for the revenue requirement:

$$RR = DS + RA + CR + PC + AC - ELA - OR$$

where:

RR is the revenue requirement,

DS is the debt service obligations,

RA is the funds for a repair and maintenance reserve account,

CR is the budgeted capital repair and maintenance expenses,

PC is the production costs,

AC is the administration costs,

ELA is an adjustment to account for excess electricity losses, and

OR is the sum total of other revenue.

Note the inclusion of the repair and maintenance reserve account and the capital repair budget. These are intended to compensate for the lack of a rate-of-return calculation on assets. Moreover, the electricity loss adjustment (*ELA*), enables the regulator to specify a level of losses that is allowable, so that if a company achieves better performance it can benefit, while worse performance is penalized.

Allocate the revenue requirement. To obtain tariffs for different customer categories, the aggregate revenue requirement must be split between the categories. To achieve this, each element of cost (debt service, capital repairs, reserves, material costs, etc.) is split across the customer categories using either the proportion of customers (for fixed costs), or the proportion of consumption (kilowatt-hours for variable costs).¹²

¹¹ Collection efficiency has improved in recent years. For example, in 2010 SeverElectro reported collection of only 90% for residential consumers; in 2017 its overall collection efficiency was 99.5%.

¹² In theory, demand or capacity is also used for some cost categories, but the lack of good data on demand means that this is not yet done.

Design the end-user tariff. The total revenue requirement allocated to each customer category is then divided by the “billing determinants,” i.e., the total kilowatt-hours, to provide a cost recovery tariff for the customer category.

While this is the cost-reflective tariff, the final end-use tariff determined by the government will depend on a set of principles including

- current energy policy;
- simplicity (i.e., a preference for not having too many levels);
- gradualism (restricting the annual increase to below 25%); and
- fairness (to the firms, through cost recovery).

The final end-use tariff determined by the government is often lower than the cost-reflective tariff for some customer categories, resulting in a deficit. Rather than simply letting that deficit occur wherever in the system it accrues, the methodology allocates the deficit to each market actor in proportion to the revenue requirement, so that each is burdened proportionately at least in theory. The tariffs paid by the distribution companies to the transmission company and the tariffs paid by the transmission company to the generation companies are then adjusted to ensure that each company receives its revenue requirement, minus the allocated deficit.

Financial performance of the subsector

The single most important reason why the Kyrgyz electricity subsector has struggled to provide high-quality service is its financial performance. The subsector as a whole makes a large loss, primarily because—notwithstanding the methodology outlined above—tariffs for electricity and for heating are set at levels far below cost. Table 7.3 shows the current actual tariffs for electricity and heating for residential and nonresidential customers. The gaps between actual tariffs and cost recovery are extremely large. As a consequence, the International Monetary Fund (IMF 2017) estimated the pretax subsidy¹³ for electricity, district heating, and hot water at about 3% of gross domestic product (GDP).

The consequence of such low tariffs, relative to cost, is that the electricity and heating companies suffer large operating losses that are financed from the government. The financial losses for electricity and heating companies reached Som5.9 billion (\$85.4 million), Som7.2 billion (\$104.2 million), and

¹³ Consumer pretax energy subsidies are defined as the gap between the price actually paid by consumers and the supply cost of energy.

Table 7.3: Actual and Cost Recovery Tariffs for Electricity and Heating

Category	Actual	Price Recovery	Cost Gap (%)
Residential			
Electricity below threshold (som/kWh)	0.77	1.97	156
Electricity above threshold (som/kWh)	2.16	1.97	-9
Heating: CHPP (som/Gcal)	1,135	3,405	200
Heating: heat-only boiler (som/GCal)	1,135	6,881	506
Hot water (som/GCal)	982	3,405	246
Nonresidential			
Electricity (som/kWh)	2.24	1.55	-31
Electricity: pumping stations (som/kWh)	0.78	1.55	99
Heating: CHPP (som/GCal)	1,695	2,681	58

CHPP = combined heat power plant, GCal = gigacalorie, kWh = kilowatt-hour.

Source: IMF (2017).

Som3.2 billion (\$46.3 million) in 2014, 2015, and 2016, respectively.¹⁴ For the subsector firms to continue to function, the government must supply support. However, the majority of the support does not come through the budget. Direct budget transfers in 2016 amounted to Som1.5 billion (\$21.7 million), or 0.3% of GDP, and mostly went to the state-owned heating company (Kyrgyzzhilcommunsoyuz) for its losses in providing heating to residential customers, and to electricity companies to compensate for the provision of subsidized tariffs for customers in the area around the Toktogul Reservoir. Rather, the large part of the support comes in the form of soft loans from the State Fund for Economic Development, either as zero-interest budgetary loans or funds from international development partners on-lent at concessionary rates. At the end of 2016, the outstanding debt accumulated by energy companies for the previous 25 years reached Som82 billion (\$1.2 billion), about 18% of GDP, guaranteed ultimately by taxpayer money (IMF 2017).

The indebtedness and ongoing losses, resulting from below-cost tariffs, mean that few private parties are willing to invest in the subsector. The fundamental reason why the generation, transmission, and distribution assets are in such poor shape is that it is not possible, and has not been possible for a long time, for the firms responsible for these assets to attract significant investment. Consequently, the only source of large investment has been the government budget—which is highly constrained—or international development partners.

¹⁴ The exchange rate used in this section is Som69.1136/\$.

Most neighboring countries have not chosen the same level of tariffs (Table 7.4). The tariffs charged in the Kyrgyz Republic are significantly lower than those charged in comparable countries, particularly for residential tariffs.

The Medium-Term Tariff Policy 2014–2017

Although tariff reform is not the only mechanism through which the sector's problems may be solved, it will clearly be very difficult to make real progress without a major reform in the way tariffs are set. The last few years have seen substantial progress in tariff reform. The State Agency for Regulation of Fuel and Energy has adopted new tariff setting methodologies for electricity, heating, and hot water services. Since 2015, the residential tariff is two-tiered, with the lower tariff applying to households consuming less than 700 kWh and a much higher tariff for those consuming above this threshold. The Medium-Term Tariff Policy (MTTP) 2014–2017 enshrined the principle of cost recovery for the sector in the medium term.

However, as Table 7.5 shows, the policy has not been fully implemented, with raises for below threshold residential consumers repeatedly postponed. The original intention was that tariffs for this group would reach cost-reflective levels by 1 April 2017, with significant increases each April. However, each revision of the MTTP has pushed back the date by which these raises are to be achieved. The increase from 2014 to 2015 was lower than originally intended; the increase to Som0.932/kWh planned for 2016 was then postponed for a year and revised downward; and then in June 2017, it was postponed again. As the residential category is the largest and most loss-making component of the tariff schedule, these postponements have had a serious impact on the ability to reach cost recovery in the subsector. Similarly, heating tariffs followed the MTTP in 2014 and 2015, but the increases planned for 2016 and 2017 were not implemented.

Table 7.4: Electricity Tariffs in Selected Countries

Country	Residential	Nonresidential
Armenia	8.57	7.47
Azerbaijan	5.72	5.72
Georgia	5.67	4.98
Russian Federation	4.90	7.78
Ukraine	1.51	5.70
Kyrgyz Republic	1.48	4.01

Source: Gassner, K., N. Rosenthal and D. Hankinson (2017).

Table 7.5: Revisions of the Medium-Term Tariff Policy 2014–2017 for Selected Consumer Groups^a

Regulation		Revisions (som/kWh)				
No.	Period	2014	1 July 14	1 April 15	1 April 16	1 April 17
Residential Tariffs (below 700kWh/month consumption)^{bc}						
660	20-Nov-14	70.0	70.0	84.0	100.8	121.0
527	24-Jul-15	70.0	70.0	77.0	93.2	121.0
421	1-Aug-16	70.0	70.0	77.0	77.0	84.7
396	22-Jun-17	70.0	70.0	77.0	77.0	77.0
Hot Water Pumping Facility Tariffs						
660	20-Nov-14	70.0	72.8	77.9	83.3	89.2
527	24-Jul-15	70.0	72.8	77.9	83.3	89.2
421	1-Aug-16	70.0	72.8	77.9	77.9	84.7
396	22-Jun-17	70.0	72.8	77.9	77.9	77.9

kWh = kilowatt-hour.

^a Medium-Term Tariff Policy 2014–2017 and associated regulations.

^b Excluding highland and remote hard-to-reach areas for period of 1 October–1 May.

^c Data for Regulation 660 is for consumers with 1 phase in-feed; the category was changed in 2015.

Sources: Compiled from Government of the Kyrgyz Republic Resolutions No. 396 of 2017, No. 421 of 2016, No. 527 of 2015, and No. 660 of 2014.

The much higher tariffs in other consumer categories (e.g., above 700 kWh for residential, agriculture, and industry) have generally been followed, creating a large disparity between the residential and heating tariffs paid by the bulk of the population and the tariffs paid by large consumers.

Profitability and debt of energy companies

The large disparity between the cost recovery tariff and the tariffs actually applied for major consumer categories continues to result in large losses for the energy companies. Table 7.6 shows the expenditure and revenues of all the energy companies, along with their losses in 2016; Figure 7.9 shows the long-term liabilities of the two largest firms during 2012–2016. All of the energy companies are loss making—typically, between 1% and 6% of their revenue. The transmission company, the National Electricity Grid of the Kyrgyz Republic, receiving 28% less revenue than its expenditure (17% using official figures). These losses accumulate over a long period of time, eroding

Table 7.6: Expenditure, Revenue, and Losses of Energy Companies, 2016
(‘000 som)

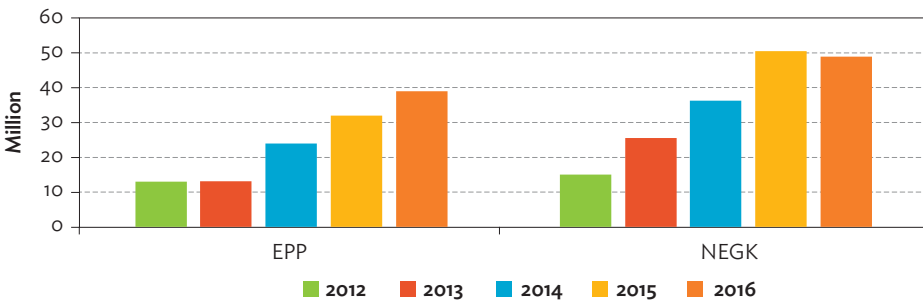
Item	EPP	NEGK	SE	VE	OE	JE
Total expenditures	9,096,301	4,002,870	7,182,102	1,691,146	2,511,866	1,641,019
Actual revenue	8,993,854	3,116,058	6,942,013	1,664,111	2,359,500	1,582,208
Income (loss)	-102,446	-886,812 ^a	-240,089	-35	-152,366	-58,810
Percent of revenue	-1%	-28%	-3%	-2%	-6%	-4%

EPP = electricity power plant, JE = Jalal-AbadElectro, NEGK = National Electricity Grid of the Kyrgyz Republic—Natsionalnaya Elekticheskaya Set, OE = OshElectro, SE = SeverElectro, VE = VostokElectro.

^a Loss of NEGK is recorded as -541,315 in the accounts, but this is not the difference between expenditure and revenue that is shown above. Figures for losses vary from year to year; in 2015, the total loss across all companies was Som7.2 billion, primarily as a result of a very large loss of Som6.5 billion by EPPs.

Source: Profit and Loss of energy companies calculated from data provided to the author by the National Energy Holding Company.

Figure 7.9: Long-Term Liabilities of EPP and NEGK, 2012–2016



EPP = electricity power plant, NEGK = National Electricity Grid of the Kyrgyz Republic—Natsionalnaya Elekticheskaya Set.

Sources: Balance sheets of energy companies from the National Energy Holding Company, as provided to the author.

the firms' capital and adding to their long-term liabilities. The sharp rise in these liabilities probably largely reflects borrowing for renovating generation, transmission, and distribution assets. However, the ongoing losses erode the firms' capital base, requiring intermittent capital injections from government and ensuring that the only source of long-term financing is either government lending or funds from development partners. At almost Som1.5 billion per year (about \$22 million), the overall losses in the electricity system are large and may grow without significant tariff reform.

7.3. Impact of the Current Tariffs

Power sector development

One of the consequences of the current tariff levels is that the Kyrgyz Republic has difficulty in attracting private investment into the power sector.¹⁵ Injections of capital into the energy companies have been primarily oriented toward covering ongoing losses and attempting to ensure the repair and maintenance of existing equipment, with relatively little available for major capital investments. As a result, most of the major investments have been funded by development partners. Table 7.7 lists the major ongoing projects funded with their support. This includes several rehabilitation projects, particularly for large hydropower stations at Toktogul hydropower plant (HPP), as well as commissioning of a second hydroelectric unit at Kambarata HPP-2 and reconstruction of At-

Table 7.7: Ongoing Projects Funded by Development Partners

No.	Project	Development Partner	Financing (\$ million unless otherwise specified)	Implementation Period
Electric Power Plants OJSC				
1	Commissioning of the second hydroelectric unit of Kambarata HPP-2	Eurasian Development Bank	110	Not yet started
2	Power sector rehabilitation	ADB	55 (grant = 40, loan = 15)	2013–2019
3	Toktogul HPP rehabilitation Phase 2	ADB	110 (grant = 44.5, loan = 65.5)	2015–2021
		Eurasian Development Bank	100 (loan)	
4	Toktogul HPP rehabilitation Phase 3	ADB	110 (grant = 50, loan = 60)	2016–2024
		Eurasian Development Bank	40 (loan)	
5	Reconstruction of At-Bashy HPP	Swiss Confederation	19.82 Swiss francs (grant)	2014–2021
National Electrical Grid of the Kyrgyz Republic OJSC				
6	Improvement of electricity supply in Bishkek and Osh cities	Islamic Development Bank	23.08 (loan)	2013–2016

¹⁵ Low tariffs are not the only reason for low investment—the general investment climate also has an important impact. Moreover, the export price for electricity is much higher (e.g., for CASA-1000: the Central Asia–South Asia Power Project) and tariffs for renewables are higher. Nonetheless, low tariffs discourage private investment in production for domestic consumers. *continued on next page*

Table 7.7 continued

No.	Project	Development Partner	Financing (\$ million unless otherwise specified)	Implementation Period
7	Power Sector Improvement	ADB	44.8 (grant = 8.09, loan = 16.71)	2013–2017
8	Improvement of power supply to the Arkinskiy Massif of Leilek District, Batken Region	Islamic Development Bank	16.25 (loan)	2014–2017
9	CASA-1000	World Bank	45.0 (grant = 6.75, loan = 38.25)	2016–2021
		European Investment Bank	70 euros (loan)	
		Islamic Development Bank	50 (loan)	
		US Trust Fund	7.5 (grant)	
SeverElectro OJSC				
10	Improvement of the local grid of Bishkek city	German Development Bank KfW	33.6 euros (grant = 2.0, loan = 31.6)	2011–2017
11	Increasing the efficiency of electricity distribution grids			
12	Increasing the accountability and reliability of electricity supply system	World Bank	25.0 (grant = 11.8, loan = 13.2)	2014–2018
OshElectro OJSC				
13	Rehabilitation of OshElectro OJSC	EBRD	5.0 euros (grant = 1.0, loan = 4.0)	2017–2020
VostokElectro OJSC				
14	Rehabilitation of Vostokelectro OJSC	EBRD	6.0 euros (grant = 2.0, loan = 4.0)	2018–2023
Bishkekteploset OJSC				
15	Improvement of power supply	World Bank	46.0 (grant = 23.0, loan = 23.0)	2018–2023
16	Reconstruction and construction of pumping stations	EBRD	11.1 (grant = 3.9, loan = 7.2)	2018–2021
17	Dakta–Kemin transmission line	China EXIM Bank	389 million (loan)	2011–2015
18	Dakta South transmission line	China EXIM Bank		
19	Bishkek combined heat and power rehabilitation	China EXIM Bank	386 (loan)	2013–2018

ADB = Asian Development Bank, CASA-1000 = Central Asia–South Asia Power Project, EBRD = European Bank for Reconstruction and Development, EXIM = export–import, HPP = hydropower plant, OJSC = open joint–stock company, US = United States.

Source: Based on information and data provided to the author by the head of the project preparation and implementation unit, State Committee on Industry, Energy, and Mining.

Bashinskaya HPP. In addition, investments are being made in the grid in Bishkek and Osh cities and improvement of the power supply to the Arkinskiy Massif, as well as the major investment in the Central Asia–South Asia Power Project known as CASA-1000. This major international initiative is designed to connect countries with the potential of excess hydropower, such as the Kyrgyz Republic and Tajikistan, to countries with major power deficits, including Afghanistan and Pakistan. In the Kyrgyz Republic, CASA-1000 will entail the construction of a 500-kilovolt alternating current line from Datka to the Sugd substation (477 kilometers away, in Tajikistan).

In addition to investments in generation and transmission, development partners are supporting investments in the four distribution companies, aiming to rehabilitate networks and improve efficiency and accountability.

Ideally, such public efforts would be accompanied by significant private investment in the power sector. Unfortunately, the current policy and regulatory climate is not encouraging for private investment. As of October 2018, only a handful of small-scale private independent power producers were operating: Tegirmentinskaya HPP: 3 MW; Issyk-Ata: 1.6 MW; Kalininskaya: 1.4 MW; Ak-Sui: 0.5 MW; and Kyrgyz-Ata: 0.25 MW.

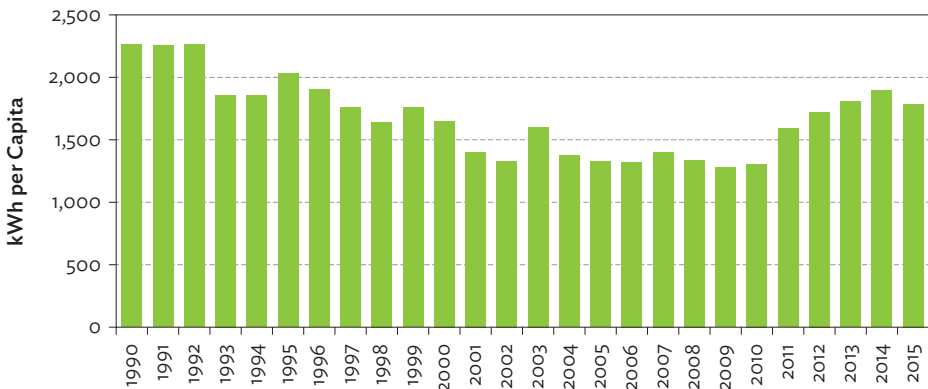
In principle, existing regulations allow for new small-scale HPPs to obtain a tariff for 8 years, after which it is renewed annually. By law, the distribution companies are required to pay this tariff. However, in an attempt to minimize their own losses, distribution companies are reluctant to pay it. After the 8-year period is over, the negotiation over annual renewals creates considerable uncertainty for private investors, making them reluctant to invest in the subsector. The private sector also complains about access to land, a lengthy and costly process, and about poor governance. Many of these challenges arise because of the current tariff policy. Low tariffs result in losses for energy companies, which makes them reluctant to purchase electricity at commercial rates. It is therefore not viable for most private actors to invest without the security of a tariff that provides a reasonable return on their investment. Ironically, the resulting shortage of electricity—withstanding the Kyrgyz Republic's spectacular hydroelectric potential—results in the import of fossil-fuel powered electricity from Kazakhstan at costs that exceed what would have had to be paid to private small-scale HPPs.

Consumption

The consumption of electricity in the Kyrgyz Republic has been growing rapidly in recent years (Figure 7.10). The long decline in consumption reflected the economic turmoil during the 10 years subsequent to the 1991 break-up of the Soviet Union. However, since 2010, per capita consumption has been rising.

The increase is driven by a rapid expansion in residential consumption, while industrial consumption has continued to shrink. This reflects the relatively high tariff for industry, the decline in industry, and the low tariffs for residential consumption below 700 kWh per month (kWh/mo). Average per household consumption levels were 409 kWh/mo in 2016, far above those observed in countries with comparable climates such as Kazakhstan at 218 kWh/mo and the Russian Federation at 208 kWh/mo (IMF 2017). Because of the subsidy, energy expenditure makes up a relatively small share of total household expenditure. On average, nationwide spending on electricity and district heating and hot water amounted to 3.4% of total household expenditure in 2015, including 2.5% for electricity (IMF 2017). However, the availability of cheap residential electricity has encouraged greater use of electricity for heating, exacerbating the already strong seasonal cycle in consumption (Figure 7.11). This puts additional pressure on the electricity system during the winter months—precisely when hydropower resources are least available—further raising costs for the subsector.

Figure 7.10: Per Capita Electricity Consumption, 1990–2015
(kWh per capita)

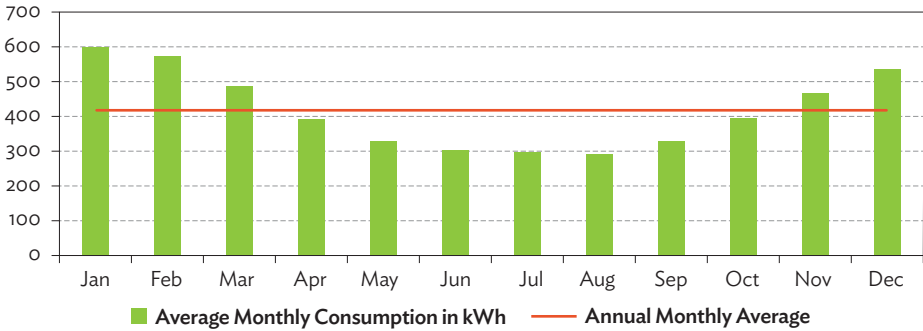


kWh = kilowatt hour.

Source: Enerdata. Enerdata Database. <http://www.enerdata.net> (accessed 8 Mar 2018).

Due to low residential tariffs, the Kyrgyz Republic has the highest energy intensity (kilowatt-hours per dollar of GDP) in the Central Asia region (Figure 7.12)—and double that of some of its neighbors. In large part, this reflects aging and energy inefficient building stock and appliances. A program by the European Bank for Reconstruction and Development and the European Union is attempting to provide incentives to firms and individuals to improve energy efficiency. This has already led to savings of 125,000 MW hours annually

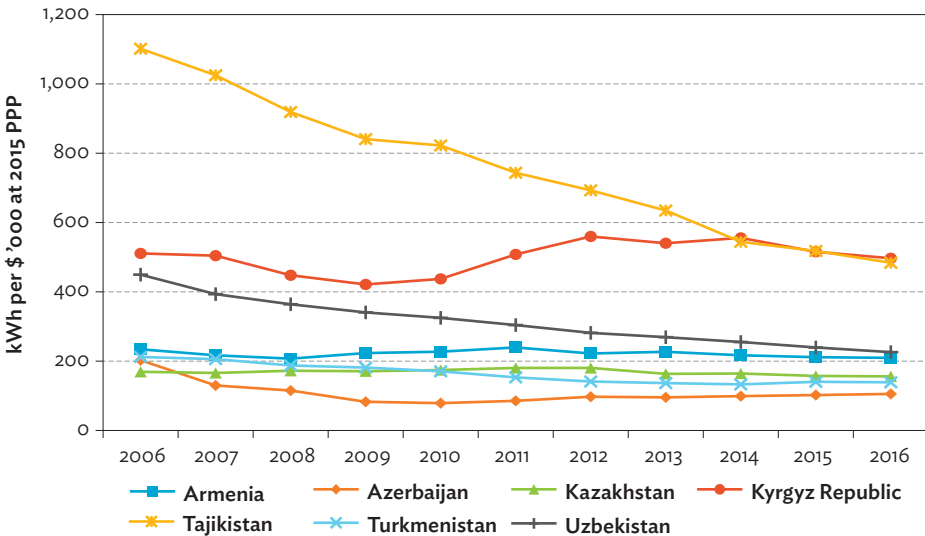
Figure 7.11: Average Monthly Electricity Consumption, 2015
(kWh per month)



kWh = kilowatt-hour.

Source: World Bank (2017b).

Figure 7.12: Electricity Intensity of Gross Domestic Product
(kWh per \$ '000 at 2015 PPP)



kWh = kilowatt-hour, PPP = purchasing power parity.

Source: Enerdata. Enerdata Database. <http://www.enerdata.net> (accessed 8 Mar 2018).

(equivalent to the energy consumption of 6,000 households) as well a 38,000 ton reduction of carbon dioxide emissions annually. However, the program is small and therefore coverage has been limited. Despite the potential for significant improvements that might ease the pressure on the energy system, energy efficiency has not, hitherto, been a government priority.

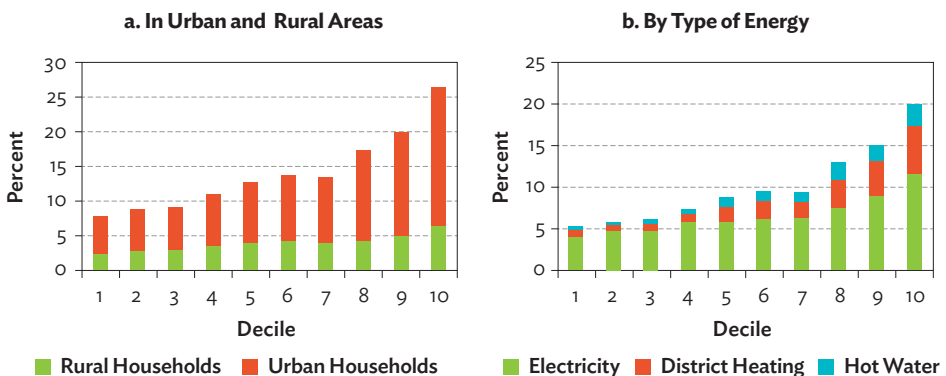
Moreover, the implicit subsidies that are provided by low tariffs on electricity, district heating, and hot water are regressive. Figure 7.13 shows the distribution of energy subsidies by income decile, in urban and rural areas and by type of energy. Because residential consumers in urban areas, notably in Bishkek and Osh, are the largest consumers of electricity and particularly of district heating and hot water, the bulk of the subsidy goes to this group. Fully 20% of the entire subsidy is provided to the top decile of the population, while the poorest 10% of the population receive only 5% of the energy subsidy. Low tariffs therefore represent a very inefficient way of protecting the poor.

Government fiscal position

The current tariff arrangement has important implications for the government's fiscal position. The International Monetary Fund estimated that total subsidies for electricity, heating, and hot water were about 3% of GDP—much larger than in most countries in the region (IMF 2017). This estimate does not include the indirect effects associated with the subsidies (i.e., other costs that might be higher if the subsidy was not in place).

The outstanding debt accumulated by energy companies in the last 25 years amounted to Som82 billion (about 18% of GDP) at the end of 2016 (IMF 2017). Had the soft loans to the energy companies been included in the

Figure 7.13: Distribution of Energy Subsidies across Income Deciles



Source: IMF (2017) based on the 2015 Kyrgyz Integrated Household Survey (IHSN 2017).

government accounts, the fiscal deficit would have been higher by 0.2–0.4 percentage points of GDP.

Although subsidies represent an important social purpose, it is also considered as an opportunity cost for the government. Table 7.8 shows the size of social security and the main forms of social assistance in the Kyrgyz Republic. Social security is about 9% of GDP. It is managed by the Social Fund and primarily consists of pensions. Social assistance is managed by the Ministry of Labor and Social Development and has three major programs: the means-tested Monthly Benefit for Low-Income Families, which targets payments to poor families with children; the Monthly Social Benefit, which provides benefits for children, the disabled, and the elderly; and the Monetary Contribution, a flat-rate benefit for a large set of 25 categories of recipients. The third program was supposed to be funded by the increase in the tariff in 2010, but has continued despite that tariff increase being reversed after the political events of April 2010.

As Table 7.8 shows, even though the full value of the energy subsidies is not reflected in the budget, they amount to more than the entire budget for social assistance. Although there are challenges and inefficiencies in both the coverage and allocation of social assistance, it is still considerably more progressive than energy subsidies. Thus, a shift from energy subsidies to social assistance is likely to have a net benefit for the poorest members of society.

Table 7.8: Social Security and Social Assistance in the Kyrgyz Republic, 2016

Item	Som (million)	Share of GDP (%)
Social security	42,366	9.2
Social assistance	7,136	1.5
MBLF	2,966	0.6
Monthly social benefits	2,430	0.5
Monetary contribution	1,161	0.3
Energy subsidies	13,815	3.0

GDP = gross domestic product, MBLF = Monthly Benefit for Low-Income Families.

Source: IMF (2017).

7.4. International Experience with Electricity Subsidy Reform

This section briefly reviews the literature on power sector, electricity subsidy, and tariff reform in developing countries and summarizes three case studies of countries that have undertaken significant reforms of their electricity tariffs and the challenges they have faced.

Reviewing the literature

The problem of electricity subsidy and tariff reform has a very long history in many countries. Much of the literature focuses on the broader issue of reform of the power sector. For example, Gratwick and Eberhard (2008) and Eberhard et al., (2016) describe the challenges of power sector reform in sub-Saharan Africa; Dubash and Rajan (2001) and Tongia (2003) describe power sector reform in India; Victor and Heller (2008) describe the politics of reform in five major developing economies; Scott and Seth (2013) provide a literature review of the reform of electricity distribution in developing countries; and Kojima, Bacon, and Trimble (2014) review the literature on reform of power sector subsidies.

Several key lessons have emerged from this extensive literature. One is the need for power sector reforms to reflect the context in which they are being implemented. Until the early 2000s, the approach taken in countries of the Organisation for Economic Co-operation and Development (OECD) focused on a “standard” or “textbook” approach to restructuring the sector in developing countries. The standard steps in this process were: corporatization, commercialization, legislation, regulation, restructuring, privatization, and competition (Gratwick and Eberhard 2008; Joskow 2006; Littlechild 2006; Hunt 2002). Unfortunately, the “standard model” of reform in developing countries produced rather modest results, because of the political barriers that it faced (Besant-Jones 2006, Choynowski 2004), and the result has been a set of hybrid structures (Eberhard et al., 2016). The structures have emerged from the particular political struggles between the various actors involved in each country (utilities, independent power producers, regulators, finance ministries, energy ministries, and political leaders), as well as between domestic and international actors such as independent power producers and development partners.

In the last decade, development partners have attempted to take a more case-by-case approach toward supporting countries undertaking power sector reform, with the World Bank now arguing that “one size does not fit all” and promoting context-sensitive approaches to reform (Besant-Jones 2006). For example, on financial sustainability, recent work suggests that a more holistic view is needed. Trimble et al., (2016) show that utilities in sub-Saharan Africa are often not viable because of their high costs. The costs are high for many reasons including structural ones (geography of the country and natural resource endowment); high technical losses, due to aging or poorly maintained equipment; and large commercial losses and theft, due to nonpayment by major users and to poor billing and collection systems. Reducing costs may therefore provided a more politically acceptable route to achieving cost recovery in some countries.

Similarly, approaches to compensation programs need to be country specific. Consequently, there has been much experimentation with compensation mechanisms—for example, the creation of a national database of the poor in Indonesia (Beaton, Lontoh, and Wai-Poi 2017) and the Aadhar biometric identification in India (Hari 2016).

Governments have also adopted a range of complementary policies when undertaking power sector reform. For example, countries facing shortages of supply often encourage energy efficiency or metering to minimize demand. Similarly, some reform packages explicitly build in communications and dialogue with civil society since different understandings of the sector among the public have sometimes made dialogue around reform very difficult (see Wood 2005). One reason for this lack of trust has been a perception of fraud in the sector. As a result, governments attempting to reform the sector have sometimes tried to involve civil society in highlighting issues of irregular practices in the sector (Abdyrasulova et al., 2013).

In countries where the gap between current revenue and costs is large, moves to improve financial sustainability can release significant resources for other purposes. Hence, some reforms have successfully drawn on these resources to deliver goods or services outside the sector that are, nonetheless, highly valued by the public. For example, in Indonesia, the removal of subsidies on gasoline and (in part) diesel released \$15.6 billion that was then reallocated, at least in part, toward popular health, education, and infrastructure services (Pradiptyo et al., 2016). Indonesia introduced major reforms to its fossil fuel subsidies, removing subsidies for gasoline (except for distribution costs outside of the central islands of Java, Bali, and Madura).

Overall, the main message from the literature is that country context matters and that reform programs should be designed to account for such specificities. The next section summarizes a set of short case studies illustrating how three countries have approached the issue of power sector reform in different ways.

Country case studies

Armenia. Sargsyan et al., (2006) provide an account of the problems of the power sector in Armenia which are, in many ways, similar to those afflicting the Kyrgyz Republic. For example, the collapse of the Soviet Union left Armenia with a power system that was dependent on fuel imports from far away, while conflict in the region (with Azerbaijan and Turkey) resulted in the cutting of oil and gas supplies. An earthquake also forced the closure of Armenia's nuclear plant.

The resulting power crisis in the early 1990s forced Armenia to adopt radical reforms. In 1995, subsidies were huge—about 11% of GDP—and commercial losses were very large. The government therefore decided to privatize the sector by unbundling generation, transmission, and distribution; selling some hydropower assets; and establishing an independent regulator. It first reduced commercial losses by moving meters into public spaces (making tampering much harder) and by installing new tamper-proof meters and data acquisition systems. In 2001, the government tried to privatize the sector; this was opposed politically and so, instead, it appointed Midland Resources Holding as a management contractor for the distribution system in 2002. The change dramatically improved performance, raising collections to near 100% and reducing losses to only 4%. Higher prices have encouraged energy efficiency investments, and the government moved from paying a substantial subsidy to earning revenue from the sector.

Sargsyan et al., (2006: 17) generalize from the Armenia experience to provide 12 lessons for other countries:

- As a first and most important lesson, political will is paramount.
- A corollary to the first lesson is that personalities matter.
- Keep control of the process away from vested interests.
- Enable the champions through early and substantive contact.
- Initial failure may be better than not trying at all.
- The more frequent and substantive the communication between bidders and the owner, the better.
- In the actual implementation of reforms, an integrated, cross-sectoral approach is important.
- A comprehensive approach also means considering the social impact of reform as an element separate from power sector reform.
- It makes sense for the government to do as much improvement as possible in the sector before privatization.
- It is important for development partners to provide the right mix of structural adjustment and investment financing.
- In contracting with a private operator, focus less on the level of investment an operator is willing to commit and more on service quality or other outputs.
- Governments and development partners should consider adapting standard bidding requirements and procedures to accommodate a new kind of strategic investor.

Sargsyan et al., (2006) argue that three factors have been crucial to success. First, the fact that the government continued in a serious way to attempt reform, even when initial attempts were not successful. Second, that a cross-sectoral

approach was taken, with good communication and social protection for the vulnerable. Third, that an adaptive approach was taken toward problem solving, tackling issues as they emerged rather than having a rigid plan up front.

Dominican Republic. Inchauste and Victor (2017) provide a comprehensive account of the reforms in the Dominican Republic from the late 1990s on. Between 1998 and 1999, the government unbundled the sector, creating two generation companies as well as three distribution companies. However, poor performance continued with widespread illegal connections, nonpayment of bills, and tariffs that did not reflect costs. In 2005, the government made another attempt to reform the sector (Government of the Dominican Republic 2005), increasing tariffs, reducing losses, and linking power supply to payment. In addition, the government tried to let prices fluctuate to reflect movements in international oil prices and exchange rates (Government of the Dominican Republic 2007). Unfortunately, in 2008, a sharp increase in oil prices resulted in subsidies escalating to 2.75% of GDP. Moreover, the distribution of the subsidy was regressive in absolute terms, with the top decile receiving five times more than the poorest decile. However, reform would have hurt the poor because the subsidy still represented a significant share of their income (IMF 2010).

A corruption scandal in the utility, the *Corporación Dominicana de Empresas Eléctricas Estatales*, provided the trigger for the government elected in 2008 to pursue more concerted reforms. The subsidy program was abolished and a new cash transfer program, known as *Bonoluz*, was designed to compensate poor households. The *Bonoluz* covered the cost of the first 100 kWh of consumption per month for the poor. It piggybacked on the administrative systems of an existing subsidized gas program, using the same eligibility criteria. In addition, the government reduced the threshold beyond which households were no longer subsidized at all from 700 kWh/month to 300 kWh/month and increased tariffs (Vagliasindi 2012).

Mexico. Husar and Kitt (2016) describe the electricity reforms undertaken by Mexico in 2002. These started as a comprehensive set of reforms designed to dramatically reduce the extent of subsidies by eliminating them for consumers who used more than 140 kWh per month. It also sought to make the subsidies less regressive—at the time the bottom three deciles were receiving 16% of the subsidy, while the top three deciles obtained 40% (Komives et al., 2009).

However, the plan met with substantial opposition. People in hotter regions and farmers who used electric pumps for irrigation were opposed to the reduction in subsidies, as was the central bank because of fears about the

reform's inflationary impact. Conversely, some commercial organizations and local governments supported the reforms because they would have faced lower tariffs than previously (Hernández 2007, SHCP 2007, SIA 2002). The plan was also opposed in Congress, which introduced changes substantially diluting the original savings from the reform. For example, in 2003, the *Iniciativa Pérez de Alba* benefited defaulting customers in northern states; similarly, the *Iniciativa Luebbert II* reclassified customers in hot zones into lower tariff groups.

Moreover, while the tariff structure did become slightly more progressive, primarily due to higher tariffs on households with high levels of consumption, the tariff system also became much more complicated with a plethora of tariffs conditioned on climate and reclassification of households into different categories. All these changes meant that systematic and structural reforms were abandoned in favor of more marginal reforms in the tariff structure. Mexico also leveraged its social protection programs to compensate poor households for price increases. A program called *Oportunidades Energeticas*—building on the main cash transfer program, *Oportunidades* (now called *Prospera*)—was introduced in 2007, including a cash transfer element to cover the energy expenses of poor households in rural areas. However, this was provided in addition to electricity subsidies, not as a mechanism to reduce them.

7.5. Possible Ways Forward for the Kyrgyz Republic Electricity Subsector

Reform plans

The Government of the Kyrgyz Republic has a comprehensive national development plan that includes the energy sector. This is laid out in detail in “Unity, Trust, Creation” (Government of the Kyrgyz Republic 2018), which describes the government’s plans in a wide variety of areas. The government specified that the development of energy will focus on three primary areas of activity to achieve the following goals:

- (1) electricity generation:
 - providing a 10% power reserve,
 - increasing the installed capacity of the existing stations by 2025 up to 4,500 MW, and
 - achieving electricity generation to 16 billion kWh to 17 billion kWh.

- (2) electricity transmission:
 - ensuring energy independence from adjacent power systems,
 - reaching power output from existing and prospective stations,
 - ensuring necessary capacity of electric networks of 110 kilovolts to 500 kilovolts, and
 - promoting proposals of interstate electrical lines projects (e.g., CASA-1000).

- (3) electricity distribution:
 - providing high-quality customer service,
 - creating the possibility of technological connection for each client and completely removing restrictions on connection to electricity grids, and
 - ensuring reliable and uninterrupted power supply (SmartGrid).

These goals can be achieved through four activities:

- (1) commissioning (constructing or modernizing) 15 HPPs, 11 of which are small HPPs, to ensure reliable and sustainable supply of electricity to the population of the country, ensure energy security of the Kyrgyz Republic, and increase the energy potential for the development of the country's industry;
- (2) developing a new MTTP for the period 2018–2023;
- (3) implementing the CASA-1000 project; and
- (4) implementing the Smart Grid project.

The aim of commissioning new HPPs is to increase generation capacity to 6,503 MW by 2023. This assumes that the country is able to attract major investments, including for the construction projects at the Kara-Kechinskaya thermal power plant, Kambarata HPP-1 (total capacity 1,860 MW), and Kazarman Cascade (1,160 MW).

Achieving this level of investment will require developing a new MTTP for 2018–2023. Government policy suggests that the tariff levels will be set to adequately reflect “the consumer capabilities of the population and the level of payback of the energy sector” (Government of the Kyrgyz Republic 2017). Tariffs are intended to be (1) flexible, depending on the time and period of consumption as well as the needs of different categories of consumers; and (2) regularly updated. The State Agency for Regulation of Fuel and Energy has therefore been developing this policy.

To increase the export potential of the power sector, the government is implementing its portion of the CASA-1000 project, which will allow the export of electricity to Afghanistan and Pakistan. The construction of a 500-kilovolt, 477-kilometer transmission line from the Datka substation to the Sugd substation (Tajikistan) will begin in 2018. The CASA-1000 project should allow the energy companies to receive a net income of up to \$80 million annually.

Finally, the implementation of the Smart Grid project will consist of four components. First, the implementation of the SCADA system,¹⁶ which will provide operators with control over technological processes in “real-time” (e.g., data exchange with meters, logical control of the network, alarm and alarm management, and monitoring of the implementation of CASA-1000). Second, a fully functional automatic system for commercial accounting of power consumption (ASCAPC) will be implemented. This will allow remote reading of meters, monitoring of the state of electric power facilities, calculation of parameters of the electric network, building of load schedules, calculation of balances, and much more. Third, a billing system is planned that will allow unified management of a range of processes, including subscriber information, a customer service center, collection of meter readings, and payments. This will be linked with the ASCAPC system allowing automation of the flow of power linked to payment. Fourth, an enterprise resource management system is to be introduced in the relevant energy companies.

Critical elements of an electricity subsector reform

The 5-year government strategy, “Unity, Trust, Creation” document provides an excellent road map of the technical changes that are required to achieve an effective and well-functioning electricity subsector in the Kyrgyz Republic. However, achieving these investments will require particular attention to five areas, some of which are currently receiving insufficient attention.

Long-term financial sustainability. The single most important and most fundamental reform required is to effectively implement a new tariff policy. The primary reason for the subsector’s poor financial performance over the years is the policy of selling electricity at prices that are far below cost. This has encouraged energy inefficiency, inhibited investment into the subsector, and drawn resources away from other social and developmental goals. The existence of an independent regulator and a sound tariff methodology means that devising a new MTTP that gradually moves toward cost-reflective tariffs is not difficult, in principle. What is much more difficult is sticking to the schedule

¹⁶ SCADA: supervisory control and data acquisition.

given the political pressure that inevitably mounts when a significant tariff increase is scheduled. The experience of many countries is that, in practice, such decisions are political choices, notwithstanding the technical independence of the regulator. The key to the long-term financial sustainability of the subsector therefore is not the promulgation of a new MTTP, but an effective political strategy for keeping to it. The three issues discussed in the following sections have been components of strategies used in other countries to gain popular acceptance for the implementation of tariff changes.

Service quality improvement. Citizens are generally reluctant to pay a higher tariff if they do not feel that they are getting something back for it. Providers are therefore in a “Catch-22” situation—unable to provide high-quality service due to low revenues that, in turn, are caused by low tariffs. If tariffs were raised, a higher quality of service would be possible, but tariff increases will not be acceptable until service quality has already demonstrably improved.

An important part of the solution is the role of development partners. The government is already investing heavily in the sector, with the support of development partners, aiming to substantially improve the quality of service provided to customers. Further investments of this nature can demonstrate marked improvements in supply reliability and quality over a relatively short period of time. This can enable the government to demonstrate “good faith” to customers, which enhances the perceived legitimacy of tariff increases.

Protecting the poor—but also the middle class. The government already has in place a set of programs specifically targeted at poor households, children, the elderly, and the disabled. Improvements in the coverage and quality of such programs can ensure that tariff increases do not have a major negative impact on the poorest households. Indeed, linking tariff increases to injections of funding into such programs can demonstrate that subsidies are not being withdrawn, but rather are being shifted to more effective ways of helping the poor. Experience from other countries suggests that poverty can actually fall as a result of subsidy reforms, because of the additional resources made available to poor households.

At the same time, a central dilemma of subsidy reform is that, precisely because subsidies are regressive, the groups that are hit hardest in absolute terms by subsidy reform tend to be urban populations who are, compared to their rural counterparts, relatively well off. The political opposition to reform in Mexico described this problem. Such groups are often better educated and more vocal than rural populations, making removing their benefits politically difficult. As a result, successful reform programs often entail specific measures to assist such

groups (e.g., subsidizing energy efficiency upgrades to minimize overall bills). Another approach is providing additional resources to popular social programs that benefit the entire population e.g., improvements in universal health coverage through the Den Sooluk health-care reform program. Such social programs tend to have widespread support and are still typically more fiscally progressive than energy subsidies. Thus, although they are not as effective in protecting the poor as targeted programs, they are often more politically acceptable because they benefit a broader section of the population, including those who are most likely to be the largest losers from reform.

Tackling corruption. The electricity subsector in many countries is troubled by corruption. The award of large contracts for generation and transmission projects creates opportunities for corrupt procurement, and the existence of subsidies creates a wide variety of nontransparent financial flows that can be subject to corruption. Corruption also makes tariff reform more difficult because, not unreasonably, citizens feel that they should not be forced to pay more if part of the additional payments are likely to end up in the pockets of corrupt actors. However, the opportunity to tackle corruption can also provide an opportunity for reform, as the example of the Dominican Republic shows. In another example, subsidy reforms in Nigeria in 2012 were unsuccessful precisely because of the pervading sense that the government at the time was corrupt and so price rises were unjustified; the subsequent election in 2015 of a president with a strong reputation for being anticorruption meant that reforms the following year were met with little resistance. Hence, strenuous and visible efforts to tackle corruption often accompany successful subsidy reform.

A key policy initiative in this respect is to require and encourage transparency by engaging civil society to tackle corruption in the subsector. The Kyrgyz Republic has a strong track record in doing this. Between 2005 and 2010, its Fuel and Energy Complex Transparency Initiative opened up scrutiny by the general public and significantly improved the subsector's accountability and transparency (Abdyrasulova et al., 2013). However, after the initiative ended, the measures that it introduced were not institutionalized. A similar initiative to demonstrate the government's commitment to tackle corruption could help to build the legitimacy of reforms and ensure their sustainability.

Crisis and persistence. As the country case studies have shown, subsidy reforms are frequently introduced because of a fiscal crisis that makes the subsidy regime unaffordable. Crisis provides a driving motivation for reform, although it can also make reforms more painful because they are being implemented during a period of wider economic stress. However, deep crisis can also

present an opportunity to try new approaches that might previously have been politically impossible. For example, the Armenian crisis provided an opportunity for privatization that ultimately removed subsidies and led to an effectively functioning sector. However, privatization in itself is not a panacea, and attempts in other countries to solve the sector's problems through privatization have failed (e.g., India, Nigeria, and Pakistan). Key to success in Armenia was persistence with the reform objective, and continued adaptation to find a solution that was suitable for the country's political context.

Communications strategy. Finally, perhaps the single most important component of successful reform programs internationally has been an effective communications strategy, endorsed and publicly supported by the highest level of government. Controversial reforms such as tariff changes, which require the trust of the population for success, are generally more successful when the government explicitly communicates the reasons for reform and the benefits that it will bring (Husar and Kitt 2016). Consulting citizens and facilitating widespread debate helps to ensure a wide understanding of the options. Taking on board citizen's views about who should be protected and how, and their preferences for how savings should be used, can help to provide legitimacy and political cover for reforms. Often such reforms take time, and developing an effective ongoing communications strategy is key to building the coalitions of support necessary for success.

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Chapter 8

Human Resources Development for Inclusive Growth

Damir Esenaliev and Kiyoshi Taniguchi

8.1. Introduction

This chapter presents recent developments in human resources in the Kyrgyz Republic. It does so by looking at labor market outcomes, migration, education, skills, and demographics. The chapter is based on the latest statistical data, analytical and policy documents, and academic articles.

The republic is ranked 120th of 188 countries in the *Human Development Report 2016*, which is among the medium-ranked countries (UNDP 2016). In this, the Kyrgyz Republic is largely comparable with the other Central Asian countries (Table 8.1). It fares better in life expectancy and ranks second in years of schooling, but has a relatively lower labor market participation rate and lower level of internet use.

In mid-2015, the Kyrgyz Republic joined the Eurasian Economic Union (EEU). This was expected to bring immediate economic gains, but the first 2 years of membership were marked by difficult adjustments that coincided with the economic decline in the Russian Federation and lower economic growth rates in Kazakhstan, the two key EEU members. While some of the domestic Kyrgyz sectors (i.e., dairy) faced competition from other EEU members, some sectors benefited from freer trade and reduced regulation. One of the main positive consequences of joining the EEU was the ease of migration to EEU countries, mainly to the Russian Federation. Creation of a practically unified labor market has direct implications for the Kyrgyz labor market in both positive and negative ways.

Table 8.1: Selected Human Resources Indicators, 2015

Indicator	Armenia	Kazakhstan	Kyrgyz Republic	Russian Federation	Tajikistan	Uzbekistan
Population (million)	3.0	17.6	5.9	143.5	8.5	29.9
Life expectancy at birth (years)	74.9	69.6	70.8	70.3	69.6	69.4
HDI (rank)	84	56	120	49	129	105
HDI (value)	0.74	0.79	0.66	0.80	0.63	0.70
Expected years of schooling	12.7	15.0	13.0	15.0	11.3	12.2
Employment to population (%)	53	67	58	60	61	56
Gender Development Index	0.99	1.01	0.97	1.02	0.93	0.95
Internet users (% of population)	58	73	30	73	19	43

HDI = Human Development Index.

Source: UNDP (2016).

Sections 2 and 3 of this chapter look at the current developments in labor markets in the Kyrgyz Republic, including employment and unemployment trends and discussions of youth and women in the labor markets. Section 4 is devoted to labor migration, looking at recent evidence on trends in migration and remittances. Sections 5 and 6 analyze recent developments in skills and education. Section 7 covers demographic and health-related topics. The last section completes the chapter by offering key messages, implications, and recommendations.

8.2. Employment

The Kyrgyz Republic has excess labor, as the rates of economic growth and job creation have lagged behind the population growth. The labor force is mostly engaged in services and agriculture, with a smaller share in industry. In the decade up to 2016, the Kyrgyz economy experienced a Lewis model type of movement in its labor force, from low-productivity agriculture to services and migration abroad. The following analysis highlights the rise of short-term wage-based jobs and the decline of formal jobs. A large share of the nonwage people employed are self-employed, and mostly in rural areas. This section summarizes the recent developments in employment in the Kyrgyz Republic using the latest studies, statistical reports, labor force surveys, and other microdata at individual and household levels (Box 8.1). The main microdata used are the Kyrgyz Integrated Household Survey (KIHS) and the Life in Kyrgyzstan Study (LIKS).¹ The first section presents recent developments in labor market outcomes and policies. The following three sections look at employment in general, and separately at wage and nonwage employment.

¹ Kyrgyz Republic. Kyrgyz Integrated Household Survey, various years. <http://catalog.ihsn.org/index.php/catalog/6718/study-description>; Kyrgyz Republic. Life in Kyrgyzstan Study. https://lifeinkyrgyzstan.org/?page_id=51

Labor market outcomes

The Kyrgyz economy is employing more workers over time, but not everyone is finding a job (Table 8.2). The working-age population's annual growth has been 2.8% during 1995–2016, but the labor force has grown annually at about 1.8% in the same period. As of 2016, the economically active population was 38% higher than in 1991, but the participation rate (including workers employed abroad), which was as high as 76% in the mid-1990s, had declined to about 62% in 2015, mainly driven by declining female labor force participation.

Table 8.2: Labor Market Indicators, 1991–2015

Indicator	1991	1995	2000	2005	2010	2015
Total employed (no.)	1,754	1,642	1,768	2,077	2,244	2,352
Growth rate of employed (%)	—	-6.4	7.7	17.5	8.0	4.8
Participation rate (% of adult population)	—	76.0	71.2	64.8	64.2	62.4
Unemployment rate (%)	0.3 ^a	5.7	7.5	8.1	8.4	7.6

— = no data available.

^a Data for 1992.

Note: The indicators on employment and participation rate include workers employed abroad.

Source: NSC (2016).

The unemployment rate, based on labor force survey data, has been about 7%–8% in recent years. The rate is highest among the young and in urban areas. The government's unemployment numbers are based on the number of applicants for unemployment benefits, and unemployment has been about 2%–3% of the active labor force, though this reflects statistics of unemployment based on former workers in formal jobs.

The share of the inactive population has been rising, mainly due to (1) a lack of productive jobs; (2) labor migration (through the increased reservation wage and redistribution of intrahousehold roles in migrant households); (3) a lack of sufficient preschool options for parents of young children; and (4) social norms that increasingly emphasize lower public visibility and increased household roles of women.

Labor market policies have not changed much in recent years. While the employment and migration policies are high on the policy agenda, the Kyrgyz government's capacity to implement its labor market decisions has been limited. The budgets for unemployment benefits or active labor policies, such as retraining, are very small. The minimum wage has been so low for many years that its main purpose has been to set the base level of social benefits.

Employment

The employment structure has undergone significant changes in the Kyrgyz Republic. While the immediate post-Soviet economy employed workers more or less equally across agriculture, industry, and services, the recent numbers show that half of the employees work in services, about 29% are in agriculture, and about 21% are in industry and construction (Figure 8.1). Therefore, the biggest recent change was a shift of labor from agriculture to services—in the early 2000s about 53% of the employed were in agriculture, but this share has been steadily declining, to below 30% in 2015.

Box 8.1: Labor Force Data Sources in the Kyrgyz Republic

The key data source for labor market indicators is the Kyrgyz Integrated Household Survey (KIHS), which includes a labor force survey (LFS) as part of its broader survey of about 5,000 households. The KIHS was introduced in 2003 by the National Statistics Committee (NSC) and since then has been held annually. The LFS data are gathered quarterly, and the results are published once per year by the NSC (for example, NSC 2017c). The KIHS is an important data source for the statistics on poverty, food security, health, and access to services. The LFS data collection, processing, and publication cycle seems not to be fast enough for policy making purposes, as it takes several months before the LFS and poverty statistics are released.

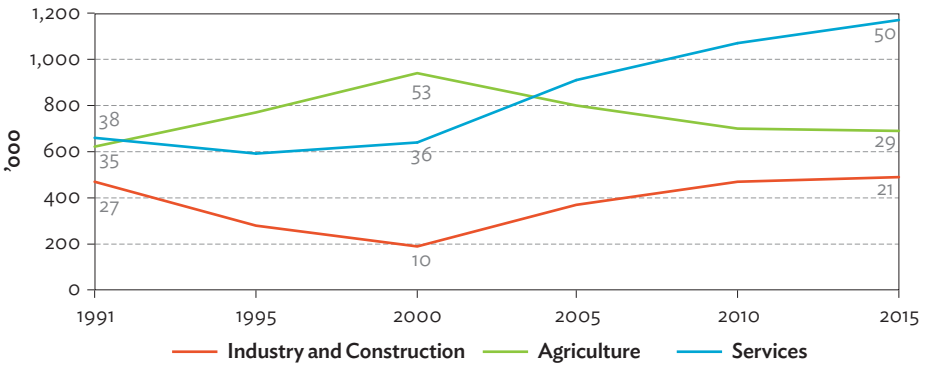
Another source that also collects labor market data is the Life in Kyrgyzstan Study (LIKS). It is a panel study of over 8,000 individuals and 3,000 households and was launched in 2010 (Brück et al., 2014). Since then, the LIKS has been collected four times—in 2011, 2012, 2013, and 2016. The data are collected once a year, during October–November. Information about labor market outcomes is collected in each wave of the LIKS, though in less detail than in the KIHS LFS. The benefit of the LIKS data is in its panel structure and emphasis on individual-level objective and subjective information collected.

The data on the official unemployment rate from the Ministry of Labor and Social Protection are based on the number of applicants for the unemployment benefits.

Labor market statistics in the Kyrgyz Republic do not seem to correspond well with the migration data. Given that the estimates of the number of workers abroad range from half a million to 1 million, the economically active population would be smaller than reported by the NSC. The NSC includes workers abroad in its estimates of economically active population. For illustration, in 2015 the economically active population was estimated to be 2.5 million, of which about 0.29 million were working abroad. If workers abroad are excluded from labor market indicators for the domestic economy, the participation rate among the working-age population would be 67% rather than the 70% reported, and the unemployment rate would be higher, at 8.4%, rather than the reported 7.6%. Even these numbers seem to be missing some categories of migrants—permanent migrants and those who moved abroad with their families and thus are not captured by household surveys.

Sources: Esenaliev, Kröger and Steiner (2011); NSC (2017a); NSC (2017c); Brück et al., (2014); and LIKS information from the author.

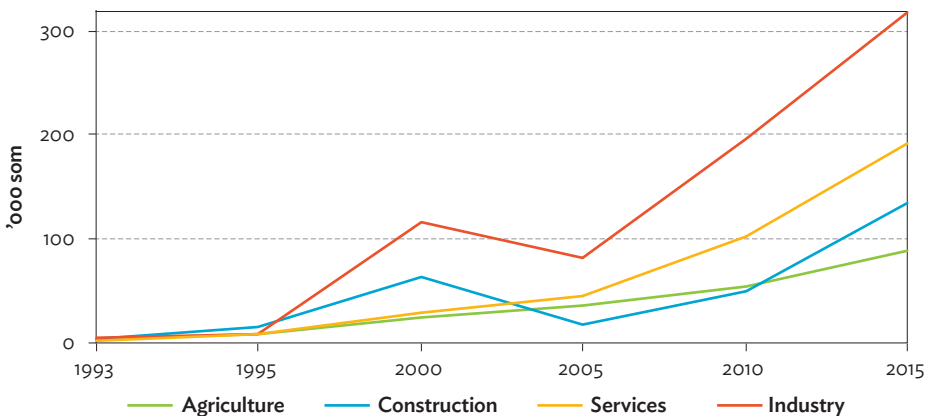
Figure 8.1: Number of Employed People in Major Sectors, 1991–2015
(‘000 workers)



Source: NSC (2017c).

Sectoral productivity differences may drive structural shifts in the Kyrgyz labor market. Industry is the highest per worker contributor to gross domestic product (GDP), and agriculture is the lowest (Figure 8.2). This may explain the recent flow of labor from agriculture to services. Industry is a relatively capital-intensive sector and seems to be driven by a large contribution from mining, with gold production as the key industry. During 1993–2015, agriculture lagged behind the other sectors, and its productivity growth was not as rapid as in the other sectors despite the outflow of labor from agriculture. Construction employs large numbers of workers, and the data in mid-2000 point to a productivity decline in agriculture, although it might be due to effects of the sector’s statistical classification.

Figure 8.2: Nominal GDP per Worker by Sectors, 1993–2015



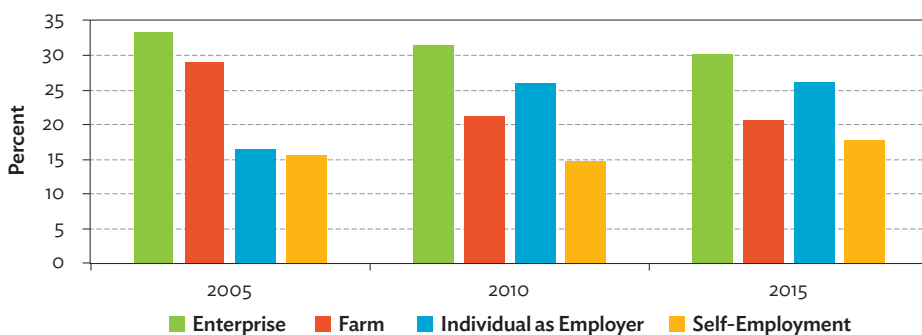
GDP = gross domestic product.

Source: NSC (2017c).

The most notable change in the labor market from the demand side was that more individuals are acting as job creating agents. While companies employ one-third of the workers in the Kyrgyz economy, the next largest job generating agents are individuals hiring other individuals. The emergence of individuals (acting as small businesses) as employers deserves more attention. It is safe to assume that most of the workers who left agriculture became either short-term wage workers or self-employed (Figure 8.3).

The number of employed people is equally distributed across north and south regions, although because external labor migration is mostly from the southern oblasts of Batken, Jalal-Abad, and Osh, the share of people employed is in fact larger in the north than in the south.

Figure 8.3: Place of Main Work, 2005–2015
(% of employed people)



Source: NSC (2017c).

Wage workers

The share of wage workers is growing in the Kyrgyz economy. About 55% of people employed in 2015 were wage workers. This is an increase from 49% of wage workers in 2005. Three-fifths of wage workers were employed in enterprises in 2015, and the rest were employed by individuals. The category of wage workers hired by individuals is a bit misleading as it includes “helping household members,” which comprise about half of this category.

The contractual character of wage workers underwent substantial change. The share of wage workers holding permanent contracts declined from 62% in 2005 to 46% in 2015, indicating a decrease in the quality of employment (Box 8.2). While this trend is in line with global developments (ILO 2015), another trend—the increased number of fixed-term contracts—does not seem

to be occurring in the Kyrgyz Republic. This indicates an increased number of informal jobs. A disturbing development is the increasing share of contracts based on oral agreements, which puts the job takers in a disadvantageous position (Figure 8.4).

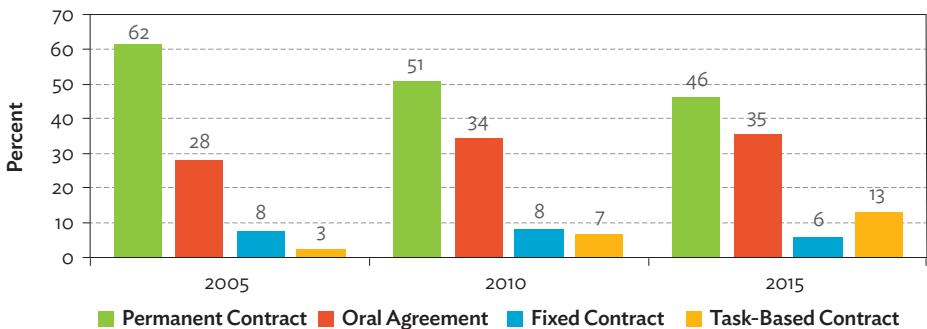
The emergence of jobs based on oral agreements and on specific tasks means that the typical features of good jobs—such as paid annual leave and leave for temporary disability, pregnancy, and childbirth—are not usually included. In informal employment, few records of employment are maintained, and no social and tax deductions are made. All this reduces the social security of workers and their families in general.

Box 8.2: Job Quality in the Kyrgyz Republic

The measurement of good jobs has evolved looking at income and work time, but also including subjective characteristics of jobs such as autonomy, stability, and formality. These complex approaches are believed to help cover important aspects of work, but also enrich the analysis of jobs. For example, good jobs and life satisfaction are well explained with a complex model in a paper by Esenaliev and Ferguson (2017), which tests the validity of the concept of multidimensional job quality in the Kyrgyz Republic by generating a six-component index of job quality using the Life in Kyrgyzstan Study data collected in 2013. The paper shows that men have better jobs than women in the Kyrgyz labor market; however, there were no large differences across regions. The paper contributes to knowledge on the importance of measuring job quality specific to a context and the importance of policy objectives that aim to stimulate better, as well as more jobs in the developing world.

Source: Esenaliev and Ferguson (2017).

Figure 8.4: Types of Contracts for Wage Workers
(% of wage workers)



Source: NSC (2017c).

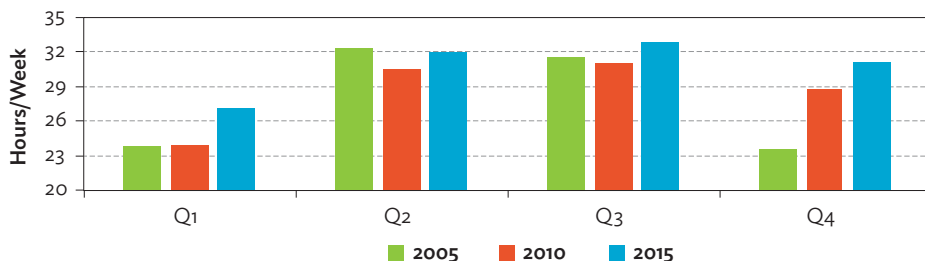
Nonwage workers

Most nonwage workers are self-employed. Nonwage workers are composed of employers, the self-employed, unpaid working household members, household firms, and members of cooperatives. As noted above, three-fifths of nonwage workers are self-employed, one-fifth are unpaid family workers, and the rest are distributed among the remaining three categories. The share of nonwage workers has been declining, although their absolute number was stable at about 1 million.

Most self-employed workers are rural-based males. About three-quarters of self-employed workers are male, and the same share reside in rural areas. Self-employment has stagnated. The number of people who are in business has remained the same and entrepreneurship is not the ideal choice for starting a career. Small and medium businesses are very competitive, and some sectors are consolidating to make the competition even more fierce. For example, small markets and shops once dominated retail, but supermarkets are now expanding in cities.

Underemployment is still an issue in rural areas. Underemployment in the Kyrgyz labor market primarily concerns rural jobs due to the seasonality of agricultural production. In the winter months, December–February, there are few agricultural activities. The average number of hours a rural worker worked has increased from about 30 per week in 2005 to almost 33 per week in 2015 (Figure 8.5). However, the number of hours worked has been increasing by 4 per week in the first quarter and by 7 per week in the fourth quarter. This improvement is likely to be the consequence of outflow of workers from agriculture and the expansion of wage-based rural labor markets. The average weekly hours worked in urban areas has been stable at about 41–42 hours, with a slight increase from 2005 to 2015.

Figure 8.5: Average Hours Worked in Rural Areas, 2005–2015
(hours worked/week/worker)



Note: Q1–Q4 correspond to the quarters in calendar year.

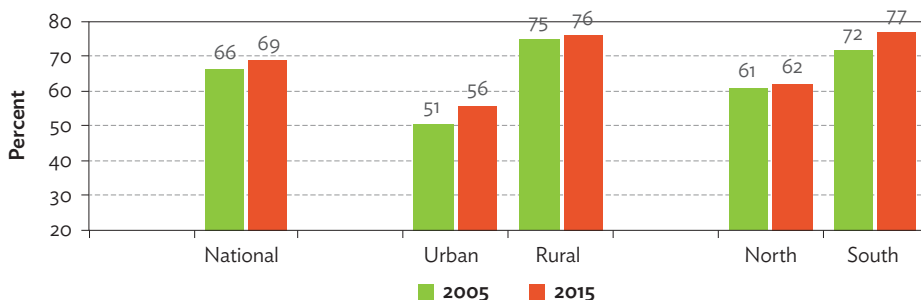
Source: Author's calculation based on the Kyrgyz Integrated Household Surveys for 2005, 2010, and 2015 (NSC various years).

Informal employment

Informal employment in the Kyrgyz Republic is defined from a legalistic point of view. An informal job is defined as employment without state registration (NSC 2016). Without state registration, the notion is that the benefits of good jobs—such as annual and parental leave, and health and social insurance—are not in place. There are more aspects to informal economy and informal employment. Some aspects of informal employment are not considered here, such as employment in firms of five or fewer workers. Some formal companies may also be engaged in informal practices such as paying part of workers' salaries informally (Lehmann and Zaiceva 2013).

Jobs in informal settings constitute two-thirds of total employment in the Kyrgyz Republic (Figure 8.6). Informality of employment mirrors the prevalence of informal economic activity and is concentrated mainly in agriculture (39%), trade (20%), and construction (15%). Both urban and rural areas have more informal than formal employment, but two-thirds of the informal workers are in rural areas. The north was able to create both formal and informal jobs, while the south primarily has informal jobs.

Figure 8.6: Informal Employment, 2005 and 2015
(% of employed people)



Note: The data exclude international migrants working abroad.

Source: Author's calculation based on the Kyrgyz Integrated Household Survey for 2005 and 2015 (NSC various years).

Informal activity reduces labor costs. While informality clearly has costs at the individual, firm, and national levels by minimizing workers' rights, increasing firms difficulties in retaining qualified staff, and limiting their capacity for growth and technological advancement, this mode of activity provides some benefits to producers and consumers. As indicated by Mogilevskii (2018), informal activity provides flexibility in production, reduces transaction costs and tax payments, and reduces consumption prices.

Table 8.3 shows the considerable differences in individual, household, and job characteristics of workers in formal and informal sectors. Workers in the informal sector tend to be younger, less educated, and earn half what workers in the formal sector earn. More importantly, the informal jobs seldom work-related benefits, such as leave, health insurance, or pension coverage. Not surprisingly, the lack of such benefits increases the vulnerability of poor households to poverty.

There are no incentives to move to formal employment. With the global trends of more workers having short-term task-based jobs, the level of informal employment is likely to stay the same in the Kyrgyz Republic, or to grow over time. The National Institute for Strategic Studies indicates that employers hire workers informally to avoid paying income taxes and social contributions, the formal rules of hiring and firing of workers, and provision of benefits such as annual or sick leave (NISS 2014). There is little incentive to

Table 8.3: Characteristics of Formal and Informal Jobs, 2015

	All Jobs	Formal Jobs	Informal Jobs
Worker Characteristics			
Age (years)	37.0	40.2	35.7
Female	0.40	0.51	0.36
Rural	0.66	0.50	0.72
South	0.48	0.35	0.54
Schooling (years)	11.1	12.6	10.5
Work Conditions			
Hours worked last week	36	39	34
Earnings last month (som)	6,302	8,119	5,530
Open-ended or fixed-term contract	0.29	0.87	0.04
Paid sick leave	0.24	0.79	0.01
Paid annual leave	0.24	0.78	0.01
Job is kept when in parental leave	0.08	0.24	0.01
Pension contributions by employer	0.24	0.78	0.02
A notice is given if work dismissal	0.17	0.52	0.02
Household Characteristics			
Household size (no. of present members)	4.5	4.2	4.6
Household consumption per capita (som/month)	3,871	4,189	3,736
Household income per capita (som/month)	4,812	5,661	4,452
Poverty level (%)	24.3	19.2	26.5
Size of owned land (ha)	0.75	0.52	0.84
Household has a car	0.26	0.25	0.27

ha = hectare.

Notes: Informal jobs are defined as employment without state registration. Estimates are weighted.

Source: Kyrgyz Integrated Household Survey Labor Force Survey 2015 (NSC various years).

move to formal sector employment as both informal actors and formal firms try to reduce the costs of doing business by paying a minimum level of taxes and social contributions and by hiring workers on a loose contractual basis. The costs for not following the laws and regulations are low. While informal employment has negative effects for both the state and employees, the existence of a large informal sector seems to make the labor market flexible and keeps the unemployment rate at a moderate level. With more formality and regulation, the unemployment rate would probably be much higher.

The World Bank (2015) found that large formal companies do not create more jobs despite experiencing productivity growth and enjoying easier access to state and bank financing. At the same time, small firms with less than 10 workers are the most dynamic, but the transition to middle size carries increased costs for social security and other payments, and more regulation. A reason that state companies appear to be less effective than private firms is that private firms can select the least expensive tax regime and make profits, while state-owned companies are expected to follow all formal regulations. The goods and services markets are very competitive as entry to them is relatively low cost and the economy is small, which makes the sales unpredictable. Small and medium-sized enterprises tie their wages and contracts to their output cycles, so that the workers carry risks along with employers.

EEU membership had different effects across sectors. While the expectation was that the trade sector would suffer most, this does not seem to have been the case. In fact, commodity import from the People's Republic of China grew in 2016 to a record \$1.47 billion, 40% over the previous year, and remained stable in the first 9 months of 2017 (NBKR 2018). Some domestic sectors, such as dairy producers, had competition from EEU members, but the strong national currency was primarily responsible for making import profitable. Some sectors benefited well from the EEU through reduced fixed costs because of the joint market and the associated decrease in "red-tape" regulations. Schröder and Schröder (2017) point to cases when entrepreneurship that involved import and export operations with EEU members became much easier.

8.3. Unemployment and Inactivity

This section examines the trends in unemployment, inactivity, and the participation of youth and women in labor markets. Unemployment is moderately high and has been stable in the recent decade. A recent feature is the declining female labor force participation. This section uses microdata such as from the KIHS and LIKS, and recent studies on gender attitudes from the United Nations Population Fund.

Unemployment

Unemployment is relatively high but does not seem to react to macroeconomic cycles. The rate has been about 7%–8% in recent years and does not seem to be an important policy indicator to monitor. As noted, the National Statistical Committee publishes employment data about 6–9 months after it is collected. The government collects data on unemployment based on the number of applicants for unemployment benefits, so the rate of “official” unemployment is about 2%–3%.

The Ministry of Labor and Social Development’s unemployment policy has both active and passive components, such as retraining, public works, and provision of unemployment benefits. Unemployment benefits were introduced in 1991 as a measure to provide social protection in light of increasing unemployment related to closure of enterprises at the onset of the transition. The resources provided to the Ministry of Labor and Social Development have been limited. For example, the budget allocated for labor market policies was Som87 million in 2017—about \$1.3 million or about \$12 per applicant (Ministry of Finance 2016). The base unemployment benefit is Som250 per month (about \$3.60), which is extremely low. Unemployment compensation is available for workers who are unemployed for 10 or more weeks and who worked and paid into the unemployment compensation fund for at least 12 months in the previous 3 years. Thus, only workers who have had formal jobs can qualify for unemployment benefits, although consultations and job matching are provided for all applicants. Retraining programs are available to the unemployed, and a small subsidy is provided to those who are accepted in the programs. The funding for job safety inspections became smaller, and the labor code is not enforced, leading to a decline in the quality and safety of jobs.

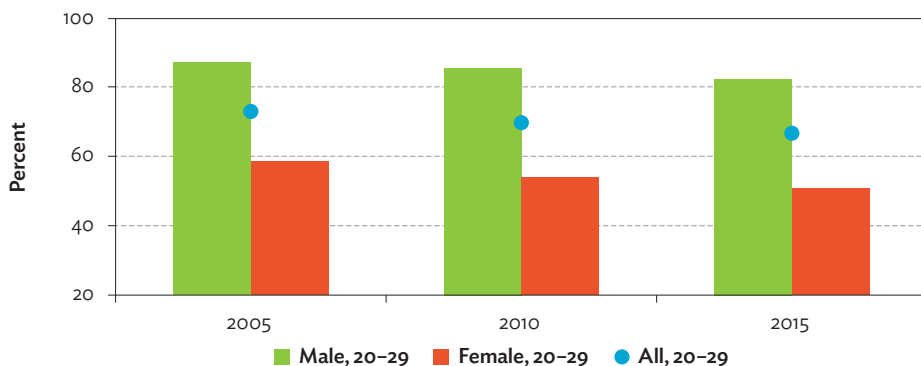
Youth employment

Young workers have a high unemployment rate. The participation rate of the young population aged 15–29 has declined in the Kyrgyz Republic. The most affected group are people aged 20–29, whose participation rate declined from 73% in 2005 to 67% in 2015 (Figure 8.7). This decline has been seen mainly in the female workers. Young workers are predominantly employed in informal jobs, and the young have the highest unemployment rate.

Female labor force participation

The female labor force participation (Table 8.4) is declining. This trend mainly concerns the younger groups aged 20–35. The reasons could be related to childbirth, lack of jobs, migration (Saumik 2018), and reemergence of cultural factors that deemphasize the role of women in economic life.

Figure 8.7: Youth Labor Market Participation, 2005–2015
(% of people aged 20–29)



Sources: NSC (2015b, 2017c).

Table 8.4: Female Labor Force Participation, 2015

Indicator	Total	Male	Female	Female Age Groups	
				20–29	30–39
Economically active ('000)	2,544	1,501	1,043	288	269
Employed ('000)	2,352	1,403	949	249	247
Unemployed ('000)	192	98	94	40	22
Inactive ('000)	1,534	487	1,047	280	140
Participation rate (%)	62.4	75.5	49.9	50.7	65.7
Unemployment rate (%)	7.6	6.5	9.0	13.8	8.1
Actual hours worked per week (hours)	35.7	37.5	33.0	32.3	34.0
Unemployed with higher education (%)	18.2	15.5	21.0	35.8	12.3
Inactive with higher education (%)	10.2	8.1	11.1	12.7	22.0

Sources: NSC (2016) and author's calculations based on the Kyrgyz Integrated Household Survey Labor Force Survey for 2015 (NSC various years).

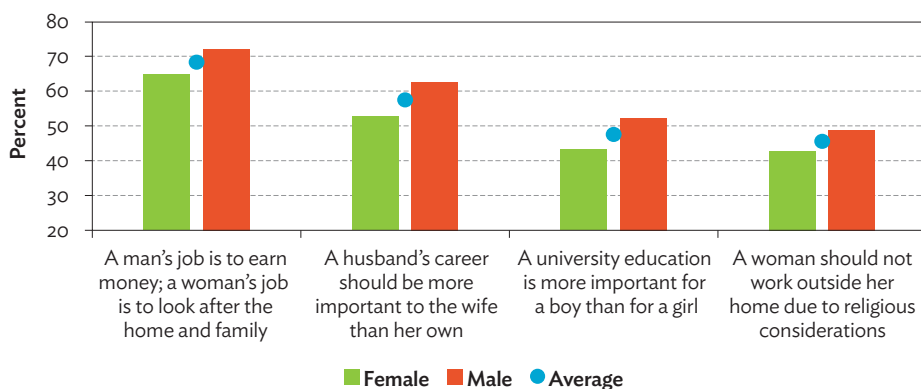
While gender equality is advanced in the Kyrgyz Republic (WEF 2017), a reason for women's lower economic and political participation is that traditional gender attitudes favor men (Box 8.3). Most of the LIKS respondents noted that men should be the primary earner and women's jobs should be secondary (Figure 8.8). While women respondents scored the importance of male primacy in work somewhat lower than the men, the difference in their responses is not very large. Whether gender attitudes are changing and what the possible drivers are is not evident, but the main reasons seem to be lack of good jobs.

Box 8.3: Gender Attitudes and Perception

The United Nations Population Fund presents the results of a study on women's position in the economy, migration, and political life. The survey includes 6,000 households from all regions of the Kyrgyz Republic and interviews with each adult member in the households, resulting in over 16,000 individual responses. The report analyzes gender aspects of household formation, intrahousehold bargaining, labor markets, migration, and social norms. In most cases, there are not large gaps between the genders in the objective of economic and social outcomes. Women feel more empowered during and after migration. The gender norms and expectations about public presence heavily favor men, which is believed to be a reason for women's declined participation in labor markets.

Source: UNFPA et al., (2016).

Figure 8.8: Gender Attitudes Toward Work and Education
(% of “agree” and “absolutely agree” responses)



Note: Sample size is 7,917 individual respondents; 4,314 are female.

Source: Author's calculations based on Kyrgyz Republic. Life in Kyrgyzstan Survey, 2016.

8.4. Overseas Workers

Labor migration is important in the Kyrgyz Republic. It eases tensions in the domestic labor market and brings remittances, which are important for the economy and the population. With the EEU membership, migration seems to have become a more viable option for employment as fixed costs declined and higher-paying jobs became available in the Russian Federation, the main destination country for the migrants. While labor migration has been beneficial economically, it has had social costs and might drive domestic prices and wages up, creating a type of “Dutch disease.” This section summarizes the latest developments in labor migration and workers' remittances, and the social effects of migration.

Current trends in labor migration

The number of labor migrants is significant and is likely to grow. The number of Kyrgyz migrants is difficult to ascertain (Box 8.4), and is stated by various sources at 300,000–700,000. With over 600,000 officially registered migrants having worked by 2018 in the Russian Federation (State Migration Service 2018) and given that about 180,000 Kyrgyz people acquired Russian citizenship in the last 15 years, the share of labor migrants in the Russian Federation is substantial in absolute terms and relative to the total labor force. Migration from the Kyrgyz Republic is more balanced in terms of gender than that from Tajikistan. Kyrgyz household surveys indicate that about 25%–39% of migrants are female (KIHS LFS for 2016 and LIKS for 2013 and 2016).²

Accession to the EEU has softened the impact of the regional crisis. Migration from Central Asia and the remittances to the region have been seriously and adversely affected by the fall in oil prices at the end of 2014. In addition, the Russian Federation, was affected especially when the ruble devalued considerably around early 2015. However, the geopolitical situation also had some unexpected positive effects as the number of migrants from the Ukraine declined by 2017, which was catalyzed by the European Union’s decision to grant visa-free entry to the Ukraine in June 2017 (BBC Russian Service 2018).

Box 8.4: How Many Migrants Are from the Kyrgyz Republic?

The number of labor migrants from the Kyrgyz Republic has been a controversial question. Politicians often cite estimates of over 1 million migrants being abroad, while the household survey data provide a more modest estimate of up to 300,000. One issue is how to define a migrant, which includes seasonal workers and those who emigrated to become citizens of the recipient countries. The typical picture of a migrant is one who works in a foreign country for a fixed time, keeps ties with family in the home country, and sends remittances. However, migrants who obtained Russian citizenship and eventually decrease social interactions with their extended family members and send fewer remittances form a diaspora and over time some of the successful ones become employers for new waves of migrants (Kashnitsky and Demintseva 2017). Another category of migrant includes those who moved with their entire family. The two latter categories would not be captured in household surveys, but they are part of the remittances story.

Sources: Thieme (2014); Schmidt and Sagynbekova (2008); Sagynbekova (2017); Government of the Kyrgyz Republic (2012); State Migration Service (2018); Kashnitsky and Demintseva (2017).

² The KIHS is available at <http://catalog.ihsn.org/index.php/catalog/6718/study-description> and the LIKS 2013 is available at https://lifeinkyrgyzstan.org/?page_id=51. The LIKS 2016 was provided to the author by the government.

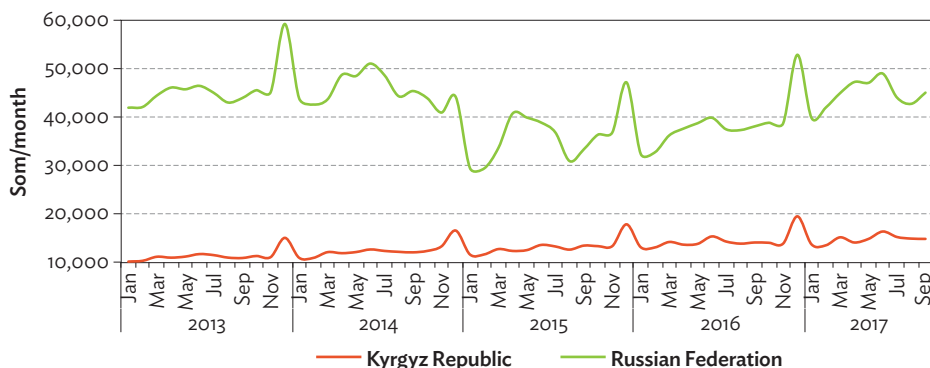
The Kyrgyz Republic's membership in the EEU since 2015 has been favorable for migration. Kyrgyz labor migrants now appear to have more formal rights and fewer restrictions on employment in EEU countries, although there is no hard evidence to confirm this assertion. The membership in the EEU has reduced the fixed costs of starting to work in the Russian Federation as bureaucratic obstacles have been reduced. Entry costs are down, and migration has become a more viable employment choice than before. As indicated by Sagynbekova (2017), the effects of joining the EEU are (1) higher-quality jobs: migrants move from low-paid undocumented jobs to more secure, better paid, higher skilled jobs; and (2) the amount of remittances could increase with the removal of fixed entry costs.

The economic development gap between the Kyrgyz Republic and the Russian Federation is likely to sustain high migration rates. Given the Kyrgyz economy is lagging behind in creating jobs for new entrants to the labor market, the excess labor supply likely has been eased by migration. The low birth rate in the Russian Federation, high birth rates in the Kyrgyz Republic and other Central Asian countries, and a large gap in economic development (Figure 8.9) create a win-win situation in the long run for continued migration. And accession to the EEU has improved the working conditions for Kyrgyz migrants. The wage numbers in Figure 8.9 are national average wages, and do not take into account differences in sectors and occupations. The numbers primarily relate to wages in formal employment and largely do not cover informal employment. As of 2015, the Russian Federation's share of informal employment was estimated at about 20% of total employed people, while in the Kyrgyz Republic the number in the same year was about 69%.

Migration affects about every fifth household in the southern oblasts. External labor migration originates mainly from the south, and is practically absent from the north. In the south, the share of households with at least one migrant abroad in 2015 ranged from 8% in Osh City to 29% in Batken Oblast (Table 8.5).

Migration creates a deficit of skilled labor in the Kyrgyz labor market. Migration attracts both skilled and unskilled labor, which creates issues for domestic companies that want to invest in technology and thus need skilled workers. For example, a World Bank (2014) survey showed that two-thirds of companies reported having a problem with the skills and education of their labor force, making this the 4th most challenging issue for doing business in the Kyrgyz Republic in 2013.

Figure 8.9: Average Wages in the Kyrgyz Republic and Russian Federation, 2013–2017



Note: The wages in Russian rubles were transferred to equivalent amounts in Kyrgyz soms using the average monthly exchange rates of the National Bank of the Kyrgyz Republic.

Sources: (1) NSC (2018), wage data downloaded from www.stat.kg/ru/statistics/trud-i-zarabotnaya-plata/ on 29 March 2018);

(2) NBKR (2017), last downloaded from www.nbkr.kg/index1.jsp?item=137&lang=ENG in December 2017; and

(3) Federal State Statistics Service of Russian Federation (2018), data on wages downloaded from www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/wages/ on 29 March 2018.

Table 8.5: Exposure to Migration and Remittances by Region, 2010–2015
(% of households)

Area	2010		2015	
	Migration	Remittances	Migration	Remittances
National	10.9	9.6	9.1	6.6
Urban	5.6	7.7	4.7	5.0
Rural	14.6	10.9	12.1	7.8
North	1.3	5.4	1.0	3.5
South	22.0	14.4	18.0	10.1
Issyk-Kul	1.8	4.2	0.7	3.2
Jalal-Abad	18.2	8.5	16.8	6.2
Naryn	0.4	0.6	0.1	1.0
Batken	19.7	11.1	28.8	7.1
Osh	25.5	19.9	17.1	15.0
Talas	4.1	5.9	1.9	4.5
Chui	1.3	10.6	2.3	6.3
Bishkek	0.9	2.1	0.2	1.8
Osh City	—	—	8.4	8.9

— = data not available.

Note: Weighted estimates. Migrant status is based on population aged 18–70.

Sources: Authors calculations based on Kyrgyz Integrated Household Surveys 2005, 2010, 2015 (NSC various years).

Migration does not seem to be a first choice in terms of employment, but is the last-resort coping mechanism (UNFPA 2016). Most migrants usually work in informal settings in the destination countries, and thus do not have protected jobs and are vulnerable to various risks. According to the State Migration Service (2018), about 78,000 migrants who violated the formal migration and residency rules in 2017 were deported.

The Kyrgyz Republic is one of the top countries globally in size of remittances to its economy. Workers' remittances inflows were estimated at \$2.5 billion in 2017, or 31% of the country's GDP (World Bank 2018a). Most of the remittances, about 90%, come from the Russian Federation. Since the mid-2000s, the remittances have been the country's largest source of foreign exchange, far exceeding foreign direct investment or development aid flows (Chapter 2). The remittances are believed to have significant macro- and micro-economic effects. At a macro level, remittances drive aggregate demand, affect monetary policy and exchange rates, and probably have implications for labor market participation by increasing reservation wages. The most important effects are believed to be at the micro level as remittances directly affect the economic welfare of the receiving households.

Remittances are important for poverty reduction. Remittances directly contribute to incomes and consumption of the receiving households. As a report by the National Statistical Committee notes without remittances, the level of poverty in 2016 would be higher by 7 percentage points—at 32% compared to the estimated actual 25% (NSC 2017d). The remittances are most important in southern areas of the country, mainly in Batken, Jalal-Abad, and Osh oblasts.

Micro-level data on migration and remittances show a modest picture compared to estimates at the macro level (Table 8.5). Nationally, only about 9%–11% of households indicate they have migrant members. But in the south, the proportion of households reporting having migrants in 2015 was about 18%, with Batken Oblast residents indicating the highest share at about 29%, followed by Osh and Jalal-Abad oblasts, both at about 17%.

The share of households receiving remittances is even lower at about 10% and 6.6% in 2010 and 2015, respectively. However, many households that do not report having a migrant did receive remittances.³ Remittance inflows do not necessarily mirror the regional geographical distribution of migration. For

³ Additional information from the KIHS on wages earned by migrant household members abroad shows a much larger exposure to “potential” remittances. It is not clear, though, whether wages earned abroad are remitted to the Kyrgyz Republic. However, this information helps to estimate the share of households that potentially receive remittances. The share is large, at about 18%–21% of all households. In the southern oblasts, the share is as high as 34%–38%.

example, the share of households with remittances is more or less consistent with the share of migrants originating from Osh Oblast and Osh City, but this is not the case in Jalal-Abad or Batken oblasts. In these oblasts the share of households receiving remittances is much lower than the share of households with migrants. That a large share of the remittances go to the north part of the country, especially to Chui Oblast, the region that surrounds capital city Bishkek, reflects the internal migration flows, as Bishkek and Chui Oblast have been net gainers in terms of internal migration. Thus, the investments from remittances of migrants who originate from southern regions are going into the more economically developed northern areas.

Social aspects of migration

Migration definitely has macroeconomic and societal effects, and wider implications at the individual household and community levels (Abazov 1999, ILO 2009, Schmidt and Sagynbekova 2008). First, migrants obtain skills while abroad and change their attitudes and perceptions (Brück et al., 2018, Hill and Huskey 2015). Second, their household members have to rearrange intrahousehold roles and decision making (Dávalos et al., 2017, Isabaeva 2011, Ismailbekova 2014, Nedoluzhko and Andersson 2007, Rubinov 2014, Saumik 2018). Third, the sending communities see changes in their monetary and nonmonetary relationships and social norms (Atamanov and van den Berg 2012, Chakraborty et al., 2015, Schoch et al., 2010, Vinokurov 2013) and reliance on remittances to address local developmental needs (Reeves 2012, Rohner 2007).

Social costs of migration impact the family members left behind and the future considerations of retirement pension. Migration changes intrahousehold labor allocation and decision making, as the most economically capable members migrate (Anderson and Kroeger 2013). As a result, many households have women and children left behind. When both spouses leave, the children are left with their grandparents and other close family members (FIDH 2016). This creates psychological and other issues. For example, school children of migrants tend to perform worse and have more psychological issues than other children.

Most migrants intend to return to the Kyrgyz Republic at retirement age (Thieme 2014). This raises the question of pension: if they have not contributed to the current pension system, how will they receive an old-age benefit that will suffice to cover their living and healthcare costs? Some countries, such as the Philippines, provide predeparture services to migrants and encourage them to register in pension systems. The Kyrgyz Republic government may consider providing such predeparture services to migrants.

8.5. Skills to Improve Growth Potential

Skills

This section summarizes the latest developments in supplying skills that match the needs of the labor market in the Kyrgyz Republic. The majority of employment is in services, and mostly in small firms. The women's share of employment exceeds that of the men in this sector. The sectoral change in employment was accompanied by a change in the set of skills needed for new jobs. Since 2008, the demand for manual skills has declined and that for cognitive and service-based “new economy” skills has increased (Ajwad et al., 2014). Workers who are unprepared for the changes in skill requirements are less likely to find employment and more likely to be in volatile, low-wage jobs (Box 8.5).

The “new economy” skills include technical skills learned in vocational education or on-the-job and noncognitive skills such as openness, extroversion, and decision making. Ajwad et al., (2014), find that workers with the noncognitive skills are more likely to obtain good, formal sector jobs than other workers. The key challenge in skills formation seems to be coming from a mismatch (or rather lack) of skills and the skills demanded by employers. But half of the economy is operated by individuals and small enterprises that do not invest in skills or technology.

Box 8.5: 2013 Study of Skills

Substantial, and likely widening, skills gaps exist in the Kyrgyz labor market (Ajwad et al., 2014) and in several other countries in Europe and Central Asia. A World Bank survey of 1,500 households in the Kyrgyz Republic included cognitive and noncognitive skills tests. The results indicated that individuals with better skills are more likely to be employed and then to have higher-quality jobs.

However, the systems and conditions for skills formation seem to lack consistency and quality. For example, only one in four children aged 3–5 attend preschool—an important stage in human life when cognitive and noncognitive skills are formed. Despite high rates of enrollment in and completion at secondary and tertiary levels, the variation in skills acquired by graduates is large—a university graduate may have only skills below secondary level requirements. The report suggests steps to improve skills formation, including expanding access to preschools, enriching schools' curricula with noncognitive learning, encouraging more students to invest in technical/science training, encouraging entrepreneurship and innovation by explicit public policies, and better aligning skills taught with the demands of employers.

Source: Ajwad et al., (2014).

Information and communication technology, and skills

Information and communication technology (ICT) is a catalyst and a source of growth and employment. ICT is increasingly important for economics, economic growth, and employment (ADB 2014b, World Bank 2016). Mobile phones, the internet, and computers have already become a part of businesses' and workers' functioning in the Kyrgyz Republic, although mostly in urban areas and in formal sectors of economy. As the following analysis will show, ICT penetration in the country has been rather limited.

ICT-related international indicators give low ranks to the Kyrgyz Republic. The Network Readiness Index, an indicator of measures compiled for all countries in 2016 by the World Economic Forum, places the Kyrgyz Republic 95th of 139 economies (WEF 2016). For comparison, neighboring Kazakhstan is 39th and Tajikistan, 114th. As indicated in Chapter 5, the Kyrgyz Republic ranks low in such measures as business and government usage, economic and social impacts, political and regulatory environment, and infrastructure. ICT growth in the Kyrgyz Republic has been largely organic, in line with regional and global trends, and not induced by policies or private-sector-led businesses.

ICT is not widely exploited and integrated in the Kyrgyz Republic, although some subsectors are growing dynamically. A Soros Foundation (2012) report highlights the current ICT developments, issues, and perspectives for the country. For example, cell phone penetration is over 100% of population, while computer and internet use are at moderate levels. Internet penetration was about 41% at the end of 2017 (Internet World Stats 2018). The use of ICT and software in businesses is limited, and the informal sector does not have incentives to invest in ICT. Media companies, which are often linked to international companies, are increasing in quantity and coverage.

The penetration and use of ICT is growing dynamically, but from a low base. There are numerous material and nonmaterial benefits in being digitally connected (World Bank 2016). The use of computers, applications, and mobile phones leads to productivity gains by saving transport costs and time. In the Kyrgyz Republic, many ICT initiatives promote induced growth of ICT usage and penetration, although most efforts are concentrated in big cities. Bishkek leads in terms of ICT use (with 53% of all computers in firms, 68% of websites, and 84% of ICT output). Oblasts such as Naryn and Talas have the lowest level of ICT penetration. Microdata sources indicate limited computer use. For example, the LIKS shows that about 15%–19% of individuals aged 15–64 use computers for work or study (Table 8.6 and Figure 8.10). The group aged 15–19 uses computers most, at over 35%. Figure 8.10 also demonstrates that computer use is equal between

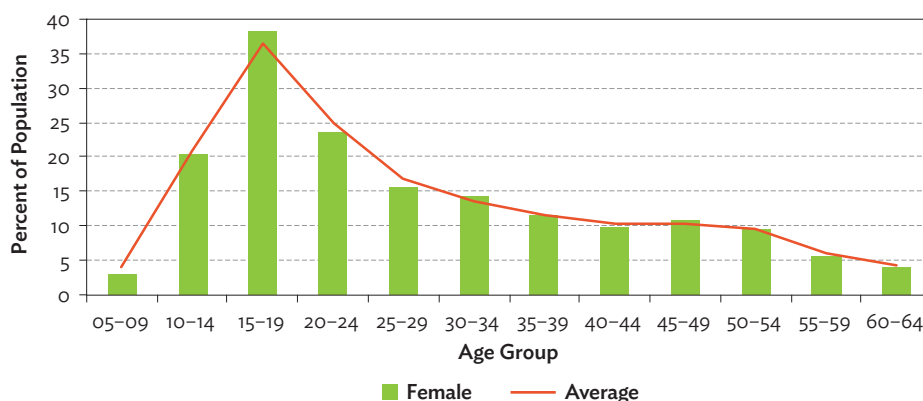
Table 8.6: Information and Communication Technology Use and Ownership
(% of total, unless marked otherwise)

	2010	2011	2012	2013	2016
Share of Households That Have					
Cellular phone	89	92	95	93	96
Computer	9	10	13	13	15
Internet connection	4	6	7	6	6
Individuals Aged 15–64 Who					
Use a computer for work or study	14.9	18.5	19.0	—	15.5
Use computer (hours/week)	7.2	6.7	6.5	—	10.8

— = data not available.

Sources: Kyrgyz Republic. Life in Kyrgyzstan Study, 2010–2012. 2016.

Figure 8.10: Computer Use by Age Group



Sources: Kyrgyz Republic. Life in Kyrgyzstan Study, 2010–2012. 2016.

males and females. Computer usage indicators differ across available data sources; Chapter 5 refers to estimates of 29% of households using computers, which is higher than the LIKS estimate. Likewise, estimates of individuals' internet use range from 15%–19% per the LIKS survey of over 8,000 individuals nationwide to 38% of the population using the internet (see Chapter 5).

The internet is gaining importance as a communication, business, and educational tool, though access to it is uneven. Internet use is limited to north and urban regions of the country and mobile internet access is poor or nonexistent in the distant areas. Internet connection goes through Kazakhstan and the Russian Federation; there is no direct connection to main channels. The Digital Central Asia and South Asia (CASA) Project aims to address the high-speed internet access issues and set up the infrastructure in the regions of the

Kyrgyz Republic (World Bank 2018b). Most of the population does not have an incentive to invest in ICT or internet skills. Part of the problem is a lack of internet content in the Kyrgyz internet space.

Many technology companies provide services in a range of ICT and internet products, including for example developing and maintaining websites, applications, and technologies. Employment in ICT has increased. About 20,000 employees worked in ICT in 2016 (NSC 2017b), and the growth rate of the sector's employment in the 5 years up to 2016 was 60%. In the same period, the number of firms using ICT grew by 30%.

Educational capacities to support ICT are limited, but growing. Only three universities have effective ICT schools in the Kyrgyz Republic, and the annual number of university graduates is not large. Education institutions try to create distant e-learning systems, but there is no evidence of their penetration and effectiveness. Some private companies provide training and on-the-job learning. Most technologies come from Russian-speaking countries (DR Analytica 2016). There are a few ICT-related educational options for out-of-school youth (e.g., programming and robotics), but only in Bishkek city.

The presence of ICT at the household and individual level is limited to urban areas. ICT is an increasing part of people's daily lives as mobile connection has become a more universal phenomenon. E-commerce business is growing on the supply side, but it is difficult to judge its penetration given it is solely present in large cities. The number of payment cards is also rising, but is still at a low level: by the end of 2016, about 1.6 million payment cards were in use, which is about a quarter of the total population. Still, this number has quadrupled since 2012. Most Kyrgyz banks offer e-banking services, and kiosks are in widespread use for paying utilities and other services. Fixed telephone lines are not expanding and the number of subscribers, at 1 million, has remained steady.

Policies to promote ICT lack consistency and comprehensiveness. While the government intends to promote ICT, its efforts have concentrated on a few state institutions (for example, on tax service [ADB 2014a]), and policy decisions have lacked comprehensiveness and funding support. The recent government efforts to set up e-government and online services—the National Digital Transformation Program—and create a connected network of public services would be highly conducive for business growth and citizen satisfaction with public services, but the efforts could be hampered by an unstable political landscape. Public-private initiatives such as the High Tech Park (Abakirov 2017) is an example of promoting the expansion of the number of ICT companies by providing tax incentives.

8.6. Education

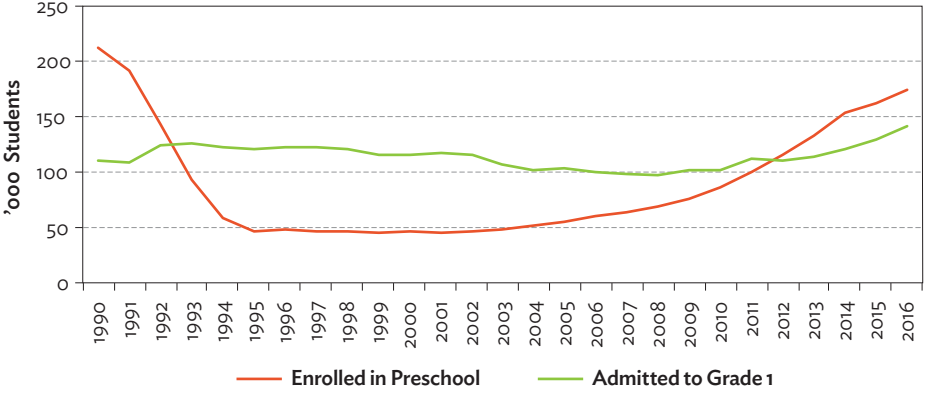
Recent developments in education

The Kyrgyz government aims to create a modern education system. The Ministry of Education is responsible for education policy in the country. Some experimental approaches were introduced widely. For example, school parliaments and school-related projects are numerous—e.g., the LivingSidebySide Program (Aladysheva et al., 2017), School without Violence Programme (UNICEF 2015), and Reading Together Program (USAID 2017). Education has undergone many reforms (Government of the Kyrgyz Republic 2012). This includes an eventual introduction of the Education Management Information System which is a tool for management, communication, and data exchange within the system.

The government maintains a high share of public spending on education, although the spending mainly covers teachers' wages, while other important components of learning, such as textbooks, school infrastructure, and teacher training, are underfinanced. These factors, along with a shortage of teachers of important subjects such as sciences and foreign languages, are the main causes of deterioration in the quality of education.

Education has the highest wage bill in the public sector. Education's wage bill in 2011 was the highest in the overall state wage expenditure, at 5% of GDP, followed by health at 2.1% (World Bank 2014). This is due to the reform of the system of teachers' salaries in 2011 and 2015, which increased education's wage bill by two-thirds. The reform abolished the category-based system of wages and introduced a new system based on hours of work with fixed fees per hour of teaching. The reform seems to benefit teachers in rural mountainous schools and primary-school teachers. Young teachers and teachers who had benefits in the old system seem have benefited little from the change as more people joined the profession and the minimum workload decreased (Bulan Institute 2018, Jenish 2015).

The most dramatic adverse change from the transition from the Soviet system was an acute cut of preschool institutions. The system was previously based around the major employers, and it collapsed with large-scale privatization and a lack of funding for local governments to support the preschool system. Only about 13%–17% of children of preprimary age attend preschool, which is the second lowest share in Central Asia, after Tajikistan (World Bank 2013). In 1990, two children were enrolled in preschool per one child admitted to the First grade (2:1), but this dropped to 0.4:1 in the mid-1990s, and slowly recovered to 1.3:1 in 2015 (Figure 8.11).

Figure 8.11: Preschool and Primary School Enrollment

Source: NSC (2018).

The structure of the education system in the Kyrgyz Republic has remained largely unchanged since its independence. The school system is based on a 4–5–2 year scheme. Children aged 6 or 7 start primary level, which includes grades 1 to 4. The next level, basic education, lasts through grade 9, and is the minimum compulsory school level. After 9th grade, students may choose to stop studying, or to continue to high school for 2 more years in order to apply to universities, or switch to vocational study, which also allows them to apply to universities upon graduation. The teaching mode is still based on teacher-centered learning in almost all levels, including higher education. The country needs to expand more to let students define what they need based on experiential learning.

Access to education is widely available. With school attendance compulsory up to grade 9 and many options to continue education, the system is largely open to any social group. However, some areas need to be addressed, for example disabled children (Mizunoya et al., 2016). The country is lagging behind in inclusion of disabled children in regular educational institutions and creating conditions for inclusive education. The government continued to promote gender equality in education after independence, and higher education opportunities were expanded for men and women throughout the country. Women are more likely to complete higher education than men.

The quality of secondary education seems to have deteriorated, based on the results of national testing of student skills. First, the country participated twice in the Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA). The outcomes placed the 14 year-old Kyrgyz students lowest of the countries participating (OECD and

World Bank 2010). Second, the National Sample-Based Assessment of Grades 4 and 8 that was conducted in 2007, 2009, 2014, and 2017 showed that over 60% of fourth graders did not possess the basic level of reading comprehension (CEATM 2018). While the situation is showing little improvement over time, the scale of the problem is mounting. The same test looked at grade 8 students in 2017—in which about 65% of students did not possess the basic level of mathematics and 52% did not have basic reading comprehension—this is, however, progress when compared with the assessment in 2007, when 84% and 73% of students scored as not sufficiently knowledgeable at the basic level in mathematics and reading, respectively.

Teachers and teaching are the key to learning outcomes. However, teachers' salaries are low and their nonmonetary benefits, which were substantial in the socialist times, are practically absent. For example, in 2010 the monthly teacher salary was equivalent to about \$75 whereas public servant wages were about \$144 per month (Bulan Institute 2018, Teleshaliyev 2013). The salaries were reformed in 2011 and the rates were increased again in 2015, but the gain was uneven and some categories of teachers, especially young teachers, became income-vulnerable. Teacher retention is an issue: of 100 university students who were trained in pedagogical specialties, only 17 went to work in schools, and about 20% of them dropped the profession within their first year of work (Teleshaliyev 2013). As a result, only about 20% of teachers are young, and every seventh teacher is retired but has continued teaching. In addition, the profession is highly skewed toward females, with male teachers comprising only 10%–30% of the teaching cadre.

The number of students who continue to grades 10 and 11 has been declining, from the peak of about 80% in the early 2000s to 56% in 2015. This is partly explained by two developments. First, the introduction of national testing in 2002 made the process of being admitted to higher education institutions more difficult because minimum scores were required. Second, the lack of appropriate employment prospects for university graduates inclined many people to opt for professional vocational schools, which have seen an increasing number of students. This trend was reinforced by an increase in employment in the service sector and demand for relevant occupations.

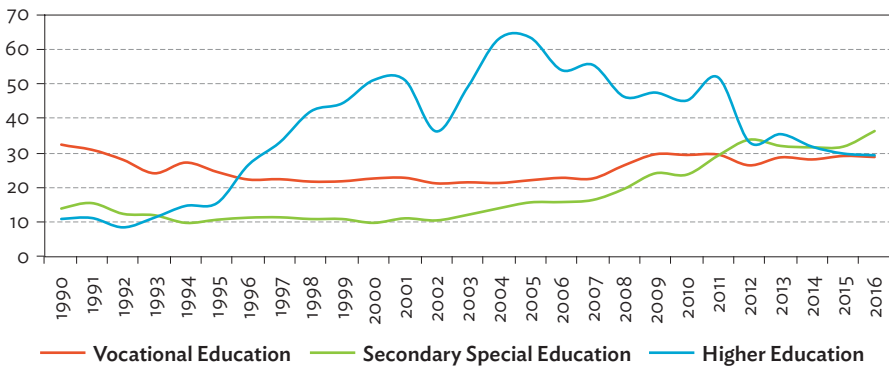
About 3% of secondary level schools are private (NSC 2015a), which have less than 2% of all secondary level students. Private secondary schools vary in scope and quality, with some prominent examples such as lyceums funded by Turkey and schools with domestic or international funding. The 2017 national testing revealed that students from private schools demonstrate superior academic achievements

(CEATM 2018) to those in public schools, although the comparison base is small and the private schools accept students based on high academic performance. About 100 religious schools are operating, although the range of their suitability varies in terms of classroom conditions (Bulan Institute 2017).

The attractiveness of higher education is declining. The liberalization and deregulation of the higher education system led to a boom in universities, which quadrupled in number in a decade—the Kyrgyz Republic had 33 public and 23 private universities in 2010 versus only 9 in the Soviet era. This unleashed the demand for higher education; at its peak in the mid-2000s, about 50,000–60,000 students were admitted annually (Figure 8.12). Thus, the gross enrollments in higher education institutions increased from 10% of the corresponding age cohort in the beginning of 1990s to about 48% in the mid-2000s (OECD and World Bank 2010). However, the general perception is that very few of the universities have a sufficiently sound teaching and infrastructure foundation to provide good quality education. A university diploma provides better chances to get a job, but the share of unemployed people with higher education is quite large, about 18% in general in 2015; it is higher in Bishkek and Osh, where the share of the unemployed with higher education, is 40% and 31%, respectively (NSC 2018). The demand for higher education has been declining since 2012 and has stabilized at about 30,000 entrants each year. The decline is also related to a policy change that limited acceptance of students on “correspondence” basis in 2012.

The quality of higher education is related to numerous correspondence and distance programs. Nearly every higher education university has a correspondence and distance program that allows students to be educated

Figure 8.12: Admission to Postsecondary Educational Institutions
(‘000)



Note: The sharp decline in the number of students enrolled in universities in 2003 is due to the school reform conducted in 1989, when 11 years of schooling replaced the previous 10-year system.

Source: NSC (2016).

away from campus. This model comes from the socialist times and is used by many who want to enhance their chances of obtaining a better job or meeting job qualification requirements. Such students visit their educational institutions twice a year for lectures and to take tests. In many cases, the quality of teaching is questioned as most of the tests are easy to pass through informal mechanisms, such as bribing.

The key policy challenge is to invest in good quality professional education. Higher education seems not to be promising because of the low academic achievements of secondary level students. The economy should orient toward equipping its workers with the skills demanded by current and future employers (ADB 2016). Vocational institutions prefer to offer fields that do not require training or a material base, such as laboratories. For example, many humanitarian and social science courses are offered, but few technical or engineering courses. The government may wish to consider redirecting its role from being the major direct provider of education to being an effective regulator, catalyst, and supporter of the private professional education system and vocational training that meet the labor market's changing needs (Mogilevskii 2018). This could encompass being flexible and applying innovative solutions such as resource sharing, public–private partnerships, and life-long education.

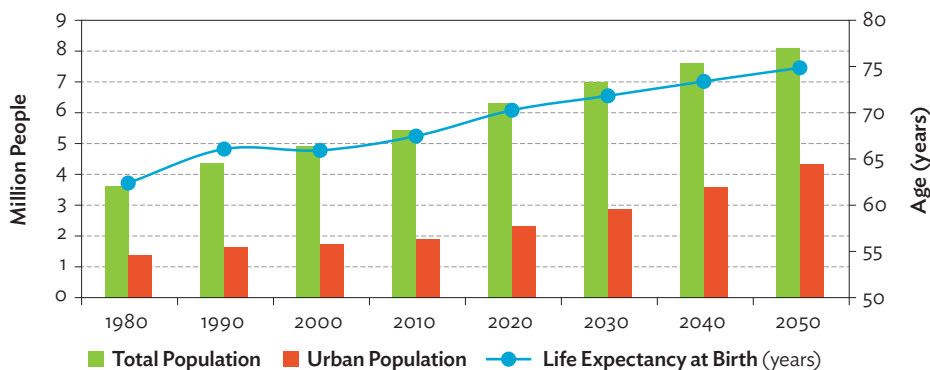
8.7. Demographics and Health

Population growth is moderate

Population growth in the Kyrgyz Republic in 2010–2017 averaged 1.6% annually, which is comparable to the rate in Central Asia but higher than the global average of 1.2% (UNFPA 2018). As of 2018, the population was estimated at 6.2 million, with about a third of it residing in cities (NSC 2017a). The median population age is young, at 27 years, but because more than 4% of the people are 65 or older, the population is considered to be moderately aged. The population is projected to grow to 7 million in 2030 and 8 million in 2050 (UN DESA 2017). This growth is expected to include expansion of the urban population and increased life expectancy, which will alter the population's regional and age structure (Figure 8.13).

Urban population is expected to grow

The urban population remained steady in the 2 decades to 2017 at about 34% of the total population. This ratio seems low given active internal migration to urban areas (Hatcher and Thieme 2016, Satybaldieva et al., 2014). One reason for

Figure 8.13: Population Dynamics, 1980–2050

Source: UN DESA (2018).

the low ratio could be that the registration system (*propiska*) hampers migration within the country. Many internal migrants may be not counted in the official statistics of city populations because they prefer not to register there, especially in and around the capital city, Bishkek. Thus, the actual urbanization rate may be higher than the official one. The population census planned for 2020 (UNECE 2018) may reveal a more factual picture of the urban population.

Life expectancy will increase and impact the population's age structure

The recent two decades have seen a modest increase in longevity in the Kyrgyz Republic (Table 8.7). The increase is mainly attributable to females, as the males' life expectancy has stagnated. This is believed related to health issues (mainly heart diseases and cancer) and risky behavior. The mortality rate among adult males is more than twice that of females.

Table 8.7: Health Indicators, 1980–2015

Indicator	1980	1990	2000	2005	2010	2015
Life expectancy, female (years)	67	73	72	72	74	75
Life expectancy, male (years)	59	64	65	64	65	67
Adult mortality rate, female ('000)	154	134	150	144	124	109
Adult mortality rate, male ('000)	301	266	298	301	274	249
Total fertility (no. of births per woman)	4.4	3.6	2.4	2.5	3.1	3.2
Infant mortality (per '000 live births)	77	54	42	34	26	20

Source: World Bank. World Development Indicators. <https://datacatalog.worldbank.org/dataset/world-development-indicators> (accessed February 2018).

Improved infant mortality, stabilized fertility rate

The country's fertility rate is relatively high, and increased from about 2.4 births per women in 2000 to 3.2 in 2015. In the medium term, the fertility rate is expected to decline somewhat. Infant mortality has improved significantly in the last 15 years.

8.8. Concluding Remarks and Policy Implications

This section outlines policy options for human resources for the Kyrgyz Republic. The country has a good understanding of what needs to be done to improve skills, generate jobs, and provide high-quality life, but struggles with implementing that understanding, due to resource and capacity constraints, and partly due to limited accountability. For example, the recent attempt to implement a new system of social benefits failed due to lack of planned resources (WFP 2018). Institutions may prefer to concentrate more on enforcing policies in the contact points with population, for example, at institutions that issue documents, certificates, and licenses, and less on inspections and regulations. Some policies clearly need to have high priority for funding. More investments in professional and technical education are needed to enable the young to obtain skills and expand their earning capacity. The discussion below identifies some areas where policy reforms and investments will be important.

Employment

Level the rules for small and medium-sized enterprises. There are no incentives for most firms to formalize and adhere to the labor laws. Because some businesses do not follow regulations, other firms must follow suit to remain competitive in the same markets. Suggested policy options, indicated as well in Mogilevskii (2018), are to equalize taxation for small and large companies, reduce taxation of wages, reduce regulatory pressure on large firms, and support small formal enterprises.

Nudging companies to formalize employment. Companies could be encouraged to formalize their employment. For example, the public procurement system could incentivize companies that bid for public procurement needs to move to more formalization of their employment, given that the state is a major buyer of goods and services. Another example is related to EEU integration, which provided incentives for many companies to fulfill production standards and practices to meet export requirements for products and services.

Incentivize informal workers and migrants to secure social protection. Jobs in the Kyrgyz Republic are becoming less secure in terms of benefits and are increasingly based on the short-term needs of employers. Providing mechanisms for current and future social protection is important. Very few households and individual entrepreneurs use insurance and pension services. More information provision combined with strengthening of the insurance and nonstate pension sectors is important.

Education

Increase investment in good quality teaching. Teachers' motivation, skills, and efforts need to be enhanced. Despite high levels of expenditures on education, the learning outcomes are poor, based on the national level tests. The OECD (2018) study shows that the countries that best demonstrate students' high academic achievement have several distinguishing features, such as professional and career opportunities for teachers, a collaborative culture of improvement, a mentoring system, performance evaluation, and social benefits for teachers. Thus, putting more resources into teacher training and retraining and applying a more performance-based monitoring system of teaching quality are important ways to increase the quality of teaching and the student outcomes.

Promote Russian and English languages. The Russian language will remain an important medium for obtaining information and knowledge. The current level of investment in Russian language instruction can be expanded to keep more students proficient in Russian, along with other local languages. A very low share of the population knows English, which is therefore unlikely to become a major medium for learning and information in the future. Nevertheless, it is imperative to sustain the efforts to expand English language knowledge in the country to increase the global competitiveness of students.

Add life skills to the school curriculum. The typical Kyrgyz school is concerned mostly with academic skills, and life skills are largely neglected. Life skills include many things important later in life, such as abilities for handling and managing communication, presentations, time, money, relationships, and a healthy lifestyle. Efforts have been made to expand this area.

Widen ICT skills in school curriculums. ICT teaching standards are to be introduced and more targeted teaching of computer and programming skills may be necessary. Basic knowledge of typing on computers, working on office applications, and internet browsing are in demand and are important later for both study and work.

Skills

Allocate more public funds to retraining and vocational education. The budgets for active and passive employment policies remain very low. More funds are needed if higher paid jobs are to be created and human potential to be realized.

Support sector-specific standards and qualifications. Given that the state cannot promote sectoral standards in skills for workers, recent initiatives are worth spreading and institutionalizing. For example, in the textile and food sector, producers and their associations are developing a set of standards required of job seekers. Testing and certification of skills is to be conducted by an independent body. This may allow workers who did not complete formal training, but learned well on the job, to certify their skills and have access to higher-level jobs. The Government of the Kyrgyz Republic is already building foundation for such initiatives by establishing National Qualification System and National Qualification Framework in normative documents.

Reinvigorate life-long skills training. The system of life-long learning was once present but is now practically nonexistent. Promoting such a system would address retraining needs of workers who need to upgrade or change their skills.

Migration

Equip potential migrants with skills and information to work legally in Kazakhstan and the Russian Federation. As microdata show, most migrants work in informal jobs in destination countries despite their improved working conditions since the Kyrgyz Republic joined the EEU. Efforts to provide workers with skills before they migrate would allow them to get better jobs with better results at both household and macroeconomic levels.

Reduce transaction costs for Kyrgyz migrants. The work of reducing transaction costs includes providing legal protection and supplying information, and is being done by state agencies and the International Organization for Migration. More work is needed so that most migrants become aware of the labor and migration requirements in potential destination countries. Continuing legal and information support is also needed. Facilitation and regulation of intermediaries who recruit migrants is important to make the migration process less cumbersome and provide the maximum benefit to migrants.

Facilitate social security and pension insurance for migrants. A policy issue is retirement support for returning, retiring migrants. The basic support pension is not enough to cover living expenses. Some effort to encourage migrants to invest in private pension schemes would be desirable.

Improve overseas migrant assistance programs and legal services. The Kyrgyz government needs to continue its effort to help migrant workers increase their awareness on the formal migration policies and labor regulations of destination countries. Creation of migrant assistance programs to help link workers with legitimate employers, screen contracts provisions, and provide access on needed legal services, will help ensure better job security and working conditions of migrant workers.

Health

Promote healthy lifestyles. Promoting a healthy lifestyle in activity and diet is still at a nascent level, and is occurring primarily in the capital city, Bishkek.

Provide nutrition education. Cardiovascular illnesses are related to excessive weight. The country's diet is based more on carbohydrates and fats, and less on protein. Encouraging a balanced diet, by including more vegetables and fruit, would contribute to healthier lifestyle.

Improve conscious behavior. The third major reason for mortality in the Kyrgyz Republic is mainly due to traffic accidents and fights. Technology can help improve the practice of conscious behavior to avoid risks, e.g., enforcement of traffic rules by having the violations recorded by road cameras. The secondary school curriculum could include life skills and training to encourage conscious behavior.

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Kyrgyz Republic

Improving Growth Potential

Despite a complex transition and geographical isolation, the Kyrgyz Republic has become one of the most open and integrated economies in Central Asia. The country has improved its per capita income and living standards, and is now on the threshold of graduating to the ranks of the lower-middle income economies. Moving forward, the principal challenge for the Kyrgyz Republic is how to translate these achievements and opportunities into stronger, broad-based economic growth.

The Kyrgyz Republic Country Diagnostic Study provides an in-depth analysis of the sectors from which the needed economic and governance reforms can emanate and lead to comprehensive growth. The book presents evidence-based policy suggestions for enhancing the country's trade, finance, services and tourism, information and communication technology, energy, transport and logistics, agriculture, and human capital.

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