Innovative Fiscal Policy and Economic Development in Transition Economies

Aleksandr V. Gevorkyan

Routledge Studies in the Modern World Economy

Innovative Fiscal Policy and Economic Development in Transition Economies

This book explores the problems of fiscal policy as an instrument of economic and social development in the modern environment, primarily focusing on the transition economies of Eastern Europe, Caucasus, and Central Asia. Evaluating the transformational experience in these countries, this work meets a need for a critical analysis, in the aftermath of the 1990s market liberalization reforms, of current trends and outlines the roadmap for future development.

Influenced by market reforms in the immediate post-Soviet era, abrupt fiscal withdrawal from the economy led to a diverse mix of financial, industrial, and social problems. Today, two decades on, the transition economies have grown new structures and established a new, unique development model. This book directly addresses these issues. Combining rigorous analytical discussion with solid statistical examination, the author undertakes a full macroeconomic review of the CIS economies through the present day, including analysis of trade and fiscal balance relations, fiscal policy sustainability, alternative sovereign finance and sovereign debt, aspects of labor market, exchange rate dynamics, a critical evaluation of the current crisis, and the future outlook.

The novelty of this study is in its multifaceted analysis of the global theme of policy for development, pioneering ideas of fiscal net and offering pragmatic post-crisis scenarios and policy solutions with emphasis on fiscal action. Given its rounded approach, the book is of particular use to scholars, students, researchers, and practitioners interested in economic policy and development.

Aleksandr V. Gevorkyan is an Economist at Capco, a global financial consulting firm. Dr. Gevorkyan also teaches a range of financial economics and economic development topics at New York University and St. John's University. He has also taught in the graduate programs at The New School and MBA concentration at Long Island University. He holds a Ph.D. in Economics from The New School for Social Research, New York.

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Routledge
Taylor & Francis Group
LONDON AND NEW YORK

First published 2011
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

Simultaneously published in the USA and Canada
by Routledge
270 Madison Avenue, New York, NY 10016

Routledge is an imprint of the Taylor & Francis Group, an informa business

This edition published in the Taylor & Francis e-Library, 2011.

To purchase your own copy of this or any of Taylor & Francis or Routledge's collection of thousands of eBooks please go to www.eBookstore.tandf.co.uk.

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data

Gevorkyan, Aleksandr V.
Innovative fiscal policy and economic development in transition economies / by Aleksandr V. Gevorkyan.
p. cm.
Includes bibliographical references and index.
1. Fiscal policy—Former Soviet Republics. 2. Mixed economy—Former Soviet Republics. 3. Former Soviet Republics—Economic policy. 4. Economic development—Former Soviet Republics.
I. Title.
HJ1205.G47 2010
339.5′20947—dc22

2010031310

ISBN 0-203-83203-5 Master e-book ISBN

ISBN: 978-0-415-59807-1 (hbk)
ISBN: 978-0-203-83203-5 (ebk)

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Foreword

The twentieth century was the period of grand transformations on economic, social, and political scales. This multifaceted book builds on the legacy of one of the most profound such transformations of the time: the transition from the socialist society and planned economy to a capitalist market-oriented economy in Central and Eastern Europe and the Former Soviet Union. The imposed shock therapy, at the beginning of the transformation process in the 1990s, led to a large output loss. Then, quite quickly, the transformation process turned out to be more than just an economic transition and evolved into a fundamental shift in the social and economic paradigms of the involved societies, resulting in considerable income and wealth inequality.

This research in particular focuses on the public aspect of the transformation process and offers a novel systematic approach into the examination of all key elements involved in that historic shift. Methodological and theoretical approaches developed in this book are innovative, insightful, and foundational for future research. This study is one of the first of a few to address a number of issues specific to transition under a common heading and with a general focus on the role of policy in development. This has long-ranged implications for developed and developing economies alike.

Addressing transition economies' concerns requires analysis of history, recent economic experience, understanding of the local social content, and vision for the future development trend. This book does that successfully and goes far beyond existing earlier analysis of the difficulties of the transition economies, triggered by the "shock therapy" of the 1990s. It analyzes the current problems of these economies in perspective of the role of the state for future development. In particular, it studies the different impacts of public policy in general and fiscal policy, in particular in resource-based economies and less resource-based types of economies in the region. This has, as the research here shows, turned out to dominantly impact the transition path.

Based on that, the study offers several practical proposals. The book vociferously repositions the role of state in the development, preserving the crucial balance of fiscal involvement in the modern open economy and echoing recent calls for a more active state in the face of the global economic crisis. This is a laudable change of perspective as compared with the usual studies since the 1990s where market dynamics were given the leading role for development, with

the consequence, when implemented, of large welfare losses. There is a lot that can be learned from this new perspective. Studies in fiscal policy and development with strong aspects of social responsibility, especially with factors of inequality and poverty considered, are timely and are welcomed in the contemporary context of global economic transformation.

It should also be noted that some of this book's work has already been recognized in peer-reviewed journal and newspaper publications, presented in multidisciplinary conferences, and has found great attention by an international audience. In addition, some of the book's analytical conclusions have been successfully integrated and applied in courses on macroeconomics, international economics, development, and finance. Overall, this volume is a major contribution to the literature on economic and social development, growth, and the important role of policy for the dynamics of the development of interlinked economies.

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Preface

Economic theories hold a strong sway over the shape and direction of policy making, changing the course of history of entire nations, often within a short time. Perhaps no other countries' experience in recent history serves as a true testimony to the statement as much as the experience of the nations of Central and Eastern Europe (CEE) and of the Former Soviet Union (FSU). The abrupt switch from the socialist system to the capitalist one in the early 1990s was to inspire quick and positive tendencies in terms of economic growth and overall development. This, however, did not occur as had been expected.

In fact, the countries in question, religiously following the policy proposals based on contemporary economic theory, faced long periods of economic decline, social distress, and political uncertainty. The legacy of the more than twenty-year-old reforms is still alive and affects these countries' development prospects. Available evidence points to persistence of initial and post-reform structural problems in the economies of the FSU, while the countries of CEE struggle for closer integration within regional entities, such as the European Union, though far from parity (with exceptions of course).

These problems, and specifically the question of the role of state in the development process, are the true motivation behind this book. The underlying question of this work has been to identify the development path in transition economies and offer pragmatic proposals based on available international experience. The study itself is an outcome of several years of fieldwork and research on diverse topics in economic theory and policy, including open economy macroeconomics, labor migration, sovereign debt, and fiscal policy. The book looks at the great unknowns: economies of the Commonwealth of Independent States (CIS). The book sets fiscal policy as an amalgamation of visionary initiatives and proactive measures aimed at sustainable growth, betterment of social welfare, and development based on evidence and local context.

One advantage of this work—the larger portion of it was completed during and right after the initially worst phases of the late 2000s' global economic crisis—is that it carries a great deal of factual and topical insight. As a novel twist, the book points to the distinction between net exporter and net importer economies in the region. This categorization is integral to understanding the transition dynamics and CIS experience in particular. During initial research and

early drafts of this book, it became obvious that the current crisis impacts, though delayed, were necessarily individual in each country group, based on a unique set of crisis propagation channels.

The systematic analysis emphasized in this book correctly points to the fragile character of the current fiscal policy patterns in both net exporter and net importer economies. This allows for pragmatic policy proposals. The CIS economies, and with them other formerly socialist economies (especially of Southern/Eastern Europe), are uniquely positioned to locally adapt and apply policy measures tried elsewhere. This book calls attention to problems of alternative sovereign finance, fiscal net, exchange rate, international reserves, and issues of labor force and capital flows.

It was a great and insightful journey to work on this research. I would like to express my gratitude to all those people who supported and encouraged my work on this project. Especially I would like to express my sincerest gratitude to my adviser, co-author, and friend, Professor Willi Semmler of The New School. I am thankful for his intellectual support, expertise, wisdom, and mentorship, which inspired and motivated my work on this project. And I am certainly grateful to and would like to extend special appreciation and gratitude to my family. Their love, support, constant patience, devotion, and faith in me have been the foundation for my research work.

Aleksandr V. Gevorkyan
New York, NY
July 2010

1 Economics of transition in the new century

Lessons learned and a future outlook

1.1 Introduction

As the theoretical debates go on temporary recess, there comes a time for sobering situation analysis. Almost two decades ago, a transformational process ensued in the socialist countries of Eastern and Central Europe and the former Soviet Union (FSU). Despite the length of time that has passed, the outcomes of these social, economic, political, and generational transformations are still high on today's agenda.

This project is focused on analysis of social and economic processes, and the role of fiscal policy in the countries of the FSU. Excluding the three Baltic states, those are Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. All twelve are members of the Commonwealth of Independent States (CIS) created immediately following the breakup of the USSR in 1991.[1] Collectively, economic literature identifies these, and several other Eastern European formerly socialist countries, as transition economies.

A discussion of the CIS transition economies is necessarily predicated by a clarification of the term *transition*. Broadly, transition is defined as a move from a centrally planned economy to a market-oriented one (e.g. Havrylyshyn and Wolf, 1999). The reference is to the market liberalization process that began in the former socialist countries in the late 1980s–early 1990s.

It is reasonable to assume that the achievement of high living standards, increased productive capacities, sustainable economic growth, diminished income inequality as well as a strict rule of law and democratic polity is the final destination of the process. It then becomes clear that, in the context of the FSU countries, the discussion revolves around a *transformational* change (as in, e.g., Nell, 1992; and Nell *et al.*, 2007). In fact, economically necessitated changes inspire chain reactions across every fiber of the society. For example, technology changes transpiring in an economy lead to the consequent social and institutional development. Hence transformation is captured as new social forms replace one another, encompassing and building upon the core elements of the prior, adding its own innovative breakthrough. The process is dialectical in nature. It is inherently dynamic and volatile, and requires comprehensive analysis.

One does not require any specific macroeconomic data to realize the complexity of the societal change involved. In the context of transition economies, the transformation that ensued in the early 1990s has been highly controversial to date, taking a heavy toll on social welfare and national economies' well-being. Despite disastrous setbacks, discussed in this chapter, recent years have shown improvement in welfare across the locale. Surprisingly it has been the increased role of state in each country that has helped improve the situation. The challenge for transition economies of the CIS is now to take up proactive and innovative steps to ensure the sustainability of their improved economic performance of recent years, while managing a diverse set of social issues.

This chapter serves a dual purpose, as an introductory narrative and that of a problem-setting critical analysis. Section 1.2 gets to the heart of the subject matter and briefly outlines crucial aspects of political economy in the former Soviet Union prior to the liberalization reforms of the late 1980s–early 1990s. Then Section 1.3 analyses economic and social reforms of the 1990s with the benefit of hindsight. Section 1.4 also provides a detailed assessment of the region's performance in more recent years. Structural economic issues are abound and require attention. The final section carries the weight of the analytical argument developed throughout this study. The chapter ends with a Conclusion and Appendix.

1.2 Before the shock: notes on the political economy from 1960 to 1990

Looking back two decades, one could pinpoint two distinct and interrelated events that gave the symbolic start to the unprecedented political, social, and economic transformation in Eastern Europe and the former USSR. The first was the launch of the *perestroika* [rus. restructuring] movement in 1985 in the former USSR by the then head of state Mikhail Gorbachev. The other was the breakup of the Berlin Wall in Germany in late 1989. One can see a dialectical bond of both significant events: Gorbachev's abstract ideas of *perestroika* and *glasnost* found their realization in the concrete dismantling of the Berlin Wall, which caused the collapse of the centrally planned and controlled economic, social, and political systems across the entire former socialist locale.

Perhaps it would be surprising to learn that initial efforts bringing such a chain reaction had been in fact aimed at the upgrade of the old order and its preservation, rather than its destruction. Envisioned on the scale of the entire country—the USSR—the first efforts and research were aimed at industrial reorganization and increasing competitiveness of the national economy, with each republic providing an integral link in the overall system. This view is confirmed by a close reading of Shatalin *et al.* (1990), also known as the *500 Days Program*—a blueprint for transition to market economy that we discuss below. Therefore, it is instructive to understand the core issues of political economy that shaped the early transition in the countries of the former Soviet Union.

The history of the region is marked with dramatic events in the twentieth century. The collapse of the Russian Empire comprised of Russia—as the leading

state—and smaller provinces that later joined the USSR as republics under the pressure of World War I, and the Bolshevik revolution of 1917 brought the first social and political transformation. The new entity, the Union of Soviet Socialist Republics, was established. Following disastrous agrarian and industrial reforms of the late 1920s to the 1930s (collectivization and industrialization), the USSR came out as a winning power in the no less disastrous World War II. Both events took an enormous toll on the lives of ordinary people: a death toll that was measured in millions. Yet the country continued its advance to superpower status, being the first to man a spaceship in 1961.

In fact, across the USSR and primarily in Russia and Ukraine, the 1960s and early 1970s saw a rise in urbanization, one of the primary indicators of advancing development (see Nell *et al.*, 2007 on urbanization). By 1980, almost 62 per cent of the entire country's population lived in the cities. Meanwhile, with a compulsory education system in place, the number of students in USSR universities soared 74 per cent between 1970 and 1980. Research institutes proliferated across the country and science was heavily subsidized by the government (e.g. Kal'yanov and Sidorov, 2004). Healthcare, education, child support, and other non-waged services were state sponsored and nominally accessible to everyone. In many cases, large industrial factories (by definition state-owned) provided their employees with access to subsidized leisure facilities, hospitals, kindergartens, etc.

Industrial capacity growth was around 5.5 per cent on average, with slightly exceeding GDP growth at 5.8 per cent (as shown in Figure 1.1). Officials claimed full control over inflation as the government succeeded in instituting a strict price control, particularly on food and basic household items. There was virtually no incidence of involuntary unemployment, and salaries were guaranteed by the state. Overall, despite some hidden hurdles along the way (e.g. difficulties with changing jobs; free movement within and across republics; sealed borders), the countries of the USSR looked optimistically into the future.

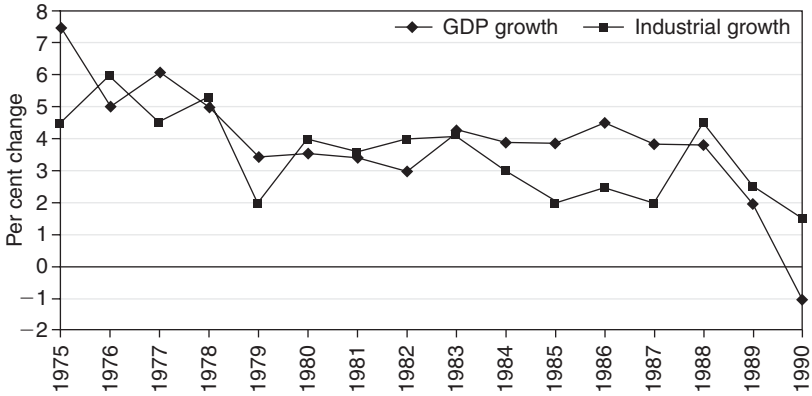


Figure 1.1 USSR GDP and industrial capacity growth, per cent change (1975–1990).

However, the first signs of a serious crisis appeared early in the 1980s. By then, the country's entire economy, knitted with large industrial factories often producing output that the state had to buy back due to inexistent demand, was running on subsidies sponsored by income from raw material exports, mainly energy resources such as oil, coal, and gas.[2] Spread across a vast area were factories that produced parts for an intermediate product thousands of miles away, while the final product would be produced in yet another republic.

Consumption goods rationing and cuts in household durables production brought consumer deficits in the early 1980s. In other words, it was difficult to obtain the basic necessities in stores. The situation deteriorated more quickly with distance from major industrial and administrative centers.

Factories' capital funds had not been upgraded for decades and the living standards of millions of people, especially in rural areas and in republics less advanced in industrial and technological terms (such as countries in Central Asia), plunged. While on paper high macroeconomic indicators seemed unchanged, the real economy came to a stalemate with the growth rate of 2 (and less) per cent.

To sustain even such low levels of economic performance and avoid igniting any social unrest, as Gaidar (2007) notes, the Soviet state relied on high prices for oil and gas in the international markets. Energy resource exports were the source of hard currency, given the Soviet ruble's inconvertibility, and hence provided the means for the Soviet government to purchase necessary machinery and consumer goods from abroad—primarily from the socialist states of Eastern and Central Europe.

The situation created a paradox when, in the late 1980s, one of the richest and largest countries in the world in terms of natural resources and agricultural lands imported grain from its ideological opposites in the capitalist West. The Soviet Union pressed forward with oil extraction, reaching 12,000 barrels per day in the mid 1980s (US Department of Energy, 2005). However, the luck (and with it sufficient inflows of hard currency) ran out by 1985 when oil prices dropped from approximately US$30 to US$10 per barrel.[3]

It was against the background of this environment that the Soviet government announced its course for economic restructuring and upgrade—the *perestroika* movement. Reminiscent of the *New Economic Policy* and designed and launched in the USSR by Lenin in the 1920s, the reforms of the mid 1980s encouraged the creation of small private cooperatives and promoted entrepreneurship. Practically all factories, with the exception of a few strategic ones in the nuclear and military industries, were encouraged to seek their own sources for operating capital, yet still fulfill state orders, with an option of selling any extra output in the market. In summary, it was the push for economic decentralization from above.

Unfortunately, the announced *perestroika* reforms did not bear the expected results. Granted greater autonomy from the state, the enterprises were being taken off the state books and were to look for larger funding independently. That was supposed to come from sales beyond the state order target. But in the condi-

tions of fixed prices and a rudimentary financial system, this led to supply diversion as managers worked things out privately, contributing to the barter exchange system on the scale of the entire economy.

The nominally state enterprises were not designed to produce competitive output to offer in the international markets. At the same time, there was oversupply of redundant produce in the domestic economy. Facing declining global prices for oil, the Soviet government borrowed internally via debt and printed money, virtually bringing the country to "the edge of bankruptcy" (Shatalin *et al.*, 1990: 23). In fact, internal debt between 1985 and 1990 grew 333 per cent (from approximately 120 billion to 520 billion Soviet rubles, as depicted in Figure 1.2). USSR's foreign debt grew three times from US$23 billion to US$65.3 billion in the same period (Borisov, 2002). Reliance on financial legacy allowed some borrowing from abroad in the interim but not for long.

Unconstrained money growth (reaching double digits according to estimates in Shatalin *et al.*, 1990) was not supported by the real economy's needs, which grew at a much slower pace. As a result, despite the best intentions, nominal wage increases were almost immediately negated by surpassing inflation. Further, money emission was supposed to help jumpstart the stagnated economy via increased investments in the manufacturing sector. However, that mainly led to half measures and projects were eventually abandoned due to an inability to sustain consistent investment flows and the lack of realistic incentives for nominal investment project managers. By the early 1990s, consumer goods and durable goods deficits became rampant and seemed incurable. To tackle the problem head on, the government conceded to pressures of the young liberal economists who advocated unambiguous market reforms, departing from the country's socialist foundations. While explanations of the late 1980s–early 1990s' social and economic crisis in the USSR are abundant and proliferate, there are several important aspects that are seldom mentioned. These problems are addressed in the next section of this chapter.

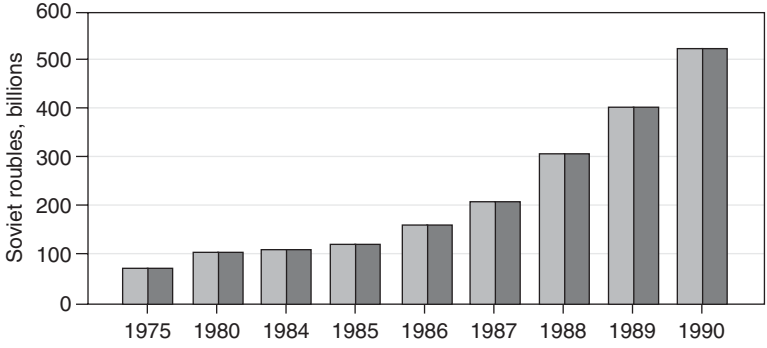


Figure 1.2 USSR internal debt, Soviet roubles billions (1975–1990) (source: author's calculations based on data from Shatalin *et al*. (1990)).

1.3 What happened in the 1990s: more on political economy

The Soviet government sponsored a comprehensive analysis of the economy and development of pragmatic solutions that would help revert the country's downward path. The official transformational blueprint became known as the *500 Days Program*. It offered forced but gradual transition away from the socialist mode of production, characteristic of the late USSR, to a more market economy-driven one. It is important to reiterate that this program was adopted and was supposed to be applied on the scale of the entire Soviet economy. The core principles of the proposed program are summarized in Table 1.1. The premise was to achieve individual economic freedom and, based on that, build an effective economic system (Shatalin *et al*., 1990).

On a more macro scale, the dialectical interrelation of economy with society realized itself in the radical political movements' victory over popular support in the former socialist republics that were then falling into poverty. As a result, the *500 Days Program* was abandoned, although the general idea of change and the institution of free market remained; however, the method had changed.

Table 1.1 Core principles of the *500 Days Program*

Principles	*Description*
Maximum freedom of the economic agent	Freedom of economic activity; encouragement of entrepreneurship.
Full responsibility of the economic agent	Private property is paramount to the market reform, determining the rights and obligations of economic agents.
Competition among producers	Free competition under free market pressures is to yield a more diverse supply of final goods, competitive prices, and better quality products.
Price liberalization	Market works only if prices are determined freely with little to no state intervention, which causes distortions to market operations.
Proliferation of market relations	More effective than a state-controlled system, which would allow for higher mobility of labor and financial resources across industries (with the exception of defense, education, and healthcare spheres that remain under state supervision).
Open economy	Consistent integration with the world economy; ability for any economic agent to enter the international market.
State's social guarantees	Aside from non-waged sector, the state is to provide support for those unable to work and other extreme situations.
State withdrawal from economy	The state cannot interfere with the market, aside from serving a regulatory and administrative role, as well as providing for some non-waged goods.

Source: adapted from Shatalin *et al*. (1990).

From 1991 to 1992, Russia went into *shock therapy*. The other countries (with the exceptions of the Baltic states and Kazakhstan, the latter adopting a more gradual approach) followed suit, in some ways replicating Russia's experience step by step, albeit at a lesser scale. These conclusions and policy recommendations sat on foundations of trade liberalization along the Heckscher–Ohlin theory, macroeconomic prudence of the Polak model (Polak, 1957, 1997), and the triumph of free market à la Hayek (Hayek, 1991).[4] So in the early 1990s, the former socialist economies plunged into the all-out market and price liberalization, likened to shock therapy for its drastic switch from one set of economic conditions to another and significant detrimental impacts on the economy and society.[5] Obviously, this happened without a proper closure to the preceding socialist formation that governed the socialist economies for the better half of the last century.

Politics played the definitive role in the chosen reform course. Tearing all links with the Soviet past, leaders in each country were prompt to discard communist ideology in their orientation. To the reformers' dismay, the political turn-around did not have the same immediate re-positioning effect on the production mode and social relations within the individual societies of the FSU. It seemed to the reformers that pushing through with massive privatization and price liberalization would have changed the established order overnight. In fact it did, but not with the theoretically predicted and expected outcome. Rooted in the socialist hierarchical structure of state ownership, archaic social relations persisted and, under the pressure of reforms, mutated into unmanageable distortions (e.g. Åslund *et al.*, 1996).

The faultiness of the early reformist approach was the presumption that socialism could be *revolutionarily* discarded overnight and the new formation would replace it.[6] This belief was not, as some may argue, the inspiration of conspiracy-minded advocates. On the contrary, it was based on the, at the time dominant, (mis)interpretation of Marx's *Capital* (Marx, 1867, 1893, 1894)—the official guide of the Soviet political economy—that "predicted" a successive replacement of one social formation by the other.[7]

Thus the official, pre-reforms, line was that socialism was to be replaced by communism in one shot. Yet, it never came. Worse, there was considerable debate in the Soviet literature at the time over the whole transition process from socialism to communism. In fact, socialism, in contrast to careful reading of Marx, was seen as *the first phase of the communist mode of production*.[8]

It must be stated with all urgency that the evolutionary aspect of the social transformation was practically absent from the contemporary debate. Official academia and research drew its inspiration from the notions of revolution and radical changes. Surprisingly, it happened in the country that prided itself on absolute cognition of the classics of Marxism (i.e. Marx, Engels, and Lenin), which spoke of the intricate relationship between the productive forces and social productive relations.

Indeed Marx dedicated most of his work, and *Capital* in particular, to the analysis of political economy of developed capitalism formations of the mid-nineteenth century. An argument can be made that, towards the end of the twentieth century, things changed and one had to seek a different approach. There

is hardly any objection to this. However, in haste to act creatively, it appears the radical reformers that took over in each republic left out the very dialectical method of cognition of the social production mode and the role of social relations in a given historical formation. The dynamism of social change was cut short.

Instead, these core notions were simplified to their static examples, removing the dialectics, and hence the logic and history, from political economy (Minasyan, 1989). Without delving into further details, it is suffice to say that, whereas Marx spoke of the gradual complex dialectical transformation of one social formation into another—a natural outgrowth of a consequent production mode from the prior and the rejection of the latter by the former, hence a truly dynamic social system—the opposite was assumed to be the case, i.e. rapid, abrupt, and hence revolutionary change that cuts all ties with the past.

Cross-country crisis intensified as oil production declined (see Figure 1.3) and additional loans from abroad were no longer easily accessible. Available tranches were provided on a more restricted basis of short- to medium-term loans, with severe repayment clauses. By the late 1980s and early 1990s, it was easy to "sell" a radical political and economic reform as the FSU societies were ready for an overhaul. As independence movements in Eastern Europe gained strength towards the early 1990s, capitalism became more appealing than ideal communism as the next social formation for the CIS. Hence, there was a rapid attempt to shift away from the previously dominant ideology. In political terms, the accumulation of such events led to the eventual breakup of the USSR in 1991.

The shock therapy reforms—inspired and promoted by the international financial institutions, along the lines of the Washington Consensus (Williamson, 1993)—conducted in, by now independent, Russia were aimed at economic

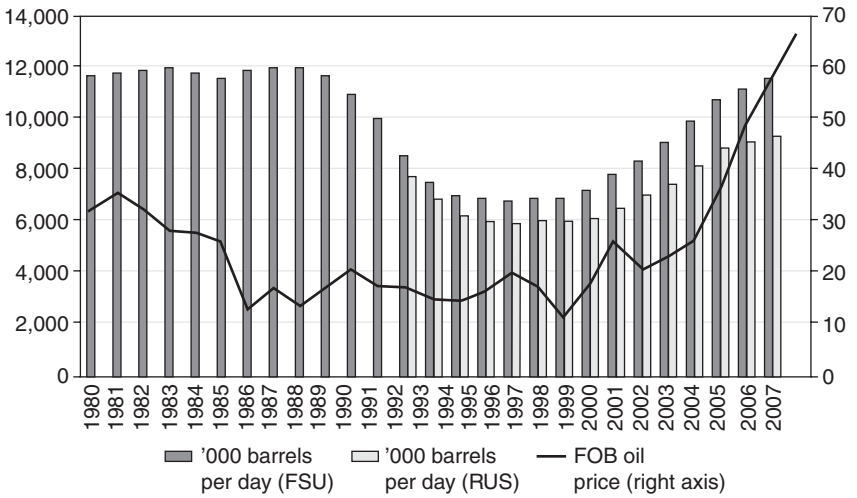


Figure 1.3 Oil production in FSU and Russia, '000 barrels/day, and oil price, US$ (source: author's calculations based on US Department of Energy (various years)).

deregulation, massive privatization, demilitarization of economy, price liberalization, and provisions for market institutions. The switch, while painful in the short term, would result in greater social benefits and truly efficient market systems in the medium term (see Roland, 2000 for a theoretical background in the Western literature).

As it turned out, the reforms of the early 1990s resulted in abrupt fiscal cuts and the state's withdrawal from the economy and other areas. That in turn led to a deterioration of previously government supported non-waged labor sectors, such as public education and national healthcare systems. In addition, the fiscal cuts affected agriculture, infrastructure, and subsidized industrial production capacities. Coupled with a diverse set of social conflicts permeating the region, in certain cases economies came to an absolute standstill (e.g. countries of Caucasus and Central Asia). Drastic output and welfare losses, hyperinflation, capital flight, and lacking macroeconomic stability were recorded across the palette (e.g. Tanzi, 1999; World Bank, 2002; Juurikkala and Lazareva, 2006; Gaidar, 2007; Åslund *et al.*, 1996; Fischer and Sahay, 2000; Kal'yanov and Sidorov, 2004, among other commentators).[9] According to the World Bank data, the gross domestic product (GDP) growth steadily declined through the mid 1990s—putting estimates of the annual declines for the region around 15 per cent, although some countries experienced sharper drops of 40 per cent or more, as seen in Figure 1.4 (see page 11). Compared with pre-transition growth, output drops in the mid 1990s ranged from about 40 to 70 per cent across the former socialist republics.

Further, there was an apparent absence of a coordinated exit of the state from the economy and intermediate provisions to fill the vacuum. Small and medium enterprises played no significant role, as market entrance barriers (mainly bureaucratic but also due to repeated incidents of extortion and corruption) were impregnable. If the New Economic Policy of Lenin in the 1920s was the prototype for the reforms spurred by the 1980s *perestroika* movement, the end result by the mid 1990s in Russia and other republics was quite the opposite. The smaller countries of the Caucasus and Central Asia suffered the worst in economic and political terms. In the 1990s, there was a strong emphasis on the success of the few winners in the reforms that would lead the rest into a new economic environment and guarantee sustainability of the transition path (e.g. Rodrik, 1996).

Moreover, based on purely theoretical assumptions, contemporary researchers insisted on the short-term nature of the shock therapy (aka big bang) reforms and output collapses being only virtual as opposed to real (e.g. Berg, 1993; Rodrik, 1996). These conclusions were derived primarily from early analyses of the reforms in the countries of Central and Eastern Europe (and not FSU), primarily Hungary, Poland, and the Czech Republic. Unfortunately, the studies omitted the importance of the higher overall preparedness of the three Eastern European economies and societies to liberalization reforms as opposed to the predominant economic and social structure present at the time in the FSU. All three of the states had, by the late 1980s, experience in greater political freedoms, a relatively relaxed and independently functioning financial system, and a less centrally controlled economy. These factors were absent in the case of the former USSR, exacerbating

the social and economic decline of the early reform years. While we cannot do full justice to the transformation experiences in the Eastern European economies, it should be noted that even there the optimism of the early reform successes yielded to the acute problems of open economy issues and an underdeveloped financial system, leading to output deficits and hyperinflation (particular in the case of Poland). Among other similar studies at the time, Pereira *et al.* (1993), relying on the Polish experience, argued against the reforms from above and against reforms being storm-like measures. In essence, despite their economic elegance, the "big bang" reforms lacked the social dimension, which in turn threatened sustainability of the short-lived economic miracle.

Clearly this discussion is incomplete if limited to only an economic sector effects overview. The human component and humanitarian losses in each country were tremendous. Unfortunately, the nuances underlying the social and distributional policy in the disintegrating USSR were neglected. Rushed privatization of national assets and retreating fiscal support caused the severe breakup of established links across former republics, leaving thousands of employees and their families cut off from reliable sources of finance with no viable replacement (nor opportunities to re-position and acquire new skills) in the interim. Quickly, economic problems set in motion episodes of social unrest across the region. Countries witnessed the appearance of sharp class disparities across population segments. Still drastic divisions between the few rich and many poor permeate the social context of the region (e.g. Milanovic, 1999; Nickel, 2005). As a consequence, social and political transformations following economic determinants assumed unyielding proportions. New and transformed societies have surfaced. Across the region, a transition has evolved into all-out transformation.

1.4 Macroeconomic overview of the 2000s

Coming out of the post-reform crisis was not a simple task. As has been mentioned, most conservative estimates put early 1990s output losses at approximately 40 per cent. In reality, the loss to each economy in terms of physical and human capital was much greater.[10] After the Russian crisis of 1998, which affected FSU economies as well, the trend changed and the formerly socialist economies' performance began to improve. On the macro scale, this can be clearly seen in Figure 1.4 as the GDP growth posted solid positive results after 1998. In the period between 2000 and 2007, several economies posted double digit growth (e.g. on average, Armenia grew at 11.5 per cent, Azerbaijan—16.2 per cent, Kazakhstan—10.3 per cent, Turkmenistan—15.8 per cent; see Mitra *et al*., 2007 on impressive growth in the Caucasus). Current estimates of 2008–2010 growth and the prognosis for the future are reviewed in the concluding chapter of this study. However, overall the trend has been sharp declines in 2009.

Much of the seismic change in the economy came with a preceding change in the political structures of the newly independent states that gave rise to the new elites. The new governments took a more pragmatic and proactive approach in dealing with the economic situation peculiar to each country, although

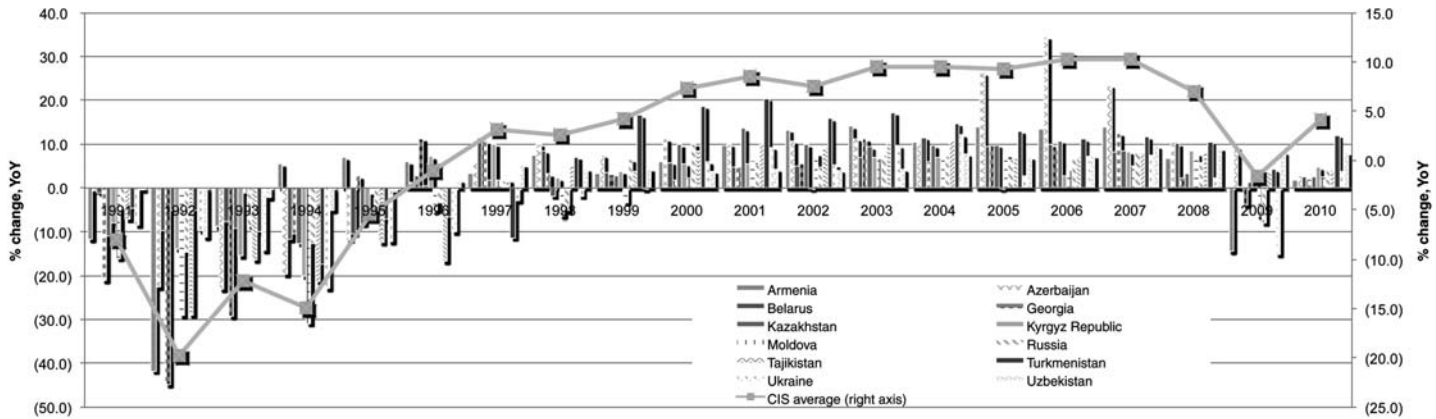


Figure 1.4 FSU annual GDP growth, per cent (1991–2010) (source: author's calculations based on WDI (World Bank 2010) and WEO (IMF, 2010)).

Note
CIS average growth is measured on the right axis. Figures for 2008–2010 are country-specific estimates by the IMF.

post-transition commonalities described above outweighed the differences. While the CIS countries nominally continued participation in the IMF-inspired macroeconomic stabilization initiatives, they sought more independence, especially after the 1998 Russian crisis.

In several countries, per capita income levels either returned to pre-1990s crises levels (as in Russia) or surpassed those levels by 2006 (as in Armenia, Azerbaijan, Belarus, and Kazakhstan, which had 42.2 per cent average growth in GDP per capita according to the World Bank data, as shown in Figure 1.5). Still, there are several economies yet to reach pre-independence income levels, such as Georgia, Moldova, Ukraine, and the Central Asian economies of Tajikistan and Turkmenistan (on average for this group, the 2006 level was 35.1 per cent below the 1990 level). However, it must be noted that in all economies, and in the latter group especially, the GDP per capita grew during the 2000s when compared with 1998 results.

The past few years have been equally encouraging in terms of inflation management in the CIS countries compared with the situation throughout the 1990s (see Figure 1.6). The data clearly shows prolonged periods of hyperinflation in the early 1990s, especially in the smaller economies of Armenia, Tajikistan and Turkmenistan, and also in the larger Ukraine. More recent trends have been on the decline, constraining officially reported inflation to single digits in the

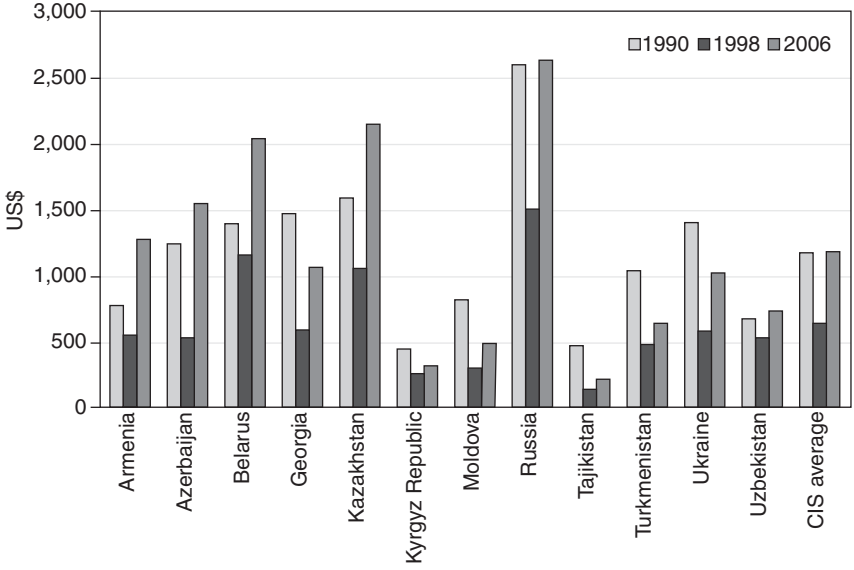


Figure 1.5 GDP per capita in the CIS economies, US$ (1990–2006) (source: author's calculations based on WDI (World Bank, 2008)).

Note
CIS average is on the far right. Due to lack of data, Turkmenistan's 2006 bar reflects data as of 2000. All estimates are in 2000-constant US$.

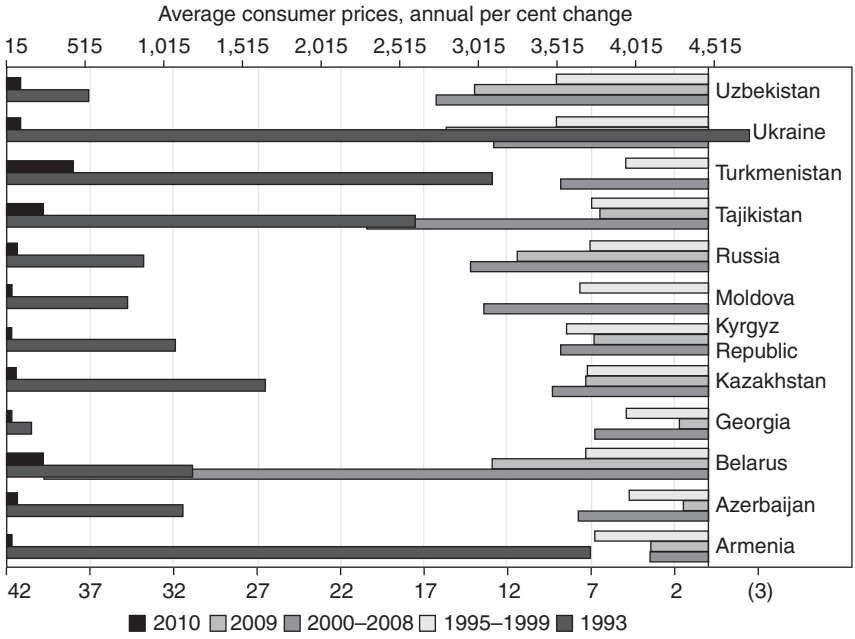


Figure 1.6 Average consumer prices inflation in CIS, per cent, (1993–2010) (source: author's calculations based on WEO (IMF, 2010) data).

Note
2000–2008 and 2010 are on the right/bottom axes; 1993–1999 are on the left/top axes.

Caucasus economies, but also in Kazakhstan and Kyrgyz Republic. But with the spread of the global crisis, CIS economies had to deal with shortages and significant price hikes in some key consumption categories.

The International Monetary Fund's (IMF) extended forecast, adjusted for the current global recession situation, based on staff analyses and official data, shows diverse results for different countries (see Figure 1.6 for data for 2009 and 2010). In mid 2010, the IMF's World Economic Outlook (IMF, 2010) projected decline in inflation rates across CIS, restraining the average price growth to within 3.5 and 10 per cent in 2011 and a further drop until 2015. These estimates are based on current factual data with actuals yet to come.

Adding to the debate is a recent report by the CIS Executive Committee (CISEC, 2008) that links sharp and consistent price-level increase in the CIS economies to the global food prices crisis. Several countries (e.g. Azerbaijan, Kazakhstan, Kyrgyz Republic, Tajikistan, and Ukraine) have seen prices rise to a seven-year high, as indicated in the report. Food items have seen the sharpest price rise across all of the CIS countries, and some governments (e.g. Russia) have

attempted to institute price ceilings—to no avail—to mitigate drastic increases. Other governments have stepped in to impose export restrictions on grain and other basic commodities (e.g. Kazakhstan's recent ban on wheat exports; Ukraine's partial grain, corn, and barley exports restrictions via export quotas). These protective measures helped smooth inflationary pressures in these economies. It is yet to be determined the exact effects these measures may have had on the world markets. Unfortunately, the smaller economies (especially those of Kyrgyz Republic, Tajikistan, and Turkmenistan) may have to seek alternative sources to satisfy their populations' demands for staple items, potentially leading to further deterioration in the economy and social discontent (Lillis, 2008).

Since their independence, the economies of FSU have been actively involved in the international trade. According to CISEC (2008) and supported by data from UNCTAD (2008), the twelve economies have actively traded with each other and other countries in the past several years (Table 1.2). For all economies, on average (including large raw material exporters), imports exceeded exports growth anywhere from 2 to 5 per cent. This can be partially explained through the CIS economies' reliance on imported finished products in the high-tech and machinery sectors. For smaller countries with modest agricultural capabilities, there also appears to be a strong reliance on imported food items.

Overall, CIS countries are net importers with a relatively high negative current account to GDP ratios, as shown in Figure 1.7. Of the twelve economies, only Azerbaijan, Russia, Turkmenistan, and Uzbekistan have reported consistent current account improvement. As will be argued later, Belarus, Kazakhstan, and Ukraine, with modest deficit reversals, may also be added in that group. Characteristic of these top performers is the tilt towards energy resources and raw materials composition of their exports. This then is used alongside other structural factors, categorizing these as net exporters (see Table 1.4 on page 21).

The message of Figure 1.7 is clear: while the early 2000s period saw exports recovery and growth in many CIS economies since the setbacks of the 1990s, the situation is less one-sided in the late 2000s. In fact, available forecasts indicate deterioration in current account in 2008–2010 equal or close to the deficits recorded during the 1994–1999 period. Overall though the above discussion shows that the past ten years have seen improvement and encouraging growth, with several countries returning to and surpassing pre-transition levels. Despite these positive changes, CIS economies challenged by the current crisis are yet to establish a solid presence in the global marketplace.

Problems of poverty and inequality in income distribution are still persistent. Despite authorities' active measures to reduce poverty incidence, recent World Bank data reveals staggering results, with high population proportions living at or below poverty lines.[11] Officially reported data show that an average of 42 per cent of income is concentrated in the top 20 percentile of the population (see Table 1.3). Country specifics matter.[12]

In their review of Latin American inequality, Goni *et al.* (2008) draw attention to the fact that high inequality levels may be indicative of the failure of fiscal policy in terms of its redistributive function—one of Musgrave's (1959)

Table 1.2 CIS imports/exports growth rates, % (1995–2006)

Country	*Imports*				*Exports*			
	1995–2000	*1995–2005*	*2000–2005*	*2005–2006*	*1995–2000*	*1995–2005*	*2000–2005*	*2005–2006*
Armenia	3.35	7.54	15.50	24.12	–0.88	14.79	27.03	5.64
Azerbaijan	10.03	19.04	31.31	25.42	18.51	23.97	18.97	46.59
Belarus	6.10	9.67	17.35	33.61	6.53	10.50	18.56	23.53
Georgia	7.15	13.37	30.56	47.78	12.44	16.59	23.42	14.57
Kazakhstan	2.78	15.05	27.42	36.44	7.01	16.58	27.76	37.35
Kyrgyz Republic	–1.52	3.03	17.91	55.10	1.63	3.44	8.48	18.17
Moldova	–6.48	7.56	24.87	17.45	–11.37	2.27	18.82	–3.64
Russia	–9.34	5.12	22.63	9.77	1.43	10.02	19.18	23.98
Tajikistan	–2.81	4.97	16.14	29.52	0.46	2.42	5.84	53.91
Turkmenistan	18.85	18.15	14.11	4.41	4.90	9.11	14.42	7.80
Ukraine	–5.18	7.25	21.75	24.59	–0.71	10.07	20.79	12.09
Uzbekistan	–5.14	–1.93	6.63	6.63	–5.30	0.21	13.12	13.01
CIS average	1.48	9.07	20.52	26.24	2.89	10.00	18.03	21.08

Source: author's calculations based on UNCTAD (2008) data.

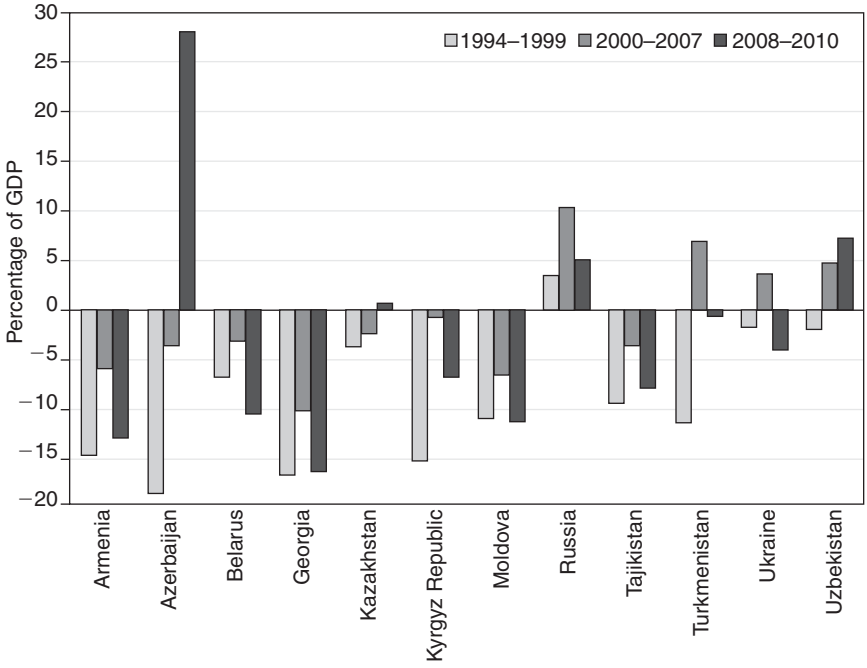


Figure 1.7 Current account balance as per cent of GDP (1994–2010) (source: author's calculations based on WEO (IMF, 2010) data).

classical three.[13] This corresponds to a government's ability to correct for socially adverse distributive results via net transfers adjustment. The authors find fiscal authorities of industrial economies to be more effective at this function than in the developing world. Chapter 3 of this study establishes similar parallels in the case of the CIS economies.

While officially registered unemployment has subdued to single digits in recent years (and slightly above 10 per cent, e.g. Georgia at an estimated 14 per cent), alternative estimates indicate higher and persistent employment problems.[14] The main problem is the lack of employment opportunities for middle-aged old-system-educated professionals unable to compete in the fast-paced market economy with the Western-type-educated younger generations (e.g. see reports on Armenia in Gevorkyan *et al.*, 2008 or Mitra *et al.*, 2007). While the causes for high unemployment vary across each country, transformations of the transition period and lack of developed industrial base to sustain full employment have taken their toll. Exacerbating the situation, as anecdotal evidence suggests, are the notorious incidents of corruption and protection, resulting in job appointments assigned based on personal contacts in the case of the middle-aged

Table 1.3 Inequality in CIS by country and percentiles

Country	*Percentage share of income or consumption*								
	Survey year	*Gini index*	*Lowest 10%*	*Lowest 20%*	*Second 20%*	*Third 20%*	*Fourth 20%*	*Highest 20%*	*Highest 10%*
Armenia	1998	37.9	2.6	6.7	11.3	15.4	21.6	45.1	29.7
Azerbaijan	2001	36.5	3.1	7.4	11.5	15.3	21.2	44.5	29.5
Belarus	2000	30.4	3.5	8.4	13	17	22.5	39.1	24.1
Georgia	2001	36.9	2.3	6.4	11.4	16.1	22.6	43.6	27.9
Kazakhstan	2003	32.3	3.2	7.8	12.1	16.8	23.3	40	24.4
Kyrgyz Republic	2002	34.8	3.2	7.7	11.8	15.7	21.8	43	27.9
Moldova	2002	36.9	2.7	6.8	11.2	15.6	22.3	44.1	28.4
Russia	2002	31	3.3	8.2	12.7	16.9	23	39.3	23.8
Tajikistan	2003	32.6	3.3	7.9	12.3	16.5	22.4	40.8	25.6
Turkmenistan	1998	40.8	2.6	6.1	10.2	14.7	21.5	47.5	31.7
Ukraine	1999	29	3.7	8.8	13.3	17.4	22.7	37.8	23.2
Uzbekistan	2000	26.8	3.6	9.2	14.1	17.9	22.6	36.3	22
CIS average			3.09	7.62	12.08	16.28	22.29	41.76	26.52

Source: author's calculations based on the WDI (various years) data.

professionals. Partially as a result of the lack of employment growth, outward labor migration has been gaining in force, especially in the smaller economies of the CIS. Chapter 5 reviews the issues of labor migration. Here, it is suffice to note the following.

Russia is the main destination country for the labor migrants from CIS countries (Gevorkyan, 2007). Out of a total of 287,000 registered migrants in Russia in 2007, 274,000 were from the CIS countries (Goskomstat RF, 2008). Migrants from smaller economies of Armenia, Georgia, Moldova, and Tajikistan flock to Russia in search of better income opportunities and to capitalize on the country's booming economy. Complications (see Chapter 5) arise from lagging legislation and inadequate migration regulation mechanisms across countries that hinder efficient use of available resources, with no benefit guarantees for the migrant workers.

Further, and perhaps most importantly, there is an urgent need to identify sustainable sources of long-term economic growth in each economy. This is coupled with considerations of aggressive infrastructure and educational reforms (implying research and development and innovation facilities promotion) linked with industrial strategy and a more efficient upgrade of abundant agricultural facilities in each country.

In fact, much of the macroeconomic success of recent years has been dependent on revenues received from raw material exports, labor migrant remittances from abroad, and large-scale (relative to country's GDP) construction projects. In some countries, funds received via foreign aid grants and loans have played an important role in temporarily raising the overall well-being as well. This study alludes to this economic set-up as an overall structural concern from the perspective of growth and welfare sustainability, even in the immediate prospect.

Complicating things further is the apparent ongoing search for the right development model that has descended upon the transition societies in the first decade of the twenty-first century. More specifically, while the negative effects of the all-out *laissez-faire* policies of the early 1990s necessitated proactive government intervention in the economies, the state's flirting with economy has continued.

This study focuses on innovative approaches to fiscal policy analysis deeply interconnected with the socio-economic development. It has been recognized by a number of commentators in the field and calls have gone out to find new approaches to sustainability of economies in the new century (e.g. Mau, 2008; Yasin, 2007; Gaidar, 2007; Yershov, 2007; and others). Remarkably, realization of a need for alternative sources to sustainability has recently been accentuated among the political elites of practically every country. Attention is specifically given to innovative projects in research and development areas, education, infrastructure, support of efficient sectors of the economy, and other social welfare reforms.

To various extents, these policy targets have been incorporated in the presidential addresses and government development programs across respective countries. In some, like in Russia, development incentives are being grouped under close state supervision as "national projects" (*nacional'nye proekty*, e.g. Russia's new innovation project *The Moscow School of Management SKOLKOVO*), strategic for sustainable growth and development.[15] A newly defined

notion of *state-capitalism* has evolved to define the current economic, social, and political model of the countries of the CIS. This is a significant achievement and one not to be taken lightly by any student of transition, or, as appropriately stated above, transformation.

The new approach implies an active and strategic state participation in the economy. This creates a somewhat unique situation by which the economies of the CIS (or at least the main regional leaders, such as Russia, Kazakhstan, and Ukraine) are neither adhering to the textbook-defined free market rules that descended on them with shock therapy reforms nor returning to the old mantra of centrally planned economies. The new set-up is not a market socialism of Hungary, the Czech Republic, or Poland of the 1970s–1980s either. The new concept does not require direct government involvement in the economy. In fact, average government expenditures in total have gone down in all economies from approximately 20 per cent in 1990 to 15 per cent in 2006.

Instead the state's increased role in the transition economies of the FSU in the late 1990s and early 2000s is manifested in the establishment of the so-called *state corporations* and other newly created organizations encouraged or sanctioned by the government of the specific country (see Table 1.5 in the Appendix). Russia (largely thanks to proactive government measures supported by revenues from energy exports) holds the lead in the major adaptation of these new organizations for a competitive market environment.

There, a state corporation is set up by the government (with often guaranteed start-up funds) as a partnership, which makes it nominally independent of the government. Any investment in the corporation becomes the property of that partnership. The corporation is not obligated (yet) to provide any regular reporting to the street, as any other open joint stock company would have. However it does have to provide certain operational reporting directly to the Russian government. The latter provides a general framework and identifies core tasks for the corporations' operations. What the government does not do is try to institute omni-present controls à la Soviet style. The declared purpose of state corporations is not to drive private business out but to fill in the strategic niches where private investment is running thin, so the extra boost is a must.

There is much freedom of action in each corporation's activities as long as the undertaken projects conform to the general mission in each case. The explicit and implied goal is to boost innovation and research and development sectors (e.g. *Rostexnologii* and *Rosnanotex*) integrated with industrial development; support for infrastructure projects (e.g. *Avtodor*); as well as strategic and effective development of energy and natural resources. The nature of the work of each corporation requires outsourcing certain activities to the private sector.

The other country with a clearly defined set of state corporations is Kazakhstan. There, one organization (*Samruk*)—set up as a holding corporation—controls assets and oversees operations of several other corporations, each operating in its dedicated industrial and development sphere. Kazakh state corporations share similar approaches as the Russian prototypes, although with greater emphasis on energy resources management. In both countries, there is a

Development Bank with a mandate of ensuring sustainable, long-term growth and development.

Other CIS countries (e.g. Ukraine, Turkmenistan) also have created various organizations that share the traits of the state corporations of Russia and Kazakhstan. The difference is primarily in scale (the Russian and Kazakh corporations, due to greater available financial resources to both governments, operate on a much larger scale and have made more aggressive entrances in the marketplace) and the mandate. The purpose of the Russian and Kazakh corporations is rooted in promoting development in the competitive sectors with a broad outlook into the new century. Other countries are yet to catch up with this pace. Smaller countries may follow the example and create state-owned holding corporations, as the Russian state corporations seek to branch out and establish their presence in the other CIS economies (but not the well-known Russian *Rosneft', Gazprom* or *Energy Systems* work in other CIS countries).

Finally, it should be noted that state corporations, as in Russia and Kazakhstan, are relatively new institutions and in certain ways come as the pragmatic governments' alternatives to the notorious *oligarchs*. Those were the holding organizations that, on the wave of ill-fated privatization of the 1990s, brought financial and industrial resources in different economic sectors under the control of a few people. State corporations with ambitious developmental causes are organized by and around the new elites that have come to the frontlines of economics and politics in each country.

In this regard, it is important to note the evolvement of the institutional framework over the past two decades in the former socialist societies. Of interest are the newly established institutional players, such as diverse political and economic network alliances between local governments and large private business structures at general and individual levels alike. These networks are the logical by-products of the CIS nations' history and contemporary development. The economic and social impact of the network operations is immense and long-lasting. These strategic alliances, often forged along familial and commercial interest lines, are nothing new to development economics. There exists abundant literature on the subject, covering recent experiences in the Middle East (e.g. Heydemann, 2004; Haggard and Kaufman, 1995), and South East Asia, as well as developed countries, culminating with the success of South Korean *chaebol* as described in Chang (2002) and Amsden (2001).

Furthermore, the pragmatic drive is manifested in authorities' close attention to the state corporations and adaptation of the existing state structures to the real economy's demands (e.g. Russia's recent experience prompted by the financial crisis and revised development targets; more on this in Chapters 7 and 8 of this study). Whether a state-capitalism *à la* Russia and Kazakhstan or as in other countries with strong relationships between political and business elites (as in Armenia, Georgia, and Ukraine, for example) is to succeed as a new approach in development economics is yet to be seen. At this point, based on our analysis and available data, all twelve CIS economies may be grouped in two categories of net exporters and net importers, as can be seen in Table 1.4.

Table 1.4 CIS country groups by main income sources from international transactions

Group	*Country*	*Main export commodity*	*Main export commodity, % of total exports (avrg 1995–2005)*	*Main import commodity*	*Main import commodity, % of total import (avrg 1995–2005)*	*Average share of remittances to GDP (1998–2006) (%)*	*Average share of official aid received to GDP (1998–2006) (%)*
Net exporters	Azerbaijan	primary (fuels)	77.5	manufactured (machinery)	67.2	2.37	3.33
	Belarus	manufactured (machinery)	69.8	manufactured (machinery)	55.1	1.27	0.04
	Kazakhstan	primary (fuels)	48.8	manufactured (machinery)	72.8	0.49	0.79
	Russia	primary (fuels)	48.3	manufactured (machinery)	58.6	0.47	n.a
	Turkmenistan	primary (fuels)	79.2	manufactured (machinery)	80.3	16.81	0.66
	Uzbekistan	raw materials (cotton)	41.7	manufactured (machinery)	81.2	5.96	1.00
	Ukraine	manufactured (misc)	67.5	primary (fuels)	53.0	0.40	0.12
Net importers	Armenia	manufactured (misc)	59.4	manufactured (machinery)	49.6	12.13	11.53
	Georgia	primary (food/ores/metal)	47.7	primary (food/fuels)	50.1	7.58	8.28
	Kyrgyz Republic	primary (agriculture/food)	43.1	manufactured (machinery)	54.9	4.92	17.11
	Moldova	primary (agriculture/food)	63.1	manufactured (misc)	56.3	20.63	5.96
	Tajikistan	primary (ores/metal)	44.1	primary (food/fuels)	52.7	16.86	12.78

Source: author's calculations based on Gevorkyan (2009).

The net exporters group includes Azerbaijan, Kazakhstan, Russia, Turkmenistan, and Uzbekistan. Despite episodes of current account deficit characteristic to all transition economies (see Figure 1.7), the peculiar aspect about these countries is the dominance of the primary (fuels and raw materials) commodities in their exports composition over the past decade. At the same time, these countries' main import commodities are made of manufactured machinery items. Not surprisingly, Russia and Kazakhstan, the two pioneers of what this study refers to as the state-capitalism model are in the vanguard of this group. Two other countries (Belarus and Ukraine) are also added to this group. They hold strong positions in manufactured goods exports, importing primarily fuel, other raw materials, and consumer goods.

The net importers group is comprised of the rest of the CIS economies, which are small in geographic and economic terms. These are relatively large exporters of primary commodities, especially food (with the exception of Armenia, which, aside from food items, exports manufactured goods, in particular jewelry). In terms of imports, the results are mixed, with some countries importing agricultural items while others import machinery and raw materials.

The countries in the second subgroup (Armenia, Georgia, Kyrgyz Republic, Moldova, and Tajikistan) have another shared commonality: high remittance flows and high foreign aid amounts relative to GDP. Nevertheless, some recently managed to post a staggering double-digit growth, raising hopes for rapid continued development (e.g. Mitra *et al.*, 2007 on Armenia). Still, high average shares of remittances to GDP (Moldova 20.6 per cent and Armenia 12.1 per cent for the period 1998–2002 and Tajikistan with almost 17 per cent for the period of 2002–2006) are an indication of the increasing trend and the role remittances—sent by labor migrants abroad to their families at home—play in the economic development of the smaller transition economies. In 2006, the same indicators were much higher (Moldova and Tajikistan each at 36 per cent of GDP; Armenia at 18 per cent; Georgia and Kyrgyz Republic with comparatively lower results). Yet remittances are sent to specific addressees and are only good as long as the recipient remains in the country, which has been problematic in the smaller and economically lagging countries. Recent trends in remittance flows are persistent as above, and are scrutinized in Chapter 5 of this study.

Similar considerations apply in the case of foreign aid transfers, which add up on average to 11.1 per cent of the GDP for the five small economies that have relied on such transfers from the World Bank, the IMF, and other multilateral donor agencies and tranches from advanced economies over the years of transition reforms. Foreign aid funds are mainly directed towards infrastructure, education, and poverty-reduction projects in the recipient countries. However, foreign aid and development grants are often conditional, impeding independent development policy in the recipient economy.[16]

In conclusion, the evidence of economic development of the last decade, and especially in the mid–late 2000s in the post-socialist transition economies of CIS, stands in sharp contrast to the economic, social, humanitarian, and political losses of the early transition period. Much of the success may be attributed to the

proactive governments' roles in the economies of the FSU. Whether or not the region really evolves under state-capitalism remains to be seen.

Two main country groups appear to be on the post-socialist transition map: primary energy and natural resource exporters (the richer economies of Azerbaijan, Kazakhstan, Russia, Turkmenistan, and Uzbekistan, and Belarus and Ukraine to some degree) and a group of net importers and high remittance and foreign aid recipients (Armenia, Georgia, Kyrgyz Republic, Moldova, and Tajikistan). The future of the countries in both groups has in no way been decided. Despite any political alignments with various international organizations or country clubs, the simple economic reality of sustained economic growth and advanced economic development is yet to be discovered. It is then instructive for researchers and decision-makers to monitor the development processes in these countries as suggested by the approach offered in this section, specifically the categorization of the economies based on their export performance and funds received from abroad to GDP ratios. The role of fiscal agents is vital for each country group to grow stronger and introduce further improvements in infrastructure and social services.

1.5 Conclusion

This chapter has attempted to provide a comprehensive overview of the CIS economies and offer a methodological approach to the analysis of fiscal policy role in post-socialist transformation, as well as of the development efforts. The chapter introduces a two-group categorization of the CIS economies based on the external positions. Clearly, definitional issues come first in any discussion of transition economies and countries of the CIS especially. The intensified fiscal participation in larger economies and authorities' alliances with large business in the smaller countries has caused some pundits and politicians in the West and in the region to question the path for economic reforms that the twelve countries follow. Experience shows that state-capitalism is not the CIS economies' invention and variations of the idea have worked in the Middle East, Southeast Asia, and advanced economies such as in the USA, UK, and Germany.

The structural issues facing the transition economies of the CIS are clear and are cause for concern for sustainable development. Whether the large energy resource exporters and net foreign funds receiver nations can achieve realistic economic success in the long run depends on the will of local governments and their proactive steps in bold development policy implementation deemed strategic in the new century. The lessons of free-market reforms have been well learned and all tests passed. The time has come to continue critical assessment of country- and group-specific effects and build upon accumulated foundations to stride forward in the economic and social development.

The next chapter opens up the debate on proactive fiscal policy in the transition economies by tackling one of the most important issues that CIS societies had to face as the trade barriers and price controls were brought down, governments ran out of money, and the borders opened up. In short, the previously

tightly closed economies opened overnight and faced a multitude of issues, dealing with persistent crises and shocks to their operations. Inflows of foreign imports and capital, including speculative—so-called hot money—capital, reached astounding proportions in the face of an almost total output collapse across the locale. The next chapter tests the twin-deficit relationship, scrutinizing the claim that current account deficit might be financed by governmental over-borrowing. As an innovative step in such analysis, the chapter pays close attention to the issues of investment and private consumption. Subsequent chapters look into additional specifics of fiscal policy and the role of state.

Given their historical background and capitalist experience as sketched above, there is a need for a strategic, proactive, and innovative fiscal policy in the CIS economies. This involves not only mere manipulations with the tax code but a seeking of new opportunities for government finance and allocating fiscal resources, in terms of finance, regulation, managerial talent, and other stimulating measures, to the areas that matter most for the development within the general scope of the transition process, such as education, healthcare, infrastructure, and labor migration issues, along with a constructive industrial policy and support for private enterprise. At no time has this been more relevant than now, when the global economy struggles with the recession and the CIS economies absorb some of its worst impacts.

1.6 Appendix

Table 1.5 Some key state corporations in the CIS

Russia

Name	*Year established*	*Earmarked capital*	*Main operations*	*Background website*
Avtodor	2007	RUS4 trillion	Renovation and upgrade of federal highways; toll-roads construction; roads maintenance.	www.mintrans.ru
Deposit Insurance Agency	2004		Paying out deposit compensation insurance; managing deposit insurance fund.	www.asv.org.ru
Olympstroy	2007	RUS300 billion	Preparation for the Sochi 2014 Olympics; transport and energy infrastructure.	www.sc-olympstroy.ru/
Rosatom	2008	N/A	Supervision of nuclear energy complex organizations.	www.rusenerg.ru/expo/17717/index_r.htm
Rosnanotex (The Russian Corporation of Nanotechnologies)	2007	RUS130 billion	Promoting (infrastructure and financial assistance) innovation, R&D in nanotechnology.	www.rusnano.com/
Rosrybflot	2007	N/A	Overseeing fishery industry; promoting efficient use of available and exploration of new resources; fishing shipyard maintenance; new ships construction.	www.mcx.ru
Rostexnologii	2008	N/A	Development, production, and export of high-tech goods.	www.rostechnologii.ru

(continued)

Table 1.5 Continued

Russia				
Name	*Year established*	*Earmarked capital*	*Main operations*	*Background website*
Russian Bank for Development-VEB (Bank Razvitiya)	2007	RUS250 billion	State debt and pensions management, investment projects.	www.rosbr.ru
The Fund for the Support of Reform of Housing Utilities	2007	RUS240 billion	State-owned housing financial reform/upgrade.	www.fondgkh.ru
Kazakhstan				
Name	*Year established*	*Earmarked capital*	*Main operations*	*Background website*
Kazakh Holding for Management State Assets "Samruk"	2006	N/A	Providing efficient management to and maximizing long-term value of group of Kazakhstan's state companies. Actively improving corporate governance. Sectors represented: electric power; oil and gas; telecommunications; industry; defense projects.	www.samruk.gov.kz
Development Bank of Kazakhstan	2001	N/A	Promoting long-term sustainable economic growth by providing competitive financing resources to second-tier investment projects in non-raw materials sectors. Funded projects stress innovation, efficient engagement within existing niches and generation of new approaches to economic growth and development.	www.kdb.kz

Turkmenistan				
Name	*Year established*	*Earmarked capital*	*Main operations*	*Background website*
Turkmengaz	N/A	N/A	Natural gas and oil exploration.	www.turkmenistan.ru/?page_id=5&lang_id=en&elem_id=8715&type=event&sort=date_desc
Turkmenneft	N/A	N/A	Natural gas and oil exploration.	N/A
TurkmenGeology	N/A	N/A	Natural gas and oil exploration.	N/A
Ukraine				
Name	*Year established*	*Earmarked capital*	*Main operations*	*Website*
Antonov	2005	N/A	Airjet modeling and construction.	N/A
Ukrmontazhspetsbud	1950	N/A	Engineering and reconstruction of composite structures (metallurgical complexes, bridges, factories, etc.).	www.umsb.com.ua/index.htm
Scientist's park–Kyiv polytechnic	2007	N/A	Work on R&D and innovation promoting future economic growth. Merger of the the State Agency of Investments and Innovations and National Polytechnic University of Ukraine "KPI".	www.in.gov.ua/index.php?lang=en&get=news&id=98&page=11
State Agency of Ukraine for Investments and Innovations	2005	N/A	Implementation of state investment and innovation policy; promotion of national innovation and R&D strategy.	www.in.gov.ua

(continued)

Table 1.5 Continued

Ukraine				
Name	*Year established*	*Earmarked capital*	*Main operations*	*Website*
Ukrbud	2004	N/A	Strategic development of the construction industry and creation of conditions ensuring increase of competitiveness of industrial, civil, and house construction.	www.ub.com.ua
Uzbekistan				
Name	*Year established*	*Earmarked capital*	*Main operations*	*Background website*
Makhally Sanoat	1992	N/A	Development of the textiles industry and export promotion.	N/A
Uzhleboproduct	1998	N/A	Overseeing grain production/ distribution.	N/A
Uzavtotrans	1998	N/A	Overseeing transportation development.	N/A

2 Fiscal policy in the newly opened economies

Are there twin deficits?

2.1 Introduction

The opening of the borders in the post-socialist economies initiated by the *perestroika* reforms advanced an entirely new set of nuanced concerns of a developing open economy upon the policy makers in the CIS and across the world. These open economy issues came in addition to the already unraveling domestic output collapse, fiscal adjustment problems, and social problems. Much of the early research on the CIS economies focused on specific issues of market transition and growth (e.g. see Pirttila, 2001 for some critique). Today, the time passed since the beginning of the transition process warrants applicability of a more complex approach. This chapter addresses aspects of interrelation of fiscal policy and external trade positions in the newly independent economies, specifically the issue of "twin deficits." The concept has become a powerful tool, reinforcing opposition to government interventions in the economy. This discussion is a contribution to literature on fiscal policy, balance of payments, and economic development in transition.

Derived from a national income identity, the concept of twin deficits has been more often tried on developed economies than in the context of a developing or transition economy. Much of the twin-deficits theory spurred in the developed world, in the United States in particular, in the early part of the 1980s. Although research on the topic within transition economies is growing, just like in the case of the developed world, there seems to be a missing consensus on the true nature of the issue. Destruction of the centrally administered economic links of the USSR unveiled individually characteristic patterns of each former republic's productive operations mode. Reflecting on these issues, this chapter's analysis applies the two-group categorization derived in the preceding discussion: net exporters and net importers.

This chapter critically reviews several empirical tests of government debt evolution and current account. It should be noted that any perceived correlations between current account and budget deficit must be taken with a grain of salt in the case of the transition economies. The actual political and economic conditions, summarized in the preceding chapter, must be taken into account. In addition, there are clearly two periods within a bigger transition time frame that can

be considered here and that would produce divergent results. In the end, the cumulative weight of such nuances coupled with empirical evidence raises more questions than answers, offering no solid theoretical or empirical grounds for the case of twin deficits in the post-socialist economies of the CIS.

The rest of this chapter is structured as follows. Section 2.2 offers an empirical analysis of fiscal budget and current account evolution in the twelve economies. Section 2.3 reviews theoretical cases and reviews some indicative literature on twin deficits. Section 2.4 discusses the main model and data used to establish a relationship between fiscal deficit and current account balance. Section 2.5 reviews empirical results. Section 2.6 offers some insightful extensions to our analysis. The chapter ends with a Conclusion and an Appendix.

2.2 Fiscal balance and current account in the first decades of transition

There is a marked difference in empirical results and actual economic performance between the early transition period and more recent years across all transition economies and CIS countries in particular. Aside from GDP and other aggregate macroeconomic indicator variations mentioned in Chapter 1, that difference is observed in evolution of fiscal deficit and current account balance.

Abrupt fiscal withdrawal from traditionally state-sponsored sectors was part of the early transition to market. Pirttila (2001), citing work on transition economies by Coricelli (1997), stresses the fact that, as government size diminishes under the new policy regime, and social and economic pressures, fiscal revenues fall faster than expenditures. Hence deficits are impossible to prevent in practice. These problems are amplified in conditions of a rapid, i.e. shock therapy, transition when state-owned assets cease to generate the necessary tax revenues and unemployment grows exponentially as firms shed labor.

One of the key problems impeding successful fiscal adjustment in the CIS economies has been the issue of the administrative center-to-regional government contradiction. Larger countries, especially Russia, seem to suffer from this the most, as centrally earmarked funds are channeled in alternative investment projects once reaching the regional accounts. Another issue that stands out has been the emergence of large monopolies that benefited from tax privileges in off-shore accounting or as recipients of benevolent government treatment. These and related issues are reviewed in more detail in the next chapter.

However, fiscal adjustment was not an isolated problem inhibiting possibility of economic take-off in the early years of market reforms. With advancing trade liberalization and the sudden opening of administrative borders to foreign trade, output collapses and the resulting commodity and food deficits of the time were partially compensated by large inflows of imported consumer goods and food products. This in turn has led to significant trade balance deterioration, as practically every post-socialist economy's net export positions turned negative.[1]

To put this in perspective, suffice it to say that the average government balance as share of GDP for all twelve CIS economies in 1992, according to

EBRD (2009), was –14.3 per cent, while average current account balance as per cent of GDP in the same year was –5.8 per cent (and already –11.3 per cent in 1993). Country variations were even more significant. For example, Tajikistan, Moldova, and Georgia (the net importers) entered the first year of transition with general fiscal deficit close to 30 per cent of GDP (–31.2 per cent, –26.6 per cent, and –25.4 per cent respectively). Armenia, Georgia, and Kazakhstan had the highest current account deficits in 1992 (–46.3 per cent, –33.5 per cent, and –25 per cent respectively). Of all the countries, only Turkmenistan recorded official current account surplus of 89.7 per cent. In fact, removing Turkmenistan from the calculation results in an almost perfect match between the average CIS fiscal balance to current account deficit, around –14.5 per cent of GDP.

Things have changed dramatically since the first reforms. Figure 2.1 offers convincing evidence of that. The chart shows evolution of the average fiscal balance and current account balance in relation to GDP over the past two decades for all twelve economies. On average, fiscal balance has been improving (in relation to the early transition years) since the mid 1990s. However, there is a sharp positive spike in the current account balance after 1998, with a more recent trend to deficit primarily induced by the global financial crisis of the late 2000s.

In fact, the year 1998 appears to be the symbolic divider between the period of large fiscal deficits and substantial current account deficits and the consequent period of macroeconomic stabilization and overall budget and trade balance improvement. This could be explained, in part, by the Russian financial crisis of 1998, when the Russian government defaulted on its debt, and as a result the ruble was devalued. In the long run, that gave the benefit of lower priced export goods relative to foreign substitutes. The financial crisis reoriented dominant economic strategies of the smaller countries from the Russian market toward international market access and more responsible fiscal policy.[2]

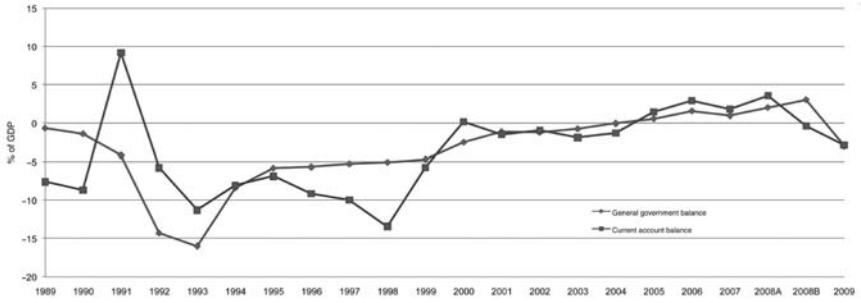
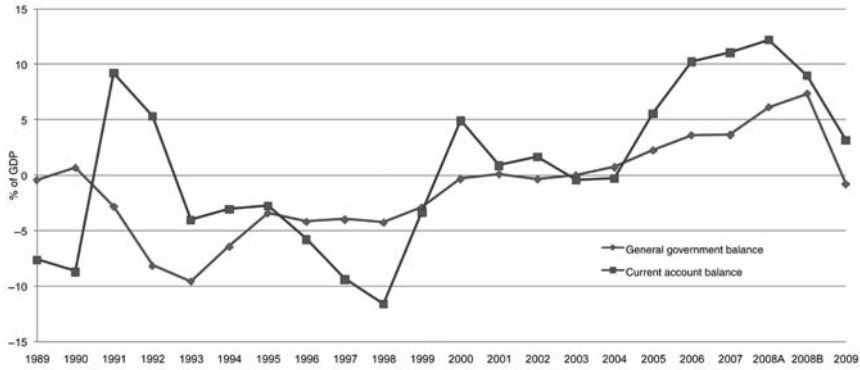


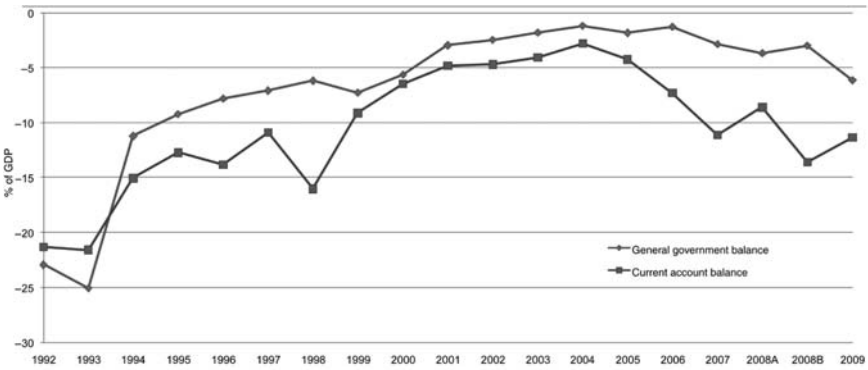
Figure 2.1 CIS average fiscal and current account balances, share of GDP (1989–2009) (source: author's calculations based on EBRD (2009) data).

Note
Unweighted average. 2008A refers to initial pre-crisis estimates; 2008B was derived in late 2009 by EBRD.

Improvement in fiscal and trade balances after 1998 was primarily due to the economic performance of the countries in the net exporters group, as panel (a) in Figure 2.2 indicates. These countries, most notably Russia and Azerbaijan, were able to attain significantly high improvement in a short period of time compared with the net importers group (individual country charts are presented in Figures 2.5–2.16 of the Appendix). For example, based on EBRD (2009) data, between



(a) Net exporters



(b) Net importers

Figure 2.2 CIS groups' average fiscal and current account balance, share of GDP (source: author's calculations based on EBRD (2009) data).

Note
Unweighted average. 2008A refers to initial pre-crisis estimates; 2008B was derived in late 2009 by EBRD.

1992 and 1998 net exporters' average fiscal deficit was around –5.7 per cent, while the current account deficit was –4.5 per cent of GDP.

For the period of 1999–2008, fiscal balance and current account shares of GDP were estimated at 1.3 per cent and 4.2 per cent of GDP respectively. Both positive values indicate fiscal surplus and current account surplus: a significant achievement for the economies undergoing deep-core transformation of their industrial capacities and social order. Current 2008(B) and 2009 estimates suggest slight deterioration on average (0.8 per cent of GDP level for fiscal balance and 3.1 per cent for current account). Net importers, as clearly seen from Figure 2.2 (b) would still remain in deficit with larger actual drops in 2008 (see 2008B) than pre-crisis estimates and continued deterioration in 2009.

There is clearly more than one thing happening in the transition economies that requires a complex analysis. Yet in one of the first focused studies on fiscal policy, Pirttila (2001) points to the problematic approach of the bulk of transition literature: informal treatment of transition specific issues. The focus on either growth or analysis of successful liberalization reforms based on various proxies occurred in isolation from a bigger picture. Namely, that the previously closed economies are now suddenly subject to the characteristic open economy contagion of financial and international trade risks must be taken into account.

Following this logic, it is reasonable to suggest that the presented evidence supports the hypothesis of twin deficits, i.e. current account deterioration resulting in greater borrowing and fiscal deficit to finance increasing consumption. Following the theoretical case of twin deficits, this chapter offers analysis of the hypothesis testing and review of empirical results. Ultimately, attention is drawn to the consideration of the complexity and interrelation of the issues involved in the analysis and specific nature of the economic and social transformation in the post-socialist economies.

2.3 Theory and some empirics of twin deficits reexamined

How the twin-deficits identity is derived

The twin deficits' theoretical case rests on three notions: 1) conventional wisdom; 2) national income accounting identity; 3) scant empirical evidence, which is often out of context. Conventional wisdom, as Milberg (2007: 1) puts it, goes as follows: "when one deficit rises (current account-AVG), so does the other (fiscal balance-AVG)." However, based on the discussion in Milberg (2007), there is hardly a generally applicable twin-deficit case that works globally. Specific country evidence must be examined individually within each country's framework.

National income accounting offers a more convincing theoretical ground to the existence of the twin-deficits problem. The standard approach sees national income, Y, as comprised of private consumption, C, government expenditures, G, investment, I, and net exports ($X - M$), i.e. current account, CA, where X stands

for exports and M for total imports. This relationship at time t is given by equation (2.1) below:

$$Y_t = C_t + G_t + I_t + (X_t - M_t) \tag{2.1}$$

Rearranging, the trade balance must equal the difference between total national savings and national investment:

$$X_t - M_t = Y_t - C_t - G_t - I_t = S_t - I_t \tag{2.2}$$

One of the apparent policy implications from equation (2.2) is the direct relationship between current account and savings and investment factors in the economy. According to these results, increasing investment deteriorates current account balance, while curbing private consumption and government expenditure; hence raising national savings results in current account improvement (surplus). Next, savings, S, can be decomposed into private, S_p, and public, S_g. The accounting for both is $S_p = Y - T - C$, where T stands for taxes, and then $S_g = T - G$. Replacing the term S in (2.2) with revised savings definitions:

$$X_t - M_t = (Y_t - T_t - C_t) + (T_t - G_t) - I_t \tag{2.3a}$$

which is the same as:

$$CA_t = S_{p,t} + S_{g,t} - I_t \tag{2.3b}$$

This last equation (2.3b) serves as the basis for the existence of the twin-deficits argument. Assuming equality between private savings and private investment, as the mainstream view suggests, government's overspending [$G > T$] leads to a CA deficit. It is the assumption here that all variables are explained by the determinants of trade and international financial flows (e.g. real exchange rate and interest rate). Hence a situation of fiscal and current account deficit arises that potentially contributes to a decline in economic activity.

This conclusion is also inspired by the analytical outcomes of the Polak model (based on Polak 1957, 1997) of monetary and fiscal policy prudence. The open economy Polak model suggests that fiscal deficits prolong current account deficits. According to the model, balance of payments solution suggests that an increase in the domestic credit worsens the overall growth dynamics, while increases in exports improve it. To stay on the path of sustainable growth, with a given balance of payments target, improvement comes from a restraint on domestic budget deficit. The model was actively used in the early years to advance the Washington Consensus' ideas of liberalization of prices and trade in the transition economies. Policy implications of such an approach should be clear by now: assuming market clearing (the case of private domestic savings matching private domestic investment), keep fiscal expenditure low so as not to inflate current account deficit beyond unsustainable levels.

Conducting their empirical analysis within national income identity models, as in (2.3b), quite a few researchers find evidence for twin deficits in the developed countries and more recently in transition economies.[3] Publications on transition economies (countries of Central and Eastern Europe in addition to FSU) include papers by Vyshnyak (2000), Fidrmuc, (2002), and Aristovnik (2006), among others. The analysis in these studies is parallel to, and structured along, the above procedures and there is no need to reproduce it here. In terms of empirical tests, there is lack of consensus whether regression results indicate strong correlation between fiscal and current account deficits in the transition economies or whether the outcome is due to data problems.

The reader is reminded that the data sample for transition economies is at most sixteen years long, and for the FSU economies. Further, evidence in support of twin deficits in the post-socialist economies may be due to an intertemporal effect, such as the initial output and industrial collapse with slow recovery in the 1990s. The preceding discussion implicitly confirms this point. Hence the issue of deficit sustainability becomes primary in the analysis of the post-socialist transition process.

Sustainability critique

The sustainability argument is precisely what undermines the theoretical case for twin deficits. This concept is developed below with a following brief transition economy policy discussion. Analysis starts with a case of a closed economy. Continuing with the equation (2.1) taxonomy and simplifying to assume C for total private and public consumption and Y for the income, it is possible to construct a two-period budget constraint for the hypothetical economy. Ideally, one expects national consumption in the first period, C_1, to correspond to total income in the same period, Y_1. Then if $Y_1 > C_1$ a country is most likely lending funds, and if $Y_1 < C_1$ a country must borrow to finance increased consumption levels. Taking r as a rate of return on assets (also treated as a government debt interest rate in consequent discussions), one arrives to a modified relationship:

$$C_2 = Y_2 + (1 + r)(Y_1 - C_1) \tag{2.4}$$

Equation (2.4) now states that consumption in the second period is conditioned by income in the second period and savings $(Y_1 - C_1)$ from period one. However, this last term may also represent the first period's debt that is carried over into period two discounted at rate r. This methodology allows one to derive a simple intertemporal budget constraint (IBC) that establishes a balance between consumed and earned income on a general scale in a two-period setting:

$$C_1 + \frac{C_2}{1+r} = Y_1 + \frac{Y_2}{1+r} \tag{2.5}$$

This then implies that consumption in each period must be equal to income in terms of present value. Next, the constraint can be modified to account for initial

levels of wealth, V_0, and initial net foreign assets, B_0 (alternatively, net foreign assets can be substituted in this model by sovereign debt, a more acute issue for highly indebted countries of both the developed and developing world):

$$C_1 + \frac{C_2}{1+r} = Y_1 + \frac{Y_2}{1+r} + V_0$$

or with initial debt B_0 turns out to be:

$$C_1 + \frac{C_2}{1+r} = Y_1 + \frac{Y_2}{1+r} - B_0$$

which in turn:

$$B_0 = Y_1 + \frac{Y_2}{1+r} - (C_1 + \frac{C_2}{1+r}) \tag{2.6}$$

Hence for the country to remain solvent, sovereign debt should equal a country's total wealth (certainly, B_0 could also be less than net worth to achieve the same result, but not higher, as it would lead to default). The reader is reminded of a possibility of the situation characterized as the Ponzi Game—borrowing to repay interest on prior loans may occur, unless a government takes responsible measures adhering to the IBC derived in the equation (2.6). In fact, the Russian crisis of 1998 fits this construction perfectly, when by mid-year the government was unable to continue servicing its debt.

A more complex critique of the twin-deficits doctrine is the infinite horizons approach that takes a long-run view of national income and borrowing. While no government lasts infinitely, countries do roll over debt and find various ways to sustain high levels of external debt in one period, compensated by revenues in the next. In more formal terms, the infinite horizons model is an extension of the IBC model to a case of open economy (e.g. Obstfeld and Rogoff, 1994, 1996).

First, reverse events one period back. A country starts off with a given level of past income and past consumption as well as some debt [B_{t-1}]. That is done by modifying the equation (2.1), assuming the net exports, or current account, term to be equal to the national debt. The intuition for doing so is straightforward from balance of payments identity: current account equals the financial and capital accounts (assuming any statistical discrepancy is zero). This implies that current account is defined by a change in net foreign assets (or sovereign debt) and is expressed as $(X - M) = B_t - B_{t-1}$, where B corresponds to net foreign assets (or sovereign debt). Then, modifying (2.1):

$$B_t - B_{t-1} = rB_{t-1} - (Y_{t-1} - I_{t-1} - C_{t-1} - G_{t-1}) \tag{2.7}$$

Note that there is a new term, rB_{t-1}, added in (2.7). This term corresponds to actual interest payments on external debt from a prior period. The equation (2.7) expresses a change in sovereign debt as equal to interest payments less primary current account, PCA, (following adaptation from Semmler, 2006). Simplified, equation (2.7) assumes a general notation of:

$$PCA = (Y - I - C - G) \tag{2.7a}$$

Expressing that in a two-period setting, the condition can be written as:

$$PCA_1 + \frac{PCA_2}{1+r} = B_0 \tag{2.8}$$

The constraint stipulates that, with a given initial level of debt, a country should be able to cover the debt in two periods. There is a hypothetical possibility to plan aggregate income, consumption, investment, and government spending. Decomposing the two-period equation (2.8) results in an extended view:

$$Y_1 - (C_1 + I_1 + G_1 + rB_g) + \frac{Y_2 - (C_2 + I_2 + G_2 + rB_g)}{1+r} = B_0 \tag{2.8a}$$

The result is very similar to that in (2.6). In (2.8a), however, the two-period view is extended to an open economy where B_0 represents net foreign assets (or sovereign borrowing from abroad). The two-period model can be extended to an infinite horizon view where value at time *t* of all future income streams, V_t, is defined as:

$$V_t = \int_{t=0}^{\infty} e^{-rt} PCA_t dt = B_0^* \tag{2.9}$$

Here, all future income streams equal to sustainable amount of debt, B_0^*, in a given country. Then the new intertemporal budget constraint becomes:

$$B_t = B_0 - \int_{t=0}^{\infty} e^{-rt} PCA_t dt \tag{2.10}$$

The first term on the right-hand side is the initial debt balance; the second term is defined in (2.9) as a flow of future income streams. Finally, (2.10) determines the current level of sovereign debt, and hence *CA* deficit/surplus, dependent on the government's ability to repay past debt that has been built up over time.

Normally, a country pays a higher risk premium (for generality, assumed here as given by the *r*) when debt outstanding is significantly high or there is a high risk of default. It is then clear that the mechanism of intertemporal budget constraints serves as a precautionary measure leading to responsible finance, limiting state borrowing to realistically sustainable levels. It also shifts a policy argument from over-fixation on current account deficit in a certain period, offering a more extended outlook of balancing activity. Critiquing the above sketched approach are, for example, Johnson (1986) and Morcero (2006) in their separate analyses of Canadian and Argentinean CA dynamics. They respectively found little evidence in support for the intertemporal approach as the sole explanation of current account behavior. Fiscal policy, characteristic to each country (i.e. state obligations under any special programs and other commitments) not present in the model explicitly must be taken into account. A similar argument is derived by Saksonovos (2006) where, while the IBC approach applied to seventeen countries held for the majority, many instances came up with significant deviations from optimal levels. The issue of sustainability is a serious one. In fact, as

confirmed in Ocampo and Taylor (1998), continuing trade deficit may lead to a dynamically unstable situation, underestimating the risk and leading to massive capital outflows, devaluation, and stagflation (e.g. Mexico 1994 and East Asia in 1997).

Still theoretically, the concept of twin deficits is not entirely solid due to a number of factors. First, as Taylor (2004) notes, there is a lack of empirical evidence that such identity holds. Second, as Taylor (2004), Levey and Brown (2005), and others suggest, even in a situation of simultaneous fiscal deficit and current account deficit, one must look not only at the mathematical result but at the qualitative characteristics, specifically the composition of expenditure. For example, despite early 2000s financial fears, the US economy has continued to attract high flows of private capital from abroad. Levey and Brown (2005) estimate that US$1 trillion in foreign transfers in 2004 came into financing private economic activity in the US. Problems with possible competitor currencies, e.g. the euro, and reinforced fiscal drive for economic overhaul in the US, aided by a solid legal system, remain major factors that influence increasing investment flows in the American economy. Further, the bulk of the current account deficit in the developed world is caused by intra-company trade, with companies importing finished goods from their subsidiaries abroad and hence not objectively being a reflection of state finances.

In fact, the causality is probably running in the opposite direction, as the current account deficit is sustained by the overall economic growth and relative stability of domestic economic structures. This structural conclusion is also applicable in the case of transition economies where fiscal efforts to boost economic activity have contributed to a fiscal deficit, while foreign intermediate goods are imported by businesses to start or upgrade operations. The next section sketches the theoretical model in testing the current account and budget balance relationship.

2.4 Main theoretical model and data discussion

The model

The core model is derived based on equations (2.3a) and (2.3b) with slight modifications. The task is to determine the type of relationship between current account and government balance in transition economies using the available data covering the past two decades. In this, the main model follows the standard set-up derived from the national account and product identities and is defined by:

$$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \varepsilon_{i,t} \tag{2.11}$$

Equation (2.11) states that current account (*CA*), at time *t*, in the twelve CIS economies is dependent on the fiscal balance (*FB*) and investment (I), also at time *t*. The subscripts *i* and *t* refer to a country *i* and year *t* respectively. Coefficients *c*, β, and γ refer to a constant term, fiscal balance, and investment coefficients respectively; ε is the error term. Assuming perfect markets (highly unrealistic in the transition economies context), with investment equal saving, coefficient γ may also be referred to as

a "savings retention" parameter. For example, see Mastroyiannis (2007) for similar coefficient treatment in testing savings to current account relationship for Greece.

Evidently, this linear regression does not capture all structural issues involved, as Obstfeld and Rogoff (1996) observe in their survey. These issues rise in their importance, especially in the transition framework with multiple structural adjustments taking place simultaneously. Still, estimating regression (2.11) can help gain an understanding on a possible relationship between fiscal balance and current account. A positive relationship would suggest a possibility of the twin-deficits phenomenon.

Identifying a relationship between investment and current account would suggest the possibility of a Feldstein–Horioka puzzle-like situation in the context of the transition economies. As a reminder, Feldstein and Horioka (1980), in their analysis of OECD, found a strong correlation between domestic savings and investment. That finding was in contrast to the expectation of a lower correlation that would indicate greater capital mobility for internationally integrated advanced economies. Applicable to the current analysis, a statistically significant coefficient $\gamma < 1$ would suggest a possibility of the Feldstein–Horioka puzzle in the CIS economies case.[4] Low correlation of investment to current account corresponds to the relatively closed nature of the transition economies' capital markets to the international capital. This suggests that post-socialist economies mostly rely on domestic savings to finance their investment activities.

The basic model of (2.11) can be further extended to account for intertemporal effects and liberalization progress. These adjustments are incorporated by the main equation modification, as in (2.12) and (2.13) respectively below:

$$CA_{i,\,t} = c + \beta FB_{i,\,t-1} + \gamma I_{i,\,t-1} + \varepsilon_{i,\,t} \tag{2.12}$$

$$CA_{i,\,t} = c + \beta FB_{i,\,t-1} + \gamma I_{i,\,t-1} + \lambda REF_{t} + \varepsilon_{i,\,t} \tag{2.13}$$

Equation (2.12) states that current account in period t (e.g. $t=1$) is determined by fiscal balance and investment in the prior period (i.e. $t=0$). Following a similar structure, equation (2.13) adds a proxy for reforms, REF, in the current period t (i.e. $t=1$). The intuition behind using current period reforms index is explained by two factors: 1) all data used is annual; and 2) in the experience of transition economies, one year has been sufficient to warrant the adjustment of economic activity indicators to various market policy measures. It would be erroneous to disregard presence of lagged response in the transition to policy changes. However, this can be safely omitted here due to the REF definition explained in the *Data overview* section below.

Data overview

All data is annual and comes from the latest EBRD's Transition Report, World Bank's World Development Indicators, and IMF's International Finance Statistics. Available data covers the period of 1989 through the first quarter of 2008 and includes all twelve CIS countries.

The key dependent variable, *CA*, is defined as a ratio of current account balance to GDP in year *t*. A negative value indicates current account deficit. General government balance, *FB*, is similarly a ratio of budget balance to GDP. Here a negative value indicates fiscal deficit. Investment is derived from gross fixed capital formation taken as a ratio to GDP. Finally, reforms index REF is an average of fourteen EBRD transition indicators measured on a scale of one and higher. These annual indicators provide high-level measures for such transition reforms, such as price liberalization, privatization, banking reform, infrastructure upgrades, etc. A higher REF value indicates greater progress in comparison to prior periods. Given data issues, not all countries reported even basic indicators such as GDP or CA. Consequently, those observations had to be excluded from the regression analysis, as indicated by the changing number of observations mentioned in the following discussion.

2.5 Empirical results analysis

Results of the core model defined by equations (2.11), (2.12), and (2.13) are shown in Table 2.1. Several alternative estimation techniques were tried in each case. As indicated in exercises conducted with similar data by Aristovnik (2006), panel data may exhibit heteroskedasticity and serial correlation of the error terms. In this case, a random effects model is recommended. Further, due to missing data for some indicators, there may be fewer observations than countries. Following Beck and Katz (1996), this chapter tries to estimate an OLS regression with panel-corrected standard errors (OLS-PCSE).

Running various OLS estimation techniques of the above-mentioned regression models produces statistically significant results that may be interpreted in support of the twin-deficits proposition. Indeed, in all cases, the fiscal budget coefficient comes up positive and statistically significant, suggesting a positive relationship between current account and fiscal balance. The coefficient varied between the values of 0.4 and 0.6, depending on specific model and estimation technique.

Investment is found as negatively related to the current account in the transition economies. Further, the statistically significant low negative investment coefficient provides a partial basis for confirmation of the Feldstein-Horioka puzzle. It should be noted that, in the transition economies, this phenomenon takes the form of not a *puzzle* per se but rather of a characteristic aspect of transition. This may be claimed due to relatively low infiltration of foreign capital in the transition economies in terms of large-scale projects, with the exception of a few small countries (e.g. Armenia and Georgia).

However, this nuance is not captured in the panel study. If anything, the results of investment to current account relationship indicate the relative security of the transition economies from the instability of international capital markets due to reliance on internal financing.[5] In the context of a reforming small economy, this may be seen as an advantage, with a promise of financial stability. At the same time, issues of "crowding out" of private investment by increased fiscal activity arise in the same context. Chapter 3 of the present study reviews these in greater detail.

Table 2.1 Main model estimation results, all CIS

Regressor/model	$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \lambda REF_t + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	0.649 (0.29)	–0.235 (0.12)	–0.09 (0.04)	0.786 (0.35)	1.847 (0.69)	1.456 (0.48)	3.136 (0.71)	–12.122 (1.87)	–3.825 (0.64)
Fiscal balance, % GDP [FB]	0.627* (6.82)	0.500 (5.36)	0.525* (5.69)	0.665* (6.66)	0.466* (3.79)	0.523* (4.36)	0.685* (6.33)	0.253*** (1.67)	0.453* (3.27)
Investment, % GDP [I]	–0.136** (1.53)	–0.125 (1.57)	–0.124 (1.6)	–0.949 (0.99)	–0.177*** (1.69)	–0.141 (1.39)	–0.105 (1.11)	–0.194*** (1.87)	–0.140 (1.39)
Reforms index, [REF]							–0.958 (0.66)	6.353** (2.36)	2.350 (1.05)
No. of countries [panels]	12	12	12	12	12	12	12	12	12
No. of observations	176	176	176	182	182	182	182	182	182
LM test (prob. Chi^2)			88.68 (0.000)			36.82 (0.000)			34.04 (0.000)
Hausman test Chi^2 (prob. Chi^2)			16.39 (0.0003)			8.03 (0.018)			6.11 (0.106)

Source: author's calculations.

Notes
*, **, *** indicate significance at 1%, 5%, and 10% respectively.
t-statistic absolute values are in parentheses.

As a step aside from the panel set analysis, it is worthwhile to review country correlations, presented in Table 2.2, between current account and fiscal budget and current account and investment. These are calculated based on the same data as the main model and cover the period of 1989 through the first quarter of 2008 (including missing observations, the actual period for most countries is 1992 through 2007).

According to the results in Table 2.2, current account to fiscal balance correlation is most significant in the cases of Georgia (0.88), Tajikistan (0.79), Russia (0.75), Uzbekistan (0.67), and Azerbaijan (0.6). In all countries except Turkmenistan, the *CA–FB* relationship is positive, implying joint movement of the fiscal balance and current account. On average for the twelve countries the correlation is a low 0.43. Current account to investment relationship is negative but also very low at 0.23 on average, with the highest positive results for Armenia (0.8) and Georgia (0.5), indicating small republics' reliance on foreign investments (in particular, for infrastructure projects).

Do the above results offer convincing support for the twin-deficits argument? The results are ambiguous. On the one side, regression results discussed above (see Table 2.1) offer compelling statistical evidence for joint co-movements of the current account and fiscal balance. On the other side, results do not unveil the true relationship nor bear any qualitative significance in terms of the causes for either current account or fiscal balance evolution.

The last argument is important. As a reminder, Chapter 1 and earlier sections of this chapter have already covered the specifics of transition development. Despite their individuality, all post-socialist economies had to cope with significant output collapses, further opening the borders and letting imported final

Table 2.2 Current account to fiscal balance and to investment correlation

Country	*CA–FB*	*CA–I*
Armenia	0.28	0.85
Azerbaijan	0.60	–0.46
Belarus	0.15	–0.41
Georgia	0.88	0.50
Kazakhstan	0.33	–0.31
Kyrgyz Republic	0.49	–0.28
Moldova	0.00	–0.10
Russia	0.75	–0.56
Tajikistan	0.79	–0.94
Turkmenistan	–0.09	–0.56
Ukraine	0.34	–0.59
Uzbekistan	0.67	0.16
Average	**0.43**	**–0.23**

Source: author's calculations based on EBRD (2009), WDI (World Bank, 2009), and IFS (IMF, 2009) data.

Note
Results reflect simple average for the 1989–2008 period.

goods flood domestic markets. Further, in the post-reforms vacuum of solid institutional players, the government increased its involvement in economic and social matters. Some "too-big-to-fail" enterprises and banks were offered central government financial backing. Pensions and other employee compensations as well as defense and administrative expenditures had to be covered. These had little relation to the increasing CA deficit.

2.6 Some extensions to the main model

Considering the sovereign debt

In an effort to develop a statistically meaningful alternative to the main model, the following has been done. First, the main regression equations have been modified to account for sovereign debt term. Second, all models are re-estimated assuming that the two-decade reform period could be split into sub-periods: 1989–1998 and 1999–2008, i.e. first transition years through the Russian financial crisis of 1998, and post-shock therapy period, right after the Russian financial crisis of 1998. Specifically, we re-ran the regressions for the second sub-period. Finally, the main and extended models for all years and the second sub-period are re-run based on the two broad country categories: net exporters and net importers. Results of these extensions are described below.

The issue of sovereign debt is an important one in the transition economy context.[6] As recently as 2001, Tajikistan's external debt in relation to GDP exceeded 121 per cent (ironically representing a significant improvement from 216 per cent ten years earlier, in 1991, according to the EBRD 2008 data). Service on debt outstanding (expressed in relation to exports of goods and services) ranged between 1 and 38 per cent during different years. This provides empirical validation for the inclusion of the debt component in the intertemporal current account analysis discussed earlier. Based on that analysis (and hard-to-obtain consistent data for transition economies), the extended model now accounts for debt service and its relation to current account. A modified set of regression equations (2.1–2.3) is given by:

$$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \omega(rB_{i,t}) + \varepsilon_{i,t} \tag{2.14}$$

$$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \lambda REF_t + \omega(rB_{i,t-1}) + \varepsilon_{i,t} \tag{2.15}$$

$$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \omega(rB_{i,t-1}) + \varepsilon_{i,t} \tag{2.16}$$

Equations (2.14–2.16) are written in the familiar form with added debt service term, where rB is the actual service payment on debt outstanding (given interest rate r) and ω is the corresponding coefficient. As a proxy, the model uses EBRD's indicator of debt service as a percentage of total exports of goods and services.

Estimation results are presented in Table 2.3 below. Adding the new term to the main model does not seem to alter the direction of the general government

balance relationship to current account balance. In fact, the new results estimated in a consistent manner with the main model produce a statistically more significant positive relationship. Investment still displays a negative relationship with current account evolution and the debt service coefficient is also negative.

Based on the extended model results, it is not possible to reject statistical coincidence of the fiscal and current account balance deficits. Qualitatively, the story remains mixed, as explained in the comments to the main model. At best, it is safe to assume that the nature of the transition period implies governments' high borrowing from abroad to sustain continued imports flow and financing of various domestic projects through state agencies. This argument is reinforced by considering the notoriously deteriorated tax base in the transition economies and the central government's lack of financial resources, particularly in the smaller economies. Those able to control their debt are most likely to see improvement in their net exports.

The second decade of the transition period and country categories

The next step in the analysis is to look at the significance of the second period of reforms and address the issue of countries' different external positions. Regressions (2.1–2.3) and (2.14–2.16) are estimated based on the data for the period of 1999 through 2008. Estimation results are presented in Table 2.4. These new, smaller sample, results show a positive relationship between fiscal and current account balance, as in the above-described regression tests. Results are statistically significant with a positive sign, suggesting a direct relationship between the two variables.

Results for investment, debt service, and reforms index are consistent with earlier estimations and comply with expectations. A tempting general conclusion that could be drawn is that twin-deficits issues matter and transition economies rely on their own finance in carrying out large capital-intensive projects. Finally, as stated above, countries able to control their debt payments are likely to see net exports improvement.[7]

This leads to another exercise, a review of country performance based on country groups. Regressions (2.1–2.3) and (2.14–2.16) were estimated based on the preceding discussions for the core and extended model separately for each country group. The same tests have also been carried out for the reduced sample, covering the time period of 1999–2008, as mentioned above. These estimation results are shown in Table 2.8 and Table 2.9 of the Appendix for the net exporters and net importers groups individually.

In general, net exporters results are consistent with the earlier findings of the positive fiscal to current account balance relationship in the larger and shorter samples. Investment and debt service, on average, report negative coefficient signs, as above. The latter results are consistent with economic theory and common sense. This is so considering that net exporters are larger countries better fitted with self-sponsoring of internal capital-intensive projects and reducing their debt service burden.

Results are somewhat more ambiguous as we look at the performance of the net importers group. According to the regression output in Table 2.9 of the Appendix, there appears to be a negative relationship between fiscal balance and

Table 2.3 Extended model results (with debt service term)

Regressor/model	$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \omega(rB_{i,t}) + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + t\ \omega(rB_{i,t-1}) + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \lambda REF_{i,t} + \omega(rB_{i,t-1}) + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	9.726 (2.42)	9.476 (4.19)	9.75 (3.93)	8.579 (3.0)	7.938 (2.84)	8.012 (2.75)	11.916 (2.76)	–9.256 (1.06)	7.969 (1.47)
Fiscal balance, % GDP [FB]	1.195* (10.7)	1.069* (8.56)	1.098* (8.76)	1.011* (7.9)	0.804* (5.21)	0.886* (5.82)	1.036* (7.69)	0.503*** (2.38)	0.887* (5.47)
Investment, % GDP [I]	–0.459* (4.67)	–0.311* (3.73)	–0.366* (4.52)	–0.369* (2.99)	–0.274* (2.65)	–0.318* (3.26)	–0.383* (3.26)	–0.335* (3.15)	–0.318* (3.25)
Debt service, [rB]	–0.045 (0.6)	–0.257* (3.17)	–0.168** (2.2)	–0.023 (0.29)	–0.205** (2.03)	–0.104 (1.15)	–0.007 (0.09)	–2.49*** (2.45)	–0.104 (1.12)
Reforms index, [REF]							–1.416 (0.89)	8.23 (2.07)	0.020 (0.01)
No. of countries [panels]	12	12	12	12	12	12	12	12	12
No. of observations	160	160	160	160	160	160	160	160	160
LM test (prob. Chi^2)			54.76 (0.000)			26.45 (0.000)			22.61 (0.000)
Hausman test Chi^2 (prob. Chi^2)			10.60 (0.0141)			0.42 (0.937)			11.24 (0.024)

Source: author's calculations.

Notes
*, **, *** indicate significance at 1%, 5%, and 10% respectively.
t-statistic absolute values are in parentheses.

Table 2.4 Main and extended model results–second reforms period

Regressor/model	$CA_{i,t} = c + \beta FB_{i,t} + \gamma' I_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma' I_{i,t-1} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma' I_{i,t-1} + \lambda REF_t + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	15.722 (5.89)	14.678 (4.49)	15.082 (4.94)	10.706 (2.85)	9.830 (2.41)	10.011 (2.62)	21.907 (5.38)	12.006 (0.56)	20.977 (2.85)
Fiscal balance, % GDP [FB]	1.418* (8.42)	0.937* (3.43)	1.129* (4.58)	1.196* (4.96)	0.660** (2.23)	0.849* (3.04)	1.235* (5.46)	0.682*** (1.88)	0.949* (3.39)
Investment, % GDP [I]	–0.644* (5.73)	–0.625* (4.77)	–0.630* (5.53)	–0.409** (2.54)	–0.409* (2.52)	–0.401* (2.84)	–0.428* (2.83)	–0.404** (2.34)	–0.399* (2.88)
Reforms index, [REF]						–4.620*** (2.52)	–0.983 (0.1)	–4.700 (1.72)	
No. of countries [panels]	12	12	12	12	12 12	12	12	12	
No. of observations	95	95	95	107	107107	107	107	107	
LM test (prob. Chi^2)			13.58		15.15				10.23
				(0.0002)		(0.0001)			(0.0014)
Hausman test Chi^2 (prob. Chi^2)			2.87 (0.238)		4.12 (0.127)			3.11 (0.376)	

Regressor/model	$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \omega(rB_{i,t}) + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \omega(rB_{i,t-1}) + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \lambda REF_{i,t} + \omega(rB_{i,t-1}) + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	18.153	17.977	17.951	12.278	12.115	12.214	22.703	12.572	22.030
(5.86)	(5.33)	(5.35)	(3.22)	(2.92)	(2.98)	(5.05)	(0.60	(2.84)	
Fiscal balance,	1.485*	0.824*	1.101*	1.222*	0.575**	0.806*	1.252*	0.579***	0.903*
% GDP [FB]	(8.91)	(3.1)	(4.52)	(4.91)	(1.96)	(2.91)	(5.35)	(1.61)	(3.22)
Investment, % GDP [I]	–0.672*	–0.579*	–0.630*	–0.420*	–0.334**	–0.381*	–0.435*	–0.332**	–0.381*
(5.7)	(4.55)	(5.58)	(2.64)	(2.04)	(2.68)	(2.29)	(1.93)	(2.72)	
Debt service, [rB]	–0.116**	–0.311*	–0.199**	–0.086	–0.286**	–0.187***	–0.059	–0.286**	–0.166***
(1.91)	(2.73)	(2.1)	(1.0)	(2.13)	(1.62)	(0.69)	(2.12)	(1.46)	
Reforms index, [REF]							–4.502**	–0.206	–4.319***
							(2.53)	(0.02)	(1.48)
No. of countries [panels]	12	12	12	12	12	12	12	12	12
No. of observations	95	95	95	107	107	107	107	107	107
LM test (prob. Chi^2)			14.61			17.48			11.24
			(0.0001)			(0.0000)			(0.0008)
Hausman test Chi^2			6.74			6.11			5.4
(prob. Chi^2)			(0.0806)			(0.104)			(0.2482)

Source: author's calculations.

Notes
*, **, *** indicate significance at 1%, 5%, and 10% respectively.
t-statistic absolute values are in parentheses.

current account balance, even when tested using alternative techniques. Notably, this result is obtained in the smaller sample covering 1999–2008.

The importance of this finding, albeit with lower significance as earlier results, must be assessed with caution. First, the negative relationship between fiscal balance and current account balance contradicts the twin-deficits argument. Second, the fact that this occurs in the smaller sample that covers the second transition decade of macroeconomic normalization in the CIS reinforces the argument against the twin-deficits causality. Finally, these conclusions must be taken with a grain of salt, due to possible data issues. Nevertheless, the second decade of the transition process has been characterized by increased macroeconomic stability and the introduction of responsible development policy, specifically fostering of market institutional framework and support of private business across the CIS space, as well as the net importers.

The fact that the negative relationship is detected in the net importer economies is also significant for another reason. Recall that these five small economies are net recipients of workers' remittances and other financial transfers from abroad (see Chapters 4 and 5 of this study). On the micro level, increasing transfers to private recipients alleviates pressures on fiscal agencies. Hence fiscal budgets are cut and public expenditure is allocated towards other priorities. In the meantime, with domestic productive capacities reduced (either due to industrial underdevelopment or price competition), funds procured via private transfer channels are spent on private consumption of imported goods, driving up the current account deficit. The lack of a significant relationship of the fiscal budget and current account may also be captured by correlations calculated based on the same data as the regression models described above. The results of these correlation tests are shown in Table 2.5.

Based on results in Table 2.5, fiscal balance to current account relationship is negative in quite a few cases, including countries from both groups. On average, the association is relatively weak (0.26). However, it appears to be strongly positive in the case of Uzbekistan, Armenia, Turkmenistan, and Azerbaijan (0.89, 0.80, 0.79, and 0.66 respectively). Similarly, fixed capital formation to current account association is also weak in the second transition decade (with the exceptions of Armenia and Uzbekistan, at 0.86 and 0.71). Several issues arise from the conducted empirical tests and we summarize those in the concluding section. These issues relate equally to empirical estimation methods and implied theoretical derivations. Most importantly, they involve considerations of policy measures. However, first we address some extensions to the core analysis.

Private consumption relation to current account

Another important extension to the core model is structured around private household consumption. This is prompted by two factors. The first is due to consumption being a major component of the total national income, as in national income identities. Then, current account balance as in the equation (2.17) is expressed in terms of national income, government expenditure, investment, and private consumption:

Table 2.5 Current account to fiscal balance and to investment correlation

Country	*CA–FB*	*CA–I*
Armenia	0.80	0.86
Azerbaijan	0.66	–0.63
Belarus	–0.60	–0.10
Georgia	0.25	–0.19
Kazakhstan	–0.06	–0.42
Kyrgyz Republic	0.31	–0.57
Moldova	–0.13	–0.76
Russia	–0.21	–0.43
Tajikistan	0.57	0.46
Turkmenistan	0.79	–0.57
Ukraine	–0.14	–0.53
Uzbekistan	0.89	0.71
Average	**0.26**	**–0.18**

Source: author's calculations based on EBRD (2009), WDI (World Bank, 2009), and IFS (IMF, 2009) data.

Note
Results reflect simple average for the 1989–2008 period.

$$X_t - M_t = Y_t - C_t - G_t - I_t \tag{2.17}$$

This relation is derived from national income decomposition exercises reviewed earlier.[8] Hypothetically then with growing income (Y), holding government expenditure and investment constant, a current account surplus is negatively related to consumption. This implies that any increase in consumption expenditure would result in increasing imports (i.e. current account deficit). Figure 2.3 puts this relation in perspective.

The negative relationship between current account surplus and private consumption is apparent from Figure 2.3 above for almost all countries. In the transition economy context, this may happen for two obvious but polar reasons. First, increasing consumption may be seen as an early indication of the economic improvement as a consumer economy takes off. In the short run, there may be an increase in imports due to time lag required for the domestic economy to pick up the production pace. In Keynesian terms, growing consumption may then translate into effective demand, stimulating development of home-bred production capabilities. In the medium run, this may be interpreted from the positive side.

The other reason explaining increasing consumption and its negative relation to current account surplus is directly the opposite. In fact, evidence from early transition years, discussed in Chapter 1, points ever more to that. The output collapse in the new market economies and resulting inability to satisfy domestic consumption needs with local resources worked as complementary factors, influencing increased demand for moderately priced imported goods of better quality and relatively easy accessibility compared with the lack of, or deficient, home-made products.

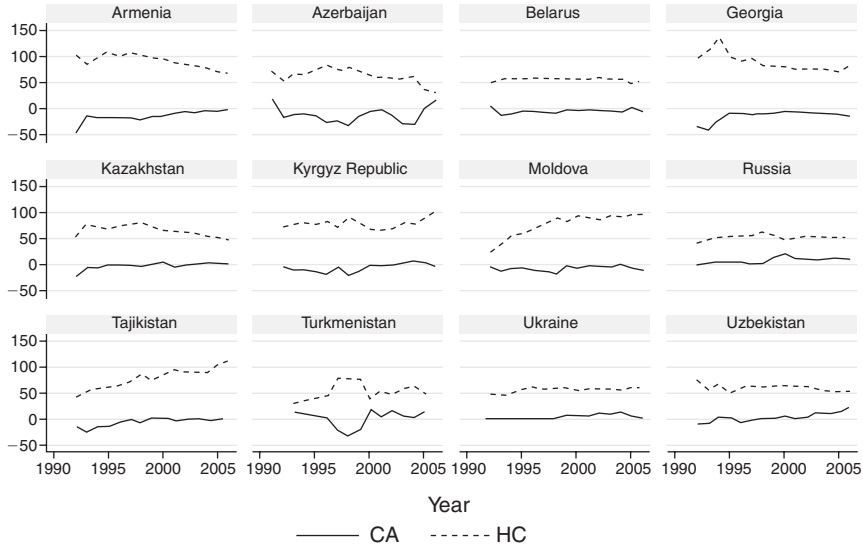


Figure 2.3 Private consumption and current account by year, by country (source: author's calculations based on data from EBRD (2008) and WDI (World Bank, 2008)).

The second factor prompting analysis of current account in connection with private consumption is derived from the above statement. The nature of transition economies' development is such that there continues to be a high degree of substitution of domestically made goods by better quality and more efficient foreign goods. Despite the fact that some countries run current account surplus, even they still import final consumer products.

As has been established in Chapter 1, those with current account surpluses are mainly raw material exporters. Therefore, even in these cases of large economies, consumers look for, for example, foreign cars, imported durables, clothes, and certain services (e.g. financial services) since the manufacturing production in these sectors remains at its rudimentary stages. In certain smaller countries (e.g. Armenia, Georgia, and Moldova), shares of consumer goods production is even lower than in the larger economies.

However, the demand for consumer goods and services must be satisfied and that is done via inflow of imported goods and services. In the development context, this has a major implication in terms of industrial growth and development policy. As many observers have noted, a complex industrial policy largely defined the successes of the Asian Miracle, or even post-war Western Germany or Japan (see, for example, Amsden, 2001 or Chang, 2002). Chapter 1 noted that attempts to implementation of such policies via state corporations are made in the transition economies. Still, this is a recent phenomenon, characteristic of the larger economies, rather than being a general trend across all CIS. Therefore,

private consumption may be the primary determinant of the current account deficit, while the government runs a fiscal deficit to support its social programs (e.g. health benefits and education, as reviewed along with other domestic public policy priorities in Chapter 3).

This leads to the conclusion that the primary determinant of current account deficit is not really the fiscal policy, as the twin-deficits theory would suggest, but consumer spending that is influenced by reasons other than availability of credit or expansionary monetary policy (something more characteristic of the financial systems of the developed capitalist economies of North America and the European Union). In that case, there should be a strong negative correlation between consumption spending and current account. These correlations are observed in Table 2.6.

Again the separation between the first decade (of transition reforms) and the second decade (time of macroeconomic stabilization, some growth, and more Keynesian policies) is relevant here. The correlation is greater in the second decade. That indirectly supports our statement regarding non-consumer products oriented growth—that is, while economies get richer and spending rises, this is not necessarily due to an increase in consumer goods domestic manufacturing. In other words, spending is directed towards better quality imports rather than domestic goods. Individual country results offer support for a much stronger relationship (as in the cases of Armenia and Uzbekistan, for example). In the longer time period (twenty years; results are in the second column in Table 2.6 above), the relationship is weaker on average but is still significant for the net importer countries and some net exporters. Certainly, one must take into consideration (as with any generalization)

Table 2.6 Consumption and current account correlation, 1989–2008/1999–2008

Country	*1989–2008*	*1999–2008*
Armenia	–0.69	–0.96
Azerbaijan	–0.48	–0.71
Belarus	–0.53	–0.50
Georgia	–0.62	–0.06
Kazakhstan	0.06	–0.35
Kyrgyz Republic	–0.24	–0.29
Moldova	0.03	–0.08
Russia	–0.04	–0.85
Tajikistan	0.78	–0.11
Turkmenistan	–0.89	–0.93
Ukraine	0.33	–0.64
Uzbekistan	–0.65	–0.94
Average	**–0.25**	**–0.53**

Source: author's calculations based on EBRD (2009), WDI (World Bank, 2009), and IFS (IMF, 2009) data.

Note
Results reflect simple average for the 1989–2008 period.

reliability of the available statistical data. Still, these preliminary results offer support for the consumption to current account relation discussed above.

To gain additional confirmation, a new test is derived below from the initial regression model explained in Section 2.4. The focus is on the relationship between household consumption (*HC*) and current account (*CA*) in the current period and with a one-period lag. In addition, the model estimates the effects of household consumption and of fiscal balance change over current account surplus. The new model is formally defined as follows:

$$CA_{i,t} = c + \beta HC_{i,t} + \varepsilon_{i,t} \tag{2.18}$$

$$CA_{i,t} = c + \beta HC_{i,t} + \lambda FB_{i,t} + \varepsilon_{i,t} \tag{2.19}$$

$$CA_{i,t} = c + \beta HC_{i,t-1} + \lambda FB_{i,t-1} + \varepsilon_{i,t} \tag{2.20}$$

Similar to the logic of the earlier discussed tests (defined in 2.1–2.3 and 2.14–2.16), the equations (2.18) through (2.20) test for a relationship between current account surplus (*CA*) in the current period and: 1) household consumption in the current period (equation 2.18); 2) household consumption and fiscal balance change in the current period (equation 2.19); and 3) household consumption and fiscal balance evolution with a one-period lag. As with previous estimations, all variables are taken as ratios to GDP and are consistently derived from the same data sources for each economy. Final results are presented in Table 2.10 of the Appendix. Estimation was conducted for the full sample, net importers, and net exporters groups for two time periods: full two decades time set and for the shorter period (i.e. 1999 through 2008).

Regression results indicate a strong negative relationship between household expenditure and current account surplus for all country groups. As before, to test this outcome, at least three statistical estimation methods were utilized. The point is not to identify the best fit but to illustrate the relationship. In that, all tests, with exceptions in the reduced net importers case, indicate existence of the negative correlation of current account surplus to household expenditure.

These results are informative and offer sufficient basis to support the discussion above regarding the nature of consumption spending and the nature of the current account deficits in the transition economies. These results have clear policy implications in terms of macroeconomy and development targets, especially in the smaller net importer economies, but are equally important in the larger, net exporting, economies. Some of these imminent policy implications are addressed below.

Special case: commodities exports in the net exporters group

The final extension to the core analysis comes as a special case to the above outlined model. Here the focus is on the net exporters group only. A new factor is added to the model: commodities exports as a share of GDP (COM). The intuition behind this addition is simple. Since much of net exporters' current account

surplus is driven by energy and raw material exports, it is reasonable then to assume that a positive relationship exists between the two. This sub-section develops a test that helps scrutinize the relationship in detail.

Few clarifying remarks on the new data are due. Estimates for commodities exports are derived from the UNCTAD (2008) dataset and initially include separate information on fuel and metal exports expressed in monetary units. Combining the two and using the annual GDP data, one is able to derive a composite estimate of primary commodities exports in relation to GDP by country. Given the seven net exporters countries, this is sufficient to adjust the panel set and carry out meaningful analysis.

To skip through specifics covered at length in the previous sub-sections of this chapter, the augmented model is defined along familiar lines:

$$CA_{i,t} = c + \beta HC_{i,t} + \mu COM_{i,t} + \varepsilon_{i,t} \tag{2.21}$$

$$CA_{i,t} = c + \beta HC_{i,t} + \lambda FB_{i,t} + \mu COM_{i,t} + \varepsilon_{i,t} \tag{2.22}$$

$$CA_{i,t} = c + \beta \Delta HC_{i,t} + \mu \Delta COM_{i,t} + \varepsilon_{i,t} \tag{2.23}$$

$$CA_{i,t} = c + \beta \Delta HC_{i,t} + \lambda \Delta FB_{i,t} + \mu \Delta COM_{i,t} + \varepsilon_{i,t} \tag{2.24}$$

Equations (2.21) through (2.24) follow an already familiar pattern, with the addition of one new term, i.e. $COM_{i,t}$, the term for the commodities exports as a share of GDP of country i in the year t. All variables in this model are measured in terms of GDP shares.

Equations (2.23) and (2.24) also reflect the annual change effects of consumption, fiscal balance, and commodities exports and their relation to current account balance in the current year. The implications of this approach are explained below. Using country-specific data, one is able to derive trend charts for each country, tracking current account and commodities exports changes. These charts are shown in Figure 2.4 below. The striking observation is the positive correlation, at least graphically, between the two factors. Granted commodities exports represent a subset of total exports, hence enter one side (positive) of the current account; an observed positive relation then offers more substance to our investigation.

This relation is profound for such countries as Azerbaijan, Russia, and Turkmenistan. The net exporters group also includes such countries as Belarus and Uzbekistan. While these are not primary energy or metal exporters (recall that Belarus is mainly a machinery exporter and Uzbekistan is the cotton exporter), the relatively large shares of the two commodities in these countries' total exports warrants the two economies' inclusion in the analysis (fuel and metal exports are around 30 per cent and 25 per cent of total exports for Belarus and Uzbekistan respectively).

Utilizing similar technical tools as earlier to estimate equations (2.21) through (2.24), results are derived and presented in Table 2.7. These results confirm the stated hypothesis of positive relation, but must be treated with caution. In fact, it

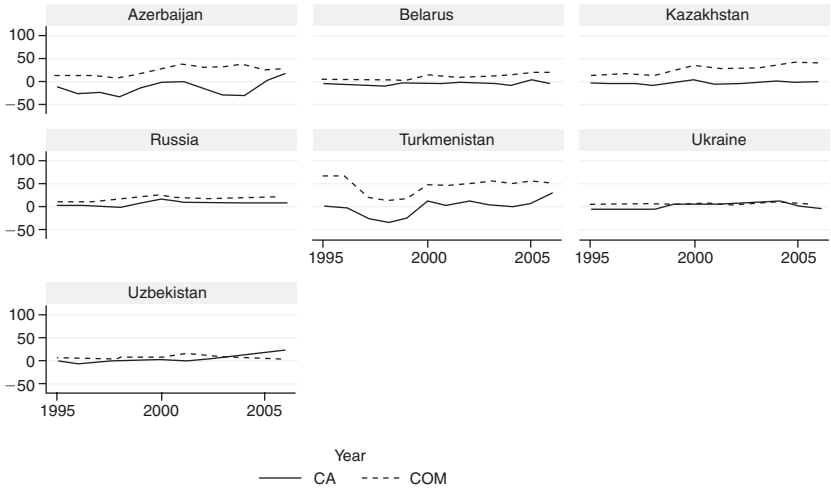


Figure 2.4 Commodities exports and current account by year net exporters (source: author's calculations based on UNCTAD (2008), EBRD (2008), and WDI (World Bank, 2008)).

appears that, depending on an estimation method chosen, the sign on the *COM* variable changed from positive to negative. This is clearly seen in the results summary in Table 2.7. This is largely due to the data quality and small number of observations. Consistent and statistically significant coefficients were returned by the fixed effects method. Both coefficients on private consumption and fiscal balance came with signs consistent with our prior investigation (see above discussion for detailed analysis).

As mentioned, two relations in terms of time—current year relations and current to a prior year change—were analyzed in the estimation procedure. These results are easy to locate in Table 2.7 by following the respective equations. The rationale for looking into commodities exports' changes is as follows.

Since *COM* make up a large portion of net exports for the economies in question, changes in *COM* (i.e. ΔCOM) would also imply positive changes in the current account. In fact, that is what we find when estimating equations (2.23) and (2.24). Curiously (and crucially), private consumption coefficients, ΔHC, remain negative.

As primary commodities (fuel and metal) exports grow across net exporter countries, private consumption levels also grow but remain negatively correlated to the current account. So far, as the evidence suggests (see Chapter 1), this has resulted in a net current account surplus. In the end, it becomes the race between an ever-increasing private consumption satiated primarily by better quality imported consumer goods and revenue from the primary commodities exports. The latter, the main net exporters' income, holds the seven economies hostage to the changes in energy and raw materials demand.

Table 2.7 OLS results with commodities exports (net exporters, 1995–2006)

Regressor/model	$CA_{i,t} = c + \beta HC_{i,t} + \mu COM_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta HC_{i,t} + \gamma FB_{i,t} + \mu COM_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta \Delta HC_{i,t} + \mu \Delta COM_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta \Delta HC_{i,t} + \gamma \Delta FB_{i,t} + \mu \Delta COM_{i,t} + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	50.703	30.942	42.292	50.3	30.819	40.87	–1.607	–1.879	–1.826	–1.857	–1.68	–1.839
Fiscal balance, % GDP[FB]				0.095 (0.31)	0.094 (0.37)	0.121 (0.48)				0.444** (0.92)	–0.359 (0.78)	0.35 (0.60)
Household Consumption, % GDP [HC]	–0.864* (7.67)	–0.604* (5.11)	–0.747* (7.64)	–0.853* (6.53)	–0.597* (4.94)	–0.721* (6.99)	–0.407*** (2.30)	–0.593* (5.03)	–0.549* (4.41)	–0.401 (2.21)	–0.6* (5.06)	–0.425* (2.78)
Commodities exports, % GDP [COM]	–0.101*** (2.51)	0.151*** (1.23)	–0.015 (0.18)	–0.107*** (2.34)	0.1405 (1.11)	–0.011 (0.13)	0.526* (2.98)	0.568* (4.53)	0.557 (4.19)	0.5032* (2.85)	0.586* (4.58)	0.513* (3.07)
No. of countries [panels]	7	7	7	7	7	7	7	7	7	7	7	7
No. of observations	82	82	82	82	82	82	69	69	69	69	69	69
LM test (prob. Chi^2)			11.78 (0.0006)			12.08 (0.0005)			60.27 (0.000)			53.28 (0.000)
Hausman test Chi^2 (prob. Chi^2)			9.55 (0.008)			6.89 (0.075)			1.24 (0.538)			7.08 (0.0693)

Source: author's calculations.

Notes

*, **, *** indicate significance at 1%, 5%, and 10% respectively.

t-statistic absolute values are in parentheses.

The immediate implication of this has surfaced in the recent months as the financial and real economy environment has deteriorated globally. Lower effective demand in the rich primary commodities importers of North America and Western Europe has already caused the international fuel and raw metal prices to fall. As this process continues, the CIS net exporter states are increasingly facing tough choices of whether to scale back their government-sponsored projects, with evident income and job cuts. Finally, declining world demand for primary commodities and the chain of events ensued by it, resulting in export revenue drops, reverses the net exporters' fortunes, flipping current account balances from surpluses to deficits. Ultimately, there is more to the story of twin deficits than meets the eye.

2.7 Conclusion

Analysis in this chapter has focused on researching various modalities of the twin-deficits argument in the transition context of the CIS economies. In the analytical description of the twin-deficits problem, we identified the importance of country-specific effects and used a structural approach in understanding the significance of any empirical results. Additionally, the chapter presented available evidence on the evolution of the current account and budget balance in all twelve economies individually and based on their classification in the two main subgroups: net exporters and net importers.

Point-in-time graphical analysis indicated some periods of current account and fiscal balance joint movements. Estimating the main model and its extended version with debt service suggested the same positive relationship between the two variables. Additional analysis covering the second transition decade for all twelve countries and net exporter economies offered similar results. These findings were brought into question by low correlations between fiscal balance and current account and, more specifically, by the negative relationship between the household consumption and current account surplus. This indicates a more complex structural issue that influences current account deficit, rather than a one-to-one fiscal balance to current account relationship apparent from national income identities. Consequently, below is a brief summary of potential concerns facing future similar explorations, as well as policy issues involved.

First, there is a persistent issue of data reliability and lack of observations. Managing around this by relying on EBRD data, this analysis utilized a panel data in the model (albeit diluting some of the country-specific effects). Given the existent differences in economy size among the twelve countries in the sample, a complication in terms of results reliability may occur. In addition, transition economies data have started to be reported on a consistent basis only recently. Second, while an attempt was made to run several OLS specifications, the underlying model is clearly more structural in nature and future analysis will have to account for consumption patterns and fiscal expenditure composition, as well as net exports composition, with more data points than currently available. Third, one should exercise caution in interpreting regression results as solid predictors of the fiscal budget or current account behavior. This issue leads to policy implications of the given analysis.

It is tempting, using available regression results, to declare restrictions on fiscal spending, as more of it would possibly lead to further current account deterioration. This conclusion, though, omits country-specific considerations. There is no doubt that transition economies in the course of their approximately twenty-years reformation period have experienced prolonged instances of current account and fiscal balance deficits. The crucial point is to realize that these movements were primarily implied by the drastic attempts to transform socialist economies and set them on the path to capitalist development. Therefore, at least at this time, those observations and derived conclusions made for the case of the advanced economies (where the twin-deficit idea originated) cannot be applied one-to-one.

This view is reconfirmed by the extended analysis, presented in this chapter, considering household consumption in relation to current account surplus by itself and in connection with fiscal balance. Household consumption served as the primary determining factor, while fiscal balance turned out to be secondary. Reformation patterns specific to the countries of the CIS hold the key to explaining such negatively related co-movements, as consumers tend to compensate a lack of domestically produced goods with reasonably priced and higher quality imports, while governments engage in administrative restructuring and raising funds for internal public projects.

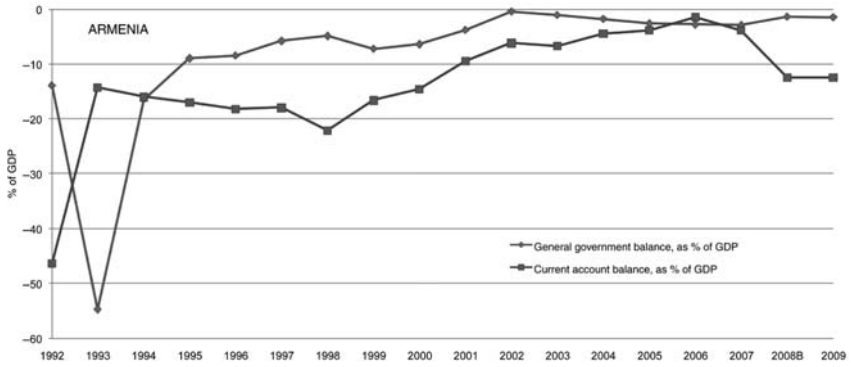
Finally, the extended model was applied as a special case analysis to examine the net exporters' circumstance. Conducted analysis found substantial evidence of positive correlations between primary commodities (fuel and ore/metal) exports and current account. The correlations seem to be most profound when annual changes in commodities exports are considered. This result takes the discussion of twin deficits in the transition economies a step further. Strong reliance on raw material exports creates immediate vulnerability to the economies that primarily rely on revenue derived from these exports. In many CIS net exporter states, as discussed in Chapter 1, that revenue goes into state coffers, with profits either reinvested in public funds or slated for public projects. Clearly, such dependence on primary commodities exports could flip the economy's fortunes with detrimental effects on current account and fiscal balance, due to the above reasons.

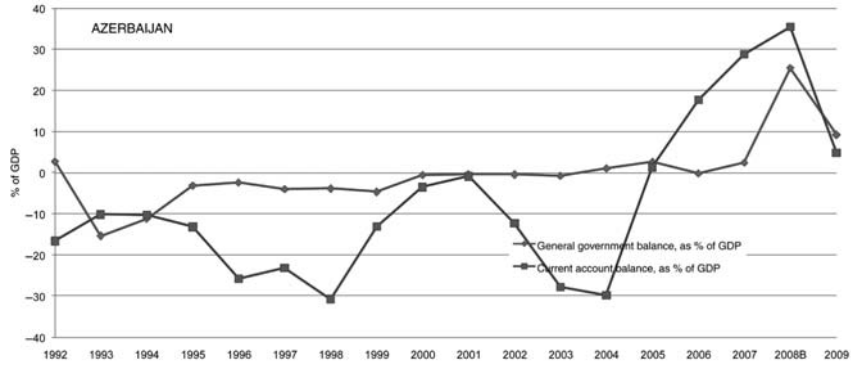
Transition economies' governments are dealing with a multitude of issues in their attempt to create viable, competitive economies integrated with international markets. Open borders and liberalized trade and capital accounts are shaping each country's individual external position. Domestically, the governments should be given an opportunity to implement a development strategy best fitting their country model. In a transition context, this necessarily involves significant infrastructure investment, hence increased fiscal expenditure and most likely fiscal deficit. How governments obtain the necessary financing and whether the current fiscal policy is sustainable given the development targets and financial liabilities is assessed in the following chapters.

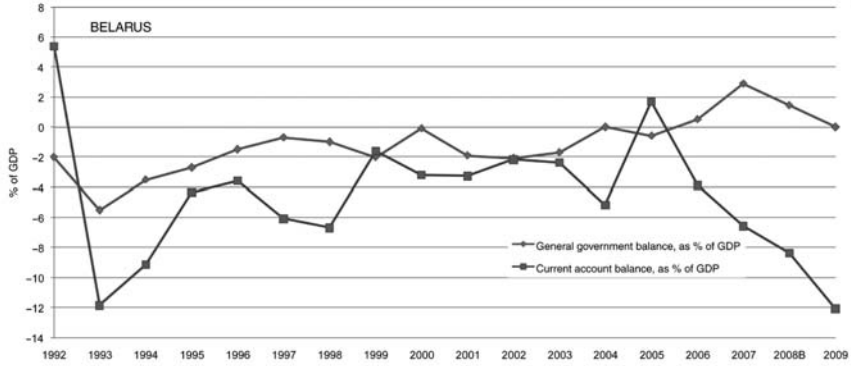
For now, it is clear that, despite indications obtained via regression techniques, coexistence of the current account deficit and fiscal balance deficit is not the case of the textbook twin-deficits problem; the issue is multidimensional. A more qualitative approach prompts an investigation for answers in household

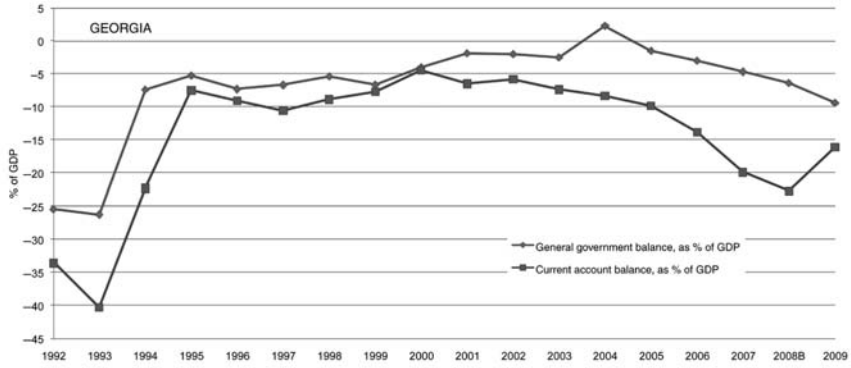
consumption patterns and its relation to current account and nature of fiscal expenditure. That is the case in the post-socialist transforming CIS economies with growing consumer societies.

2.8 Appendix








GEORGIA
% of GDP
5
0
−5
−10
−15
−20
−25
−30
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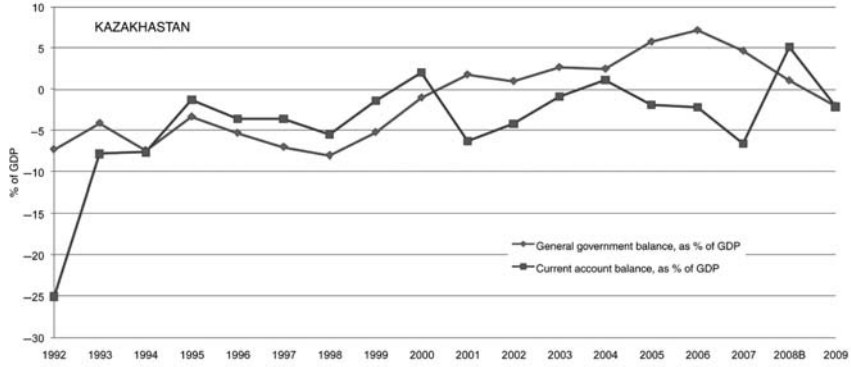
−40
−45
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008B 2009
General government balance, as % of GDP
Current account balance, as % of GDP


KAZAKHASTAN
% of GDP
10
5
0
−5
−10
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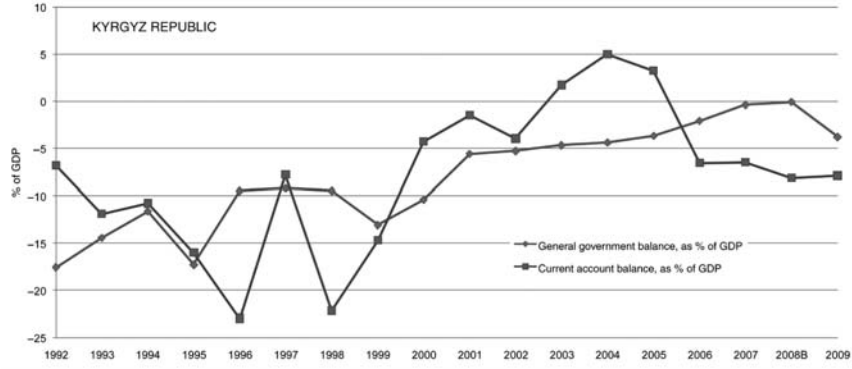
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008B 2009
General government balance, as % of GDP
Current account balance, as % of GDP


KYRGYZ REPUBLIC
% of GDP
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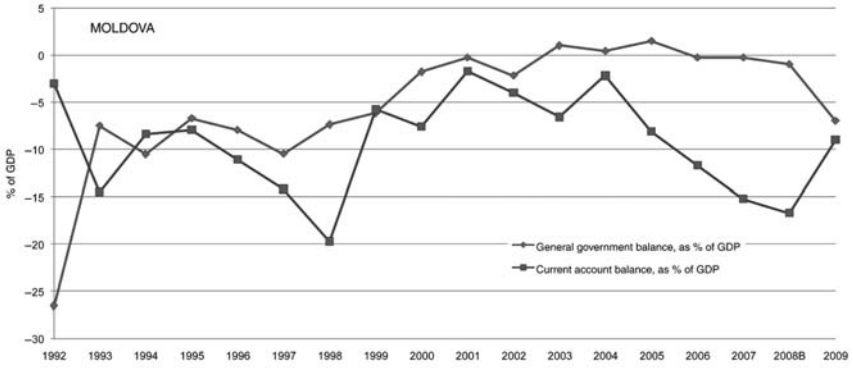
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008B 2009
General government balance, as % of GDP
Current account balance, as % of GDP


MOLDOVA
% of GDP
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−5
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−20
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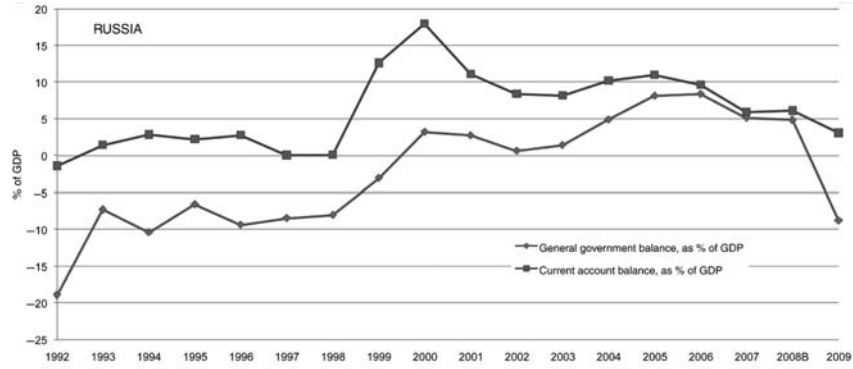
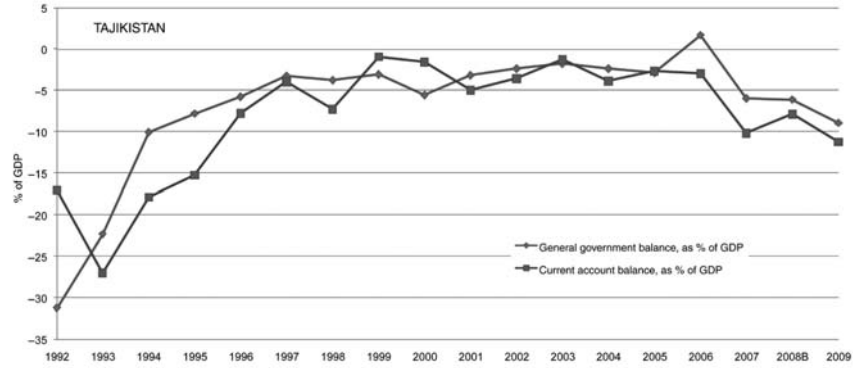
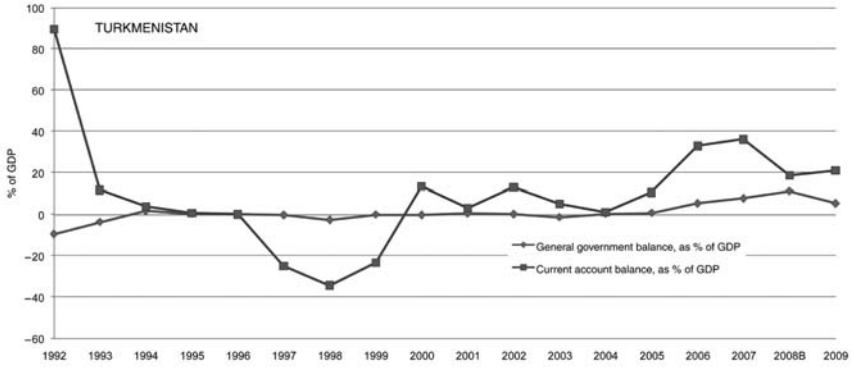
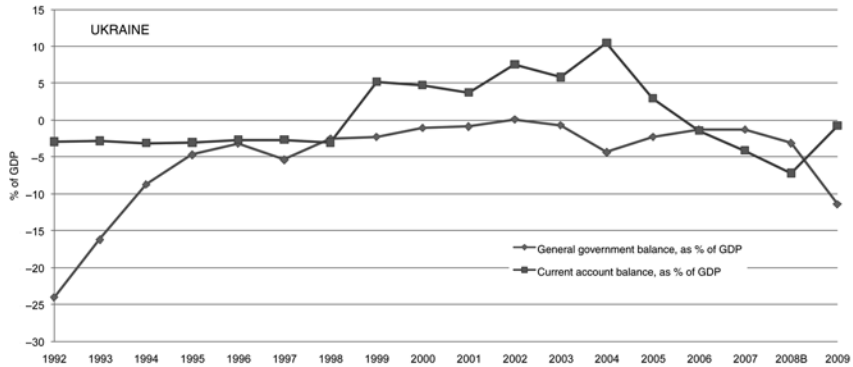
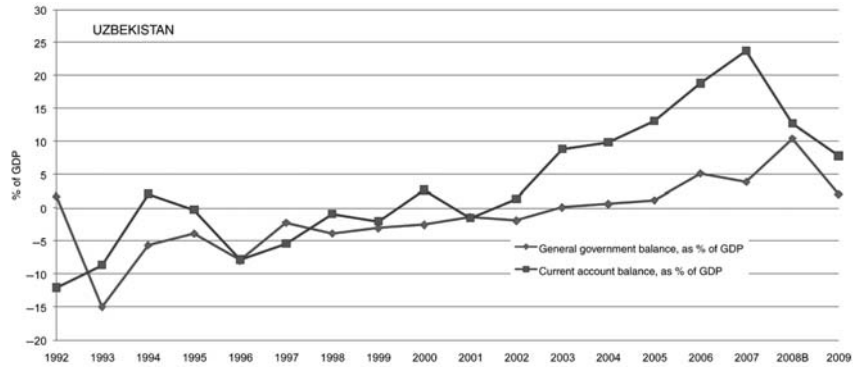
−30
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008B 2009
General government balance, as % of GDP
Current account balance, as % of GDP


RUSSIA
% of GDP
20
15
10
5
0
−5
−10
−15
−20
−25
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008B 2009
General government balance, as % of GDP
Current account balance, as % of GDP


TAJIKISTAN
% of GDP
5
0
−5
−10
−15
−20
−25
−30
−35
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008B 2009
General government balance, as % of GDP
Current account balance, as % of GDP







Figures 2.5–2.16 Average fiscal deficit and current account balance, share of GDP (1992–2009) (source: author's calculations based on data from EBRD (2009)).

Table 2.8 Net exporters core and extended models' estimation results

FULL SAMPLE–CORE, 1989–2008

Regressor/model	$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \lambda REF_t + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	12.08 (3.53)	9.126 (3.01)	9.608 (2.57)	5.790 (1.4)	4.796 (0.99)	5.055 (0.95)	6.371 (0.86)	3.877 (0.33)	5.078 (0.5)
Fiscal balance, % GDP [FB]	0.44* (2.63)	0.505* (2.97)	0.496* (2.96)	0.625* (3.35)	0.619** (2.28)	0.624* (2.35)	0.631* (3.04)	0.599*** (1.67)	0.624** (2.00)
Investment, % GDP [I]	–0.506* (3.66)	–0.385* (3.38)	–0.402* (3.63)	–0.167 (0.95)	–0.129 (0.72)	–0.133 (0.78)	–0.171 (0.96)	–0.132 (0.72)	–0.132 (0.77)
Reforms index, [REF]							–0.229 (0.11)	0.462 (0.09)	–0.022 (0.01)
No. of countries [panels]	7	7	7	7	7	7	7	7	7
No. of observations	101	101	101	103	103	103	103	103	103
LM test (prob. Chi^2)			37.24 (0.000)			7.64 (0.000)			7.65 (0.0057)
Hausman test Chi^2 (prob. Chi^2)			0.39 (0.821)			0.02 (0.989)			0.05 (0.997)

FULL SAMPLE–EXTENDED, 1989–2008

Regressor/model	$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \omega(rB_{i,t}) + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \omega(rB_{i,t-1}) + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \lambda REF_{i,t} + \omega(rB_{i,t-1}) + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	21.219 (5.48)	19.323 (5.51)	20.086 (5.57)	18.741 (3.99)	17.408 (3.68)	18.04 (3.92)	15.902 (2.19)	–12.615 (0.92)	7.969 (1.47)
Fiscal balance, % GDP [FB]	1.056* (6.61)	1.101* (5.2)	1.055* (4.82)	0.968* (4.26)	1.024* (3.58)	0.968* (3.35)	0.949* (4.16)	0.6145*** (1.86)	0.887* (5.47)
Investment, % GDP [I]	–0.797* (5.75)	–0.566* (4.62)	–0.698* (6.09)	–0.648* (3.53)	–0.427* (2.58)	–0.581* (3.94)	–0.627* (3.37)	–0.488* (2.99)	–0.318* (3.25)
Debt service, [rB]	–0.052 (0.65)	–0.345* (2.75)	–0.152 (1.47)	–0.067 (0.68)	–0.383 (2.26)	–0.140 (1.08)	–0.084 (0.79)	–0.474* (2.79)	–0.104 (1.12)
Reforms index, [REF]							1.189 (0.52)	15.265** (2.31)	0.020 (0.01)
No. of countries [panels]	7	7	7	7	7	7	7	7	7
No. of observations	91	91	91	91	91	91	91	91	91
LM test (prob. Chi^2)			7.26 (0.0071)			1.31 (0.252)			1.81 (0.1783)
Hausman test Chi^2 (prob. Chi^2)			9.12 (0.0278)			5.21 (0.1569)			13.7 (0.0083)

FULL SAMPLE–CORE, 1999–2008

Regressor/ model	$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \lambda REF_t + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	23.35 (6.99)	22.04 (4.95)	22.858 (6.1)	17.215 (3.43)	16.967 (2.95)	17.106 (3.32)	27.921 (4.04)	24.919 (0.87)	26.428 (2.68)
Fiscal balance, % GDP [FB]	1.201* (5.16)	1.18* (2.68)	1.203* (3.17)	1.132* (3.63)	1.033** (2.24)	1.071* (2.49)	1.335* (4.22)	1.119** (2.02)	1.224* (2.72)
Investment, % GDP [I]	–0.858* (6.05)	–0.806* (4.66)	–0.837* (6.04)	–0.553* (2.12)	–0.545* (2.48)	–0.547* (2.96)	–0.626* (2.97)	–0.524** (2.25)	–0.581* (3.15)
Reforms index, [REF]							–4.037** (1.94)	–3.877 (0.29)	–3.876 (1.10)
No. of countries [panels]	7	7	7	7	7	7	7	7	7
No. of observations	55	55	55	62	62	62	62	62	62
LM test (prob. Chi^2)			0.1 (0.749)			1.10 (0.294)			0.18 (0.670)
Hausman test Chi^2 (prob. Chi^2)			0.12 (0.944)			0.09 (0.954)			0.41 (0.937)

FULL SAMPLE–EXTENDED, 1999–2008

Regressor/ model	$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \omega(rB_{i,t}) + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \omega(rB_{i,t-1}) + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \lambda REF_{i,t} + \omega(rB_{i,t-1}) + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	28.458 (6.91)	31.031 (6.69)	28.683 (6.58)	21.483 (3.96)	22.635 (3.98)	22.144 (3.87)	29.848 (4.17)	31.967 (1.2)	26.958 (2.47)
Fiscal balance, % GDP [FB]	1.535* (8.22)	1.41* (3.560)	1.498* (3.91)	1.342* (4.0)	1.205* (2.78)	1.258* (2.95)	1.483* (4.28)	1.306* (2.51)	1.324* (2.96)
Investment, % GDP [I]	–0.918* (5.96)	–0.695* (4.46)	–0.856* (6.29)	–0.586* (2.68)	–0.317*** (1.45)	–0.496* (2.67)	–0.643* (3.0)	–0.292 (1.27)	–0.510* (2.72)
Debt service, [rB]	–0.236* (3.41)	–0.767* (3.69)	–0.347* (2.66)	–0.219*** (1.82)	–0.743* (3.0)	–0.408** (2.29)	–0.187*** (1.57)	–0.744* (2.98)	–0.386** (2.13)
Reforms index, [REF]							–3.38*** (1.65)	–4.545 (0.36)	–2.196 (0.52)
No. of countries [panels]	7	7	7	7	7	7	7	7	7
No. of observations	55	55	55	62	62	62	62	62	62
LM test (prob. Chi^2)			0.09 (0.764)			1.71 (0.190)			0.49 (0.482)
Hausman test Chi^2 (prob. Chi^2)			7.17 (0.066)			4.39 (0.222)			5.28 (0.259)

Source: author's calculations.

Notes
*, **, *** indicate significance at 1%, 5%, and 10% respectively.
t-statistic absolute values are in parentheses.

Table 2.9 Net importers core and extended models' estimation results

FULL SAMPLE–CORE, 1989–2008

Regressor/ model	$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \lambda REF_t + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	–8.620 (3.89)	–9.337 (3.76)	–9.137 (3.18)	–2.943 (1.59)	–2.712 (1.11)	–2.766 (0.98)	–13.398 (2.99)	–26.46 (4.65)	–23.893 (4.09)
Fiscal balance, % GDP [FB]	0.495* (4.41)	0.500* (4.82)	0.498* (4.88)	0.409* (4.7)	0.404* (4.02)	0.405* (4.1)	0.278* (2.82)	0.117 (1.07)	0.1477** (1.36)
Investment, % GDP [I]	0.094 (1.05)	0.129 (1.24)	0.119 (1.2)	–0.204* (3.08)	–0.216** (2.16)	–0.212** (2.27)	–0.2198 (2.98)	–0.221* (2.49)	–0.223* (2.54)
Reforms index, [REF]							4.42* (2.57)	9.775* (4.52)	8.74* (4.18)
No. of countries [panels]	5	5	5	5	5	5	5	5	5
No. of observations	75	75	75	79	79	79	79	79	79
LM test (prob. Chi^2)			1.69 (0.1942)			1.31 (0.253)			11.91 (0.006)
Hausman test Chi^2 (prob. Chi^2)				0.11 (0.945)		0.02 (0.988)			3.51 (0.319)

FULL SAMPLE–EXTENDED, 1989–2008

Regressor/ model	$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \omega(rB_{i,t}) + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \omega(rB_{i,t-1}) + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \lambda REF_{i,t} + \omega(rB_{i,t-1}) + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	–0.284 (0.14)	–1.099 (0.46)	–0.452 (0.17)	–1.62 (0.79)	–2.39 (0.96)	–1.620 (0.65)	4.311 (1.2)	–1.528 (0.16)	4.311 (0.89)
Fiscal balance, % GDP[FB]	0.958* (7.7)	1.102* (8.9)	0.989* (7.6)	0.622* (4.41)	0.702* (5.45)	0.622* (4.9)	0.726* (4.61)	0.718* (3.26)	0.726* (4.99)
Investment, % GDP [I]	–0.117** (1.54)	0.0102 (0.11)	–0.091 (0.93)	–0.175* (2.46)	–0.084 (0.85)	–0.175*** (1.86)	–0.130*** (1.83)	–0.078 (0.71)	–0.130*** (1.32)
Debt service, [rB]	–0.076 (0.94)	0.156*** (1.78)	–0.945 (1.01)	0.018 (0.19)	–0.035 (0.39)	0.018 (0.2)	0.0199 (0.21)	–0.033 (0.34)	0.0199 (90.22)
Reforms index, [REF]							–2.676** (1.89)	–0.381 (0.09)	–2.676*** (1.42)
No. of countries [panels]	5	5	5	5	5	5	5	5	5
No. of observations	69	69	69	69	69	69	69	69	69
LM test (prob. Chi^2)			13.03 (0.0003)			0.86 (0.355)			0.08 (0.78)
Hausman test Chi^2 (prob. Chi^2)			103.85 (0.000)			1.82 (0.609)			1.81 (0.770)

FULL SAMPLE–CORE, 1999–2008

Regressor/ model	$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \lambda REF_t + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	3.23 (1.56)	–2.942 (0.7)	3.101 (1.09)	0.642 (0.29)	–5.532 (1.1)	0.642 (0.21)	3.793 (0.88)	–13.664 (0.53)	3.793 (0.63)
Fiscal balance, % GDP [FB]	0.477** (2.12)	0.678* (0.11)	0.49** (2.11)	0.039 (0.15)	0.129 (0.46)	0.039 (0.16)	0.028 (0.10)	0.057 (0.16)	0.028 (0.11)
Investment, % GDP [I]	–0.337* (4.16)	–0.02 (0.1)	–0.329* (2.88)	–0.308* (3.82)	–0.005 (0.02)	–0.308* (2.52)	–0.215 (1.07)	–0.0316 (0.13)	–0.215 (1.09)
Reforms index, [REF]							–2.071 (0.63)	3.375 (0.32)	–2.071 (0.61)
No. of countries [panels]	5	5	5	5	5	5	5	5	5
No. of observations	40	40	40	45	45	45	45	45	45
LM test (prob. Chi^2)			0.00 (0.999)			0.89 (0.344)			0.8 (0.369)
Hausman test Chi^2 (prob. Chi^2)			8.87 (0.118)			3.37 (0.185)			3.05 (0.383)

FULL SAMPLE–EXTENDED, 1999–2008

Regressor/ model	$CA_{i,t} = c + \beta FB_{i,t} + \gamma I_{i,t} + \omega(rB_{i,t}) + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \omega(rB_{i,t-1}) + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta FB_{i,t-1} + \gamma I_{i,t-1} + \lambda REF_{i,t} + \omega(rB_{i,t-1}) + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	4.135 (1.58)	–2.05 (0.46)	4.135 (1.30)	1.385 (0.53)	–4.597 (0.86)	1.385 (0.41)	4.976 (1.33)	–15.02 (0.57)	4.976 (0.78)
Fiscal balance, % GDP [FB]	0.44** (2.01)	0.603** (2.19)	0.44*** (1.83)	–0.008 (0.03)	0.055 (0.18)	–0.008 (0.03)	–0.027 (0.10)	–0.0458 (0.11)	–0.027 (0.10)
Investment, % GDP [I]	–0.346* (4.17)	–0.026 (0.14)	–0.346* (3.06)	–0.312* (3.79)	–0.017 (0.08)	–0.312* (2.53)	–0.209 (1.08)	–0.053 (0.22)	–0.209 (1.05)
Debt service, [rB]	–0.06 (0.73)	–0.073 (0.71)	–0.06 (0.60)	–0.059 (0.63)	–0.067 (0.55)	–0.059 (0.54)	–0.067 (0.75)	–0.074 (0.60)	–0.067 (0.60)
Reforms index, [REF]							–2.295 (0.77)	4.371 (0.41)	–2.295 (0.67)
No. of countries [panels]	5	5	5	5	5	5	5	5	5
No. of observations	40	40	40	45	45	45	45	45	45
LM test (prob. Chi^2)			0.01 (0.931)			0.77 (0.379)			0.73 (0.394)
Hausman test Chi^2 (prob. Chi^2)			3.23 (0.357)			4.08 (0.252)			3.72 (0.445)

Source: author's calculations.

Notes
*, **, *** indicate significance at 1%, 5%, and 10% respectively.
t-statistic absolute values are in parentheses.

Table 2.10 Household consumption to current account surplus relation estimation results: different country groups

ALL COUNTRIES: 1989–2008

Regressor/model	$CA_{i,t} = c + \beta HC_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta HC_{i,t} + \gamma FB_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c\ \beta HC_{i,t-1} + \gamma FB_{i,t-1} + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	15.557 (6.1)	9.203 (2.51)	13.65 (4.52)	16.074 (7.00)	15.648 (4.86)	15.674 (5.47)	15.045 (5.29)	5.811 (1.30)	12.343 (3.38)
Fiscal balance, % GDP [FB]				0.517* (5.44)	0.588* (6.86)	0.563* (6.75)	0.563 (5.84)	0.47* (3.83)	0.519* (4.38)
Household Consumption, % GDP [HC]	–0.309* (9.03)	–0.216* (4.08)	–0.281* (6.64)	–0.283* (8.37)	–0.271* (5.99)	–0.274* (6.75)	–0.251 (6.70)	–0.123** (1.93)	–0.217* (4.19)
No. of countries [panels]	12	12	12	12	12	12	12	12	12
No. of observations	177	177	177	176	176	176	182	187	187
LM test (prob. Chi^2)			4.52 (0.033)			34.86 (0.000)			3.25 (0.071)
Hausman test Chi^2 (prob. Chi^2)			4.22 (0.040)			8.74 (0.012)			11.79 (0.002)

NET EXPORTERS: 1989–2008

Regressor/model	$CA_{i,t} = c + \beta HC_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta HC_{i,t} + \gamma FB_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta HC_{i,t-1} + \gamma FB_{i,t-1} + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	33.922 (6.17)	28.564 (5.44)	31.256 (6.16)	36.379 (6.67)	30.289 (6.72)	31.697 (6.86)	37.019 (4.83)	30.491 (3.91)	35.011 (4.77)
Fiscal balance, % GDP [FB]				0.3675* (2.50)	0.465* (3.19)	0.440* (3.03)	0.516* (2.87)	0.534** (2.11)	0.523* (2.11)
Household Consumption, % GDP [HC]	–0.621* (6.76)	–0.528* (5.88)	–0.575* (6.72)	–0.652* (6.92)	–0.542* (6.97)	–0.569* (7.47)	–0.625* (4.76)	–0.51* (3.78)	–0.589* (4.69)
No. of countries [panels]	7	7	7	7	7	7	7	7	7
No. of observations	102	102	102	101	101	101	103	103	103
LM test (prob. Chi^2)			3.95 (0.046)			23.67 (0.000)			0.41 (0.521)
Hausman test Chi^2 (prob. Chi^2)			2.93 (0.086)			6.35 (0.041)			0.521 (0.266)

ALL COUNTRIES: 1999–2008

Regressor/model	$CA_{i,t} = c + \beta HC_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta HC_{i,t} + \gamma FB_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta HC_{i,t-1} + \gamma FB_{i,t-1} + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	18.966 (5.80)	29.975 (5.92)	25.11 (5.74)	17.098 (4.35)	29.496 (5.87)	24.35 (5.50)	22.138 (5.36)	27.561 (27.561)	24.701 (5.24)
Fiscal balance, % GDP [FB]				0.416*** (1.71)	0.385*** (1.56)	0.359*** (1.50)	0.2 (0.96)	0.107 (0.39)	0.134 (0.52)
Household Consumption, % GDP [HC]	–0.3* (6.46)	–0.463* (6.21)	–0.391* (6.41)	–0.265* (4.48)	–0.449* (6.03)	–0.373* (5.98)	–0.332* (5.62)	–0.414* (4.78)	–0.371* (5.48)
No. of countries [panels]	12	12	12	12	12	12	12	12	12
No. of observations	95	95	95	95	95	95	107	107	107
LM test (prob. Chi^2)			43.99 (0.000)			41.61 (0.000)			14.3 (0.000)
Hausman test Chi^2 (prob. Chi^2)			2.81 (0.093)			3.59 (0.166)			0.72 (0.698)

NET EXPORTERS: 1999–2008

Regressor/model	$CA_{i,t} = c + \beta HC_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta HC_{i,t} + \gamma FB_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta HC_{i,t-1} + \gamma FB_{i,t-1} + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	45.685 (4.46)	42.232 (6.86)	42.714 (6.64)	46.606 (3.68)	45.915 (6.93)	45.989 (6.62)	38.705 (2.95)	34.982 (3.97)	36.435 (4.11)
Fiscal balance, % GDP [FB]				–0.106 (0.23)	–0.548*** (1.41)	–0.486 (1.29)	–0.082 (0.19)	–0.226 (0.48)	–0.167 (0.36)
Household Consumption, % GDP [HC]	–0.793* (4.31)	–0.73* (6.62)	–0.739* (6.79)	–0.809* (3.56)	–0.796* (6.71)	–0.797* (6.83)	–0.634* (2.71)	–0.569* (3.65)	–0.593* (3.85)
No. of countries [panels]	7	7	7	7	7	7	7	7	7
No. of observations	55	55	55	55	55	55	62	62	62
LM test (prob. Chi^2)			31.21 (0.000)			32.39 (0.000)			4.25 (0.039)
Hausman test Chi^2 (prob. Chi^2)			0.25 (0.614)			0.49 (0.782)			2.35 (0.308)

NET IMPORTERS: 1989–2008

Regressor/model	$CA_{i,t} = c + \beta HC_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta HC_{i,t} + \gamma FB_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta HC_{i,t-1} + \gamma FB_{i,t-1} + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	0.269 (0.06)	–3.789 (0.73)	0.269 (0.06)	9.121 (1.90)	6.661 (1.40)	9.121 (2.14)	–6.268 (2.06)	–11.06 (2.31)	–6.268 (1.37)
Fiscal balance, % GDP [FB]				0.568* (5.29)	0.563* (5.52)	0.568* (5.74)	0.416* (4.77)	0.4* (3.80)	0.416* (3.88)
Household Consumption, % GDP [HC]	–0.129* (2.67)	–0.079 (1.28)	–0.129** (2.28)	–0.184* (3.43)	–0.154* (2.87)	–0.184* (3.82)	–0.013 (0.40)	0.043 (0.8)	–0.013 (0.26)
No. of countries [panels]	5	5	5	5	5	5	5	5	5
No. of observations	75	75	75	75	75	75	79	79	79
LM test (prob. Chi^2)			0.26 (0.606)			0.31 (0.580)			0.95 (0.330)
Hausman test Chi^2 (prob. Chi^2)			3.66 (0.055)			2.62 (0.269)			10.18 (0.006)

NET IMPORTERS: 1999–2008

Regressor/model	$CA_{i,t} = c + \beta HC_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta HC_{i,t} + \gamma FB_{i,t} + \varepsilon_{i,t}$			$CA_{i,t} = c + \beta HC_{i,t-1} + \gamma FB_{i,t-1} + \varepsilon_{i,t}$		
	OLS-PCSE	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*	*OLS-PCSE*	*FE*	*RE*
Constant [C]	3.671 (0.58)	9.954 (1.60)	8.181 (1.35)	8.488 (1.26)	15.779 (2.87)	13.845 (2.41)	10.178 (1.59)	18.456 (3.02)	14.347 (2.29)
Fiscal balance, % GDP [FB]				0.425*** (1.68)	0.801* (3.75)	0.69* (3.17)	0.016 (0.06)	0.217 (0.93)	0.121 (0.52)
Household Consumption, % GDP [HC]	–0.108*** (1.49)	–0.183* (2.50)	–0.162** (2.31)	–0.15** (1.97)	–0.224* (3.53)	–0.205* (3.16)	–0.192* (2.76)	–0.282* (4.00)	–0.237* (3.33)
No. of countries [panels]	5	5	5	5	5	5	5	5	5
No. of observations	40	40	40	40	40	40	45	45	45
LM test (prob. Chi^2)			6.84 (0.008)			18.13 (0.000)			10.56 (0.001)
Hausman test Chi^2 (prob. Chi^2)			0.93 (0.333)			1.89 (0.388)			5.92 (0.051)

Source: author's calculations.

Notes
*, **, *** indicate significance at 1%, 5%, and 10% respectively.
t-statistic absolute values are in parentheses.

3 Fiscal policy sustainability in transition

Is it there?

3.1 Introduction

Analysis of fiscal policy and its sustainability in the former socialist economies poses no simple task. Even more complex is the question of policy innovation adapted to the changing economic environment. There are several objective reasons for this. The obvious one is the lack of reliable data that would allow granular decomposition of government finances. Another problem comes through recognizing the fact that the FSU economies have been going through periods of turbulent transformations that preclude standard data aggregation that fits popular robust regression models. This is due not to malicious intent but due to rudimental conditions of national accounting in those countries. Lest one forgets the issue at hand: a social and economic transformation of the post-socialist planned economies into dialectically new social formations. Until recently, the twelve economies in question were part of a bigger centralized economy without effective regionally independent policy mechanism. Therefore, any analysis can only be structured around the period of nominal political and economic independence of the early 1990s until mid 2008, before the latest global crisis made a landfall in the CIS.

The social and economic transformation, given its turbulent nature, necessarily creates a gap between what once was, what is, and should be in the foreseeable future. The matter is complicated given the unclear nature of the destination point. Concerns over fiscal policy imperatives are at the top of the debate. Specifically, how detached should the state be from the economy in the context of the post-social transition?

This chapter attempts to derive an answer to this question through analysis of the CIS economies' fiscal policy performance and its sustainability. It should be noted, as stated earlier in this study, that much of the work on transition experience has been focused around the issues of economic growth and growth sustainability. Aspects of fiscal policy entered the models as complementary, but not necessarily the primary, factors. Following macroeconomic stabilization in most of the CIS economies, "Musgrave's trilogy," as described by Tanzi (2006)—the redistributive, stabilization, and efficiency function of the fiscal policy, as described in Musgrave (1959)—has moved into the front place. Further, neoclassical theory (e.g. Bernheim, 1989; Barro, 1989), based on 1) consumption maximizing utility

problem; 2) overlapping generations model; and 3) market clearing, points out the direct effect of permanently increased government spending on increasing interest rates, which in turn compels higher savings and lower investment, but that approach may not be entirely applicable in the transition context.

This study's approach is different in that it reviews fiscal policy sustainability within a more general and inclusive context of social and economic development. The concept of the "fiscal diamond" (Rajaram, 2007) is of particular interest here. The original idea conveys a four-dimensional story of public expenditure balanced by government tax revenue, foreign aid, and sovereign borrowing. On the innovative side, we review in detail fiscal expenditure channels focusing on those that act as a stimulus to the economy. Such approach to fiscal policy is necessary not only in times of contemporary financial and economic crisis but as defining a country's development path. This chapter makes the first attempt, introducing the core concepts involved. The next chapter will tackle the "fiscal diamond" head on, with an introduction of innovative approaches on raising sufficient revenue for public investment and extending the model further.

The rest of this chapter is structured as follows. The next section outlines fiscal policy trends across CIS. Section 3.3 briefly discusses relevant theoretical aspects of fiscal policy in transition. Section 3.4 presents the theoretical model and reviews available data. Empirical results based on the derived formal model are analyzed in Section 3.5. Finally, conclusions and policy implications are summarized in Section 3.6. The chapter ends with a discussion of policy implications.

3.2 Transition period fiscal policy trends

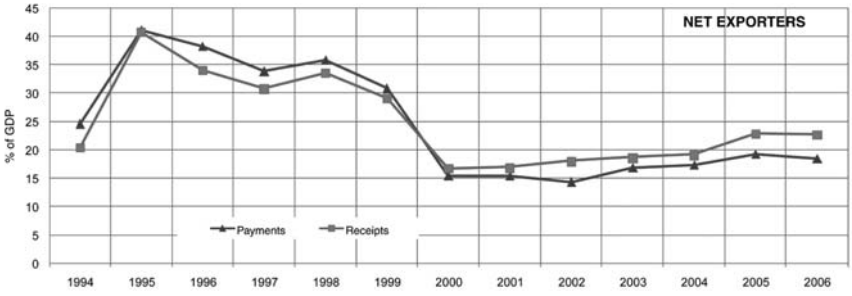
The above-mentioned analytical separation between a) the first phase of the transition period (i.e. the 1990s) and the second phase (1999 until 2008), and b) net exporters and net importers applies in its full extent in the current discussion of fiscal policy trends in the CIS. The following offers a brief outline of the general trends of each group by period in terms of fiscal policy performance.

An earlier qualitative analysis of fiscal policy performance in the transition economies is found in Alam and Sundberg (2002). The authors draw special attention to issues of fiscal efficiency. This may be achieved, in the authors' view, via strengthening of the institutional component of fiscal structure in the CIS economies, as well as fiscal discipline and improved resource allocation and use. Preliminary findings reported in Chapters 1 and 2 indicated CIS countries' fiscal improvement, on average, considering the ongoing transformation. Yet, as the CIS economies become more interlinked with the global economy, speculation of recent Greek-like state-debt crisis in the transition economies intensifies (in particular in the case of the net importers and smaller net exporters).

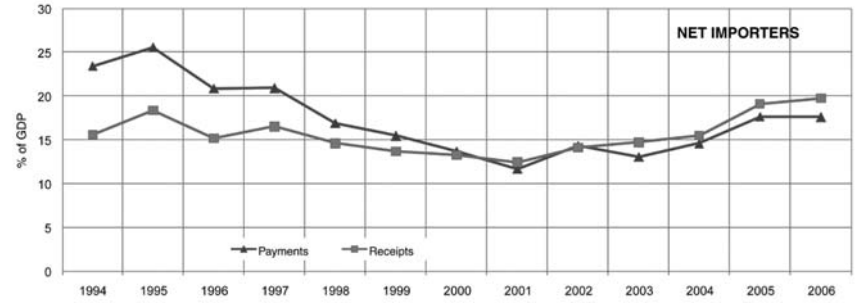
This chapter draws readers' attention to the first observation, consistent with the fiscal policy literature on transition (e.g. Pirttila, 2001). Specifically, viewed from the perspective of two time periods, there appears to be a clear separation between the fiscal deficit and fiscal surplus on average across the two decades and across all economies and in each country group. These results, derived from

the IMF's Government Finance Statistics (2008) data, are summarized clearly in Figure 3.1, reflecting cash receipts and payment trends for net exporters, net importers, and CIS total average respectively.

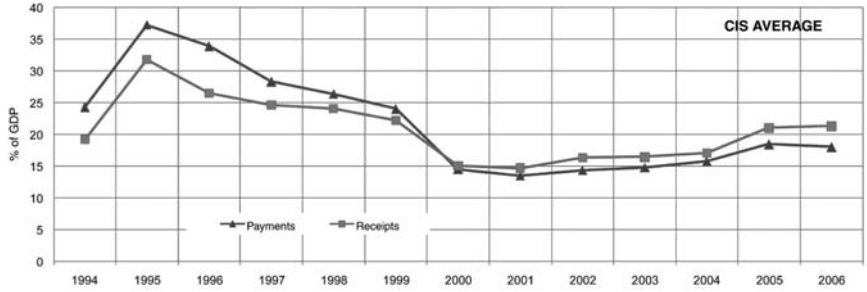
According to the data, cash payments exceeded cash receipts across the CIS throughout the 1990s and up until the early 2000s. Elsewhere (e.g. Chapter 2),



(a) Net exporters



(b) Net importers



(c) CIS-10 average

Figure 3.1 State receipts vs. payments trends in the CIS, per cent of GDP, (1994–2006) (source: author's calculations based on data from IMF's Government Finance Statistics (GFS, 2008)).

this study has mentioned some extraordinary situations that newly reforming economies and governments in charge had to deal with in the first period of transition. An interesting insight from the charts in Figure 3.1 is the much smaller spread between payments and receipts in the case of net exporter economies compared with the net importers. Further, evidence also indicates that net exporters were able to gain control over payments and achieve fiscal surplus approximately a year before net importers.

Related to the above, and indicative of the overall state role in the CIS economies, is the data on the general government's expenditure in relation to GDP. The data from EBRD draws a pattern of relatively high ratios of expenditure to GDP in the early transition years, a decline in the early 2000s, and a slight growth again in more recent years. These results are summarized in Figure 3.2 for the two country groups and CIS-12 average.

The key observation from Figure 3.2 is the high proportion of state expenditures in relation to GDP in the net exporter states, approximately 35 per cent during the 1990s. For comparison, Figure 3.2 shows averages for 1992–1998, 1992–1999, and periods in the 2000s, characterizing the first decade of transition. This separation helps observe a fractional but an immediate change in government expenditure proportions following the 1998 Russian financial crisis. Overall, the finding is consistent with an earlier observation by Purfield (2003) that deficits were reduced primarily via reduction in expenditure across the 1990s and early 2000s. Finally, Alam and Sundberg (2002) observed reduced state expenditure as contributing to a sharp deterioration in income inequality in the CIS economies. The adverse impacts were felt with greater intensity towards the mid 1990s—the period during which we see lower government expenditure in Figure 3.2—as previously functioning safety nets, such as unemployment insurance, welfare assistance and timely pension payments, failed simultaneously

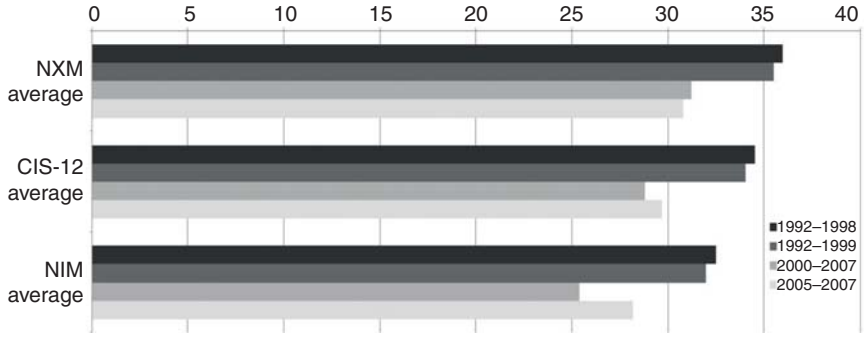


Figure 3.2 General government expenditure in the CIS, per cent of GDP (1992–2007) (source: author's calculations based on data from EBRD (2008)).

Note
Figures for 2007 are EBRD estimates and may not tie exactly to estimates by other agencies quoted in this research. The principal reason is the different aggregation methods.

with the state withdrawal.[1] More recent data covering 2008 onwards is excluded to avoid the possibility of skewed analysis, given abrupt changes in fiscal expenditure affected by the global crisis (this is reviewed in greater detail in the concluding chapters of this book).

The data also shows a recent increase in government expenditure in relation to GDP as the states in the net exporters and net importers move into various sectors of the economy, as has been already discussed in the preceding chapters. Despite the declines of the early 2000s following macroeconomic stability across the CIS geography, the ratios remain in the 30–35 per cent range and, given ongoing struggles to weather global financial crises, it may be reasonable to assume continued high state involvement in the economy and hence rising expenditure to GDP shares.[2]

Sustainability of high government expenditure is not an undisputed fact. In terms of state budget composition, it is worth mentioning the high share of tax revenues in relation to GDP in the net exporting economies (almost 25 per cent) and a significantly lower share in the case of net importer states (approximately 13 per cent). This shifts the "fiscal diamond" to the right in the four-dimensional chart. Data on taxes is derived from the IMF's GFS (IMF, 2008) database and is summarized in Figure 3.3 for the entire transition period of 1992–2007. Figure 3.3 also shows a share of interest payments in relation to GDP. Curiously, the net exporters' and net importers' shares are very close to each other (1.33 and 1.5 respectively). However, averages conceal high country variations. For example, Moldova's interest to GDP average ratio is around 3.5 per cent, while Belarus' share is approximately 0.5 per cent.

Due to relatively small sizes of the net importing economies, even 1.5 per cent of the GDP represents a substantial expense for a financial options limited economy. This induces some of the smaller CIS economies to seek external funding and raise

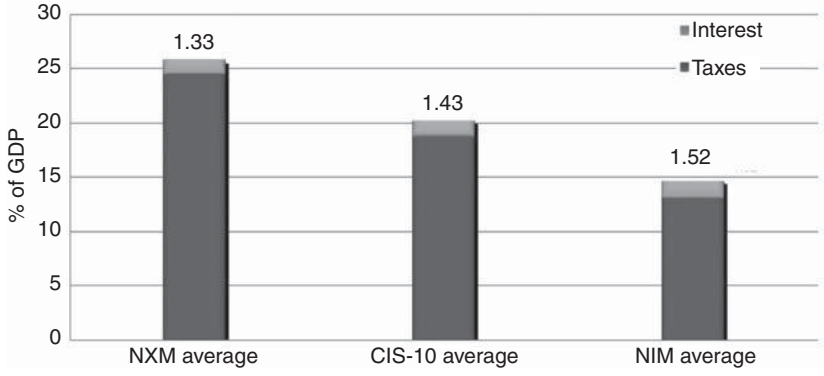


Figure 3.3 Tax revenues and interest on debt in the CIS, per cent of GDP (1992–2007) (source: author's calculations based on data from IMF GFS (IMF, 2008)).

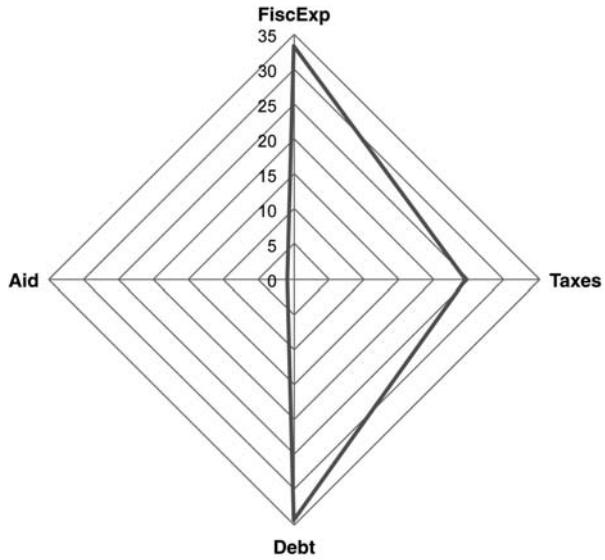
Note
Approximations based on unweighted averages.
IMF GFS does not provide any data for Turkmenistan and Uzbekistan, hence, CIS-10 average.

revenues through other government operations. Chapter 4 studies several alternatives to public expenditure financing that is applicable in the case of the post-socialist transition.

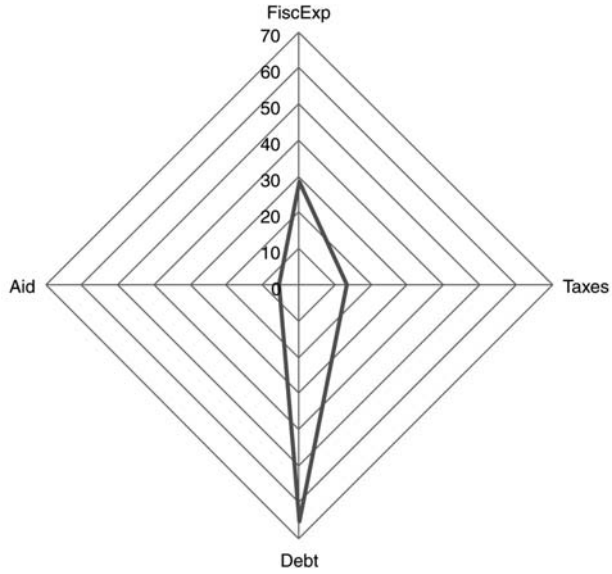
One striking conclusion from the data in Figure 3.3 is the implied ability of the net exporter states to capitalize on the raw materials and energy resources export revenues. Namely, this explains those economies' high tax revenue to GDP shares, derived from the large semi-state owned market players. These observations will be addressed later in this book in the discussion of primary surplus and fiscal policy sustainability. The above analysis can be compactly summarized in a "fiscal diamond" diagram inspired by Rajaram (2007) and indirectly discussed at greater length in Semmler *et al.* (2007), adapted to the transition economies case in Figure 3.4.

The traditional view, as depicted above, assumes three main income sources of public projects financing, denoted as *FiscExp*. Those sources are: revenue from taxes (*Taxes*); foreign aid (*Aid*), and sovereign borrowing (*Debt*). Using data collected from various sources, the average figures for each component are arranged in a "diamond" by country groups and in total. The results are striking.[3]

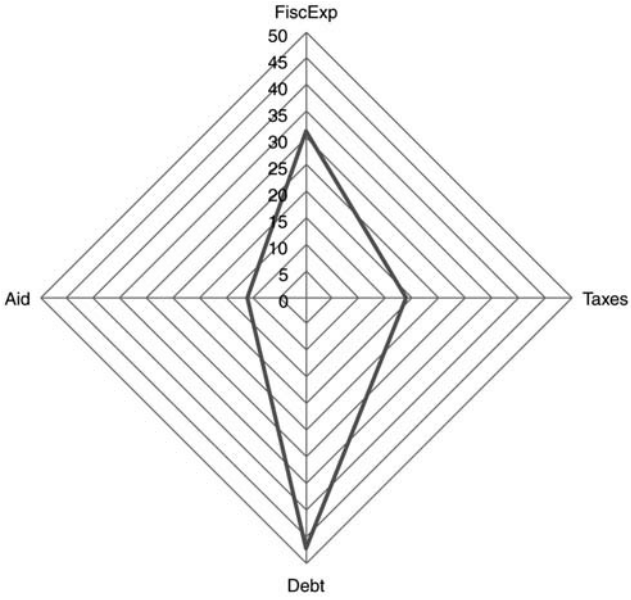
Consistent with the preceding chapters' analysis, net exporters seem to outperform net importers on all measures. Specifically, compared with net importers, the larger countries (more aptly, natural resource-rich economies) are able to achieve lower general government debt (34 per cent of GDP), higher tax revenues (approximately 25 per cent of GDP) and higher spending on public projects (around 34 per cent of GDP). It is notable that the share of foreign aid in the net exporter economies is very low, less than 1 per cent of GDP.



(a) Net exporters



(b) Net importers



(c) CIS average

Figure 3.4 "Fiscal diamond" in the CIS by country groups, per cent of GDP (1992–2007) (source: author's calculations based on GFS (IMF, 2008), EBRD (2008), WDI (World Bank WDI, 2008), and OECD (2008)).

Foreign aid plays a bigger role in the net importer economies (data and trends on foreign aid in the CIS are reviewed in the next chapter). It is instructive to note that incoming foreign aid averages are around 6 per cent of GDP in the net importer economies. Their average government debt to GDP ratio is around 65 per cent, while fiscal expenditure is below 30 per cent. Schematically, this is presented in Figure 3.4 (b).

The average of all CIS economies is in Figure 3.4 (c). The entire region's average is tilted toward high debt to GDP due to greater state borrowing in the net importer states. Here, the underlying concern is how sustainable fiscal policy in the CIS is, considering the high debt to GDP ratios in the importing states. Can the CIS governments continue with their current spending given their limited revenue and fundraising basis? Before a formal model is derived and estimated, some additional peculiarities of fiscal spending in transition and relevant theoretical concepts need to be introduced and reviewed.

Fiscal spending in transition

It is normal practice for national governments to direct their expenditures toward diverse projects. How each government calibrates the balance between each project is certainly a sovereign matter of independent decision-making. That in turn is influenced by a set of social and economic priorities specific to each country. Availability of funds is the most tangible constraint on state expenditure. As as has already been shown, government's income sources are diverse, but limited for many in varying degrees to tax revenue, debt, and foreign aid. Abrupt changes to revenue often translate in the scaling back of public projects, which means that any generalizations around fiscal policy should be built on more traditional types of expenditures. Therefore, the present analysis of fiscal policy sustainability in the CIS continues with a brief review of fiscal spending on the sectors where governments play crucial leading and stimulating roles.

Higher revenues allow net exporter states higher expenditure on various social programs that are traditionally sponsored by the state, such as healthcare, defense, and education projects—the three sectors vital to fiscal policy and perceived critical in terms of economic development. Figures 3.5 through 3.7 summarize recent activity by country in these three broad categories of public expenditure.

Results provide an effective directional estimate of the governments' expenditure priorities. Figure 3.5 clearly indicates higher average government spending on healthcare by the exporter states than the importer economies. Although this holds on the average aggregated level, country-specific data tells a slightly different story. For example, net exporter Azerbaijan expends only 3.5 per cent of total government expenditure on healthcare, while importer Moldova's rate is 10.7 per cent. It would be speculative to make any assertions as to the possibility of preexisting medical facilities in the first case that would allow lower expenditures. A more plausible explanation is in the relative size of each economy. In general, as has been established, net exporter economies are larger in absolute terms than net importer economies. Therefore, the exporters can sometimes

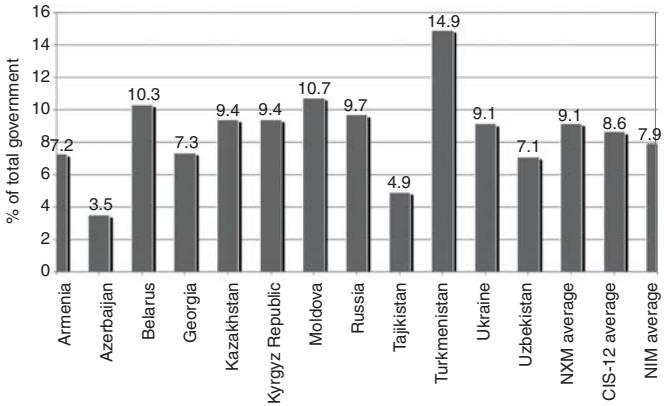


Figure 3.5 Average healthcare expenditure, per cent of total government (2001–2007) (source: author's calculations based on data from WDI (World Bank WDI, 2008)).

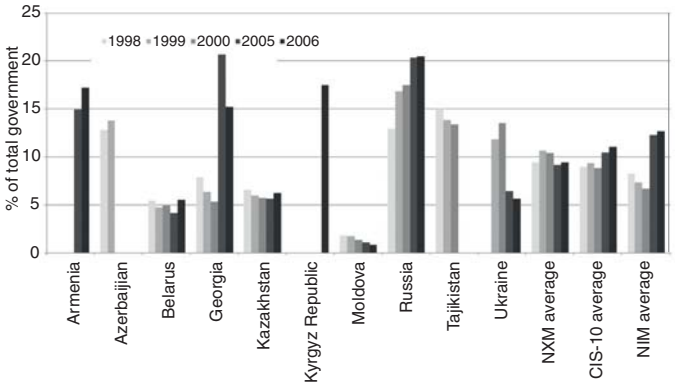


Figure 3.6 Military expenditure by country, per cent of total government (1998–2006) (source: author's calculations based on data from WDI (World Bank WDI, 2008)).

afford lower expenditure rates, compensated by relatively large absolute amount inflows. This, however, does not relieve the problem of inclusiveness, as the large economies, despite higher absolute amounts expended, run the risk of excluding a population segment due to the lack of funding based on allocated percentages of government revenues. This, for example, is a particularly worrisome fact in the large economy of Russia, where certain regions (e.g. the Far East) significantly lag behind the developed European area of the country.

In terms of military expenditure, the data is scant across the countries. However, net exporters display higher consistency in their spending allocations as opposed to the net importer economies. The trends are summarized in Figure 3.6.

Overall, net importers' defense spending was within 10 per cent of the total state expenditure in the first transition decade, significantly rising in the mid and late 2000s. The big spenders in this category have been Armenia, Georgia, and Kyrgyz Republic. There are diverse country-specific reasons for such increased allocations. It appears that each country chooses its own policy imperatives in terms of defense spending. Those imperatives emanate from a diverse set of issues, ranging from possibilities of military aggressions from neighboring states to political ambitions of the present political leadership. These political aspects of contemporary development are kept outside of the present discussion as they are beyond its research scope.

Analysis of another important public spending category, education, reveals a yet new interesting trend. Results are summarized in Figure 3.7. In the CIS-10 group (recall that CIS-10 excludes Turkmenistan and Uzbekistan due to data unavailability), net exporters are the highest spenders on average in 1998–2006 in terms of total fiscal expenditure and total GDP (15.4 per cent and 4.2 per cent respectively).

However, net importers' expenditure is lagging behind only slightly, with 13.9 per cent and 3.6 per cent as a share of fiscal balance and GDP, respectively, for the same time period. Ultimately, education and healthcare expenditure positions are taken as the crucial components of human capital development. The issue of per cent as opposed to actual levels is relevant in this case as well. On the surface, higher spending for those programs should translate into improved living standards, healthcare, and greater educational attainment.

Moreover, there exist several indicative measures based on these two factors, such as the Human Development Index of the United Nations Development Program (e.g. UNDP, 2006), that are vital for assessing a country's development. Still the question remains on how sustainable the current spending levels are and whether they are likely to rise or fall with time. In what follows, a robust

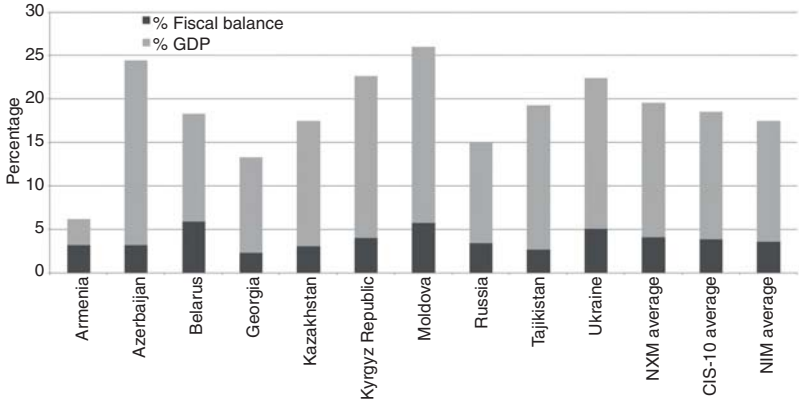


Figure 3.7 Education expenditure: per cent of GDP and government spending (1998–2006) (source: author's calculations based on data from WDI (World Bank WDI, 2008)).

test of fiscal policy sustainability is derived given known internal, domestic, expenditure trends in the CIS economies. Irrespective of the outcome, the results must be taken with some healthy skepticism and viewed through a critical lens, in particular due to data issues evident from the above presentations. First, a brief outline of some key theoretical concepts is offered to help clarify the data discussed and the transition into a more technical format.

3.3 Some theoretical aspects of fiscal policy in transition

Addressing the issue, Pirttila (2001) notes that fiscal policy has important links to structural reforms in the transition economies of the CIS. Early transition period research by Dewatripont and Roland (1992), Coricelli (1998), Tanzi (1993), and others suggests an inverse relationship between fiscal balance and structural improvements. Implicitly, we have already observed these trends here. As was pointed out in the previous section, the prevalent fiscal balance deficit in the earlier transition years coincided with a greater structural reform intensity than the later period of the 2000s. Consistent with Coricelli's (1998) results, fiscal pressures appear to be the strongest in the fast reforming economies, e.g. Russia, Ukraine, and Armenia. The logic-inducing high fiscal balance deficits have already been presented in Chapter 2. In summary, the government is likely to step in more aggressively in the fast-reforming economies to compensate via social provisions for massive layoffs and output declines. Pirttila (2001) notes "a more arduous" transition in the case of the CIS economies where, despite enterprise restructuring, output growth did not pick up as quickly as was expected in the 1990s. The evidence presented in the overview for Chapter 1, however, suggests a later start that came with (somewhat ironically) a strengthening of the fiscal position and revised state's role in the transforming economy.

While the studies mentioned above provide a generic framework for analysis and help derive some causal relationships within the larger debate on growth in transition, little is said about actual fiscal policy sustainability, its composition, and its impacts in terms of overall development. This is largely due to the core preoccupation of researchers and policy makers in *getting the early transition reforms right* as viewed from the bigger macroeconomic equilibrium perspective. The reader is reminded that, at the time of most early research on transition, very little data, if any, were available. Even more recent studies allude to the same issues (e.g. Alam and Sundberg, 2002). Nevertheless, the twelve young economies of the CIS are on the forward path in their development and there is a need for a multi-aspect analysis, even with directional results at this time due to data issues.

One literature strand applicable in the current discussion revolves around the issue of fiscal policy sustainability. These problems are becoming more acute as post-socialist economies across the map develop focused public spending priorities and institutionalize their fiscal agents' operations. Much of the serious analytical research addressing the issues of sustainability has been done in the

framework of developed industrial economies of Western Europe and North America. To a lesser degree, research has targeted the developing world as well. Recognizing the differences in fiscal budget and GDP between the developed economy and a developing one, one should draw attention to the apparent disproportionate position of the transition economies.

Alam and Sundberg (2002) summarize the key differences about transition economies' fiscal policy that help put our discussion in context. These characteristic aspects of transition are implicit throughout our present research. This set of unique factors puts the transition economies aside from either the developed or the developing world. First is a problem of *magnitude*: countries of the CIS went through a large-scale fiscal adjustment during macroeconomic contraction. The results of this process were summarized in the preceding sections of this study—in particular, Chapter 1.

Second is the *lack of revenue mobilization instruments*: namely, a rudimentary tax collection system. It required approximately two decades to work out the nuances and to put in place a tax code consistent with the new concepts of open economy and market. In contrast, most of the developed world economies and many developing countries rely on practice of various established tax regimes adapted to their existing markets' specifics. The transition economies are learning, adapting, and modifying the tax policy in the *going-live* format, which in the short run probably has more severe social and economic impacts on aggregate than can be compensated by real-time, unique policy solutions in the long run.

The third aspect is the *actual composition of expenditure* in the transition economies. Perotti (2007) notes that developed countries' government budgets lean more toward transfers on the expense side, and toward personal and social security taxes on the revenue side. At the same time, developing countries are more likely to have lower proportions of government expenditure geared towards transfers and spend more on direct government purchases, with indirect taxes being the main component of revenue. Alam and Sundberg (2002) observe that, until recently at least, fiscal expenditure in the CIS economies was mostly focused on direct provision of most goods and services. This was a peculiar aspect of the centrally planned economies with omnipotent and omnipresent state. More recently, there has been a shift in this policy toward the selective provision of primarily public goods and services. This, as mentioned earlier in this book, was characterized by reduced overall fiscal expenditure toward the mid 1990s and early 2000s.

Finally, the fourth unique aspect of the transition economies' fiscal structure, according to Alam and Sundberg (2002), is the *institutional legacy* of budget and expenditure management systems. In particular, lacking coordination between various government bodies and levels (i.e. federal vs. regional governments' coordination, as well as intra- and inter-agency issues) may result in severe fund misallocations and program miscalculations. Similar issues persist in the developing and industrialized worlds. Tanzi (2006), in his critical review of fiscal policy theory and reality, citing Italy as an example, alludes to that. Specifically, he mentions lack of coordination across various government bodies on fiscal policy decisions,

as well as problems of insufficient data, research, and understanding of the ultimate social impact as various fiscal policy measures are passed through. Tanzi (2006) also mentions a strong political bias rather than economic reasoning as policy decisions are pushed forward.

While the institutional variable is an important aspect of transition, a lot has been achieved since the early 1990s and even early 2000s across all CIS economies. If earlier research cited a rudimentary financial environment, it may be troublesome to easily do so now applied to the general case, given the strong performance of the net exporters. The four factors outlined above set the preconditions for the fiscal policy analysis in the CIS economies, putting them aside from other country groups.

Conducting analysis along more traditional lines, Purfield (2003) notes that a tightening fiscal policy creates expectations of lower inflation, which in turn lowers nominal interest rates. Standard macroeconomics would suggest greater private investment activity as the eventual outcome of such policy. This is a plausible solution but one that may not be claimed in the transition economies' context at its full capacity: investment, particularly in the mid 1990s and early 2000s, was cash rather than credit or interest driven. Further, as has been pointed out in Chapter 1, the government plays a considerable role in the economies, stimulating private activity via purchases, contracts, guaranteed loans, and other means. Private debt instruments have gained an operational capacity in the CIS economies only recently and it is still premature to fully assess possible "crowding out/in" impacts (implied in this discussion).

Viewed along the lines of the Ricardian equivalence concept, articulated by Barro (1989), others suggest a theoretical model in which reductions in government expenditures at the time when it rises rapidly adjusts the public's expectations about fiscal spending and taxes in the future. Both are expected to fall significantly, which consequently causes a rise in private wealth and consumption growth.[4] This remains a theoretical finding and is yet to be proven in the CIS context with important state participation across all major social and economic sectors.[5]

Recall Tanzi's (2006) skepticism about conformity of fiscal policy decisions with the true market demands and the dangers of shortsighted fiscal decisions. The peculiarity of the CIS situation is the existence of the acute response of fiscal authorities to immediate and distanced policy challenges. There is a drive to continue with transformation and stabilize the economic processes in those countries. As has been already mentioned, this is portrayed in continuous legislative changes, official announcements, and increasing public—private partnerships across the former Soviet republics.[6]

Where does this leave an involved inquiry? Our interest is in fiscal policy sustainability, which at a minimum suggests a government's solvency given its historical track record. Clearly, the twelve economies of the CIS present a nonstandard case in this investigation due to the factors outlined above. The following section sets in place a formal model of fiscal sustainability. Accompanying discussions and the eventual econometric model are derived from recent literature available on fiscal policy and fiscal policy sustainability.

3.4 Theoretical model and data discussion

Fiscal policy sustainability is a relatively well-researched subject in the literature on advanced economies. Extensions abound in terms of econometric approaches, time frames, and country types under consideration. As Perotti (2007) points out, markets are concerned with state sustainability simply due to that measure's insight on immediate, short- to medium-term state of affairs. One could describe this as a very Keynesian framework in which the short-run policy matters far more than any long-term prospects.

In the case of still "unknown to the outside world" post-socialist economies, this is of primary significance: any external lending to the transition governments—political issues aside—is based on the short-term scale (we review the issues of sovereign debt in closer detail in the following chapter). This happens specifically due to issues of uncertainty and imperfect information in the capital markets in general and in the transition economies especially.

The issue of uncertainty is not new and has been brought up by various strands of schools and in various contexts, starting perhaps with Marx's (1894) complex description of the role of credit in the third volume of his *Capital*, then to Keynes's (1936) *General Theory* and Minsky's (1975) fine-tuning in contemporary conditions, to more recent work by Fazzari and Variato (1994) and later Mendoza and Oviedo (2004), among many others. Bohn (1998 and 2005) suggests that, even facing uncertainty, a government can increase its borrowing and still achieve solvency. One way of conducting such a sustainability test is by looking at the primary surplus response to changes in debt–income ratio. The debt to GDP ratio coefficient should be positive.

Bohn (1998), in testing the US data, finds a positive relation that indicates active government measures reducing non-interest-on-debt related fiscal outlays or raising revenue. Hence the author concludes that US fiscal policy, despite periods of extended deficits, has been sustainable.[7] Recall that primary surplus is defined as tax revenue less non-interest spending, such as compensation to employees and government programs (e.g. social support). This approach also assumes that much of the revenue is coming from taxes, which, as we have noted in our case of transition economies, represents a significant proportion in relation to GDP. In short, as implied by the above, a positive response of the primary surplus to increasing debt classifies as a contractionary fiscal policy, by which the government either raises taxes or reduces its (non-interest) spending.

Mendoza and Ostry (2008) find the above relation to hold for a mixed sample of developing and developed economies. However, the authors make two observations relevant in the transition economies' case. First, the empirical tests returned high coefficient on debt, which may be an indication of limited international market access. Second, developing countries that run high debts showed insignificant debt coefficients in the regression on primary surplus, which most likely points to the presence of sustainability problems.

Finally, Greiner *et al.* (2005) extend the model by Bohn (1998) by introducing a time-varying coefficient model applied to the data on Germany for the

1960–2003 time frame. In their analysis, the economists initially find evidence supporting sustainability reasoning in the German government's borrowing. The main results indicate a significant positive relation between primary surplus to GDP ratio and debt to GDP ratio. Further, the authors establish the presence of nonlinearities, suggesting the existence of a U-shaped relation between primary surplus and debt. This implies that a significant fiscal policy response occurs as the debt to GDP ratio exceeds certain threshold levels. That may be partially explained given the EU member states' drive for fiscal discipline and budget control. Issues raised above play an important role in the transition countries' economics. At this juncture, it is appropriate to continue the analysis with an introduction of the formal model and briefly review available data.

The formal model

Given the above discussion and studies reviewed, the formal model is primarily derived from the original fiscal policy sustainability tests by Bohn (1998), applied to the realities of the post-socialist fiscal policy constraints analyzed above. Following Bohn (1998) and assuming an intertemporal approach, the current period's government debt B_t is dependent on the prior period's debt B_{t-1}, less primary surplus S, times the interest.

$$R_t\text{: } B_t = (1 + R_t) * (B_{t-1} - S_t) \tag{3.1}$$

Here, B is the general government debt and the focus is on the exact relation between the general debt and primary surplus. The basic model then is:

$$s_t = \alpha + \beta d_t + \lambda K_t + \varepsilon_t \tag{3.2}$$

where s_t is the ratio of the primary surplus to GDP; d is the ratio of general government debt B_t to GDP; and variable K is a "catch-all" term necessary to account for non-debt activity that plays an important role in the primary surplus determination in the transition economies. Finally, the ε_t is the error term and the α, β, and λ are the constant and coefficient terms, respectively. Following earlier discussion on primary surplus to debt relationship, the expectation is to find the β coefficient positive and statistically significant to conclude the existence of sustainability.

A few words on the variable K—the "catch-all" term. The specifics of the transition fiscal policy require consideration of additional factors in the primary surplus analysis, aside from debt data. Specifically, the "catch-all" term needs to be expanded based on the prior section's discussion and to take into account the institutional and magnitude aspects in the CIS fiscal policy. This is achieved through adding parameters of government expenditure, output growth, and fiscal reform. The new regression then takes the form of:

$$s_t = \alpha + \beta d_t + \lambda_g g_t + \lambda_y y_t + \lambda_p P + \varepsilon_t \tag{3.3}$$

where the known terms are from (3.2) above and the new terms are g_t for government expenditure as a share of GDP; y_t for GDP growth; and P for the fiscal reforms index. The λ_g, λ_y, and λ_p are correspondingly the coefficients for g_t, y_t, and P, respectively.

Continuous adjustments to the core fiscal policy and variations in output growth across the CIS economies explain the intuition for such composition of the K term (reviewed in detail in Chapter 1 of this book). Separately it should be noted that, at this time, no expectations are set regarding the λ_g, λ_y, and λ_p coefficient signs.

A couple of relevant comments on the procedure are due. First, due to limited data sample as described below, regression results might produce distorted returns. Second, transition economies' governments follow proactive fiscal policies. This might suggest a positive relation between the tax revenue and output growth. Intuitively, declining GDP growth leads to fiscal primary account deficit. However, in a transition economy, it is reasonable to conceive of a government raising revenue via contributions from state reserves or elsewhere to sustain current level of fiscal outlays.[8] The urgency for such measures is dictated by the necessity of upholding fragile social balance in the still-reforming market economies. That leads to the third aspect, namely of a negative relation between fiscal expenditure and primary surplus, which is self-explanatory: as government raises its spending, surplus decreases.

An extension to the basic models of (3.1) and (3.2) explained above would be an intertemporal revision. A similar approach is taken in various studies, including Bohn (1998), which this chapter takes as its starting point. This then is set on the assumption of current primary balance being influenced by the change of current period and prior period debt. The extended view then is:

$$s_t = \alpha + \beta_1 d_{t-1} - \beta_2 d_t + \lambda K_t + \varepsilon_t \tag{3.4}$$

where the only new variable, d_{t-1}, represents general government debt in relation to GDP in period t–1. Equation (3.4) may be restated in a revised form as:

$$s_t = \alpha + \beta \Delta d_t + \lambda K_t + \varepsilon_t \tag{3.5}$$

The model described by relation (3.5) appears to be more fitting for the transition economy than any other. The general government debt evolution represented by the delta term in the equation allows for the drawing of critical insights on how fiscal policy changes in the presence of increasing (or, for that matter, decreasing) accumulated debt. This is important for the CIS economies that borrowed heavily in the early stages of transition, with more moderate levels achieved towards the late 1990s and mid 2000s. This approach also bears significance given the history of the Russian financial crisis of 1998. The reader is reminded that the 1998 Russian crisis—which also spread to varying degrees into CIS economies—was caused by the Russian government's default on its borrowings (*Gosudarstvennye Kaznachejskie Obligacii—GKOs*). At the time, the GKO's only confidence factor was the investors' belief in the Russian government's solvency and fiscal policy

sustainability.[9] Therefore, equation (3.5) allows early identification of a possible Ponzi financing scheme at the national level.

Data description

As elsewhere in this study, the data used in this analysis comes from various sources. Here the data sample is comprised of annual observations covering the period of 1989 through 2007, with most countries' primary surplus data starting in 1992. Information on primary surplus was derived from the IMF's Government Finance Statistics (GFS) database (IMF, 2008), the World Bank's World Development Indicators, as well as Quarterly External Debt, and Government Development Finance databases. Unfortunately, the IMF's data is not complete and, as is the case with other tests discussed in this study, completely omits the countries of Turkmenistan and Uzbekistan. Therefore, the tests are constructed on limited data and results are interpreted below with caution.[10]

EBRD *Transition Report* tables supplied debt, government expenditure, and reforms index data. All parameters are annual. The first two are general government estimates in relation to GDP for each country by year. The reforms index is represented via proxy of an averaged privatization index and price liberalization index. The issue of privatization in the post-socialist economies has played a crucial role. Ongoing privatization indicates strong fiscal adjustment and transformation of the fiscal authority role. That makes a privatization index an informative instrument in assessing the fiscal reform. It is particularly so given recent years of effective re-nationalization of some bigger enterprises or their restructuring as private entities with governmental oversight across all CIS economies, and the largest (Russia, Kazakhstan, and Ukraine) countries especially. This tendency was described earlier in Chapter 1 of this study. Finally, the price liberalization index is informative of a government's retreat from the real economy, letting the market forces, specifically competition, establish the balance. In both cases, privatization and price liberalization, government's withdrawal is rated higher than nominal direct participation. In terms of primary surplus, that necessarily cuts down the expense side of the equation.[11] Empirical findings are reviewed below.

3.5 Empirical results discussion

On average between 1992 and 2007, the CIS-10 group ran a primary budget deficit of 3.2 per cent of GDP, as shown in Figure 3.8. Net importers averaged at 0.9 per cent of GDP. A curious observation from this preliminary analysis is the relatively high deficit share of the countries in the net exporters' group: approximately 5.5 per cent of GDP for the total group. What appears to be driving the high primary deficit in the net exporters group is an inclusion of the estimate for Azerbaijan (24.1 per cent of GDP deficit). Removing Azerbaijan's figures from the net exporters' average, the new estimate is still a deficit but at a value approximately equal to the net importers' of 0.9 per cent of GDP.

Out of ten countries reviewed, five achieved primary surplus on average, while others recorded primary budget deficit. The composition of each group is diverse and includes countries from the net exporters and net importers groups in each case. Russia (2.2 per cent), Belarus (1.6 per cent), Armenia (0.5 per cent), Moldova (0.3 per cent), and Tajikistan (0.3 per cent) were on the positive side, as can be seen in Figure 3.8. It is significant that three out of five net importer economies achieved primary surplus, i.e. revenues (primarily tax), that exceeded expenses. Intuitively, this is an early indication of the smaller economies adhering to constrained policies due to limited funding, as opposed to larger, exporter economies that tend to have bigger social obligations and funded programs that cannot be easily downsized without upsetting the social balance.

The combination of an expanding government sector and windfall revenue from energy exports that contributed to a significant rise in foreign exchange reserves in recent years, as well as an introduction of strict tax controls, specifically as applied to the private sector, has led to Russia's primary surplus. Other exporters, such as Kazakhstan, Ukraine, and Azerbaijan have been less successful in getting state expenditures under control and systemizing revenue flows over the past fifteen years.

Moving on with this analysis, regressions (3.2) and (3.5) were estimated for all countries and for the two country groups. Due to the lack of extended historical data and missed observations in the current dataset, it was not possible to split the sample into two time periods (first decade and second decade of transition), as was possible in Chapter 2.

Instead, the data are grouped in a panel set and analyzed for the entire transition period of 1989 through 2007 by country groups. Panel data test appears to

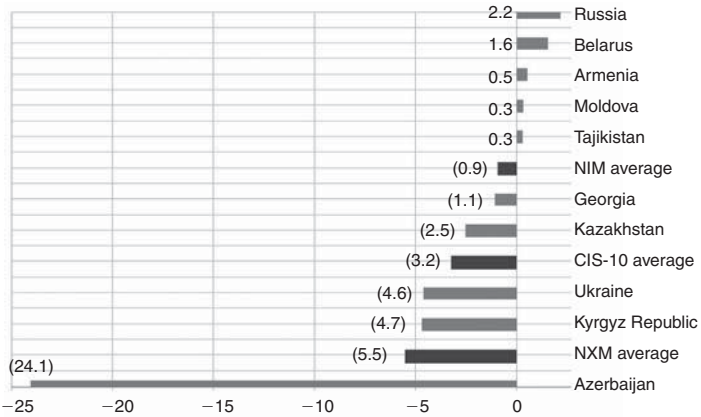


Figure 3.8 Primary surplus by country, per cent of GDP (1992–2007) (source: author's calculations based on GFS (IMF, 2008), WDI (World Bank WDI, 2008), GDF (World Bank GDF, 2008)).

Note
Approximations based on unweighted averages for the 1992–2007 period.
IMF GFS does not provide data for Turkmenistan and Uzbekistan, hence, CIS-10 average.

be the only available option in the face of data limitation at this time. Still, it should be recognized that there is a possibility of heteroskedasticity. To correct for this, alternative versions of the main model are estimated by running an ordinary least squares regression with panel corrected standard errors (OLS-PCSE).

Table 3.1 presents the initial estimation results based on the complete ten country sample. Regression 1 is a simple correlation test between primary surplus and general government debt.[12] Regression 2 expands this to include the parameters of general government expenditure, national output growth, and reforms proxy. In effect, regression 1 and 2 correspond to relations (3.2) and (3.3) from the theoretical discussion above. Regression 3 and regression 4 apply a similar approach, but this time with a focus on debt change as represented by the delta term.

The first two regressions return promising results in terms of fiscal policy sustainability. In both cases, coefficients on debt are positive and statistically significant (especially in the second case). Further, regression 2 also reports a statistically significant positive relationship between primary surplus with government expenditure and output growth (with reforms index also positive but not significant). Regressions 3 and 4 offer less of a basis for the sustainability claim as both coefficients on debt evolution are negative and significant. General government expenditure coefficient estimate is statistically significant and positive. Other parameters seem to play a lesser role.

Considering the above conclusions, it can be said that, first, a positive primary surplus to debt relation implies a result similar to Bohn (1998): governments are taking measures (i.e. either scaling down their expense activity or raising tax revenue) as more debt is taken out, adding to the current debt stock. A negative relation, according to Bohn's (1998) logic, suggests the possibility of a government not keeping its measures of raising more revenue with increasing debt. In this case, a government may be running into too much debt by continuing to

Table 3.1 Regression results for CIS-10

Regression	*Dependent variable: primary fiscal surplus (per cent to GDP), s*					
	constant	*d*	*dd*	*g*	*y*	*P*
(1) $s_t = \alpha + \beta d_t + \varepsilon_t$	–3.392	0.029***				
		[1.43]				
(2) $s_t = \alpha + \beta d_t + \lambda K_t + \varepsilon_t$	–18.96	0.045**		0.282**	0.303***	1.27
		[2.05]		[2.02]	[1.46]	[0.75]
(3) $s_t = \alpha + \beta \Delta d_t + \varepsilon_t$	–2.25		–0.08**			
			[2.09]			
(4) $s_t = \alpha + \beta \Delta d_t + \lambda K_t + \varepsilon_t$	–19.54		–0.083	0.281**	0.157	2.263
			[1.27]	[2.04]	[0.57]	[1.18]

Source: author's calculations based on data from GFS (IMF, 2008), EBRD (2008), WDI (World Bank WDI, 2008), QED (World Bank QED, 2008) and GDF (World Bank GDF, 2008).

Notes
*, **, *** indicate significance at 1%, 5%, and 10% respectively.
t-statistic absolute values are in parentheses.

borrow and rolling over debt to the next period. Therefore, preliminary results show that there is an indication of fiscal policy sustainability in the case of the current period. However, if debt evolution is examined, there is evidence of the opposite, calling current fiscal policy unsustainable as debt to GDP increases.

Second, a positive relation of general government expenditure and primary surplus runs along the similar logic. As the state's expenditures increase, fiscal authorities seek ways to raise primary surplus via taxes. Another source of state income is to borrow from the financial markets, but this is not part of the primary surplus specification given.

Third, positive primary surplus relation with output growth is intuitively clear: as economy grows, the government's revenue increases. A government collects more tax revenue, as in tax on profits for corporations and income tax for individuals, as the economy, in general, becomes richer. As is evident by now, in the CIS economies, main contributors to tax revenues are large corporations with an expanded network of governmental ties. This then may seem to be at odds with a positive relation of primary surplus with the reforms index. In fact, as we sketched above, in the transition economy context, privatization and state withdrawal from price control helps drive government expenditure down, as less state support is needed in various areas. Still, as the events of the past year or so have indicated (rising inflation across the CIS and Russia in particular), the state is ready to intervene to guarantee prices at certain levels, at least temporarily.

While these results seem to be fitting the transition context quite well, as data becomes available and individual country tests are carried out, results on a country basis may diverge from this general trend. Next, results from the biggest group of the CIS-10 economies, the net exporters, are reviewed. The regression output is shown in Table 3.2.

Table 3.2 Regression results for the CIS net exporter countries

Regression	*Dependent variable: primary fiscal surplus (per cent to GDP), s*					
	constant	*d*	*dd*	*g*	*y*	*P*
(1) $s_t = \alpha + \beta d_t + \varepsilon_t$	–4.393	0.059				
		[1.22]				
(2) $s_t = \alpha + \beta d_t + \lambda K_t + \varepsilon_t$	–36.97	–0.0312		0.608*	0.058	4.34***
		[0.54]		[3.07]	[0.29]	[1.80]
(3) $s_t = \alpha + \beta \Delta d_t + \varepsilon_t$	–3.34		–0.202***			
			[1.33]			
(4) $s_t = \alpha + \beta \Delta d_t + \lambda K_t + \varepsilon_t$	–36.64		–0.214***	0.621*	–0.092	4.06***
			[1.53]	[3.66]	[0.31]	[2.23]

Source: author's calculations based on data from GFS (IMF, 2008), EBRD (2008), WDI (World Bank WDI, 2008), QED (World Bank QED, 2008) and GDF (World Bank GDF, 2008).

Notes
*, **, *** indicate significance at 1%, 5%, and 10% respectively.
t-statistic absolute values are in parentheses.

The net exporters' (including Azerbaijan, Russia, Belarus, Kazakhstan, and Ukraine in this sample) tests return less optimistic results in terms of fiscal sustainability. In only one case, regression 1, was the debt coefficient positive and statistically significant. In the presence of other systemic variables (government expenditure, output growth, and reforms), the debt coefficient was statistically insignificant and negative. At the same time, government expenditure seemed to have greater significance than other factors. While this result may be due to data limitations, it also follows the net exporters' development path. Specifically, as expenditures increase, as the state moves into various spheres of the economy, net exporter governments achieve primary surplus by means of tax policy (including direct and indirect taxes, such as licensing, etc.). Regressions 3 and 4 in Table 3.2 report negative and significant relations between change in debt and primary surplus in the current period. Here again factors of government expenditure and reforms are positively correlated with primary surplus.

In general then, large net exporting economies of the CIS, while lagging in fiscal adjustment in the face of increasing borrowing and rising debt, are still capable of achieving primary surplus, despite increasing government expenditure. That ties well with primary surplus's positive relation to reforms, i.e. effective deregulation. In short, as government expenses rise, establishment and deeper penetration of capitalist aspects (such as privatization and loosening price controls) helps draw greater tax revenues from private enterprise. Yet, high levels of indebtedness in certain countries (for example, Ukraine or Kazakhstan, at 48 per cent of GNP and 103 per cent of GNP at the end of 2006, according to GDF) present a potential threat to the future macroeconomic stability, especially in the crisis and post-crisis recovery environment.

Finally, Table 3.3 summarizes regression results for the net importer economies. This group is comprised of such countries as Armenia, Georgia, Kyrgyz Republic,

Table 3.3 Regression results for the CIS net importer countries

Regression	*Dependent variable: primary fiscal surplus (per cent to GDP), s*					
	constant	*d*	*dd*	*g*	*y*	*P*
(1) $s_t = \alpha + \beta d_t + \varepsilon_t$	–0.875	–0.002 [0.14]				
(2) $s_t = \alpha + \beta d_t + \lambda K_t + \varepsilon_t$	11.77	–0.0003 [0.02]		–0.081*** [1.31]	0.127 [0.84]	–3.15** [2.30]
(3) $s_t = \alpha + \beta \Delta d_t + \varepsilon_t$	–1.117		–0.051** [1.77]			
(4) $s_t = \alpha + \beta \Delta d_t + \lambda K_t + \varepsilon_t$	12.11		–0.083 [1.27]	–0.087*** [1.56]	0.051 [0.38]	–3.08** [2.50]

Source: author's calculations based on data from GFS (IMF, 2008), EBRD (2008), WDI (World Bank WDI, 2008), QED (World Bank QED, 2008) and GDF (World Bank GDF, 2008).

Notes
*, **, *** indicate significance at 1%, 5%, and 10% respectively.
t-statistic absolute values are in parentheses.

Moldova, and Tajikistan. This group exhibits a negative relation between primary surplus and debt in the current period, as well as debt change between prior and current periods. Further, a statistically significant negative relation is also established between primary surplus and government expenditure and the reforms proxy.

Various explanations may be applied here. Data issues notwithstanding, a negative debt to primary surplus relation is an early indication of the state borrowing going rough and lacking fiscal revenue sources. Even in the short run, this causes problems of sustainability. An eroding tax base and (or) inability to raise sufficient revenues to finance their expenses (either due to issues of tax evasion or required social expenditure significantly outweighing incoming tax revenues) explains the negative relation between the s and g in both cases. Hence, the governments are pushed to borrow to finance their operations. Therefore, efforts to liberalize the market would appear to be counterproductive as the enterprise profits are not properly taxed and the prevalence of large corporations with state ties in relatively smaller economies (as compared with net exporters) continues.

A peculiar observation in both country groups is the insignificant but positive relation between primary surplus and output growth. Recall that in our initial discussion we assumed growing output to be helpful in achieving primary surplus. By extension, this argument could be made, however, with no claim for statistical robustness. A most likely scenario explaining this situation, based on the early transition era experience, is the existence of a predetermined set of fiscal obligations to the society specific to the cultures, economies, and societies of each CIS country. This, however, requires a separate exploration as more data on fiscal activity becomes available. Are there any policy conclusions that could be derived from the above analysis? These are discussed in the concluding section of this chapter.

3.6 Policy conclusions

This chapter sketched fiscal policy trends and offered analysis of fiscal policy sustainability in the transition economies of the CIS. This was structured around the examination of traditional aspects of fiscal policy revenue and expenditure, compactly summarized in the "fiscal diamond" discussion. Since the key aspect of this chapter is the statistical analysis of the past three sections, we summarize here the main policy implications derived from that.

To reiterate earlier concerns, there is an urgent need for improved fiscal data collection. A lot depends on how good the data is and a country-specific approach is always a preferable option. It may be tempting to conclude with a proclamation of fiscal sustainability in the CIS economies based on regression results for all economies' average. However, a more granular look is required. As a closest approximation to the country-based approach, with the given data, we attempted here to put similar economies in two groups—consistent with the earlier categorization (see Chapter 1).

The results obtained by running OLS with panel-corrected standard errors tests set the following policy priorities. First, for both country groups, continued borrowing and accumulating debt appear to be the causes of major concern. As

Table 3.4 indicates, the CIS-12 average of total debt to GNP was, at the end of 2006, 40 per cent. Across countries, the distribution is wider, with net importers at 50 per cent.

In the situation of constrained income flows from real operations and lagging effective demand, the piling-up of debt potentially leads to fiscal default. The negative correlation with the primary surplus of rising debt established above suggests lacking or lagging fiscal response. Importantly, there is evidence of rising debt service (measured in Table 3.4 as a proportion to total exports of goods and services) between 2005 and 2006. For the net importers, the increase was 3 per cent, while it declined for the net exporters.

Exacerbating the situation is the lack of real ability in the net importer economies to adjust their fiscal policy as required government's social expenditure continues to rise. Net exporters have come out stronger, thanks to the tax revenues resulting from natural resource exports. It is unclear how sustainable this reliance may be in the long run.

At the time of writing, the oil price has declined from its earlier high of US$100+ per barrel to below US$100; it fell under US$50 and is now around US$70. As the oil price remains unstable and fluctuates, governments and finance ministries of the oil and natural gas exporting economies (primarily of Azerbaijan, Russia, Kazakhstan, and Turkmenistan) set themselves busy in revising next year's budgets, which relied on higher oil price and additional revenues inflows.

Within the "fiscal diamond" context, raw material exports revenue can be included as an additional revenue source. This effectively changes the shape of the "diamond" and, if put within a broader view, allows one to speak of an innovative fiscal policy. The next chapter expands on the "innovative" concept and develops

Table 3.4 Total debt stock and debt service, 2006

Country	*EDT/GNP*	*Debt Svc/ XGS*	*2005–2006 change EDT/GNP*	*2005–2006 change Debt Svc/XGS*
Armenia	31.96	5.40	–5.67	1.01
Azerbaijan	11.06	1.10	–4.58	–0.22
Belarus	16.62	16.55	0.96	4.11
Georgia	26.23	5.64	–3.61	0.09
Kazakhstan	103.43	32.25	19.62	–4.80
Kyrgyz Republic	85.56	5.98	0.55	–1.14
Moldova	64.30	12.09	2.97	0.28
Russia	26.20	25.12	–4.53	–0.85
Tajikistan	42.45	30.95	–3.75	15.18
Turkmenistan	8.92	3.91	–5.11	–1.74
Ukraine	47.63	4.51	8.53	–0.42
Uzbekistan	22.68	11.46	–6.83	–2.65
NXM	33.79	13.56	1.15	–0.94
NIM	50.10	12.01	–1.90	3.08
CIS–12	40.59	12.92	–0.12	0.74

Source: author's calculations based on GDF (World Bank GDF, 2008) and EBRD (2009) data.

a novel approach accounting for the new sources of fiscal revenue. Specifically, alternative revenue sources must be considered, such as sovereign borrowing from the Diaspora. Less institutionalized approaches, such as reliance on primary commodities export revenues (as now in net exporters) or foreign aid coupled with remittance flows (as in net importers), should also be taken seriously.

Even if this involves provisional policies, each source is significant enough. In the end, the "fiscal diamond" becomes a "fiscal net," offering more options in terms of economic development. Drawing a transition path in the CIS, it is clear there is a need for a development stimulating, proactive fiscal policy. Related, public borrowing is a common practice, which will not end even with a government's default (as the 1998 Russian crises and other international precedents have proven). However, it is important to realize that borrowing must be done in a responsible way and consideration must be taken within the framework of raising sufficient revenues to repay the loan when it matures.

In the context of current transition economies' development, there is a strong need for a proactive fiscal policy with focused public spending programs. Recall that in terms of economic restructuring, public capital performs best in such strategic areas as infrastructure, education, and healthcare, providing a responsible development framework with access by the public within domestic regulatory code.

Infrastructure development has a consequent contribution to an economy's productive side. As a result, the production process regenerates itself with increased intensity at different levels, relying on existent infrastructure networks. That produces a strong feedback into economic growth. The mechanism is quite simple; for example, transportation companies make faster deliveries, utilizing state-built bridges, roads, and railways to move goods around, often reaching distances from main distribution line regions and markets. Timely fulfilled orders result in higher productivity and profits. Similarly, in the developing world, state-stimulated investment in telecommunications networks, establishing accepted standards in compliance with the international requirements, alleviates the extra burden otherwise levied on private companies that would have to start building everything from scratch. In short, infrastructure is the backbone upon which real economy develops.

Further, it is possible to envision a finance scheme that would require a certain portion of corporate profits as a contribution into the *Infrastructure Development Fund*. This arrangement would have to be very delicately balanced, as not all firms are users of transportation links that, for example, are proposed as a potential infrastructure project (in a likely scenario, an IT company, based in a corporate office, does all business electronically). Hence, a flexible system of required contributions and list of money uses would have to be worked out to get businesses interested in financing public expenditure without stifling their profits.

Education is a proxy for human capital in the growth models. It has been shown that increased levels of human capital, at least temporarily, have positive effects on long-run growth (e.g. Lucas, 1988; Romer, 1990; Grossmann and Helpman, 1991; Semmler *et al.*, 2007). Innovation—a direct product of national research facilities—coupled with skilled labor force has positive and consistent feedback into economic activity. This is especially evident from the development

examples of advanced capitalist economies. Economic advance in the twenty-first century requires an educated labor force to conform to requirements of the industrial age and a continuous innovation process to sustain the diversified levels of international trade. The latter two are derived in Rada and Taylor (2006) and Amsden (2001) as primary contributors to economic growth and development in the emerging markets in the past two decades.

Innovation and human capital accumulation are reminiscent of Schumpeterian "creative destruction." The innovation process is creative in the sense of creating new value in terms of new sophisticated products and a new set of productive relationships, e.g. in the early stages, moving away from agrarian economy to a more industrialized one. The process is destructive in the sense that it is shedding the old values and relationships, absorbing the positive feedbacks of the past that are very specific on a country level. Given the competitive nature and existence of proprietary knowledge, it is reasonable to establish a *Strategic Learning (Innovative) System* (SLS) as a manifestation of governments' proactive actions. SLS focuses primarily on knowledge sectors that have positive impacts in the development of competitive production areas. In some ways, this approach has been implemented in the countries of South East Asia, most notably South Korea (e.g. Viotti, 2000). Connection with real economic needs is vital.

There are labor issues and, in particular, economically and politically driven labor migration problems that post-socialist countries of the FSU have been dealing with since the start of the market reforms in the early 1990s. Fiscal policy directed at learning the causes and regulating the flows would have a significant impact in terms of improved long-term economic and social benefits. The mandate of fiscal policy in this sense should be the development of effective tools in accordance with the reality that would help manage population flows. The premise must be everyone's right and privilege for free movement. It is the inherent right of anyone to seek employment anywhere, just like it is an inherent right of free speech and free expression. A responsible fiscal approach to the analysis of the temporary labor migration and introduction of the *Diaspora Regulatory Mechanism* and *Migration Development Bank* as part of the broader innovative fiscal policy concept is offered in Chapter 5 (also see Gevorkyan and Gevorkyan, 2010).

Results indicate that prolonged periods of current fiscal borrowing and expenditure with limited scope for income pose a threat to the fragile stability of the newly transformed economies of the former USSR. Proactive steps must be taken in first seeking improvement in tax collections to avoid tax evasion; second, there should be analysis of state expenditure composition to add most-needed programs while downsizing other public investment projects from the viewpoint of stimulating effective demand and real economic operations. Finally, accepting the need for continued borrowing, the CIS governments may be well advised to look into all alternatives to sovereign borrowing available in today's globalized world. The "fiscal diamond" must be transformed and acquire a new shape with new robust revenue sources specific to the transition economies. In the next chapter, we discuss one such instrument, namely the Diaspora bond, which may hold the answer to the post-socialist economies' fiscal pains.

4 Innovative fiscal policy

The how, when, and why of borrowing from the Diaspora

4.1 Introduction

Fiscal policy sustainability analysis, within the "fiscal diamond" model as carried out in Chapter 3, necessitates a discussion of fiscal revenue sources. Along with the traditional sources, this chapter argues that transition economies have a potential to seek additional sustainable financing alternatives. The chapter extends the "*fiscal diamond*" analysis and develops a new "*fiscal net*" framework that helps guide and assess all alternatives. This analysis is one of the key contributions to the innovative approach in fiscal policy in its broadest definition.

The main focus is on the joint efforts of national governments with the respective country's Diaspora networks. For illustrative purposes, three Eastern European (EE) economies—Bulgaria, Poland, and Romania—are added to the discussion. With the exception of Russia—a large country well endowed with resources and rapidly growing economy—all countries in question are relatively small territorially and in market share, and are caught in the reconciliation stage between transforming the past and the urgent need for aggressive modernization. Also, these countries possess strong and widespread Diaspora networks outside their national borders.

The Diaspora concept is one of the innovative components in the *"fiscal diamond"* model of Chapter 3 of this study. Elsewhere, countries at different socio-economic development stages have long since utilized various measures in mobilizing Diaspora resources for the development and benefit of the historically native lands. In terms of institutional investment, the two well-known examples of sovereign finance are the State of Israel Development Bonds of 1950 and the Resurgent India Bonds of 1998.

A major aspect of a Diaspora-targeted sovereign financial instrument is the state's unique opportunity to raise low-cost (via patriotic discount) capital by the state to promote socio-economic progress, with greater decision-making independence and investment project selection than offered by other policy measures. This concept was pioneered by us earlier in a separate publication (Gevorkyan, 2008). In this chapter, a concerted effort is made to systematize the approach within the overall theme of innovation, fiscal policy, and development. The important aspects are ensuring sustainability, timely interest payments, adherence to fiscal rules, and responsible investment in productive sectors to stimulate effective demand.

This chapter is organized as follows: Within the general discussion of fiscal policy, Section 4.2 identifies some socio-economic areas requiring attention as core components of sustained economic growth and development. While each case is unique, available evidence allows us to provide some general pointers for the group of countries. Section 4.3 sets the general background for understanding Diaspora involvement in the transition economies' development. In Section 4.4, we extend the concept of "*fiscal diamond*" to a more encompassing idea of "*fiscal net.*" Section 4.5 discusses the perils of floating and regulating the Diaspora bond in transition societies. The chapter ends with a Conclusion and statistical Appendix.

4.2 Fiscal policy for growth and development: transition peculiarities

Can fiscal policy help countries develop? The short answer is yes. We should, however, review it in detail. Early 1990s fiscal withdrawals from the economy ranged between 5 and 20 (and more) percentage points (UN, 2008) across the FSU/EE region. Fiscal withdrawal in the early 1990s from infrastructure, education, healthcare, and industrial policy (beyond the legal-regulatory scope) coupled with the absence of a timely and adequate institutional replacement caused social crises that impeded economic development (e.g. Stern and Hicks, 1996; Aghion and Schankerman, 2000; and earlier discussions). The effects were particularly harsh in the smaller economies. More recently, the fiscal share has been somewhat increasing and in some cases even surpassing prior levels (e.g. reaching up to 30 per cent in 2006 in the Kyrgyz Republic). State return in the economy has primarily been via provision of non-waged labor goods, such as social benefits, childcare, basic education, and social infrastructure (Filer *et al.*, 1994; Juurikkala and Lazareva, 2006), but also in the form of direct government involvement in the economy. These facts have already been reviewed in Chapter 1 of this study.

The point though is that sustainability of this involvement, as discussed in Chapter 3, requires adequate financing and fiscal discipline. The traditional "fiscal diamond" concept, aimed at achieving fiscal expenditure efficiency, offers a limited number of revenue sources. Arguments made in favor of increasing tax revenue must be treated with caution; not just for the politically unpopular complications but in terms of realistic reasoning as well, given the structure and nature of the transition economies' capacity.

As Figure 4.1 suggests, while the initial collapse of the Gross National Income (GNI) per capita of the early 1990s may have been regained in some transition economies, the persistent low per capita income levels inflict strict limits for traditional fiscal policy as far as raising funds on an adequate scale. The situation is further complicated by the prevalent underdeveloped financial markets, high inflation, large current account deficits, accumulated large national debts, low investment activity, and high net out-migration of the working age population, combined with high unemployment, and collapses in the educational, healthcare, and social services spheres (some of this data was reviewed earlier).

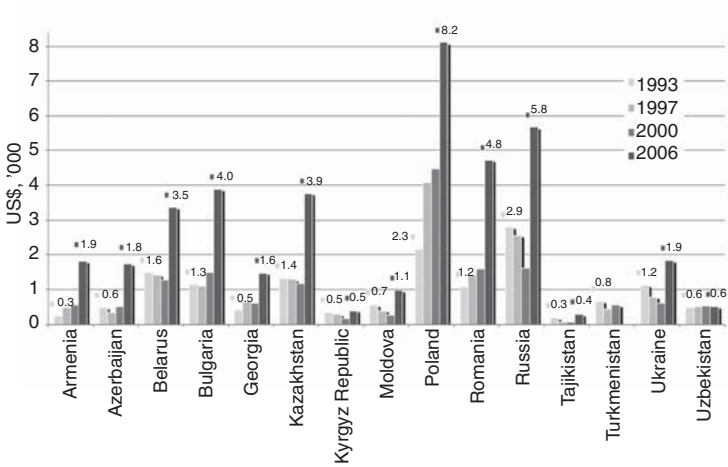


Figure 4.1 GNI per capita in current US$, '000 (source: author's calculations based on WDI (World Bank WDI, 2008)).

Note
Latest available data for Turkmenistan is as of 2000.

There is an urgent need for alternative solutions for sustainable fiscal financing and that is the innovation introduced in this chapter.

Clearly, the economies at hand are a diverse group. Most problematic are the smaller economies, such as Armenia, Georgia, Moldova, and Tajikistan. It is striking how (with few relative exceptions) these share high negative migration rates, high accumulated debts and low income per capita, and high unemployment and high debt service ratios. Some (e.g. Armenia, Bulgaria, Moldova, Poland, Romania, and Tajikistan) receive high net transfers from their migrant workers, ranging from US$1 billion up to US$7 billion—a significant proportion relative to respective GDP levels.

The next few years will present true challenges to the transition governments that are dealing with accumulating social and economic problems. There is a need for a policy leading to a solid development track. Faced with the ongoing crisis and as the monetary policy looses its potential, proactive fiscal effort is what remains to jump start an economy and shift it to a more sustainable development path. What does the available literature say on fiscal policy and development? These arguments with application to the transition dynamics reality are reviewed below.

Raising public capital (as in funds available to the fiscal authorities for internal projects) for domestic social development needs is often studied in the general framework of economic growth (e.g. Semmler *et al.*, 2007; Paternostro *et al.*, 2005; Greiner *et al.*, 2004; Aschauer, 1989). Results indicate a strong positive correlation between the two. While stimulating economic activity, public investment by itself receives feedback from the ground, thus ensuring more intensive state involvement in the process. Romp and Haan (2005) note a crucial relationship

between public and private capital as substitutes in the level of economic growth determination, often assumed to be complementary. In certain cases, private capital steps in where public capital might have been expected (e.g. undertaking adjunct transportation-links renovation). However, public capital performs best in such strategic areas as infrastructure, education, and healthcare, providing a responsible framework with public access within a domestic regulatory code.

Infrastructure development has a consequent contribution to the productive side. As a result, the production process regenerates itself with increased intensity at different levels, relying on an existent infrastructure network. This produces strong feedback into economic growth (e.g. see Aghion and Schankerman, 2000 for discussion within the transition context). The mechanism is simple and has been reviewed in the previous chapter.

A cursory look at the available statistics for FSU and EE economies compared with a few other economies (see Appendix Table 4.2) identifies some deficiencies of transition economies in many development aspects. Here such comparisons are offered as informative references, rather than suggesting any specific benchmarks for the transition economies.

Lack of sufficiently paved roads (e.g. Romania at 30 per cent and Azerbaijan at 50 per cent of the total) is a proxy for the country's transportation networks. A low proportion of paved roads raises alarm in terms of transportation network development. Similarly very low numbers of computer, phone, and internet users indicate countries' disadvantages in the telecommunications field. On the positive side is the increasing air traffic, measured in terms of total passengers carried. However, this is a subjective indicator and may reflect the travels of high-income population groups, rather than being suggestive of a general trend. Still, there may be some positive spill-over effects into the real economy and job creation in terms of airport expansion projects, fleet modernization, and maintenance in some states.

As for education and research facility development, the implications of concerted fiscal effort are positive. Education is often used as a proxy for human capital in economic growth models. Increases in human capital, at least temporarily, have positive effects on long-run growth (e.g. Lucas, 1988; Romer, 1990; Grossmann and Helpman, 1991; Semmler *et al.*, 2007; Greiner *et al.*, 2004). Innovation, a direct product of national research facilities, coupled with a skilled labor force, has positive and consistent feedback into economic activity. This is especially evident from the development examples of advanced capitalist economies. Economic advance in the twenty-first century requires an educated labor force to conform to requirements of the industrial age and a continuous innovation process to sustain the diversified levels of international trade. These are also derived in Rada and Taylor (2006) and Amsden (2001) as contributors to economic growth and development in emerging markets of the past two decades.

For transition economies, average education expenditure has been around 2–5 per cent of the total GDP (see Table 4.3 of the Appendix). In percentage terms, some countries match allocations in the developed world (e.g. Belarus and Ukraine match and surpass allocations in the UK and the US). However, in absolute terms (due to obvious differences in GDP levels), allocations are lower and more funding

is required. Problems in education and research spheres are reconfirmed via various proxy indicators. The period between the 1990s and 2002 recorded a decline in the average proportion of gross secondary enrolment of 3.9 per cent. Despite technological and scientific advances, 2005 resulted in relatively low numbers of published scientific journal and technical articles (approximately 2,100 in the transition economies, compared with 205,000 in the US, 120,000 in France, Germany, and the UK, and 14,600 in India at the end of 2005). On the transition map, Russia holds undisputed leadership, averaging 14,500 articles in 2005, among other FSU and EE states (World Bank WDI, 2008). As of 2006, an average of 42 per cent of those completing secondary education enrolled in colleges across the transition countries in the sample. Without three EE economies, the FSU average drops further, down to 38.8 per cent. Average R&D expenditure, as the GDP share was around 0.46 per cent in the transition economies together, compared to at least 2.7 per cent of the developed world, where the effect of increased proportion is magnified by a far greater GDP scale. Despite modest advances, though, transition economies' figures are low for countries striving to integrate into the innovative economy of the new century. But the challenge is to sustain recent upward trends. For this, well-funded and serious fiscal involvement is necessary.

From the standpoint of socio-economic development and in efforts to capitalize on the relative successes in post-socialist economies, promotion of infrastructure and educational and innovative projects are seen as priorities in the years to come. Recommendations on integrating these concepts in the broader development agenda and formulating fiscal policy around that have been offered and discussed in Chapter 3 of this study. The Infrastructure Development Fund and Innovative Learning Systems are the key policy priorities given the situation at hand.

To this, a consideration of managing migration flows must be added. As shown in Table 4.1 of the Appendix, it is the countries with the lowest macroeconomic indicators that exhibit high outward migration flows. In terms of policy measures, a Diaspora mechanism offered by Gevorkyan (2007) and Gevorkyan and Gevorkyan (2007) would partially address the issue. However, state involvement is a prerequisite, and that is discussed in greater detail in Chapter 5.

In implementing these policies, the state's pivotal role as a guarantor, regulator, and (at least partial) sponsor of these social programs must be recognized. Fiscal participation comes as the foundation upon which, with time, actual fiscal share may recede, being replaced by public–private cooperative projects or the gaining efficiency private sector. Yet the solid fundamental framework that shapes the continuous development in the spheres mentioned above remains intact as a reliable support for real economy. Then if there is to be state involvement in the development, the question is: *whence comes the money?*

4.3 Diaspora and transition economies

The money can come from the Diaspora—an unusual but promising source of development finance. In discussing "Diaspora," definitions must be set first to avoid misinterpretation. The concept goes back far in history. While anthropologists

identify three world "classical" Diasporas—the Greek, the Jewish, and the Armenian (e.g. Brubaker 2005)—today the term has been extended to include larger expatriate populations of almost any country. Diaspora members are actively involved in activities of their adopted homelands, referred to as host countries. Yet the same people also retain strong ties with their native lands, their home countries, and often participate in various cultural, political, business, and other such activities there.

A standard definition sees a Diaspora as a group of people dispersed outside its traditional homeland. Diaspora is a historical yet a contemporary concept and, in these terms, almost any nation would have recorded waves of migration back in time. For example, the massive migrations in the early twentieth century created tightly knit communities of Irish and Italians in the United States. More generally, there are instances where those who left their homeland assimilated in the host countries, severing ties with the native land. Others were able to preserve some connection to their previous homes. Still, others abroad seem to have never left their homeland and live the dream of repatriation.

There are various explanations leading to each case, ranging primarily from political to economic determinants. But what seems common in most cases is that Diaspora networks stay afloat thanks to their interactions with the constant inflows of newcomers from the home country. In recent years, this has been accomplished via temporary labor migration flows, producing around 200 million people moving globally, according to the latest UN data (UN 2006). In fact, the rapid spread of news, ease of travel, and open borders have immensely simplified population flows, and allowed one to speak of two complementing types of Diaspora: the "old" and the "new" Diaspora (as originally identified in the case study of labor migration between Armenia and Russia in Gevorkyan *et al.*, 2006 and then extended in Gevorkyan and Gevorkyan, 2010). A realization of the existence of both is important when discussing Diasporan involvement in the home country. This is especially important in the case of transition economies with histories of population shifts.

Typically, the "old" Diaspora consists of the second- and greater-generation emigrants, citizens of the countries adopted by their great-grandfathers. Being fully integrated in those societies, they still retain the sense of belonging to a larger nation in exile, often forming the initial Diasporan hubs. Meanwhile, the "new" Diaspora is a more recent phenomenon and consists mainly of temporary labor migrants who seem to be in search of their final economic destination. The continuous interaction of the two entities perpetuates the Diaspora to the point that it practically equalizes population numbers between the home country's native population and those who, by ways of ethnic, historical, cultural, or other background, are in the expatriate communities.

Once in the Diaspora, individuals and organizations exhibit diverse views and incentives in their involvement in home country affairs: ranging from business, cultural, and political interests to patriotic interests of all levels and extents. These incentives are dynamic and responsive over time to a number of factors, including experiences in dealing with the homeland and relations between the host and home nations.

Therefore, a Diaspora evolves as a unified entity, as a collection of those individual incentives. For transition economies (especially with small internal populations), the existence of established Diaspora networks and the ability to capitalize on these is often analogous to potential "oil-rich" reserve economies. Some countries (e.g. Poland, Bulgaria, and Armenia) have established government and joint government–Diaspora agencies, tracking their global population, establishing links with representatives of geographically wide-spread communities (for background on Poland and Bulgaria, see MFA Poland, 2007; Bacharov, 1997; and Nacheva, 2002; also report on Belarus Diaspora by BelaPan, 2005; among others).

Freinkman (2001) raises issues of Diaspora participation in home-country development (economic recovery) in the context of transition economies. Similar ideas are extended and applied to the case of the Armenian Diaspora in Gevorkyan and Grigorian (2003). Later, Johnson and Sedaca (2004) analyzed Diaspora to home-country development processes in several international communities, deriving general alternative policy recommendations. Citing the apparent advantages of the Diaspora networks' global spread, and, in many cases, instances of affluent Diaspora communities, these studies offer several approaches to the institutional engagement of Diaspora groups. Those propositions range from humanitarian assistance, volunteer programs, cultural exchanges, and hometown associations, to more complex joint investment projects, infrastructure development funds, migration development banks (as in Gevorkyan and Gevorkyan, 2010), and floating of Diaspora bonds. The latter proposition is one of the most intriguing ones. It has been gaining growing attention from the research and policy community internationally, mainly due to the peculiarities involved in Diaspora resource institutionalization and the entrance into volatile international capital markets by still-growing economies.

While research cited above views the Diaspora bond as one of many alternatives in raising foreign exchange for development, Chander (2001) and, more recently, Ketkar and Ratha (2007) tackle the issue directly by referring to the successful implementations of Diaspora bond programs in Israel and India (these facts are summarized in Box 4.1 of the Appendix). The crucial finding is that altruism and patriotic feelings mattered once the home government took the first step in recognizing the potential and efforts of their Diaspora network. For transition economies, all the above-mentioned methods of engagement between the home country and its Diaspora are viable.

Today, almost every transition economy possesses a Diaspora beyond its national borders. Reliable data on this Diaspora stock (and Diaspora estimates in general) are difficult to collect. To our knowledge, data presented in Table 4.1 of the Appendix on transition economies' potential Diaspora stock (a combined "old" and "new" Diaspora figure) is one of the first such attempts to put a realistic number behind the phenomenon. In deriving these estimates, we relied primarily on official sources (such as census data and government statements), as well as independent sources where possible. The numbers, which also allude to larger shares of assimilated populations, are approximations and must be read with caution because most are highly inflated estimates. A conservative approach would

be to consider the lower number in the given range as realistic Diaspora potential for various reasons. Still, the data offers a starting point for the discussion.

Aside from estimates of potential Diaspora stock, Table 4.1 illustrates the latest net migration rates by country and key geographical Diaspora networks clusters. For most countries, able labor force emigration is high. While, as mentioned above, emigration helps keep a Diaspora afloat, it delivers a heavy blow to the transition economies in terms of a lack of human capital and exacerbates "brain drain" effects. Of note is the fact that transition-era migration from post-socialist economies, especially the states of the FSU, unlike other known international cases, is skilled labor migration that is induced by economic factors (e.g. literacy rates in the FSU are around 100 per cent with high proportions of college graduates, according to WDI (World Bank WDI, 2008), while primary education remains compulsory in all countries); those leaving remain emotionally attached to their home countries. Also important is that the main destination for the migrants from the smaller CIS countries is Russia's booming economy, while EE countries, as indicated in Table 4.1, send their migrant workers to other European states.

Given the Diaspora's incentive for taking an active role in its homeland development, the question remains: should governments be involved and how? At present, the policy space is open and proactive government actions would be a required first step. Borrowing from the Diaspora via Diaspora bond and channeling that money into public goods is one possible approach. This chapter offers a conceptual analysis of the Diaspora bond program in the transition economies. A sovereign's independence in fiscal policy design and project selection is the key.

4.4 From "fiscal diamond" to "fiscal net"

While socially unpopular, but more traditional, fiscal policy prescriptions of tax increases or the scaling back of selected state-sponsored projects in favor of others may not be the optimal solution in transition economies, there are several unorthodox alternatives to financing fiscal expenditure.

A resource-rich nation might rely on revenue received from natural resource exports. For example, countries that would fit this profile are Azerbaijan, Russia, Kazakhstan, Turkmenistan, and Uzbekistan. In fact, oil, gas, and cotton exports have helped these countries achieve current account surplus in recent years.[1] With increased state control of natural resource exports, accumulated revenue flows into official coffers with earmarks for further use at fiscal discretion.

For countries less endowed in natural resources, territory, and industrial capacity but with large current account deficits, such as Armenia, Bulgaria, Moldova, Poland, Romania, Tajikistan, and others, a recent source of hard currency has been an increasing inflow of remittances, reaching up to 40 per cent of national GDP (e.g. Moldova and Tajikistan, as can be inferred from Table 4.1 of the Appendix).

Another alternative funding source comes by way of loans and foreign aid from rich countries and multilateral institutions. Such, for example, are assistance loans from the OECD countries, World Bank and International Monetary Fund—contributors to the transition countries' non-economic sectors. Available

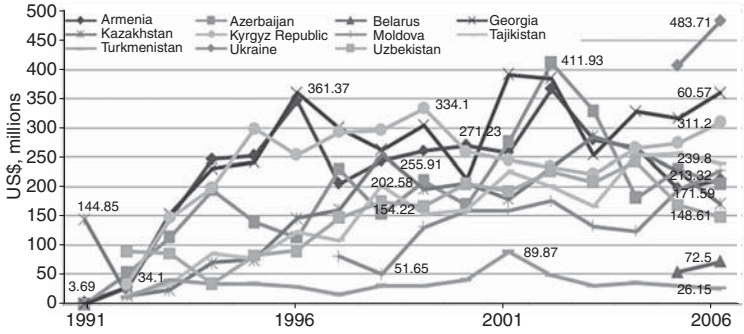


Figure 4.2 Total net official development assistance by country, year, US$ millions (source: author's calculations based on OECD (2008)).

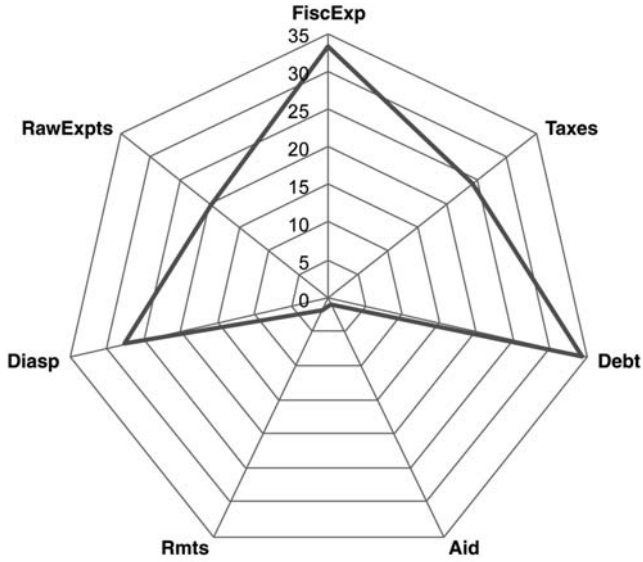
Notes
Constant 2000 US$ millions.
Not all data is available for every year.

data (shown in Figure 4.2) suggests, however, that aid flows have proven to be at medium levels in relation to the available GDP data. Alarming are the inconsistent volumes and frequencies of transfers. The subtle nuance of such assistance is its conditionality and strict repayment terms.

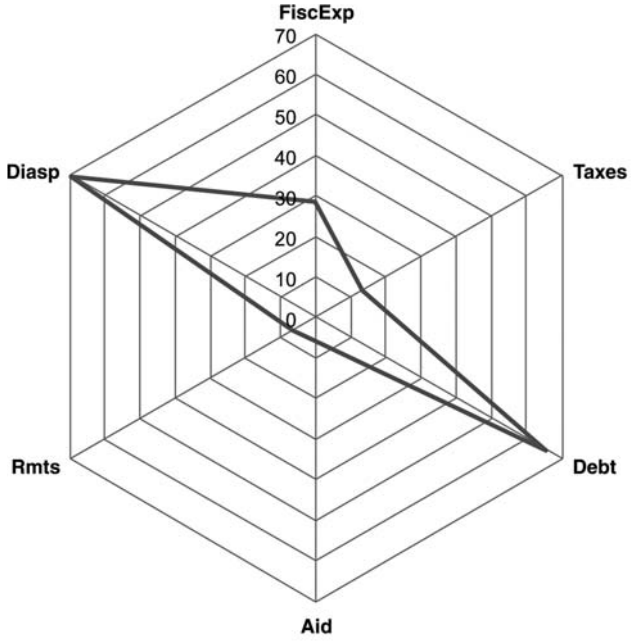
Conditionally stipulated foreign aid implies, at least to some extent, a donor's ability to control funds disbursement in the receiving economy. This substantially negates government's policy independence, resulting in funding bias towards specific donor-identified sectors (but not necessarily what domestic priorities that are strategic for the country's development dictate). Factors such as changing political associations and geopolitical preferences, as discussed in Stiglitz (2003), render such foreign aid packages as less reliable funding sources, and less attractive in terms of returns or popularity of public projects.

The above analysis paints an intriguing picture. Essentially, there are three new dimensions to the fiscal revenue side in the original "fiscal diamond" of Chapter 3. The new sources are: Diaspora, remittances, and raw material exports revenue. Putting all components together, schematically the new fiscal space then looks more as a "net," hence the "fiscal net." This is shown in Figure 4.3 where the (a) pertains to net exporters; (b) to net importers; and (c) is for CIS-12. The new sources are denoted as *RawExpts* for exports revenues; *Diasp* for Diaspora share; and *Rmts* for remittances share.

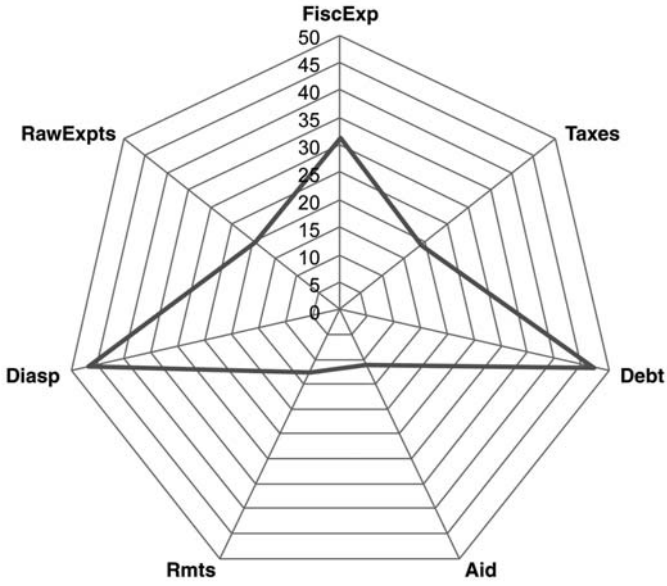
Among the factors reviewed earlier in this section, *RawExpts* plays a vital role in the net exporter states. Commodities exports' share of GDP is around 20 per cent on average for the group. Yet relying on commodities exports to finance public projects contains inherent vulnerability, as discussed earlier. This alternative requires swift action by the authorities and the allocation of profits in the economically strategic sectors until the natural resources have not been exhausted fully and international market prices are high enough to support policy-driven



(a) Net exporters



(b) Net exporters



(c) CIS average

Figure 4.3 "Fiscal net" by country groups in CIS-12 (source: author's calculations based on GFS (IMF 2008), EBRD (2008), WDI (World Bank WDI, 2008), and OECD (2008)).

Notes
All data is for CIS-12 group.
All approximations are based on unweighted averages for the 1992–2007 period.
"Diasp" is measured as a share of potential Diaspora stock.

spending levels. Hence there is an inherent moment of unreliability in this funding source.

Rmts share is a minimal 2 per cent in net exporter states. Of greater importance is the potential Diaspora stock share to total population, which is around 28 per cent. This is a significant outcome alluded to below.

For the net importers group, according to the "fiscal net" analysis in Figure 4.3, *Rmts* represent just over 6 per cent of GDP on average. However, increased temporary migrant worker remittances from abroad (and domestic consumers' overreliance on such transient funding sources) is by definition unsustainable in the medium run, and much less in the long run. The debate on the use of remittances as a viable development policy tool is ongoing, with a working model yet to be developed. In the absence of a temporary labor migration regulatory mechanism, such as that developed in Chapter 5, for example (also see Gevorkyan, 2007 or Gevorkyan and Gevorkyan, 2010), remittances provide a benefit as long as the recipient remains there and does not follow the principal bread winner (as in fact

often occurs in the transition economies). Without a systemic centralized network in place, remittance transfers assume a sporadic character that is unsuitable for fiscal development planning.

Further, *RawExpts* are excluded as an income source from the net importers' consideration, due to the insignificance for the group. Finally, in both cases of reliance on raw material export revenues and remittance flows, Dutch disease effects on unsustainable spending and exchange rate pressures need to be considered. This may prove to be difficult and politically costly to fight as governments are then obliged to introduce socially unpopular restraints on the economy. The issue of remittances is tackled head on in Chapter 5.

The CIS average chart accounts for trends in all twelve economies. The two significant edges in the graph are pointed towards Diaspora and Debt. In what follows next, the two represent an axis around which one could develop a new, innovative, and proactive fiscal policy. Of crucial interest, however, is the *Diasp* factor. On average, Diaspora stock to native population accounts for 70 per cent in net importers. Significance of the Diaspora factor is instrumental to our consequent analysis of innovative fiscal policy. Given such high Diaspora stock in both net exporter and net importer states, there is a strong potential for the Diaspora networks' financial involvement in their native countries' development. One way to attract greater Diaspora financing is via Diaspora bond. This, as stated earlier, must come with a coordinated fiscal effort, hence an added inovation to current fiscal policy.

4.5 The Diaspora bond in transition economies

Costs of sovereign bonds: some empirics

Before a decision to float a Diaspora bond is made, there must exist a pure economic understanding of the factors involved, aside from any social and political ramifications. With the above considerations of alternative funding in mind, under certain circumstances determined by real economic performance, borrowing from international capital markets via sovereign bonds may be an optional source of adequate funding of fiscal activities as long as repayment terms are respected. Borrowing abroad becomes a particularly appealing option in the case of a resource-limited and low-on-cash economy (a profile fitted by many transition economies).

If floating a sovereign bond is an option, strict adherence to fiscal rules is required (e.g. for a recent analysis of various schemes, see Serven, 2007). However, access to the markets for public projects may become troublesome for countries with nascent industrial bases and rudimentary financial systems due to their inability to sustain high-interest payments guaranteeing full-loan repayment upon maturity.

To shed more light on the discussion, the section below offers a brief analysis over a range of macroeconomic indicators for the period 1980–2002 for twenty-two emerging economies (including ten of the larger transition economies, such as Russia, Kazakhstan, Ukraine, and some EE states) and their bond structures and recent issues. The goal is to assess the factors determining a sovereign's borrowing terms (combination of yield and maturity). Similar work and more

complex analyses may be found in Westphalen (2001), Benczur (2001), Gelos *et al.* (2008), and others. In the current setting, the focus is on determinations of the yield as a very generic indicator of a country's capital market access potential and costs of borrowing.

A one-year lag was applied based on the fact that at the time of bond issuance, and in particular in the case of the "first-timers" (first sovereign debt issues or market reentry with delay after earlier offerings), the only reliable information available for the investors to assess the risk on sovereign investment is historical data. Thus, the yield determinants are found in the year prior to the actual bond issuance. For brevity, details of the formal model are omitted. End results are reported pertaining to the ongoing discussion.

Several indicators, such as GDP, inflation, current account balance, total reserves, net foreign assets, and dummy variables for US$ denominated and first-time bond issues, were regressed against the yield, y_t^i, on country *(i)* sovereign bond at time period *t*. In the most general form, the model can be expressed as:

$$y_t^i = \alpha^i + \Omega' * Z_{t-1}^i + \varepsilon_{t-1}^i \tag{4.1}$$

where, α^i is a non-zero constant (i.e. avoiding a situation of non-zero yield and coupon rates), Ω' is a vector of coefficients common to all countries in the sample, Z_{t-1}^i is a vector of macroeconomic indicators calculated at one lag period *(t–1)*, and ε_{t-1}^i is the error term specific for country *(i)* at time *(t–1)* with normal distribution and zero variance.

Final regression results are consistent with the general literature on the subject and, in a way, complement the studies above. Almost identical results of the OLS and Maximum Likelihood regressions, reported in Table 4.4 of the Appendix, show strong significance for most lagged indicators. The difference between the first-time bond only and all (including first and subsequent) issues samples is shown in columns 1 to 2 and 3 to 4 of Table 4.4 of the Appendix.

Consumer price inflation *(INF)* has a positive and statistically significant effect on the first-time issues, with a smaller coefficient for the rest. Current account *(CA)* correlation to yield appears to be logically consistent. A negative strong relationship, as in the case of the first-time issues, corresponds to markets' high-risk perception of a country's borrowing position as the negative (i.e. deficit) *CA* ratio to GDP grows.

Curiously, external debt to GDP ratio *(EXTB)* does not appear to be significant in the case of first-time issues. It does recover statistical significance in the larger sample with subsequent sovereign bond issues in determining the yield. This is likely due to the basic nature of modern sovereign borrowing and lending practice. Sinyagina-Wooduff (2003) confirms the finding in her analysis of Russian state borrowing. She argues that forward-looking financial capital is willing to accept higher risks with every new sovereign bond issuance for the promise of yet untapped future returns.

Given the coefficients' magnitude, the *Total Reserves (TR)* and *Net Foreign Assets (NFAssets)* play greater roles in determining the risks of sovereign debt

instruments the first time around with an added significance of the IMF loans. By extension, this applies to total debt outstanding (*EXTB*) interpreted from the signs and coefficient values of the regression results.

Notably, the signs on the *TR* and *NFAssets* coefficients on first-time issues are reversed. *NFAssets* coefficient and sign offer a better explanation to the first-time risk dynamics as market participants judge the risk on the new sovereign bond based on the net position that reflects the immediate ability of the state to repay its debts. This is seen as an important finding, with strong policy implications in the context of this study.

Coefficient values for GDP per capita were small. However, as dictated by high *t*-values, that indicator remained statistically significantly in all cases. This can be explained by the rational choice of countries within a very similar income group. Therefore, cross-country GDP variations are not likely to produce high coefficient values. On the other hand, statistical significance confirms the importance of this variable in any extended econometric study—a somewhat natural and logical conclusion.

Dummy variables for US$-denominated bonds *(DFX)*, political reform index *(POLFR)* and new/first-time bond issuance (*NEW*—applies in the all-issues sample only) display relative statistical significance despite low coefficient value. Low standard errors offer additional support to the analysis.

Implications of the above-cited results for transition economies seeking external sources of finance by means of sovereign bonds are quite important. Good economics matters if a country is hoping to 1) gain access to capital markets, and 2) raise low-cost (i.e. lower yield) capital. For smaller transition economies with characteristically high debt shares, persistent current account deficits, and low foreign exchange reserves, and that are striving to reduce their high cost debt burdens, the implications are even stronger. A more complex analysis carried out in Gelos *et al.* (2008) confirms that the main participants with frequent sovereign debt market access are bigger countries, while geographically and economically smaller ones lack that privilege.

Diaspora bond: patriotic discount and other benefits

It is then logical to suggest that the "first movers," as in Freinkman (2001) and expanded in Gevorkyan and Grigorian (2003)—those willing to loan to a country despite high-risk but low returns—would come from the Diaspora community. If such a program were institutionalized, fiscal authorities would have an opportunity to draw from consistent funding sources while maintaining formal independency in the domestic policy making.

Furthermore, the lower yield yet higher risk combination on a Diaspora bond constitutes a more generic notion of a *patriotic discount*, mentioned in the examples of Israel and India (Box 4.1 of the Appendix). The patriotic discount may come as a lower than prevailing market return rate or a lower return with part of the principal amount donated to the state. Both Israeli and Indian Diasporas have been willing to accept such terms, becoming the "lender of last resort" in trying

times. This evidence solidifies the Diaspora bond approach as a possible alternative to a distortionary tax policy, over-reliance on the exports and remittance incomes, conditional aid, or even fiscal contractions in chosen sectors.

Due to a greater risk of state defaults in the transition economies' case, a reverse situation is possible. A limited amount of Diaspora bonds may be offered at a higher premium (but still lower than for a conventional bond). In this case, the investor is guaranteed a higher return while the state implements appropriate policies that can lead to an improved sovereign debt rating and economic development. If the program is sustained, this then provides grounds to reintroduce bonds at a lower rate while targeting the Diaspora investor.

In either case, lower interest payments free up extra funds for additional development projects with a high social and economic return. At the same time, compliance with loan terms and timely interest payments, because of the patriotic discount, establishes a track record that otherwise would not have been noticed by a larger institutional investor (as opposed to being open to speculative trades). This sets a favorable precondition for a subsequent issuance and gradual accession to a more conventional issuance.

While these technicalities seem secondary for larger economies, for the smaller transition economies the importance of such a realization is apparent. The "first-movers" phenomenon is magnified as the sovereign issuers tap the international capital markets.

In addition to the patriotic discount, the Diaspora bond is a noninflationary (in the long run since the loans have to be paid out eventually) source of financing developmental projects. Unlike a conventional bond, a transition economy's Diaspora bond, precisely due to its nature and purpose, is most likely to be issued with longer maturity than a country's macroeconomic indicators would suggest. The latter observation relates not only to pure monetary cost considerations but also to the fact that Diaspora bonds represent a socially responsible investment that requires safeguards from short-term speculative trades, while providing sufficient time for the sovereign borrower to come up with repayment funds.

Finally, the Diaspora bond provides the fiscal authorities with the much-needed independence in their public investment transactions, aimed at the development of infrastructure, telecommunications, education, healthcare, and labor migration regulatory mechanisms. Involving greater Diaspora participation in the implementation of these projects builds stronger links for disunited nations, resulting in greater economic returns than would otherwise come with conditional aid or private investments. Aside from these benefits, Diaspora bond programs carry certain risks that must be considered before a country embarks on this policy.

The true perils of Diaspora bonds

For such economies as Armenia, Bulgaria, Georgia, Moldova, Poland, Romania, Tajikistan, and Ukraine—perhaps the likely candidates for a Diaspora bond program due to their Diaspora size and historical links with the homeland—the question lies not in the ability of the government to raise the needed funds in the

Diaspora; the real question is whether the issuing government can sustain its debt program. Will it be able to repay the loans at maturity in addition to keeping up with interest payments, despite even low yields? What will be the funds' absorption criteria?

The answers here are rational and wise: 1) a sovereign bond program design and implementation, and 2) an appropriate allocation of funds. Investments should be directed to projects likely to have a strong direct or indirect influence on the economy to generate sufficient return rates. Adherence to fiscal rules (as in Serven, 2007) preventing over-borrowing and irresponsible spending is also key. We exclude the possibility of Minskyan Ponzi financing (as a state continuously borrows to keep up with past interest payments and piling up debt). Clearly, such policies lack prudence and undermine the core economics of the investment project. In the unlikely event of irresponsible fiscal spending and growing debt, chain reaction events are possible.

Unable to meet the creditors' demands, governments may at best come to a standstill as they rely, and become highly dependent in spending, on the Diaspora bond funds. The sovereign rating will be downgraded. In a worst-case scenario, relations with the Diaspora may be severed. These situations might also occur if the funds raised via Diaspora bonds are perceived as donations, with the hope for an incomplete debt redemption given Diaspora altruism and patriotic sentiments. Therefore, the underlying rationale must remain pursuant of the bond as a viable investment instrument. Still, the Israeli and Indian track record shows that, with time, a Diaspora bond for some may indeed become a symbolic donation.

So to achieve desired austerity, structural changes within a country's economy are needed in terms of identifying key areas for long-term growth and evolutionary facilitation. In fact, certain cases may require development from scratch. Projects in the high-tech industry and public infrastructure (e.g. telecommunications and transport), as well as education and healthcare, are the first that come to mind in this relation. Therefore, this chapter calls for fiscal responsibility and the allocation of Diaspora bond funds within long-run growth-stimulating projects. This requires time, reasonable assessment of national capabilities, determination of primary needs in fostering effective demand, and a consistent flow of funds. In short, a more proactive fiscal participation is long overdue.

Good governance and establishing solid working relations with the principal organizations are an added requirement for successful Diaspora bond engagement. Examples of both Israel and India clearly indicate the need for fiscal discipline and accountability to the public and investors. This achieves the dual goal of ensuring regular foreign currency fund flows for the government and creating additional incentives for the expatriates' involvement in the homeland.

It may be that a collective group of investors from the Diaspora supply a certain proportion of their capital, while entrusting the government's prudence in times of financial and political stability. Yet, as relations with the Diaspora become potentially tense or as the government adopts an unpopular measure, the risk of simultaneous withdrawal could persist. For example, there is the existence of often divergent attitudes between the home country and its Diaspora, where

one considers more immediate matters while the other remains largely skeptical of the political, social, and economic progress in general. Thus, for a nation, sustaining a sound relationship with its Diaspora would be a challenge in ensuring the success of the Diaspora bond issue. Again, both India and Israel developed sets of financial services directed primarily at their non-resident investors.

Can this be replicated in the case of transition economies, especially those that lack resources or wide-scale international financial and trade backing? Here we argue this point in the affirmative. Yet a definite prediction on how soon and in what form the potential issuance might come about is not easy to predict due to a variety of reasons. Still, the economic preconditions are there and the main stress should be on fiscal responsibility and caution in such a Diaspora bond program.

Some realistically potential candidates for the Diaspora bond issue might be Armenia, Bulgaria, Georgia, Moldova, Poland, Romania, Tajikistan, and Ukraine—all with large Diasporas and economies exhibiting a lacking infrastructure development, high current account deficits and high migration rates. However, such predictions are hasty and must be weighed within the specific country's context. It is not our purpose here to pick the actual countries that would implement the Diaspora bond, but to suggest a consideration of such analysis within the transition economies' context, outlining a profile of a possible candidate. Therefore, suggestions here are only cursory, with further clarification to be developed in future research. After all, local content and country-specific considerations matter.

Governance and regulation

A few words need to be said regarding regulating the framework and management of a hypothetical Diaspora program in transition economies. In light of the above described potential issues and to ensure responsible investment on behalf of all players, it may prove reasonable to establish a *State Diaspora Supervisory Board (SDSB)* in countries administering the Diaspora bond program. Aside from the administrative task, the board's role would be supervisory, regarding incoming fund allocation, project implementation, and fair progress reporting. In many countries that have established formal ties with Diaspora groups (e.g. Armenia, Poland, Ukraine, and others), SDSB creation may be done within already-existing organizational and financial frameworks. Modifications are surely to appear and to account for specific cultural, traditional, and other more general characteristics of each locale. This proposition is left here as an opportunity for future institutional development and case study research.

It may be argued that some transition economies are not ready to meet high-return demands of international finance but they may be prepared to take a step towards compliance with competitive standards. A Diaspora bond offered at a patriotic discount will have higher chances of selling in a Diaspora precisely because of its sentimental value for the investor. It offers access to alternative financing under milder repayment obligations to the state than in the case of a conventional sovereign debt. In the end, it is all about the Diaspora's participation in restructuring projects and major development efforts in the homeland by

way of real investment. It is logical then for a Diaspora-like structure to be a participatory member in administering the funds.

4.6 Conclusion

Is there a need to replicate the experience of others? No, but there is a need to study, analyze, and apply within a reasonable framework that experience. Implications for the still growing and financially lacking transition economies of the FSU and EE are strong. In this chapter, we have extended the basic "fiscal diamond" analysis, transforming it to a framework of the "fiscal net." This is an innovative step that allows one to consider a greater number of options in coordinating independent fiscal policy. Within the "net" itself then, compromises and rational decisions must be made.

For many countries, especially smaller and resource-constrained ones, conditional foreign aid and unreliable remittance transfers do not provide adequate financing for developmental projects. Yet issuing a conventional bond at shorter maturities and higher yields, given a country's overall macroeconomy, is not that appealing either. Low-cost financing opportunities offered by a Diaspora bond, as well as access to international capital markets that comes with it, may be a viable option, especially for those with large, potential worldwide Diaspora stock active in homeland affairs.

Aside from securing the funds, an individual country's main challenge in the Diaspora bond program would be the proper allocation of foreign exchange in the productive sectors of its own unique economy. This obstacle is due to the vastness and diversity of economic problems faced by transition economies, despite recent growth reports. Sustainability of such a Diaspora bond program requires strict fiscal discipline and the development of real economic sectors generating sufficient returns to keep up with the increasing interest payments as bonds become more popular among foreign investors.

While instituting such a Diaspora bond scheme, invoking a patriotic discount will by no means relieve the issuing state of all its troubles; it may give the government an incentive to invest more in infrastructure and other social programs. Such efforts have high returns on human capital and strong feedback into productive activity overall. In turn, this stimulates effective demand, prompting healthy domestic investment and solid macroeconomics. Collectively, these define modern fiscal policy and go in as fundamentals of economic growth and development. This chapter's analysis ventures active Diaspora participation in the process, integrating "first-time" issuer states within international capital markets. Local content and country-specific considerations complemented by profound macroeconomic analysis matter before a sovereign introduces a new debt instrument, even with the best intentions. Clearly, though, any such original policy move requires strong and determined participation on behalf of the responsible state. This then defines the innovative fiscal policy approach to development, where transition economies, as part of the broader emerging markets group, have the right and the opportunity to lead the way for the rest.

4.7 Appendix

Table 4.1 Potential Diaspora stock, geographical spread, migration, and other population data for transition economies

Country	*National midyear 2008 population, in '000s*	*Potential Diaspora stock (estimated)*	*Diaspora spread by major countries*	*US Census: net migration rate/per 1,000*	*US Census: net migrants, in '000s*
Armenia	2,969	5–10 million	Russia, USA, Western Europe (France, UK), Middle East (Iran), Ukraine, Canada, other	–5.00	–15
Azerbaijan	8,178	2–4 million	Russia, Ukraine, Georgia, Turkey	–2.00	–16
Belarus	9,686	2–3.5 million	Ukraine, Latvia, Kazakhstan, Russia, USA, Canada, Australia	0.38	4
Bulgaria	7,263	2–10 million	US, Canada, Germany, Moldova, Ukraine	–3.00	–25
Georgia	4,631	1.5–2 million	Russia, Turkey, Ukraine, USA, other	–4.00	–20
Kazakhstan	15,341	4.5–5 million	CIS, China	–3.00	–51
Kyrgyz Republic	5,357	0.5–0.7 million	China, Kazakhstan, Russia, Tajikistan, Turkey, Uzbekistan	–3.00	–14
Moldova	4,324	0.5–0.7 million	Ukraine, Russia, Kazakhstan, Baltic states	–1.00	–5
Poland	38,501	15mln–16mln	USA, Belarus, Moldova, Ukraine, Russia, Canada, West Europe	–0.46	–18
Romania	22,247	8 million	Moldova, Ukraine, USA, Spain, France, Germany, other	–0.13	–3
Russian Federation	140,702	25 million	Worldwide, mainly in CIS, USA, Europe	0.28	39
Tajikistan	7,212	0.6–5 million	Russia, Uzbekistan, Iran, Middle East	–1.00	–9
Turkmenistan	5,180	2.5–3 million	Russia, Iran, Iraq, Afghanistan	–3.00	–16
Ukraine	45,994	16–20 million	Russia, Canada, USA	–0.12	–6
Uzbekistan	28,268	5.5–6 million	Tajikistan, Kyrgyzstan, Kazakhstan, Turkmenistan, Russia, Ukraine, Belarus, Lithuania, Afghanistan, Saudi Arabia, Turkey, Iran, China, India, Pakistan, Germany, USA, other	–1.00	–37

Source: Gevorkyan (2008).

Note
See source for additional clarifications.

Table 4.2 Selected infrastructure indicators, by country

Country	*Phones, per 100 users*	*PCs, per 100 users*	*Internet users, per 100 people*	*Growth in air traffic, % change of total*	*Roads, paved (% of total)*
Armenia	21.8 (30.2)	5.3	3.3 (5.7)	42.4 / (37.8) / 509.9	90.0
Azerbaijan	23.3 (39.8)	1.8	3.9 (9.8)	–18.3 / (47.3) / 1007	49.4
Belarus	41.8 (75.5)		18.6 (56.5)	–67.5 / (17) / 274.2	88.6
Bulgaria	71.2 (112.9)	5.9	12.1 (24.4)	–33.7 / (53.2) / 476.3	99.0
Czech Republic	111.2 (146.5)	21.6	20.9 (34.7)	202.7 / (24.4) / 4219.5	100.0
Estonia	101 (140.2)	47.4	38.5 (57.4)	242 / (28.8) / 509.6	22.7
France	119 (134.4)	48.7	31.1 (49.6)	12.7 / (–2.4) / 46506.8	100.0
Georgia	25.4 (39)	3.8	3 (7.5)	50.4 / (27.3) / 228.6	39.4
Germany	133.5 (162.4)	48.5	36.1 (46.7)	104.6 / (12.9) / 82099.7	100.0
Hungary	95.8 (125.7)	14.6	19.8 (34.8)	62.9 / (7.8) / 2546.2	43.9
India	6.4 (12.8)	1.2	1.9 (5.4)	78.7 / (23) / 23934.1	47.4
Ireland	126.9 (152)	49.7	26.2 (34.1)	352.6 / (20.1) / 34748.9	100.0
Israel	133 (154.4)	73.4	18.8 (24.4)	34.5 / (35.1) / 4968.9	100.0
Kazakhstan	24.9 (53.5)		2.6 (8.4)	47 / (–17.3) / 834.8	83.0
Kyrgyz Republic	10.8 (19.1)		3.4 (5.6)	–49.7 / (19.5) / 245.6	91.1
Latvia	72.3 (113.1)	21.9	22.7 (46.6)	115.1 / (74.8) / 593.7	100.0
Lithuania	82.6 (151)	15.5	16.3 (31.7)	109.3 / (36) / 447.9	78.2
Moldova	29.2 (52.1)	2.6	6.7 (17.3)	5.6 / (12) / 200.6	86.3
Norway	134.1 (148.9)	57.8	34.7 (58.5)	–3.5 / (–4.1) / 12277.2	77.5
Poland	69.2 (107.4)	19.1	18.3 (28.6)	93.4 / (7.4) / 3493.1	69.7
Romania	47.4 (82)	11.3	13.2 (23.4)	46.5 / (6.6) / 1337.8	30.2
Russian Federation	50.1 (111.8)	13.2	8.1 (18)	17.3 / (14.2) / 25948.9	67.4
Tajikistan	4.8 (8.3)		0.1 (0.3)	–16.1 / (20.8) / 498.5	82.7
Turkmenistan	8.7 (10.4)		0.5 (1.3)	208.3 / (14.2) / 1612.5	81.2
Ukraine	40 (88.5)	2.8	4.9 (12.1)	91.1 / (49.1) / 2200.1	97.4
United Kingdom	140.8 (165.3)	60.0	40.4 (56)	34 / (12.7) / 86054.8	100.0
United States	115.1 (131)	76.2	55 (69.1)	18.5 / (9.9) / 676654.6	65.3
Uzbekistan	7.8 (9.6)		2 (6.3)	1.4 / (8.3) / 1588	87.3

Source: Gevorkyan (2008).

Note
See source for additional clarifications.

Table 4.3 Average fiscal education expenditure as per cent of total GDP

Country	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*
Armenia	3.1	3.2	3.1	3.1		
Azerbaijan	4.3	4.1	3.7	3.4	3.6	3.7
Belarus	6.0	6.0			5.8	5.8
Bulgaria			3.5			
Czech Republic	4.1	4.1	4.3	4.6	4.8	
Estonia	7.0		5.8	6.0		
France	5.8	5.7	5.6	5.6	6.0	
Georgia	2.1	2.2	2.2	2.3	2.3	3.0
Germany	4.6	4.5	4.6	4.8		
Hungary	5.0	5.2	5.4	5.8	6.3	
India	4.1	4.1			3.3	
Ireland	4.9	5.0	5.1	5.3		
Israel	7.5	7.4	7.6	7.8	7.5	
Kazakhstan	4.0	3.5	3.2	3.2	3.2	2.6
Kyrgyz Republic	3.7	3.1	3.2	4.6	4.6	
Latvia	5.8	5.4	5.5	5.8	5.4	
Lithuania			6.0	6.0	5.4	
Moldova	3.9	3.8	4.0	4.5	4.2	
Norway	7.2	6.7	7.1	7.6	7.6	
Poland	4.8	5.0	5.6	5.7	5.9	
Romania	3.6	2.9	3.3	3.6	3.7	
Russian Federation		3.0	3.1	3.9	3.8	
Tajikistan	2.2	2.4	2.6	2.9	2.6	2.9
Turkmenistan						
Ukraine	3.7	4.3	4.8	5.5	5.7	4.6
United Kingdom	4.6	4.6	4.7	5.2	5.4	
United States	5.0	5.8	5.7	5.6	5.8	
Uzbekistan						

Source: Gevorkyan (2008).

Note
See source for additional clarifications and Chapter 3 of this study.

Table 4.4 OLS and MLE regression results: first-time and all sovereign issues

	Linear regression		*Maximum likelihood**	
	1	*2*	*3*	*4*
	First issues	*All issues*	*First issues*	*All issues*
GDP per capita	small** (small)	small (small)	small** (small)	small (small)
INF	0.37** –0.15	small (small)	0.37** –0.15	small (small)
CA	–4.2** –0.92	0.04** –0.03	–4.2** –0.92	0.04** –0.03

(continued)

Table 4.4 Continued

	Linear regression		*Maximum likelihood**	
	1	*2*	*3*	*4*
	First issues	*All issues*	*First issues*	*All issues*
EXTB	0.26 –0.27	0.03** –0.02	0.26 –0.27	0.03** –0.02
IMF	dropped	0.82** –0.14	dropped	0.82** –0.14
TR	0.73** –0.33	–0.3** –0.03	0.73** –0.33	–0.3** –0.03
NTFAssets	–0.62** –0.17	0.04** –0.03	–0.62** –0.17	0.04** –0.03
DFX	–0.068** –0.03	0.02** –0.00	–0.068** –0.03	0.02** –0.00
NEW	…	–0.005** –0.01	…	–0.005** –0.01
POLFR	–0.18 –0.16	–0.014** –0.00	–0.18 –0.16	–0.014** –0.00
ANNLD	not reported	not reported**	not reported	not reported**
Number of observations	21***	582	21***	582
Adj R^2	0.75	0.42		
Log Likelihood			100.50	1,434.30

Source: Gevorkyan (2008).

Notes
See source for additional clarifications.
* indicates significance at five per cent confidence level.
Standard errors are in parentheses.
** correspond to significant observed t-values [not reported].
*** regressions are run using data on the first-time issues only.
OLS and MLE estimations are used with group effects controlled by annual dummy variables [not reported].

Box 4.1 Diaspora bonds in Israel and India

The case of Israel

In a series of meetings between Israel's government representatives and the Jewish Diaspora leaders in the early 1950s, it had been determined that the program would be implemented by the Development Corporation for Israel, created in February 1951, offering State of Israel Bonds to the American public. This action became one of the most significant events in Israel's independence history, for it was the

first time Israel had asked for a public loan instead of a philanthropic gift. During the first year of operations, bond sales totaled $52.6 million, with current sales exceeding $25 billion, of which $19 billion has been redeemed on time and in full. The sales have been earning $1.0 billion per year for Israel since 1991. It is estimated that in the year 2003 Israel borrowed a total of $4.6 billion abroad; $2.35 billion of it was under the US loan guarantee program and approximately $1.5 billion was through State of Israel Bonds. The Israeli government has been successful in allocating the received funds in agriculture; industry; shipping; energy; transportation; communications; water resources; and immigrant absorption, contributing to robust economic development and improved handling of internal social policies.

The bonds are now quite diverse and responsive to market conditions and offer various incentives (e.g. tax breaks, guarantees, and repayment terms), albeit at a lower rate than a market risk would suggest—patriotic discount. The government sells the bonds in North America, South America, and Europe through three independent organizations. Each organization is set up in accordance with the local laws. This is often viewed as the homeland's first step towards its Diaspora by complying in full with the laws of the Diaspora's adopted country. Israel—which consistently has its debt rated by Moody's, Standard & Poor's, and Fitch—has never defaulted on the payment of principal or interest on any of its internal or external indebtedness. Altruism and social responsibility of the Diaspora members, as well as Israel's accountability for every dollar received via State of Israel Bonds have been the primary factors in shaping the success of the program, with strong positive implications for the country's development.

The case of India

Despite some strained relations between official India and its large non-resident Indians' stock (NRI), the presence of the NRIs in the country's finance is significant. For example, at the end of 2003 NRIs held 60 per cent of India's sovereign debt owed to private creditors. At the time of India's balance of payments crisis of 1990–1991, the government was able to collect up to $2 billion with the help of NRI investment through its India Development Bonds (IDB) program. This success led to the floating of Resurgent India Bonds (RIB) at the time of the national crisis in 1998, which raised $4.2 billion, and subsequent India Millennium Deposits (IMD) in 2000, which raised $5.5 billion in the two months between October and November 2000. As in Israel, India's government asked for an investment, rather than a philanthropic donation. The bonds were promoted in India's expatriate community, explicitly appealing to the patriotic sentiments.

To avoid any prospects of US litigation in case of defaults on bonds sold in the US the Indian government, unlike Israeli, did not create a US SEC registered organization to lead the effort. The bonds were floated as bank instruments representing foreign currency denominated deposits in India and sold through the worldwide network of Indian and foreign commercial banks, specializing in dealings with the NRIs with primary distributions in the US, Europe, and the Middle East. The bonds, maturing in five years, were issued at low interest rates relative to India's country rating at the time, with the government's guarantee to bear any exchange rate risks. The bonds had been issued at the times when the

Indian government needed additional foreign exchange resources. The State Bank of India currently runs various financial programs, allowing NRIs greater participation in the Indian economy.

Sources: Development Corporation for Israel (2010), Karp (1998), Rekhi (1998), State Bank of India (1998), Indian Express (1998), Sanyal and Krishnan (2000), Gevorkyan (2008), Gevorkyan and Grigorian (2003), Gordon and Gupta (2004), Chander (2001), and Ketkar and Ratha (2007)

5 Innovative fiscal policy

Tackling labor migration problems

5.1 Introduction

Within the present discussion of innovative fiscal policy, there is a special place for a more recent phenomenon catching policy makers' attention and affecting the countries in question on a more real, acute social dimension. It is the problem where social issues are intertwined with chronic low income and absent job growth. *Temporary labor migration* is one of the most socially profound and evident globalization aspects in the CIS.

Yet, the ongoing economic deterioration has shifted much of the policy debate to problems of financial sector regulation and productive capacity collapse, among other issues. This has left unattended the no-less-real situation of labor migration. Migration directly impacts the social and economic inner fibers of millions of individual families globally. The individual right to free movement and the right to seek more fulfilling employment are as basic as the rights to free speech and private property. But this individuality is only one immediately visible aspect of labor migration.

The somewhat ad hoc nature of the process poses several policy issues for the home and host economies alike. Most immediate concerns relate to streamlining and regulation of migrant workers and remittance flows. This involves sensitive issues of migrants' labor inequality vis-à-vis domestic workers, and migrants' social and legal status. As has earlier been reviewed in Gevorkyan and Gevorkyan (2010), on the aggregate scale, the issue is misallocation of labor resources, as qualified migrants take up low-skilled jobs abroad. Existence of "gray economies" has often forced labor migrants to work under conditions more severe than are allowed by the labor code. Instances of abuse or undervalued efforts of migrants are well documented and are the subject of continuous public debate (e.g. Zayonchkovskaya and Tjurjukanova, 2004).

The CIS countries have been severely affected by the process in all its forms. Urgent measures to prevent abuse and inequality incidents, as well as to efficiently extract benefits on a national scale for both sending and receiving labor countries, are required. All twelve states lack a viable working migration mechanism that would address specifically the complexities of temporary labor migration in the region.

It is not necessarily the migrant's formal training or professional skills that determine the job in the host economy, but a) the specifics of the local firms' demand for cheap labor; b) the host (and, to a lesser extent, home) economy's labor legislation, bureaucracy, and politics; and c) the willingness of the labor migrant to take the first job available. As a result, much of the temporary labor migration remains illegal, with migrants facing the risk of deportation and employers running the risk of incurring heavy penalties. The welfare of the army of migrants and economic development prospects of host and home countries are at stake.

Important is the concept of remittances. Reaching US$300 billion in transfers to the developing countries in 2008, remittances have grown steadily in value and proportions over the past decade. More recently, due to the infamous global economic crisis, the trend of remittance growth rate and nominal values are predicted to fall. Still, data shows that, as an average proportion of the gross domestic product, the drop may not be so severe (Ratha and Mohapatra, 2009). This certainly is not reflective of significant country variations, some of which this paper reviews. However, for a small developing economy—a typical recipient—remittances, despite their micro benefit to a specific family, come as unregulated foreign currency inflow. This puts pressure on domestic currencies to appreciate, and often results in loss of export competitiveness. Further, these (on aggregate) large transfers potentially erode job-seeking incentives and job-creating measures in the receiving economy. Finally, remittances' role in economic development remains an issue of ongoing debate.

Clearly, unregulated temporary labor migration reveals deeper structural issues of development in both host and home economies. There is a need for a consistent, systematized, and institutionalized approach to factor out the turbulence. This study sees the potential of Diasporas as one alternative to an effective labor migration regime. The case of the transition economies of the CIS in this sense is well-fitted to offer specific and general policy solutions.

Chapter 4 of this study reviewed one facet of the temporary labor migration process within the "fiscal net" framework, the remittances being a source of public investment financing. Here an argument is made for a proactive approach in temporary labor migration regulation (vs. outright restrictions), setting an institutional framework in place by means of a *Diaspora Regulatory Mechanism*. Then, a *Migration Development Bank* is a suitable vehicle for orderly remittance transfers. The innovative and proactive role of the state, much advocated in the current crisis, is pivotal and definitive in this case.

These original practical solutions tackle the inequality concerns in addition to addressing issues of legality, social stability, and systematizing labor migrants' monetary transfers head on. Welfare of the *army of migrants* is at stake. Still, on aggregate, concerns over economic future apply to host and home economies, in many cases undermining their development goals and efforts. The unregulated nature of the phenomenon has a particularly detrimental impact in the smaller economies, typically the senders of the migrant labor. As discussed in Chapter 4, the sporadic nature of the migrants' remittance flows holds no solid promise for either host or home countries' economies. It is an amalgamation that further contributes to this study's pioneering concept of "innovative fiscal policy" in the new century.

This chapter is structured around three main parts in addition to this brief introduction. Section 5.2 outlines the major trends in labor migration flows in the countries of the CIS. Core theoretical points on labor migration are covered in Section 5.3. These are followed by presentations of the proposed Diaspora driven mechanism in Section 5.4 and Migration Development Bank in Section 5.5. The chapter ends with concluding remarks and an Appendix.

5.2 Labor migration trends in transition economies

Migration in the former Soviet Union space is a multifaceted phenomenon that harks back to history, international social and cultural ties, contemporary politics, and economic development across sets of diverse countries. Pre-established migration patterns have led to a spread of Diaspora groups (networks) in various extents across all twelve countries. Patterns vary in terms of geography: with issues of proximity, ease of access, political reasons, resettlement, and other aspects having historical prevalence. However, much of the migration has been around the largest economy in the region—Russia (Gevorkyan, 2007; Heleniak, 2004, Jones *et al.*, 2007, and others).

Transition economies of the CIS have long since established migration patterns that led to the spread of Diaspora groups (networks) in various extents across all of the twelve countries. Further, it has also been stressed that practically all countries of the FSU have recorded high negative net migration rates in recent years, resulting in large population losses.[1]

There is a wide range of historical and political reasons that have shaped migration patterns in the times of the Russian Empire and later during the Soviet Union: from fleeing persecution and war-torn areas of the nineteenth and early twentieth centuries, to forced resettlement programs of the Stalin era, and to massive developmental undertakings in the Russian Far East and Central Asia of the later Soviet years. Naturally, migration in the CIS did not occur only on an intra-regional level. Significant population losses have occurred historically due to mass exoduses to countries in Western Europe, North America, and others. Yet Russia, as the largest and economically most robust country, has historically been the main magnet for all types of migration flows (Gevorkyan, 2007).

Available data suggest mixed but worrisome considerations.[2] According to the UN estimates, high negative net migration rates of recent years are predicted to continue over the next few decades (see Table 5.1). This would result in further labor-force losses and "brain drain," especially in the smaller net importer economies.

Incidentally, data in Table 5.1 also show high positive migration rates in the mid 1950s to 1960s in countries in the periphery of the Soviet Union and hence deemed as strategic to the Union's development. Large population movements at the time, primarily from Russia and Ukraine, swelled the smaller republics' labor force potentials involved in grand-scale infrastructure projects (such as roads and power plant construction in the Caucasus) and agricultural and industrial development initiatives (such as agricultural land development in Kazakhstan, gas pipelines in

Table 5.1 CIS net migration rates, per 1,000 (current and projections)

	1955–1960	*1990–1995*	*1995–2000*	*2000–2005*	*2005–2010*	*2010–2020*	*2020–2040*	*2040–2050*
Armenia	9.4	(29.5)	(14.3)	(6.6)	(5.0)	(3.1)	(2.8)	(3.2)
Azerbaijan	2.0	(3.1)	(3.2)	(2.4)	(1.2)	(1.1)	(1.0)	(1.1)
Belarus	(4.4)	0.0	0.0	0.0	(0.2)	(0.2)	(0.2)	(0.3)
Georgia	4.4	(21.3)	(14.4)	(10.8)	(6.8)	(3.6)	(2.7)	(3.0)
Kazakhstan	23.2	(18.6)	(17.1)	(2.7)	(2.6)	(2.5)	(2.3)	(2.3)
Kyrgyz Republic	3.4	(12.2)	(1.1)	(3.0)	(2.8)	(2.6)	(2.4)	(2.3)
Moldova	12.9	(5.5)	(11.7)	(12.5)	(7.9)	(2.8)	(3.0)	(3.4)
Russia	(1.7)	3.0	3.0	1.3	0.4	0.4	0.4	0.5
Tajikistan	(1.7)	(11.3)	(11.6)	(10.8)	(5.9)	(2.6)	(2.2)	(1.9)
Turkmenistan	4.5	2.5	(2.3)	(0.4)	(0.4)	(0.4)	(0.3)	(0.3)
Ukraine	(1.4)	0.4	(2.2)	(0.7)	(0.4)	(0.5)	(0.5)	(0.6)
Uzbekistan	0.9	(3.1)	(3.4)	(2.3)	(1.5)	(0.7)	(0.6)	(0.5)

Source: author's calculations based on UN DESA (2006).

Turkmenistan, and cotton fields in Uzbekistan). Migration to the smaller republics stayed positive until the 1980s. While initially temporary in nature (groups of volunteers were to move from Russia and the Ukraine to the Caucasus and Central Asia republics for temporary assignments that offered comparatively high earnings), labor migration of that period contributed to the permanent population growth in each recipient economy.

However, as the financial support and political backing of the Soviet administrative center in Moscow faded in the late 1980s and early 1990s, so did the organized migration trends. The smaller countries were hit the worst and, in the immediate reversal of prior trends, the population fled for political and economic reasons. Ironically, the countries that had earlier been the largest "consumers" of immigrant labor shed labor drastically after the Soviet Union breakup.

It is helpful here to draw a clear demarcating line between categories of permanent and temporary migration. The primary concern is with population flows occurring across the CIS countries since the USSR breakup (in 1991). In that context, permanent migration can be described as a net population loss.[3]

These losses have taken different forms in different countries. For example, in Russia, despite its role as the traditional migrant destination, the loss of native population has been consistent and continues now, as suggested by most recent studies (e.g. Ryazantsev, 2008; Zayonchkovskaya and Tjurjukanova, 2004) and official statistics (Goskomstat RF, 2008). In geographically smaller and economically poorer net importers such as Tajikistan or Armenia, large permanent population losses occurred in the early years since independence, as suggested in Table 5.1.[4]

However, a more socially, economically, and politically significant phenomenon has been the process of temporary migration, and specifically, temporary labor migration in the CIS economies.[5] This process is characterized by migrant workers traveling from their native countries to another country to assume temporary work. In most cases, this type of migration is seasonal and is induced by economic reasons. To the latter point, any political or social reasons, in fact practically any other migration reason, including family reunification, logically leads to permanent rather than temporary migration. Hence, it is urgent to gain a full understanding of the current migration process in the CIS economies in any discussion of these countries' future development prospects.

The social and economic evolution from permanent migration to temporary labor migration did not come easily in the economies of the FSU. The major determinant has been the relative stabilization and economic growth of recent years, as reported in Chapter 1. As a reminder, the present analysis shows promising growth rates as well as macroeconomic improvements in terms of GDP per capita and reduction of poverty levels vis-à-vis initial years of transition reforms. However, these modest achievements, in relative terms, while necessary, are not sufficient to stall the migratory tendencies in the locale.

Migrant workers constitute approximately 20 per cent of total CIS labor force, with country-specific estimates reaching up to 70 per cent (as in Armenia) and 33 per cent (Tajikistan), and as low as 4 per cent (as in Russia), as shown in Table 5.2.

Table 5.2 CIS labor migrants' proportions to countries' total labor force

	Proportion of labor migrants to total labor force, %
Armenia	69.4
Azerbaijan	17.7
Belarus	6.3
Georgia	12.9
Kazakhstan	12.8
Kyrgyz Republic	20.2
Moldova	23.6
Russia	4.1
Tajikistan	33.3
Turkmenistan	n.a
Ukraine	11.1
Uzbekistan	6.5

Source: author's calculations based on UNCTAD (2006) and Ivakhnyuk (2006).

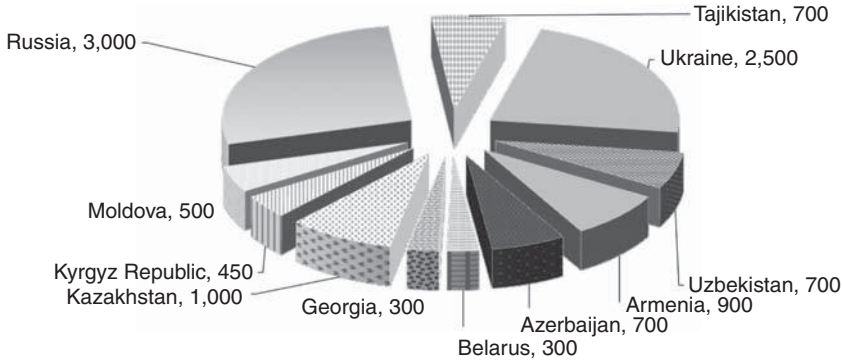


Figure 5.1 CIS migrant workers by country of origin, in '000s (2000–2007) (source: author's calculations based on Ivakhnyuk (2006) and Ryazantsev (2008)).

Estimates in Table 5.2 are based on data for recorded migration. Accounting for illegal (i.e. unreported) labor migration would result in higher estimates. To avoid any speculation, we refrain from any quantitative propositions on this issue. It should be mentioned, however, that migration has become a dominant economic and social issue, affecting in various ways the recipient and sending economies, as well as the migrant and his or her families.

According to some estimates, there are approximately 15 million legal and illegal migrant workers in the CIS region (Ivakhnyuk, 2006). Figure 5.1 offers estimates of officially recorded labor migrants working outside of their home countries by their country of origin.

Russia continues to be the main destination for labor migrants from Central Asia and the Caucasus (with up to 90 per cent of temporary labor migrants from these countries traveling to Russia, as suggested in Ivakhnyuk, 2006). Recent economic successes in Kazakhstan have put this country on the labor migrants' map as a new destination. Both recovering economies of Russia and Kazakhstan are now dealing with a labor deficit, as both economies draw unskilled and skilled labor migrants to work in various areas of each country's economy. Moldova and Ukraine send at least half of their migrants to the countries of Eastern and Southern Europe, while migrants from Russia predominantly move to developed Western economies. These results are robust and reaffirmed by the earlier report (in Chapter 4) on the spread and activity of the ethnic Diaspora networks.[6]

Officially recorded migration from the CIS states to Russia, according to Russia's statistical agency, has been on a steady rise in recent years. In 2008, Russia's net migration intake was just shy of our earlier estimate of 250,000 migrants (see Gevorkyan and Gevorkyan, 2010). Figure 5.2 gives a historical trend of net migration from CIS to Russia (excluding Kazakhstan). These estimates include legally recorded permanent and temporary migrants.

In terms of shares, Ukraine and Uzbekistan occupy the first and second place, respectively, out of the total pool of CIS migrants in Russia. These are followed by Kazakhstan, Armenia, and Kyrgyz Republic (see Table 5.3).

Field study research and available survey data indicate that an average CIS migrant is of prime working age, between twenty-five and fifty years old. Migrant workers often come from traditional societies, thus male workers migrate first. Often after several trips, they manage to relocate their families, changing the character of their migration from temporary to permanent. Most migrants come from poorer rural areas and possess some type of professional skill. A common denominator across a diverse palette of CIS migrants is their basic knowledge of Russian and common primary (and in the case of skilled migration, secondary and tertiary) education levels. The commonality in cultural characteristics, men-

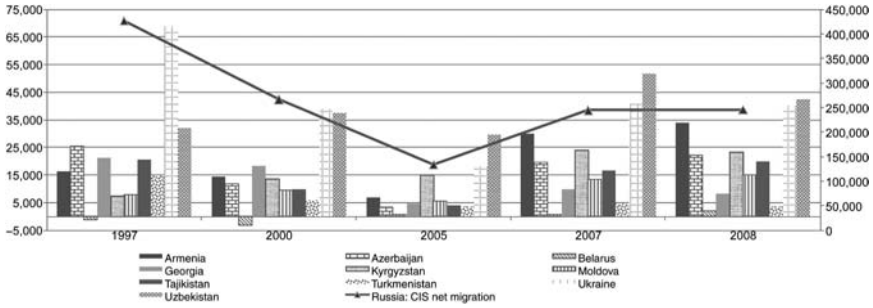


Figure 5.2 Net migration to Russia from the CIS states (1997–2008) (source: author's calculations based on data from Goskomstat RF (2008)).

Note
Right-hand axis measures Russia's total net intake from the CIS.

Table 5.3 Net migration rates CIS to Russia, per cent by country (1997–2008)

	1997	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
Armenia	3.9	4.0	5.2	5.4	3.6	4.6	5.3	3.2	5.2	8.5	12.3	13.9
Azerbaijan	6.0	5.1	5.1	4.4	2.8	3.1	3.3	1.7	2.5	5.2	8.0	9.0
Belarus	–0.3	–1.5	–3.2	–1.1	–3.8	–1.6	–2.3	0.0	0.6	–0.5	0.3	0.8
Georgia	5.0	5.0	7.2	6.9	6.7	4.9	6.1	5.5	3.6	4.3	4.1	3.3
Kazakhstan	49.3	51.0	47.9	40.2	40.3	33.4	20.6	36.7	29.4	18.5	12.3	13.2
Kyrgyzstan	1.7	1.6	2.8	5.1	7.6	9.6	7.9	11.8	11.2	10.4	9.8	9.5
Moldova	1.9	1.7	2.0	3.5	4.8	4.9	6.8	5.2	4.3	5.5	5.5	6.1
Tajikistan	4.8	4.6	4.4	3.7	4.6	4.1	5.9	3.7	3.2	4.2	6.9	8.2
Turkmenistan	3.5	2.5	2.9	2.3	3.3	3.4	8.0	4.7	3.0	2.8	1.9	1.6
Ukraine	16.2	15.2	9.4	14.7	10.1	13.0	8.8	6.1	13.5	14.4	16.7	16.3
Uzbekistan	7.6	10.2	15.4	14.2	18.5	18.8	26.9	18.9	22.2	25.3	21.3	17.3

Source: author's calculations based on data from Goskomstat RF (2008).

tality, and ease of conversing in Russian is more often the case in middle-aged migrants than in much younger counterparts.[7]

According to independent research, the labor migrants from the CIS now occupy certain niches within the Russian economy. These occupations are perceived as less popular among native Russian citizens. Ironically, these occupations remain vital to Russia's economy: public transportation, heavy industry, trade, construction, and agricultural work (see Figure 5.3). Labor migrants in Kazakhstan (from smaller Central Asian economies) primarily assume skilled positions in the country's oil and natural gas exploration industry, transportation, and construction.

While patterns of labor influx to Russia from the CIS economies are slightly adjusted, due to the competition for foreign labor from Kazakhstan and various bureaucratic impediments in the Russian regions, the current situation allows one to draw obvious parallels between the experience of Russia now and the experience of Western European economies in the post-World War II recovery process. Just like France and Western Germany at the time, Russia now draws on the labor that is coming from its former satellite countries and the labor force that is most likely to adapt to life in Russian society. A similar argument may be made in relation to Kazakhstan, considering that country's leading role in the Central Asia region.

Therefore, it is vital to institute a regulatory system that would be mutually beneficial for the development of each country involved in the labor migration process. In our view, such system is impossible without the active role of the state. Box 5.1 gives a brief summary of various known approaches to state regulation of labor migration process. The key factor, however, is to connect economic demands with social realities. This includes considerations of migrants' rights and income inequality concerns; poverty eradication in the sending economies; and encouragement of regional development projects. Addressing the social realities of modern independent states would be the con-

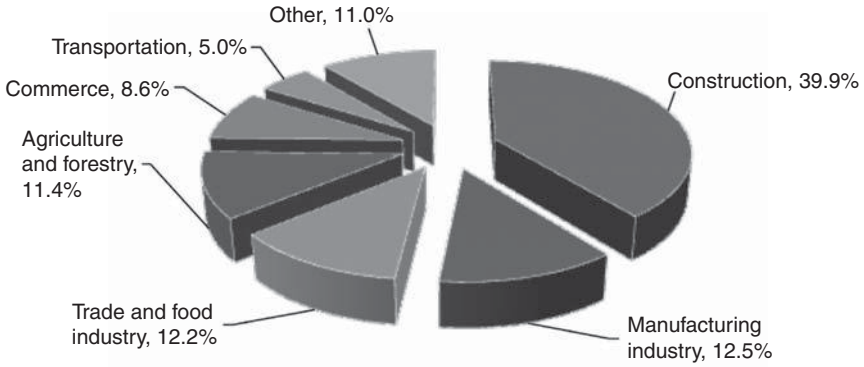


Figure 5.3 Labor migrants in Russia, distribution by industry, per cent, 2001 (source: Gevorkyan *et al*. (2006)).

sideration of ethnic Diasporas living in the main recipient states (i.e. Russia and Kazakhstan). Finally, there is a need for multilateral and bilateral agreements to sustain and adequately address currently increasing migration flows. This discussion of labor migration in the CIS economies is now continued with a few theoretical considerations that lay at the foundation of future empirical work as data on labor migration become more systemized and publicly available.

Box 5.1 Labor migration policy regimes

Literature on temporary migration regimes provides a basic formal and analytical framework for process management. Adopting classifications from Abella (1997), one can distinguish among the following regimes:

- **Laissez-faire**: Under this regime, decisions to [e]migrate, job search and contract terms are left to the market by the state. Such a regime is more characteristic of high-income countries (e.g. Portugal).
- **Regulated**: A situation where the government is responsible for introducing laws and regulations governing the recruitment process. However, authorized private agencies are the main (only) intermediary between the employers and employee (e.g. India).
- **State-managed**: The government is actively involved in planning and promoting by setting up state-run organizations that recruit and place workers abroad. Often times, under this scheme, the state negotiates with foreign governments on equal treatment of employees and protection of their rights, and enforcing minimum work standards (e.g. the Philippines).
- **State monopoly**: The government assumes full responsibility for running the process of labor migration, including the recruitment and deployment of temporary workers, which is done by public/private agencies under the state-managed regime (e.g. Vietnam).

Based on the preceding analysis, the best scenario for the transition economies of the CIS is a *state-managed labor migration regime*.

Three main principles often guide the discussion of instituting a new migration system:

- **Government policies**: Considerations of any restrictions on migration, protection policies of temporary migrants abroad, how return policy is enforced. To regulate the migration process, the home government will require cooperation of the Diaspora groups and existing networks in the host economy to sustain effective implementation of the new regime. Experience of other countries that are net senders of labor force, e.g. Mexico (Richter *et al.*, 2005), show that existence of a network in the receiving country often predetermines the pattern and direction of labor migration. A similar framework could be applied to other countries with lower density of temporary migrants, but with strong formal presence of the "old" Diaspora.

- **Existence of economic benefits for labor migrants resulting from migration**: Even though their preferences might be different, naturally, people would not be attempting to travel abroad for work if it were not in their self-interest of earning income to support their families. Gains from migration, in terms of acquired skills, capital, and remittances that help finance education or funding of small investment projects also spill over to migrants' families and are considered to outweigh any potential costs resulting from the temporary absence from home.
- **Legal considerations**: Under the state-managed regime, a solid legal basis for temporary labor migration is a requirement. Legal framework in the CIS governing labor migration issues is still in development. Additional treaties can be developed with Russia's regions, especially in those with a high concentration of the "old" and "new" Diasporas, and labor-sending countries' governments.

Sources: Abella (1997), Gevorkyan *et al.* (2006), Gevorkyan (2007)

5.3 Temporary labor migration triad

The right to free movement is as basic as the right to free speech and private property. Equally valid is the right to seek employment opportunities outside one's native land. This prompts serious analysis of temporary labor migration, which, in turn, requires a well-grounded theoretical base. It must be noted that existing migration literature is largely devoted to the effects of permanent migration on a host country's economy (e.g. Altonji and Card, 1989; Borjas *et al.*, 1996, 2004; Friedberg, 2001; Friedberg and Hunt, 1995; Ottaviano and Peri, 2005; Tishkov *et al.*, 2005, among many). The effects of temporary labor migration on the home (or sending) and host (receiving) countries, as well as workers' welfare, need an appropriate developed analytical framework. There are three moments that require attention. Following Gevorkyan and Gevorkyan (2007), these are arranged conceptually in a *temporary labor migration triad*, presented schematically in Figure 5.5 of the Appendix.

First, starting with the bottom left corner in Figure 5.5, it is instructive to follow the transformations of the structure and content in the domestic labor markets with an influx of foreign-born labor. Is the immigrant labor complementary to domestic or is it squeezing local workers out of their traditional areas of occupation? Is it perhaps that labor migrants are filling the gaps in the domestic economy that appear unappealing to the local labor force? Curiously, research conducted in Hong Kong, Israel, Austria, the USA, and other countries indicates that often those "squeezed out" native resources adapt relatively quickly to the situation, acquiring new (superior) skills, and assume leadership positions in the same industries. For example, as reported by Friedberg (1997), with increased immigration to Israel from the FSU countries in the 1990s, Israel's labor market reactions to the appearance of complementary and substituting workers did not have any major drastic disruptions. This was possible primarily to the government's proactive social and resettlement policy, accommodating arriving employees and assisting with skills improvement for the local labor force. Similar findings are produced in studies of

US immigrant labor by Borjas (1987). In many cases, following government resettlement programs, added to the immigrant labor force, aided in the regional development and rebirth of some traditional industries.

Second, moving to the bottom right corner in Figure 5.5, one must consider the effects on real wage in the domestic economy (assuming economic—i.e. low income and lack of jobs in home country—causes for temporary labor migration). Some authors find little or no evidence of the influence of arriving immigrant labor on real wage in a specific sector or locale (see, for example, Winter-Ebmer and Zweimuller, 1999; Friedberg and Hunt, 1995; Borjas, 1987, and others). This finding is very much dependent on the relative skill composition of the combined (domestic plus foreign) labor force and areas of occupation receiving large immigrant labor influx. Same studies report increasing levels of competition within immigrant communities. Once again, fiscal authority's participation is appropriate to establish reasonable pay minimums for labor migrants, especially in the temporary migration case. This measure would attempt to even out income distribution in the specific sector of the economy or region. Here as well, issues of political economy and inequality are apparent. A sound regulating mechanism needs to be brought in to promote social balance.

At the top of the triad, as seen in Figure 5.5, is the financial side, more generally capital movements. In our case, that takes the form of remittances—funds that migrant workers periodically transfer home. Increasing levels of transfers spur rounds of debate over the "Dutch disease" in home (fund-receiving) economies, popularizing the call for stricter controls on monetary transfers. In addition, the process casts doubt on adequate absorption and fair allocation of funds in the fragile home economy, as most outward migration comes from the developing world. Similar opinions are voiced on the other side (i.e. host, fund-sending, economies) but for reasons of preservation of domestic wealth, preventing capital flight, and adjusting for migrants' income taxation. Yet as they settle in their acquired new roles, labor migrants tend to save the surplus of their earned income. It is precisely this accumulated portion of migrant workers' income that is then transferred to their home countries in remittances—it is their earned income received for value created in the host economy.

This stipulates two counterarguments to the above capital market concerns. First, migrant workers (especially temporary) transfer funds as long as there is a recipient in the home economy. As in some cases, once temporary migration turns into permanent, the motivation for consistent monetary transfers fades away, especially if the migrant is joined by the rest of his or her family from home. Ultimately, this relates to the popular argument of remittances feeding economic growth, which however seems doubtful since it implies policy decisions based on unstable flows.

Second, transferring one's hard-earned income barely constitutes an *en masse* capital flight or even speculative capital market attacks producing, for instance, financial crises à la Asia of the late 1990s. On the other hand, given current policy debate, instituting a taxation mechanism to account for migrant workers' income appears to be only a matter of time. Still, to properly address these concerns, an

instrument that would alleviate some of the related administrative and informal sector's burdens is due.

The triad is interconnected, with one element following another. This analytical discussion brings us to a unique set-up that establishes explicit links across all of the triad's components, resolving issues of inequality and unfair treatment of the labor migrants. This is explained in detail below.

5.4 The Diaspora regulatory mechanism

The phenomenon of a Diaspora and Diaspora networks has already been mentioned in Chapter 4 of this study, where estimates of potential Diaspora stock were also presented. It should be noted that this observation applies not only to the transition economies of the CIS. A peculiarity of modern development is the existence of the wide global Diaspora networks of various cultural, ethnic, and religious backgrounds. This is due to historical aspects but is also due to migration policies of Western governments of recent decades (e.g. post-World War II immigration policies in Western Europe). Acting as host countries, these governments were quick to adjust their legislation to allow for the entrance of new labor resources corresponding to the demands of a real economy (for example, see Calavita, 1992; and Castles, 1986). As a result, large communities of non-native workers sprang into existence in the developed world. Similar events ensued in the Soviet Union. The situation there was slightly different with dominant, historically settled communities of various ethnic Diasporas living long before any modern economic transformations had taken place. These form what this study refers to as the "old" Diaspora—the well-established, relatively affluent social sub-strata of "non-native" citizens.

In more recent terms, those migrants who remain in the host country and do not return to their home country form a new Diaspora. Quite naturally, newly arriving migrants, especially temporary workers, often flock toward the areas where they form network communities, socializing and "re-uniting" with their long-since-moved-from-home compatriots. Furthermore, the newly arrived migrants are often hired by the business organizations run by the members of the old Diaspora.

Despite this connection, the larger part of the labor migration process is unregulated, ad hoc, and often takes hazardous forms. The situation is often prone to social conflicts, as migrants are perceived as unpopular, taking away jobs from the locals, irrespective of the factual evidence stating that temporary labor migrants do fill in the void in the national economy. Based on the earlier research of labor migration patterns of transition economies (Gevorkyan *et al.*, 2006; Gevorkyan, 2007; and Gevorkyan *et al.*, 2008), a general Diaspora regulatory mechanism may be derived and be adapted to the country-specific setting. The mechanism is premised by cultural and economic closeness and common background of the "old" and "new" Diaspora. Within the above-described triad, the Diaspora mechanism tackles the labor market and real wage concerns.

Effective set-up assumes a developed legal framework between countries with specific treaties regulating issues of temporary labor migration. Treaties

regulating workers' migration, and temporary migration in particular, have to be in place. Such treaties could be bilateral and multilateral, as would apply in the CIS. While suggesting existence of the legal framework is a strong assumption, it is not entirely unrealistic: several laws have been passed between the CIS economies addressing the migration issue or simplifying immigration procedures for the Commonwealth citizens.

The role of the state in the model is quite important, at minimum, during the first stages of its operation. The state possesses nominal legitimacy to mobilize Diaspora and administrative resources, putting them together in a working compromise.

The main players are the home and host countries' governments and related local, municipal, and federal authorities; the state-managed recruiting agency in the home country; the Diaspora center or community group in the host country (most likely a separate entity for each federal region but also acting at a national level through Diaspora cultural organizations, etc.); the employer in the host country; the home country consulate abroad; and certainly the migrant. Under the general heading, the host country government also includes a special immigration department, which can further be broken down into the regional and specific focus area levels (e.g. Russia has implemented a similar system under its Federal Migration Service). Recall that the host employer could be one or several organizations run by the local old Diaspora. Schematically, the mechanism is shown in Figure 5.6 of the Appendix.

The Diaspora center in the host country and the home country recruiting agency are the two unique agents in the proposed mechanism. The first one, a natural extension of an already existing community group where members of the old and new Diaspora meet, is also inspired by the home country (through financial assistance and the consulate) and supported by the host country's fiscal agents. It is in the middle of the coordination process, linked with the consulate as well as host authorities. The recruiting agency is part of the home country's state-managed regime and interacts with the migrant, home country government, Diaspora center, and the consulate.

The migrant contacts a state-managed recruiting agency in the home country. Data on the migrants' skills and qualifications is transmitted electronically to the consulate and the Diaspora center. Upon the successful review and identification of potential job opportunities, the recruiting agency takes care of the administrative portion (the migrant's personal record check, work visa, etc.) and provides the migrant with all the necessary information before their deployment in the host country. Upon arrival, the center assumes responsibility over the migrant. Moral hazard is limited through a system of checks and balances instituted by the two governments, which requires systematic reporting by the employer, Diaspora center, recruiting agency, and the migrant to the authorities.

A hypothetical scenario in detail would be as follows. The legal framework and all players in place, a hypothetical migrant fills out an application at the home recruiting agency. The agency takes no longer than two weeks to respond. During that time, the agency confirms all formalities with the home country government. The agency runs the migrant's qualifications across its database of

open employment opportunities in the potential host country. The home country's consulate abroad and the local Diaspora center create the database. The latter maintains the database and shares with all three parties. The database contains data on the migrant, employment opportunities, old Diaspora employers, other possible host country employers interested in foreign labor, and other related information.

Once the migrant passes initial approval and a possible employment opportunity is determined, the information is sent to the Diaspora center, which also negotiates with the host country employer. This assumes the agency has had a discussion with the migrant regarding possible employment opportunities and has the migrant's agreement on that. Upon receiving confirmation from the employer, the community group communicates that to the consulate and the recruiting agency. The migrant, arriving on a special temporary work visa, a distant but viable situation, reports to the consulate for initial registration and to the community group.

The group helps the migrant settle in the new environment, helping them to rent an apartment and providing basic information about their new location. A representative from the group then introduces the migrant to the future employer. During the length of the employment period, the community group oversees progress and receives regular reports from both the migrant and the employer. These reports will then be transmitted to the recruiting agency. Experience of countries like the Philippines and Sri Lanka proves that such basic information about the working conditions, attitudes toward the migrant, and concerns of the migrant first helps create a reliable statistical body for further analysis of the temporary labor migration impacts; and second, ensures that the home country's executive branch in charge of the process communicates diligently any concerns about the migrant's well-being to its consulates and the local authorities in the host country. After all, it is expected that the government will assume responsibility for its citizens' welfare and implement certain measures necessary to uphold it.

At the end of the deployment period, the process would have come full circle and the migrant returns home, with the Diaspora center and the recruiting agency being the integral agents in ensuring this happens. As with other aspects, the agency keeps track of migrants traveling from and to the home country and reports the statistics to the home country's executive branch. Finally, and this must be stressed with all urgency, the Diaspora center (in the capacity described above), although capable and possessing the infrastructure, will perform as an efficient vehicle in the process only with the clear guidance, encouragement, and, importantly, financial backing of the home and host country governments. The consulates established in various foreign regions should work in close cooperation with the present old and new Diaspora. It is possible to envision other incentives, aside from holding a collective responsibility for its compatriots in the host country, but that is beyond the scope of the present study. Presented as a concept, this model offers a reasonable framework for further analysis of the temporary labor migration.

The Diaspora Regulatory Mechanism outlined above ensures fair distribution of labor migrants' efforts in the home country economy based on real and legally

recorded business demands. To promote temporary migration, the mechanism can be adopted to offer rotational employment; such schemes have worked in, for example, Switzerland, as described by Gross (2006), and Canada, as described by Basok (2007), albeit without Diaspora involvement.

The mechanism offers fair controls and supervision over migrants' compensation. This then directly tackles two key concerns: labor market adjustments and real wage adjustments. Specifically, it enables migrants' willingness to work and their qualifications to be matched to where they are most needed in the host economy, without causing major disruptive structural shifts in the labor market, as observed in the current ad hoc context. This is also relevant in the case of migrants taking low-skilled jobs, especially in the circumstances of the ongoing crisis, as native workers are being pushed out of high-skilled jobs and accept low-skilled, low-paying positions.

A negotiation-based placing of the migrant in the host economy limits the downward pressure on domestic real wages that a potential increase in lower-paid labor force might have otherwise. For the home economy with limited job opportunities, temporary migrants' absence may even have some benefit, weakening the unemployment tension and allowing migrants to return with accumulated skills and training acquired abroad. With an effective migration policy regime, as implied by the proposed Diaspora Regulatory Mechanism, the returning migrants' skills can then be applied to nurture new employment opportunities in the home economy. The next section deals with the problem of streamlining remittance transfers.

5.5 The Migration Development Bank

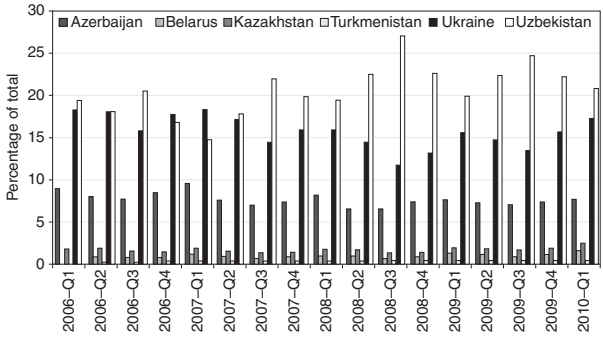
While working in their capacity of contract employees, creating value and contributing to the host country's economic development, migrants earn income. Part of that income remains unspent and, upon reaching certain levels of accumulation (or as needed) is transferred home by the migrant. These monetary transfers or remittances provide some relief to the migrant's family and, in a way, contribute to economic activity in the home country, becoming a new popular source for a home economy's growth.

As employment contracts come to an end, migrants return to their home countries with accumulated income but also with new skills, knowledge, and experiences, as mentioned above. Often returning migrants form cooperatives, starting businesses in the home country. In turn, perceived benefits of return migration and job prospects abroad requiring advanced preparedness also compel (potential) migrants to seek educational or professional skills' improvement while in the home country (for background, see Gevorkyan *et al.* 2006; 2008). That stirs the development of educational processes and related areas at home. There is yet to be developed a definitive way to accurately estimate the tangible benefit of the above aspects of temporary labor migration. For now, remittances remain the most evident and influential category to catch policy makers' attention.

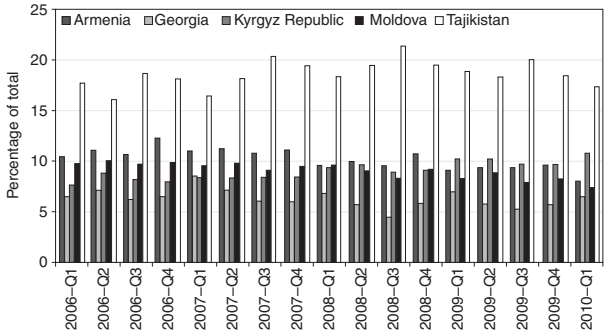
Remittances play a significant and controversial role in the CIS. Russia is the major economy from where remittances are sent to the smaller CIS economies.

Most conservative estimates by Russia's Central Bank quote US$8.6 billion transferred from Russia to the CIS in 2007. In the first quarter of 2008, the total amount transferred was US$2.1 billion, rising to US$4.3 billion by the end of the third quarter and then down to US$3.2 billion by the fourth quarter end (see Figure 5.4). This represents an annual 47 per cent growth year on year between 2008 and 2007.[8]

Remittances are typically small transactions in hard currency (US$) and on average range between US$550 and US$700 per bank transfer (with some variations). Aside from official channels, a significant share of remittances is sent to the home country via informal links, such as by relatives or on trips home. There is clear seasonality in transfers: the peak occurs towards the end of the year, while the first two quarters come out soft, as summer construction projects pick up and migrants transfer increased amounts in time for the end-of-the-year holidays (e.g. see Gevorkyan *et al.*, 2008). Added to this is the factor of the two country groups, where the net importers on average receive the larger portion of the total transfers from their migrant workers in Russia (ranging on average between 52 per cent and 55 per cent of the total sum of all transfers).



(a) Net exporters



(b) Net importers

Figure 5.4 Remittances from Russia to CIS (2006–2010: 1), per cent of total by quarter (source: author's calculations based on data from CB Russia (CBR, 2010)).

Consistent with earlier findings, countries like Armenia and Tajikistan (net importers) and Ukraine and Uzbekistan (net exporters) attract larger proportions of overall transfers. Despite the recent falls in remittance flows from Russia to the CIS, primarily due to the recent global crisis, the statistics are still impressive on a relative scale.

Two considerations are worth mentioning. First, the impressively large (in total) annual transfers have spurred active commentary and research in terms of the remittances-to-growth-development relationship. The 2005 IMF Survey claims remittances "constitute the single-largest source of foreign exchange, exceeding export revenues, official aid, foreign direct investment and other private capital inflows" for many developing countries (IMF, 2005). Earlier, Chami *et al.* (2003) and Kapur (2004) in separate papers had pointed out the same phenomenon, while, however, remaining skeptical on the long-term impact of remittances. While not convinced on the exact microeconomic causes of the increased remittance flows, Schrooten (2006) identifies them to be a crucial source of external finance for the CIS economies. Baruah's (2006) extensive survey of various schemes of remittance flows into the developing world implies a positive relationship between remittances and economic growth.

In his extensive study, Lucas (2005) cites evidence from a wide sample of countries, arguing that remittances do not have clear-cut positive implications for economic growth. Of greater consensus is the observation that remittances have some positive correlation with domestic expenditures that may be categorized as small-scale individual human capital investments (i.e. education, health, housing, etc.). A positive outcome depends on the migration programs implemented by the governments, as well as Diaspora involvement in the migration process. Further, complementary macroeconomic policies must be adopted, as evidenced in Catrinescu *et al.* (2006).

From economic theory, one knows that a large inflow of foreign exchange puts upward pressure on the home country's currency exchange rates, in effect inhibiting export activity as domestically produced goods and services lose competitiveness due to the rise in price relative to foreign goods because of the domestic currency appreciation. By extension, that imposes a restriction on new job creation in the domestic export sectors. Needless to say, for countries in transition, this becomes a vital consideration. Be that as it may, the fact remains that remittances are sent continuously and by large randomly.

That leads to the second consideration: that there is a need for an effective money transfer mechanism that would serve the economic development needs of both host and home economies. Within the earlier described *Diaspora Regulatory Mechanism*, this study proposes a *Migration Development Bank* (MDB) that would play this role and that is perfect for CIS or intraregional migration, particularly within current crisis circumstances. As the name implies, the bank would serve its primary purpose as a migrants' bank. Its secondary purpose would be to stimulate development in host and home economies.

The bank would provide a simplified transfer facility from the labor migrant to recipients in the home country. The bank would also offer a range of financial

options—based on the experiences of the large commercial banks that already offer some types of services to expatriates. For example, there could be an option of a host country currency deposit, but also hard currency withdrawal by the recipient in the home economy, etc. The range of options is limitless, but introduction of services has to go in check with real development context of the countries involved. As a one-stop banking source geared towards temporary migrants, MDB may provide direct-deposit services and a simplified monetary transfer mechanism.

Borrowing in the inter-bank market, relying on government support, and also giving out loans, in part supported by the accumulated savings and interest earned earlier, MDB could channel productive investment in infrastructure and educational projects in the home and host countries. In addition, the bank would be providing financial backing to the Diaspora-led temporary migration program described above.

MDB would be in capacity to assist with migrants' relocation both ways: going abroad and returning home. For those departing for work, MDB (through its affiliate branches) could offer small loans to the migrant to use as start-up money or to the migrant's family to help sustain household expenses in the interim period between primary bread-winner's (migrant's) departure and first tranche of remittances. For the returning migrant workers, MDB would offer convenient and hassle-free large lump-sum monetary transfer instruments.

MDB's role may be crucial in relocation assistance and start-up capital for return migrants. For some countries facing depopulation and stagnant economies, this could be one way to get the necessary push out of the current stalemate. Specifically, MDB would provide subsidized or lower-interest bearing loans to the returnees starting their own business or joining the home economy's labor force utilizing new professional skills acquired abroad. This function fits organically well within the Diaspora Regulatory Mechanism. While government assumes primary responsibility for smooth adaptation of the returning migrants, it is the skills, knowledge, and money earned while working within the Diaspora Regulatory Mechanism that help returnees integrate with the home economy. Existence of a functioning financial vehicle, such as MDB, helps absorb the returning migrants with a targeted home economy sector placement. Notice that some labor-exporting countries of the CIS (i.e. Armenia, Moldova, and Tajikistan primarily) have separately announced various measures aimed at absorbing returning migrants who have lost their jobs in Russia, Kazakhstan, or elsewhere due to the economic deterioration caused by the current financial crisis (e.g. Dilanyan, 2009).

Finally, on the macroeconomic side, MDB adds some predictability as far as frequency and volume of remittance flows from host to home economies. As mentioned, ad hoc large foreign currency volumes transferred to smaller labor exporters may lead to absorption problems, pressurising domestic currency in the home economy to appreciate. Streamlining foreign currency inflows via MDB helps alleviate such pressures, sustaining a competitive exchange rate and avoiding significant losses in export revenues. This is particularly important for the transition economies and small developing countries in general developing their export base (e.g. for a discussion on exchange rates, see Frenkel and Taylor, 2006).

Successful functioning of the Migration Development Bank within the Diaspora Regulatory Mechanism is bound to attract greater participation of the old and new Diaspora (and some individuals and organizations outside the national networks, affiliated with the home country via various engagements). This aspect refers to the altruistic sentiments in the Diaspora discussed above. In fact, the format of MDB is reminiscent of some isolated Diaspora finance efforts internationally.

As has been reviewed in Chapter 4, two most prominent examples are the State of Israel Development Bonds and India Resurgent Bonds (e.g. see Chander, 2001 and Ketkar and Ratha, 2007). Both countries continue to capitalize on their close relationship with their Diaspora. While the set-up of sovereign bonds is certainly different than active banking, the core (i.e. the appeal to the Diaspora and its potential, the fluid state of the Diaspora networks, and the influx of migrants) is the same. Implications of such arrangements for developing countries are promising. The key, however, is ensuring the sustainability of the program with adherence to strict fiscal rules and responsible investment in the economy's productive and infrastructure sectors (Gevorkyan, 2008).

Operationally, the Migration Development Bank may remain a close-knit venture for temporary migrants (and Diaspora center members) in host and home countries. Migrants would be able to set up MDB accounts with the minimum identification documents issued through the regulatory mechanism, as above. Established with the Diaspora Regulatory Mechanism, MDB would be governed by a Board of Directors, comprised of Diaspora members with host and home countries' government representatives. Managing the bank on daily operations could be a financial agent from the old Diaspora, which is very likely. To be sure, successful operations of the above-described mechanism requires a functioning temporary and contractual character of labor migration regulated by law, common sense, and a clearly identified goal for fairness in income distribution in the development agendas of both home and host economies. In the end, MDB removes bureaucratic barriers to monetary transfers, offering banking services to migrants who otherwise face a set of legal and other barriers to effective banking and relocation funds. In addition, the bank advances the development agenda and offers new alternative policy solutions with Diaspora participation that are worth exploring.

5.6 Conclusion

This chapter addressed the problem of global inequality at the angle of labor migration as it concerns the transition economies of the CIS and the role of state in the process. After a brief review of current migration patterns in the region, the chapter advances a temporary labor migration triad methodological approach to studying the economic and social aspects of the labor migration phenomenon. On a more structural side, the chapter argues for implementation of the *Diaspora Regulatory Mechanism* and the *Migration Development Bank* to ensure the just and fair regulation of the temporary labor migration process. Therefore, any policy prescription cannot and should not be taken as a one-size-fits-all measure but instead needs critical assessment before its variation is adapted for a specific country setting.

Recognizing the economic root cause for temporary labor migration, this study argues for active state involvement at least in the initial stages. Facilitating job search and migrants' placement through the Diaspora networks and doing that within a contractual and a mutually agreed framework helps reduce the incidence of abuse and unequal treatment of unprotected temporary migrants. Operating a Diaspora Mechanism relieves social tension and unease as numbers of foreign workers rise in the host economy. The MDB concept completes the Diaspora Regulatory Mechanism, opening up new growth and development possibilities. Together, the two concepts presented in this chapter help further enrich our understanding of the fiscal net concept (presented in Chapter 4) where Diaspora plays an important role. With clearly declared economic targets, under the proposed labor migration mechanism, Diaspora groups act as key bridges, linking national governments, employers, and the migrants across countries. This scheme may not be ideal and fine-tuning over time is a must. However, it does offer a reasonable starting point in regulating labor migration in the global economy.

In the interlinked world, Diasporas become real dominant actors. Stereotypically, Diasporas are perceived as cohesive, tightly knit networks of expatriates with altruistic sentiments toward their former native lands. While that may not hold true for all, Diaspora potential in home country development remains strong and vast in scale. This is why proactive, innovative, fiscal support is necessary in implementing the Diaspora Regulatory Mechanism and Migration Development Bank as described here.

This project requires greater attention of decision-makers to the problem of temporary labor migration and ways to resolve the problem, but also to the role and effective impact that Diaspora resources, fiscal policy, and responsible finance can play in promoting short-run and long-run socio-economic development. Diaspora study is an emerging research area bound to stir greater interest. Here is an effort to offer an alternative policy solution and to invite a constructive debate on economic development, temporary labor migration regulation, and the role of state, the role of Diaspora in general.

5.7 Appendix

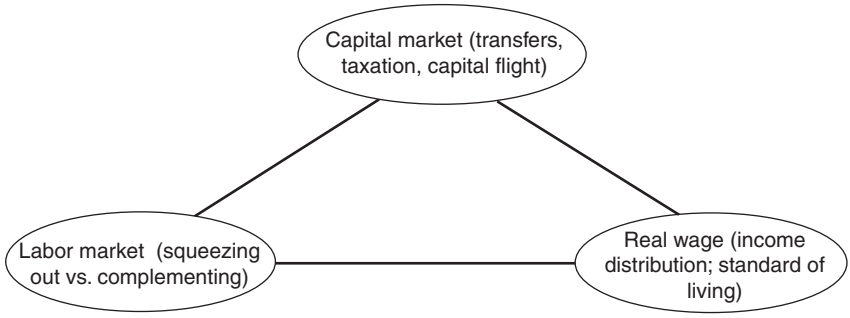


Figure 5.5 Temporary labor migration triad.

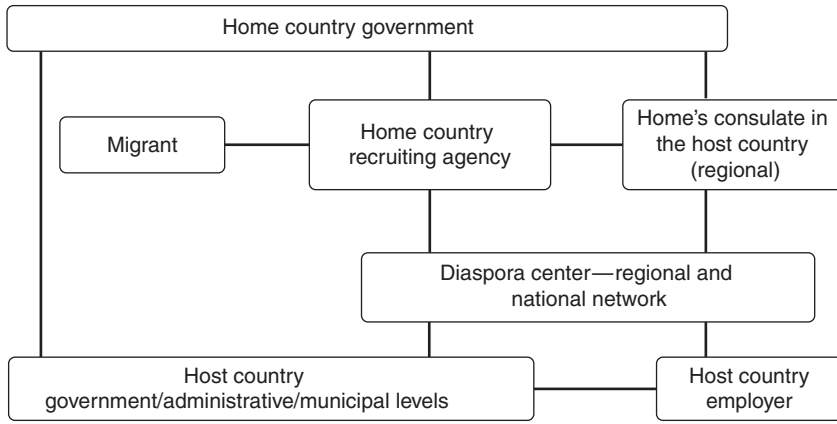


Figure 5.6 Temporary labor migration—Diaspora Regulatory Mechanism.

6 J-curve

Facing exchange rate and current account fluctuation risks in the open economies of the CIS

6.1 Introduction

Following macroeconomic orthodoxy set in abstract modeling of marginal utility and representative agent offered little practical help to the post-socialist governments trying to transform their economies from an administratively planned set-up to a more market-oriented capitalist system. Furthermore, events of recent global economic transformation starting in 2007 have developed a need for the policy and academic community to search for new, alternative methodology and analytical tools. What is required is a new, bold, and coherent analysis of modern international financial markets. Again the role of state in this context cannot be understated. Consistent with this book's methodological undertaking, this chapter leads a discussion on the interrelationship between exchange rate and balance of payments in transition economies.

Recall the reliance of the national budgets on export-driven revenue across larger CIS economies, and dependence on foreign exchange financing and external capital flows in the smaller economies. Therefore, in transition, any external shocks have almost immediate effects on current account and overall economies. Short-run considerations become primary. These effects have manifested themselves in the recent crisis environment where larger economies introduced ad hoc and more systemic measures to protect their economies (more on this in Chapter 8). At the same time, price changes on main export and import commodities quickly translate into corresponding quantity changes, driven by global demand.

Thus the strength of fiscal policy in transition and the ability to finance public investment projects and sustain governmental programs or any applications along the innovative lines described above may be undermined in the event of abrupt and unpredicted external shocks (e.g. Gevorkyan, 2008). Therefore, attention to subtle nuances within the balance of payments, exchange rates, and fiscal policy is required. Specifically, this chapter's analytical exploration and econometric analytics turn to the concept of the J-curve and its role in the fragile open economies of the CIS.

If post-socialist economies are to have robust development in the years to come, intricate details of operating in the open economy become vital. Understanding the

relationship between exchange rate and current account fluctuations in these economies that are still experimenting with their open economy status becomes necessary for the survival of the new economies and their adherence to the post-socialist-to-capitalist transition path. The role of state is pivotal in the process and we review some core aspects of it below.

In essence, the J-curve effect is an empirical challenge to the widely accepted theoretical postulate of the *Marshall–Lerner Condition* (MLC), derived within the standard Mundell–Fleming model (MFM) of open economy balance of payments. According to the J-curve effect, there is an observed lag of a few months between real exchange rate depreciation and trade balance improvement. On the other hand, the MLC theory predicts automatic adjustment as the exchange rate change is followed by a reciprocal change in the country's trade flows expressed in volumes and values.

Adopting the view of the J-curve effect, real currency depreciation translates in immediate terms to trade deterioration, i.e. current account deficit that lasts for varying short-term periods depending on a country, until its eventual improvement (hence, the J-pattern of current account balance over time). The MLC suggests the opposite—immediate current account improvement following depreciation. It is then apparent that the exchange rate to trade balance relationship is positive in the J-curve theory and negative according to the MLC. This relationship—exchange rate to current account balance—is nonlinear, as suggested by theory and our empirical results discussed below.

Scholarly debates on the issue have their roots in currency exchange regimes and post-World War II transformations. Attitudes towards validity of the J-curve assumption have varied widely. However, little research has been done in terms of application to the realities of the transition to capitalism. In fact, the bulk of the available empirical analysis has been concentrated on the advanced economies of North America and Western Europe. In this chapter, we develop a theoretical approach to and illustrate the J-curve effect for the chosen economies of the FSU that together comprise the Commonwealth of Independent States (CIS). This cross-section offers insightful case studies of economies with diverse export/import compositions, exchange rate regimes, and monetary and fiscal policies.

With the above facts in mind, the remainder of this chapter is structured as follows. Section 6.2 offers an extensive exploration into the theory of the J-curve effect and literature review. Here we review both background research that helps to establish the core research agenda, as well as known empirical estimation of the J-curve effect in literature. The main empirical model is developed in Section 6.3. Description of data used in the model estimation is discussed in Section 6.4, which is followed by a results analysis in Section 6.5. Extension to the model and robustness tests are conducted and analyzed in Section 6.6. Following the Conclusion, the Appendix provides summary of relevant tests charts and details on main model modifications.

6.2 What is the J-curve? Exposition and literature review

J-curve effect preliminary illustration

An important aspect of any research is the necessary understanding of the epistemological roots of the phenomenon at hand. We hope to accomplish that in this section, opening the stage for subsequent discussion of the J-curve.

The J-curve effect characterizes a complex relationship between exchange rate fluctuations and current account dynamics, suggesting the presence of nonlinearity with current account worsening following currency depreciation, with an eventual recovery after a certain time lag. This stands in sharp contrast to the Marshall-Lerner Condition concept that prompts positive relationship and current account improvement. There are several explanations to the J-curve phenomenon, addressed below.

Graphically, the adjustment path resembles the letter J, hence the J-curve effect. This can be seen in Figure 6.1, which is not based on real data and serves an illustrative purpose only. Initial deterioration of the current account following currency depreciation is captured by a sharp drop from point A to point B over a time period of a few quarters (in some cases, months). In a hypothetical situation with binding forward trade contracts, deliveries are made based on the old exchange rate, and, given unchanged initial export/import volumes, there would be an increase in pre-contracted value of imports as domestic currency depreciates. Following a lag of several months, the effect of cheaper exports vis-à-vis foreign goods due to depreciated currency picks up (as denoted by the move from point B to point C along the curve) until current account recoups its initial levels and continues to increase, barring further exchange rate fluctuations (this refers to point C onwards, which indicates a long-run impact of real depreciation on the current account).

Preliminary illustration of the J-curve effect brings issues of currency regimes, forward contracts trade, and national balance sheet. It is instructive to review the early stages of the J-curve effect debate.

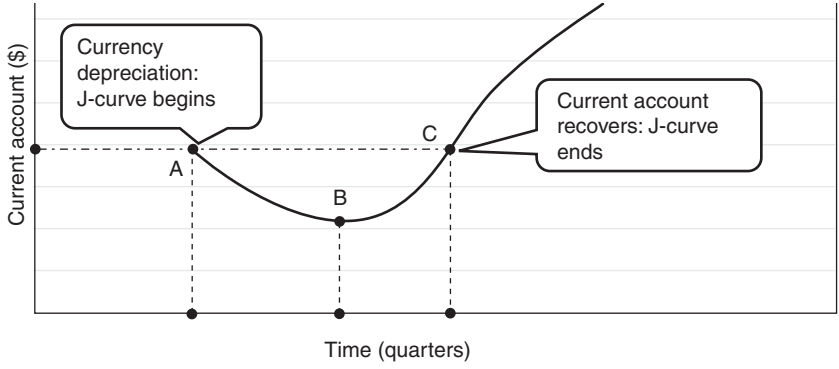


Figure 6.1 J-curve effect illustration.

Note
Author's approximation; not based on real data.

The dawn of the debate

The early discussions on the subject of exchange rate policies coincided with the efforts (mainly in the first few years post-World War II) of industrialized economies to allow flexibility and anticipated predictability of the exchange rate regime. Some of the informative papers on the subject include Barker (1968), Flanders (1963), Henderson (1949), and many others. This rich body of research offers diverse methodological results to understanding and logical assessment of the evidently nonlinear relationship between current account and exchange rate, in particular by reviewing the effects on national economies of initial current account deterioration immediately after currency devaluation.

Writing in January 1949 (in effect precipitating the debate on the effectiveness of the flexible exchange rate regime), Henderson (1949) argued for strict exchange rate control to regulate capital transfers. The main rationale behind the strict control would be to avoid uncertainty as much as possible since it was the fixed nature of the gold regime that had positive influence on the economic development across the world during the nineteenth century (an important historical observation at the time). Henderson (1949) suggests the balance of payments deficit is unlikely to improve even in the long run after currency devaluation, as more bad than good would be caused by the initial policy. In the same year, the UK devalued the pound sterling.[1] Yet the value of exports did not pick up simultaneously, as had been expected. Observing current account deterioration, Flanders (1963) suggested there was a relative loss of UK competitiveness in the world market. Four commodity groups (iron and steel, power generating machinery, textiles, and vehicles) were analyzed in the study between the years 1949 and 1955. The author considered three main determinants: 1) comparison of British exports to world exports; 2) comparison of British exports to the exports of other countries that had devalued their currencies; and 3) the ratio of British exports in relation to the non-devaluing countries' exports. For all three parameters, the empirical estimations produced either the opposite of the hypothesis (i.e. immediate improvement) or not entirely conclusive results. In particular, it was observed that British exports had not done as well as would have been suggested in the case where "the ceteris paribus assumption really was applicable and in which the substitution demand curve for British exports had a negative slope" (Flanders, 1963: 169).

Three explanations as to what might have had an effect on the value of the major exports of the UK are advanced in the above-mentioned study:

- a very small absolute value of the elasticity of substitution in demand for British exports;
- other events in the world having an influence on the current account deterioration (namely, (a) the Korean War; (b) devaluation of other currencies; (c) German and Japanese post-war recovery; and (d) trade controls and regulations);
- inelastic exports supply from the UK and rise of British export prices relative to other countries' exports by more than devaluation.

The author argues that it is the combination of the above three factors and not just devaluation itself that caused the value of British exports to fall after devaluation, by critically assessing export and import ratios in each sector. Further, the conclusion of the study mentions that the pound sterling devaluation, although passed without immediate improvement in trade balance, did in fact soften the impact of German and Japanese recovery on Britain.

A brief glimpse at the above-mentioned studies confirms our initial statement of the interdisciplinary reach and the vast range of issues involved in the analysis of exchange rate and current account dynamics. The debate was at the dawn of modern currency regime institution, with subsequent analysis of their effects on real economy evolved over the years of research and accumulated empirical evidence. However, it was not until later that contemporary scholarship coined the term *J-curve effect* and formally derived it within general discussion of the balance of payments. Core theoretical apparatus and methodological approaches were developed in the studies produced in the 1970s and 1980s.

J-curve in the 1970s and 1980s

Two prominent papers addressing the issue of currency devaluation and its effects on balance of payments appeared in 1973. These were the studies of Junz and Rhomberg (1973) and Magee (1973). The first represents an attempt to evaluate the trade effects of exchange rate change empirically by looking at the trade (export) data of the industrialized countries. The paper questions the validity of the widely accepted assumption that there exists, if not an immediate, at least a quick positive response in trade balance following national currency devaluation. The major finding of the paper is the authors' assertion that the exchange rate to trade balance relationship has, at a minimum, five lags before it enters its full strength:

- recognition lag as time needed to pass the new "competitive" information to market participants;
- decision lag as time to rearrange existing business patterns and orders;
- delivery lag implies a change in the relationship only after the goods have been delivered;
- replacement lag as imported equipment must be used up before a new order is placed to replace it;
- production lag as time needed for producers to get assured new profit opportunities exist in other market sectors.

Junz and Rhomberg (1973) suggest that all of the above implies the "overall lag of trade flows behind price changes" and can "be properly measured in terms of years rather than quarters" (Junz and Rhomberg, 1973: 413). Importantly, each country's response will be specific to that locale and economic environment but in general, in the case of currency devaluation, one might expect up to five years before seeing a positive trend in balance of payments through the current account. Incidentally, subsequent and more recent studies, as discussed below,

shifted the focus to immediate short-term analysis of the J-curve effects. That strand of research looks into quarterly and, in some cases, monthly examination of exchange rate and trade balance dynamics.

Related to the previous study is the seminal paper by Magee (1973), which offers a comprehensive theoretical analysis of the effect now known as the J-curve. This study focuses on the short run, partial equilibrium analysis. Providing the chronology of the US$ devaluation and trade balance deterioration crises in the United States in the early 1970s,[2] the author suggests two main views in his investigation of the exchange rate and trade balance relationship adjustment:

- currency-contract period
- pass-through period.

The first one relates to the condition of a short period immediately after an exchange rate change when contracts agreed upon earlier (prior to changes in exchange rates) are due, i.e. *values* analysis. The second is directed towards the analysis of the behavior of international prices on trade contracts after the exchange rate changes but before there has been any significant effect on the quantities, i.e. *volumes* analysis. Aside from these two, Magee also considers a final quantity adjustment period.

Magee (1973) argues that the chronological order of each adjustment period is as follows: contract based; pass-through; and quantity adjustments. Utilizing graphical analysis, Magee provides theoretical grounds to suggest that the US trade balance decline is possible only under certain scenarios. Hence, it is not always an inevitable situation. This is an important finding since, before and after that study's publication, most researchers have chosen to either assume a J-curve effect or reject it a priori.

In the contract-currency phase, a seller is inclined to denominate export contracts in a currency that is expected to be appreciated and a buyer or importer acts quite in the opposite, given each party's desire for capital gains. Assuming US$ devaluation, Magee finds that the J-curve 1) *is valid* when US exports are denominated in foreign currency and imports are in dollars, and 2) *is possible* depending on the initial condition of the trade balance, while foreign currency denominated trade balance remains unchanged; US$ contracts may worsen the trade balance if it is initially in deficit. The contract-currency phase then is a crucial determinant of the future pattern.

The pass-through stage—rise in import prices as domestic currency depreciates—refers to conditions of unchanged export/import quantities. This might happen either due to perfectly inelastic supply (i.e. exporters cannot instantaneously shift output volumes) or due to inelastic demand (i.e. importers not being able to substitute immediately). In the absence of the pass-through phase, Magee contends that there would be a balance of payments improvement following devaluation.

However, trade balance would deteriorate in both dollars and foreign currencies in case home exporters do not immediately raise prices on US$ denominated products and importers do not absorb losses from devaluation. As a result, the dollar

price of imports rises exactly by the full amount of devaluation. Following these initial stages, the economy enters a quantity adjustment stage, where the contracts made after the devaluation determine terms of trade, leading to a trade balance improvement in the case of exchange rate devaluation. Magee argues with a caveat that results are tentative and depend on initial conditions and economic activity at home and abroad.

Magee's contribution in setting the research agenda is the systematic, all encompassing approach to *explaining* the phenomenon as opposed to static concentration on *random events* that, while may be valid, lack objectivity in capturing all nuances. Subsequently, along the same lines are two studies by Krugman (1987, 1989), where the author develops an analytical model and discusses policy implications of the J-curve effect.

In an effort to theoretically evaluate observed high domestic prices of imports in the US (despite the stronger dollar in the 1980s), Krugman (1987) discusses a phenomenon he refers to as "pricing to market"—a situation when foreign firms maintain high prices or raise prices on goods exported from a home country despite the appreciation of the import destination country. A simple example cited in the article involves luxury automobile prices imported in the US from Germany. A more general application based on empirical data extends to a wide list of machinery and transport equipment categories of tradable goods. In his paper, Krugman finds that, at least in the short run, there is a strong dependency on the country's international trade structure and relative volumes of different tradable goods categories, as well as individual firms' decisions (involving market reputation) and demand side effects, such as demand elasticities before and after the exchange rate change that collectively determine the extent of the change in the domestic prices of imports following currency appreciation or depreciation. In other words, Krugman's contribution deals directly with the modalities of the pass-through effect in a more applied manner, similar to Magee's work reviewed above.

The key observation in Krugman (1987) is the microeconomic pricing problem (exchange rate pass-through) within a certain sector of the economy related to imported goods. Ultimately, such short-run effects feed into the trade balance, causing J-curve-like effects. In his subsequent analysis, Krugman (1989) tackles the issue of the J-curve effect full speed. The economist looks at the US$ decline over the second half of the 1980s. Setting aside industry-specific circumstances such as pricing to market strategies discussed earlier, Krugman looks at the US economy in general and raises the alert of an impending "hard landing" due to the US's over-reliance on foreign funds. As foreign investors flock to the US assets, deemed less expensive due to the weak dollar at a certain point, there may be a loss of confidence in the same US assets as the dollar depreciates further.

The textbook scenario described earlier prompts an improvement in the trade balance and in the capital account. However, before foreign investors can pull out of the US market, there must be a suitable alternative abroad consistent with the investors' long-term investment strategy. Hence, there is a considerable period of adjustment, which Krugman measures as several years, resulting in the J-curve effect. After this adjustment period, foreign funds are pulled out and directed

elsewhere. Precisely at this moment, Krugman argues, the US is destined for a "hard landing" unless policy measures are taken to boost up internal savings—investment parity restoring national savings rate to its pre-depreciation levels. The lesson from the J-curve effect is then to accurately record the buildup preceding potential "hard landing" in the early stage of its formation.

It is striking how the discussion in the late 1980s is still relevant in the contemporary setting, almost twenty years since the alarm bells were rung. As has already been mentioned, there is a great deal of policy and academic debate regarding the further direction of the US current account deficit and continued dollar depreciation. It is yet to be determined what will happen as the downward dollar trend continues and capital inflows outside the US keep coming. Hypothetically, increased rates of return on these assets would be required to keep up the financial inflows in the US economy and, unless that happens in the situation with low national savings rate, this would result in Krugman's "hard landing" scenario.

Theoretical contributions reviewed above paved the way for a more rigorous examination of the J-curve phenomenon in later years. Several of the most representative empirical studies are reviewed in the following section. The notions of pass-through and currency-contract periods dominate the research premise of other authors' empirical estimations, as will be discussed below. While most of the studies are based on data for industrialized countries, available evidence has strong implications for less-developed countries as well.

Testing for J-curve: basic export/import/trade balance set-up

In 1985, Mohsen Bahmani-Oskooee published a study entitled *Devaluation and the J-curve: Some Evidence from LDCs*, which was followed by *Errata* in 1989. In the article, the author attempted to provide a method for J-curve detection. The point was to detect a statistical relationship between exchange rate devaluation and trade balance for four developing countries of the period 1973–1980 using quarterly data. A working equation with a lag parameter in this model was as follows:

$$TB_t = \alpha_0 + \alpha_1 Y_t + \alpha_2 YW_t + \alpha_3 M_t + \alpha_4 MW_t + \sum_{i=0}^{n} \beta_i (E/P)_{t-i} + u_t \quad (6.1)$$

where *TB* is index of trade balance (exports minus imports) in real terms; *Y* is index of domestic real output; *YW* is index of world real output; *M* is index of domestic high powered money in real terms; *MW* is index of world high-powered money in real terms; *E* is index of effective exchange rate; and *P* is index of domestic price level. Parameters are expected to follow: $\beta < 0$ and α_1, $\alpha_2 >$ or < 0, $\alpha_3 < 0$, $\alpha_4 > 0$. Finally, *u* is the disturbance term.

In the errata to the main paper (Bahmani-Oskooee, 1989), the *E* term is given as units of domestic currency per unit of foreign currency, with an expected parameter sign of *E/P* being positive. Estimating the equation (6.1), imposing Almon lag structure with a maximum of twelve lags, resulted in initial trade account improvement and then deterioration, and as the author argues, "supporting a pattern of … the so called 'Inverse of the J-curve' " (Bahmani-Oskooee, 1989: 553). Further, the

findings suggest that the period of initial improvement after devaluation might be as long as five quarters (as in the case of Thailand) and as low as two quarters (as in Greece). Although illuminating, the results can be challenged for consistency. One might argue for more rigorous estimation techniques and such do appear in the later studies. However, this represents one of the first attempts to study the exchange rate fluctuations through a more general prism of economic activity.

In a more recent paper, Bahmani-Oskooe *et al.* (2006), applying a similar regression approach, analyzed the disaggregated trade pattern between the UK and its major trading partners covering the quarterly data from 1973 until 2001. Estimation results did not produce sufficient evidence in favor of the J-curve effect in the short run (except for cases of UK trade with Canada and the US), while in the long run the authors determined the existence of exchange rate-to-bilateral trade balance relationship. Overall results suggest that, especially in the short run, the UK trade balance does not necessarily follow any specific path. The value of this testing approach is in its attempt to disaggregate the analysis of balance of payments for a particular country, taking into consideration its trade pattern with primary partners. This leads to a conclusion of subjectivity of the J-curve effect given specific-country conditions—a concept that we take up in the next section.

A study published in the Federal Reserve Bulletin by Meade (1988) refutes a hypothesis of the J-curve as a *sole* explanation for the US nominal trade deficit of the mid-to late 1980s based on primarily empirical estimations and simulation tests. It is shown, as in other studies cited earlier, that the main characteristic of the J-curve effect is the early response of prices of traded goods to exchange rate change before the quantities adjustments (e.g. Magee, 1973). A somewhat similar mathematical approach to Bahmani-Oskooee (1985) is assumed here as well. The trade balance equation is:

$$TB = Xp_x - Mp_m \tag{6.2}$$

where TB is the trade balance in current dollars, X is quantity of exports, M is quantity of imports and p reflects prices of exports and imports respectively. Estimating equation (6.2) with lags and running some estimation tests (in particular, providing a disaggregated J-curve estimation by looking at specific product categories), Meade (1988) presents findings of a theoretical textbook-estimated and hypothetical J-curve. Notably, the author follows the analysis structure of Magee (1973), suggesting the validity of contract-currency-pass-through-quantity adjustment theorem.

Nevertheless, the findings suggest that the so-called "delayed J-curve" effect (as in Rosensweig and Koch, 1988) does not offer enough explanation for the persisting US trade deficit. The initial adjustment portion is shallow and quite short. In addition, import prices had a very limited observed response to the US$ devaluation. Finally, hypothetical J-curve testing resulted in trade balance improvement. Thus, the author offers other factors to be considered as explanations for the persisting US trade deficit. Namely, the gap between the US income growth and domestic demand; the limiting effect of the Latin American debt

problems on US exports; overlapping of devaluation and appreciation impacts on the US economy given the lag structure of these effects; and finally the difference in growth rates between exports and imports.

Although valid in terms of explaining the long-term US trade deficit, the analysis presented above remains remiss of the nature of the J-curve. One must be reminded of the short-run nature of that effect. Another paper published around the same time constructs a model of empirical testing for the United States over the period 1967–1987. While some studies have looked at the aggregates vis-à-vis exchange rate in cross-country studies, the paper by Moffett (1989) takes a second popular approach (departing from Bahmani-Oskooee, 1985) by looking at import/export prices and quantities movements in response to exchange rate changes.

The paper follows the approach in Magee (1973), attempting estimation of each stage. Given data limitations, certain assumptions are made (e.g. all US exports are denominated in US$). Still, running pretty straightforward regressions on a set of parameters at each stage, Moffett finds little evidence for a strict J-curve hypothesis. Instead, the results are reminiscent of the Bahmani-Oskooee (1985) findings, with initial exports improvement first and subsequent deterioration later. On the import sector, given that import goods prices are inelastic, US$ depreciation would cause higher import expenditures with import quantities eventually decreasing.

In contrast to the above, in their paper on the analysis of the US agricultural trade balance for the period 1973–1985, Carter and Pick (1989) find evidence in support of what they call "the first segment of the J-curve." Carter and Pick's analysis is predicated by the specific nature of the industry. According to the authors' estimates, a 10 per cent depreciation of the US$ leads to agricultural trade balance deterioration that lasts for about nine months. After the first three quarters, empirical testing—conducted by running the polynomial lag model on quarterly trade data for the USA—suggests trade balance improvement as a result of depreciation. Notably, this study utilizes the methodology of Magee (1973), suggesting that such results can be explained due to the "immediate and almost complete pass through of exchange changes to the agricultural import unit value and the slower and incomplete pass through to the agricultural export unit value."[3]

In other words, their result is exactly Magee's argument, as presented above, regarding the pass-through stage of adjustment appearing to be valid in this specific case. The formal model is relatively straightforward with three main operational equations for estimations of export unit value, which import unit value, which once estimated are used for calculations of the trade balance effect. Importantly, export demand is modeled as depending on foreign income, export price, and prices charged by competitors. Imports are expressed in terms of supplier export price and the effective import exchange rate. The trade balance is then effectively the difference between the two.

Exchange rate fluctuation impacts feed into the trade balance equation through the export and import unit value calculations. A crucial specification of the model is the existence of substantial lags in agricultural goods' deliveries and payments being made only after completion. By looking at a specific market segment on a short-run basis, the study assumes a partial equilibrium approach

in line with some other literature on the subject. Another interesting study along the same lines is by Noland (1989), summarized in Box 6.1.

Box 6.1 Japanese trade elasticities and the J-curve

Noland (1989) presents an interesting case study of Japan's trade elasticities. The short article offers profound policy advice: "If policymakers wish to target the trade balance, policies which affect the level of economic activity would be more effective than those which operate through the exchange rate."*

The premise is that there are significant time lags in responses of economic activity to price changes in turn induced by exchange rate fluctuations. The author applies a gamma distribute lag model, analyzing the pattern of Japanese trade between 1970 and 1985 by quarters. Obtaining the estimates for elasticities of Japan's trade balance with respect to depreciation and plotting the results against time, Noland constructs a "classical" J-curve with initial current account deterioration and eventual improvement over time. The results were used to forecast effects of yen appreciation of 1987 on reduction of the trade surplus in yen terms.

* *Noland (1989)*

Dynamic J-curve estimation: general equilibrium approach

Two studies emerged in the mid 1990s. Both were based on prior work (most of which has already been cited above) and discovered a more complicated pattern in trade balance behavior than just a simple J-curve. Constructed in the dynamic general equilibrium (GE) framework, Backus *et al.* (1994) (for the USA) and Marwah and Klein (1996) (in the case of the USA and Canada) contend that an initial J-curve with time takes the shape of an S-curve. This is a situation where negative correlation of the trade balance with current and future movements in terms of trade is positively correlated with the past.

The crucial finding in the first study within the GE framework was that the relationship between the trade balance and the terms of trade is dependent on the source of fluctuations. The authors used the OECD National Accounts database to pull historical quarterly data through 1991 on real output (output in base-year prices), net exports, and terms of trade, defined as the ratio of the implicit price deflator for imports to the implicit price deflator to exports, using current prices exports/imports to derive deflator values.

Backus *et al.* (1994) consider an economy with two countries producing imperfectly substitutable goods with two inputs, capital and labor. Fluctuations stem from persistent shocks to productivity and government consumption, so that a positive productivity shock leads to an increase in domestic output, a drop in relative price, and terms of trade deterioration. Since the shock is long running there would be increased consumption and a temporary rise in investment activity. The authors suggest that these two effects are bigger than the output gain and, as such, lead to trade deficit. With the absence of capital as one of the

inputs, the productivity shock dynamics are found to have a smaller consumption increase than output growth and actually an improvement in the trade balance. This is because, with only labor left as input, trade balance becomes a reflection of output and consumption changes. In this scenario, trade balance is pro-cyclical rather than counter-cyclical. Domestic goods' prices fall, causing a rise in terms of trade. Similar to the no-capital economy, the model of government shocks does not produce an S-curve but, according to the estimations, results in a tent-based curve depicting cross-correlation function between the trade balance and the terms of trade at its peak in time zero when shock happens.

The summary above indicates that there is not just one simple J-curve pattern when one considers a general equilibrium approach. More factors come into play and must be considered. The authors set up a set of benchmark parameters in their model to reflect various aspects, including agents' preferences, existing technology, Armington aggregator, and parameters affecting the behavior of shocks to economy (specifically, government shocks). So capital formation becomes crucial in estimating the economy behavior in this model. The mechanism is explained above through increased levels of not just consumption (after-shock) but of investment as well.

The researchers conclude that the difference between the two types of shocks, i.e. government and productivity, is the investment response. According to their estimations, as depicted in the graphs and presented earlier in the case of the government shock, there is "no tendency, as with productivity shocks, for an investment boom to follow the shock" (Backus *et al*., 1994: 98). In fact, the opposite is being observed. They infer from this that there is a potential danger of misinterpreting the co-movements of the terms of trade and trade balance without specification of the nature of the shock.[4] That may have repercussions in the policy decision-making in the future.

Recent regression models

More recent studies have applied various regression methods to the explanation of the J-curve phenomenon. These studies include, but by no means are limited to, the works of Onafowora (2003), Moura and Da Silva (2005), and Singh (2004). Each is a case study looking at the markets of East Asia, Brazil, and India respectively.

The first work by Onafowora applied cointegration vector error correction method in the analysis of Thailand, Malaysia, and Indonesia in their trade relationships with the US and Japan. The method treats all variables as potentially endogenous and was used to estimate exchange rate shocks on the trade ratio. In all cases, long-run steady-state relationships were uncovered among all parameters in the model. Evidence in support of the J-curve hypothesis in the short run was found, suggesting a four-month deterioration of trade balance after initial depreciation, with long-run improvement (i.e. MLC holds). Accordingly, it is recommended that, given such results, depreciation will result in an eventual trade balance improvement, albeit in three to four quarters after devaluation. An interesting observation on Thailand's bilateral trade with Japan specifies an S-curve pattern consistent with the models by Backus *et al.* (1994) and Marwah and Klein (1996), as discussed above.

The paper by Moura and Da Silva (2005) takes a very strong position on the J-curve effect issue, rejecting its existence at the root. The authors look at monthly Brazilian foreign trade data between 1990 and 2003. Choosing to go with a nonlinear specification rather than linear, the authors apply a Markov-switching vector error correction method. In either case, they find no support for any type of J-curve. According to the study, the MLC holds for Brazil as the country's trade balance improves right after exchange rate depreciation with "no room for short-run dynamics of temporary worsening of the trade balance."

A word of caution must be said on the above: it is crucial to specify one's model with absolute accuracy. Given the finite nature of the issue of exchange rate, international trade, and balance of payments nuances (e.g. capital flows that may also be affected and have an indirect impact on trade), any model specification requires rigorous testing before conclusions can be derived.

Singh (2004) looks at quarterly data for India between 1975:Q2 and 1996:Q3. This is another example of the J-curve hypothesis criticism. In fact, the study provides background information on several attempts of J-curve estimation. The conclusion is that there is no evidence of J-curve in India. The paper shows no significant relationship of exchange rate fluctuations on the balance of trade. Instead, the final results suggest a combination of the real exchange rate and domestic income having a significant impact on balance trade, while the world income has little role in this. Estimated with application of GARCH procedures, the long-run model exhibits a cointegration relationship among variables, similar to the case study of Brazil presented above.

Finally, in a recent IMF study, Stucka (2004) carried out an empirical test of the J-curve effect in Croatia—an example of a small post-socialist to capitalist transition economy—under the two-country assumption. The study produces evidence in support of the J-curve effect and warns of potential adverse effects of devaluation on overall economy: 1) exchange rate pass-through on inflation; 2) dependence of Croatia's (as a representative transition economy) export-oriented production capacities on imports of intermediate goods and raw materials, negating potential domestic producer competitiveness by increased import prices in the event of devaluation; 3) price increases of net exports, leading to deterioration of domestic real income; 4) increasing wage gaps between tradable and non-tradable sectors as national production shifts to tradable area; and 5) debt indexation, structure, and cost of debt servicing in the event of currency depreciation must be taken in effect. Overall, the study finds that 1 per cent depreciation leads to a maximum of 1.3 per cent trade balance improvement, while the J-curve effect results in 2 to 3.3 per cent trade balance deficit deterioration following currency depreciation. As a result, negative effects, including the detrimental impacts on the economy, as mentioned above, of the exchange rate devaluation, overwhelm and do not produce a reliable development tool. In short, this is saying that adjustments achieving "competitive" exchange rate á la Frenkel and Taylor (2006) are inadvisable and are inadequate policy instruments.[5]

This concludes our review of some indicative publications on the J-curve phenomenon. In the next sections, alternative ways of analysis, improvement and

modification will be discussed. More substantially, experience with trade data and some graphical presentations will be assessed. Despite the recent trend exemplified in the last two studies, it is argued that the J-curve hypothesis should not be hastily discarded and attempts to understand the data should be continued. Nor should quick assertions of its direct impact on economy be made without confirmation.

6.3 Theoretical model

This section defines the core model based on the foundations covered in Section 2, and applying the OLS within the given context. In developing the model, much inspiration was driven from the empirical approaches described in Bahmani-Oskooee (1985, 1989) and Stucka (2004). The departing point from earlier regressions is this study's focus on the change effects between periods, rather than actual levels in one period. For clarity and data management—as explained below—current account *(CA)* is the dependent variable and real effective exchange rate *(REER)* is the exogenous regressor.

The new model compares one-period change in current account between current and prior quarters to the change in exchange rate index within the same periods. The rationale behind this approach is that the net export response to exchange rate is not immediate and may be so small that it could only be captured by looking at the change period by period. Clearly, increase in the delta value of the current account corresponds to a current account improvement and an increase in the REER change value to exchange rate appreciation. If the J-curve hypothesis is true, the expected relationship is positive. Formally, the test model is defined as follows:

$$\Delta CA_{i,t} = c + \alpha^* \Delta REER_{i,t} + e_t \tag{6.3}$$

where $\Delta CA_{i,t}$ is the change in the current account between time periods t and $(t–1)$, $\Delta REER_{i,t}$ is the change in real effective exchange rate index between time periods t and $(t–1)$, α is the coefficient, c is the constant intercept, and e is the error term. Subscript i corresponds to the *i-th* country in the sample.

The real exchange rate index is defined in such a way that an increase corresponds to appreciation and, hence, increasing the cost of domestic exports relatively to imports, driving up the costs of domestic exports. Therefore, if the J-curve hypothesis is true and the real depreciation of the domestic currency corresponds to current account worsening, the estimate of α should be positive. Equation (6.3) implies a one-period lag effect in net export response to the changes in exchange rate. Working with the change equations helps control for autocorrelation effect of the error terms that is present, as was established in the preliminary tests, if working with data as is.

CA's delayed response to *REER* changes may also be established by adding an explicit one-lag term into equation (6.3). Once adjusted, a modified lag current account model takes the form as in equation (6.4):

$$\Delta CA_{i,t} = c + \alpha^* \Delta REER_{i,t} + \beta^* \Delta REER_{i,t-1} + e_t \tag{6.4}$$

where $\Delta REER_{i,t-1}$ is the change in real effective exchange rate index between period *(t–1)* and *(t–2)*. We use equation (6.4), which is an autoregressive model of order one (AR(1)), to test for the J-curve effect. Our J-curve effect proposition would have affirmative validation if either or both α and β coefficient estimates return with positive signs. In our results discussion below, we refer to α coefficient as the first lag and β coefficient as the second lag, as technically they are.

6.4 Data description

Quarterly data for the FSU economies were compiled for the period between 1993:Q1 and 2007:Q4. It should be stressed that reliable data for the FSU economies are difficult to obtain, especially for the earlier years. Prior to 1991—the USSR breakdown—external trade and exchange rate data are primarily available for the USSR as a total, rather than individual republics. However, consistency and reliability of it is uncertain. To complicate matters, the political and economic situation pre-USSR breakup precluded any large-scale individual foreign trade activities in the FSU economies. Therefore, data for that period (before 1991–1993) will be biased and not meaningful. With independence, each country's statistical services have reported national accounts and macroeconomic indicators in various formats and for different time periods. Still, most data comes in an annual format and lacks accurate trade and exchange rate information that would help develop a consistent dataset for our purposes.

Given these limitations and in an effort to avoid any misinterpretations working with a significant database, this analysis relies primarily on the data from the IMF's International Financial Statistics country tables. Two countries (Turkmenistan and Uzbekistan) had to be excluded from the regression due to absolute lack of reliable time series for these economies in the IFS database. Within the remaining ten-country sample, time periods based on data availability varied, but generally our tests covered the period mentioned above.

Three core variables were employed: trade balance, balance on goods and services and income transfers, and real exchange rate. Following IMF's classification, we specify a country's trade balance *(TB)* as the net exports position in merchandise trade only, i.e. excluding services trade:

$$TB_t = IM_t - EX_t \tag{6.5}$$

where EX_t is total value of export goods, IM_t is total value of imported goods, and TB_t is the trade balance.

Balance on goods and services trade and income transfers comes in as a separate variable *(BGSI)*, comprised of *TB* plus net income transfers:

$$BGSI_t = IM_t^{bgsi} - EX_t^{bgsi} \tag{6.6}$$

where EX_t^{bgsi} is total value of export goods, services, and outward income transfers, IM_t^{bgsi} is total value of imported goods and inward income transfers, and $BGSI_t$ is the net balance on goods and services trade and income transfers.

This distinction between *TB* and *BGSI* allows one to dissect the data and construct a more inclusive country-specific analysis. Both variables (TB_t and $BGSI_t$) are in constant US$ and are utilized as proxies for the current account as specified in the regression model (6.3) and (6.4). Both are defined in (6.5) and (6.6) in such a way that a negative balance corresponds to deficit and a positive one to the current account surplus. The distinction between the two proxies is a purposeful specification given the nature and composition of the external trade of each economy. These nuanced aspects were reviewed in Chapter 1, identifying major exporters and importers in terms of external balance activity. In some countries, manufactured goods play a dominant role, in others it is the services sector, while still others indicate significantly high flows of income transfers in the form of workers' remittances. All are part of a more general current account.

Finally, *REER* is an index number derived from individual countries' consumer price indices (or their close proxies depending on country) and nominal exchange rate with 2000 as the base year in the IMF (2008). It is noteworthy to mention that, since the launch of the "shock therapy" reforms of the early 1990s until now, the US$ has been the reserve currency in the CIS, despite each economy's early introduction of national currencies.

Nevertheless, major export and import commodities and services are quoted in US$ and much of the remittances and foreign aid has been denominated in the American dollar as well. While the euro's popularity is growing as an alternative reserve currency, the dollar still holds ground. This allows us to consider the ratio of local currency for US$ exchange rate to Consumer Price Index (CPI) as a proxy in the few cases where IMF did not report quarterly *REER* and one had to be derived manually.[6] In the end, we derived a quarterly dataset of three variables: trade balance, balance on goods and services and income transfers, and real effective exchange rate. In the attempt to control for any scale effects in estimating levels data as described above, we re-ran regression tests based on growth rates as described in Appendix B.

6.5 Review of the empirical results

The implied attempt of the empirical tests described above is to distinctly identify a one-to-one positive relationship between the changes in the national current account and the domestic currency exchange rate fluctuations. Hence, the focus is on the changes of current account and the change in the exchange rate levels in a given period, coupled with one-lagged exchange rate changes. For this, the model employs two proxies for the current account to better capture the possible effect for different countries depending on their international trade structure, and a real effective exchange rate index. The latter is derived based on each country's CPI and currencies of main trading partners. It should be noted that most foreign exchange in the FSU economies is denominated in US$.

Before the regression results discussion, another empirical technique utilized here should be mentioned. Two point-in-time evaluations for each country were conducted separately: one for the *TB* with *REER* changes and the other for *BGSI*

and *REER* changes. Plotting the changes of each variable against each other reveals several possible observations of the J-curve effect.

Results of the empirical tests are grouped by country and appear in Appendix A in Figures 6.2 through 6.21. A positive change in exchange rate corresponds to currency appreciation, while a positive change in either *TB* or *BGSI* corresponds to current account improvement. These tests indicate strong evidence in favor of the existence of the J-curve effect with varying lengths, followed by eventual "recovery" to a would-be MLC trend. In other words, available evidence suggests that currency depreciation is followed by initial current account worsening, followed by an improvement in the current account with a certain lag.

A summary of observed J-curve effect instances is given in Table 6.1. Due to the large amount of observations, we limit our presentation to only a few clearly seen instances per country. The focus is on the "traditional" J-curve, i.e. currency depreciation and current account deterioration.[7] Importantly, Table 6.1 gives a combined outcome based on analysis of two graphs for each economy.

Table 6.1 J-curve effect observations (point-in-time analysis)

Country	*J-curve start*	*J-curve end*	*Recovery lag*
Armenia	1998:Q3	1998:Q4	One quarter
	2001:Q2	2001:Q3	One quarter
	2002:Q3	2002:Q4	One quarter
Azerbaijan	2003:Q1	2003:Q2	One quarter
	2004:Q1	2004:Q3	Two quarters
	2005:Q1	2005:Q3	Two quarters
Belarus	1997:Q4	1998:Q2	Two quarters
Georgia	1999:Q2	1999:Q3	One quarter
	2002:Q2	2002:Q4	Two quarters
	2004:Q2	2004:Q4	Two quarters
Kazakhstan	1996:Q1	1996:Q4	Three quarters
	2003:Q1	2003:Q2	One quarter
	2006:Q1	2006:Q2	One quarter
Kyrgyz Republic	1995:Q3	1996:Q3	Four quarters
	2003:Q1	2003:Q3	Two quarters
	2005:Q4	2006:Q2	Two quarters
Moldova	1994:Q4	1995:Q1	One quarter
	1997:Q3	1998:Q2	Three quarters
	2000:Q1	2001:Q2	Five quarters
Russia	1994:Q3	1995:Q1	Two quarters
	1997:Q2	1997:Q4	Two quarters
	1998:Q4	2000:Q1	Five quarters
Tajikistan	2003:Q3	2003:Q4	One quarter
	2004:Q2	2004:Q3	One quarter
	2005:Q2	2005:Q3	One quarter
Ukraine	1995:Q3	1996:Q1	Two quarters
	1998:Q3	1999:Q2	Three quarters
	2000:Q1	2000:Q2	One quarter

Source: author's calculations based on the IFS data.

The summary of the point-in-time event studies of the J-curve effect presented in Table 6.1 is based on the graphical evidence of current account and exchange rate fluctuations as presented above. That provides initial validation for the J-curve effect hypothesis. However, this analysis cannot be complete without the estimation results.

Summary of the regression results, estimated according to equation (6.4), is shown in Table 6.2. These are organized in two sets for each country as the main regression equation was estimated for changes in *TB* to *REER* and then for changes in *BGSI* to *REER*. The table also shows the sample period for each country, estimates of the constant, first and second lag coefficients (α and β as defined in equation (6.4) respectively), as well as the lag indication.

The last indicator, the lag column in Table 6.2, requires some clarification. Generally, given the main regression's specification, a maximum of two lags may possibly be observed in the tests. The first lag corresponds to α coefficient, which relates to the exchange rate change between the current and prior period. The second lag, measured by coefficient β, is one lag change of exchange rate. Intuitively and technically, this is significant as the first case suggests a strong feedback effect from the first prior quarter and, in the second case, from two quarters before. Hence, there may be one lag, two lags, none, or both. In both cases, we look at the sign: if the J-curve hypothesis holds, the coefficient's sign must be positive and t-statistic significant enough.[8] Results varied by country and dependent variable, despite limited numbers of observations. Country-specific results and some policy implications are discussed next.

Country-specific results

Armenia: The data sample for Armenia is for 1993:Q1 through 2007:Q4. Initial results of event studies on evolution of current account and exchange rate are presented in Figures 6.2 and 6.3 in the Appendix. Regression results indicate the presence of the J-curve effect in both *TB* and *BGSI* as the dependent variable. The effect appears to be stronger in the *BGSI* first lag case, as suggested by a higher *t*-statistic value. Current account response time to *REER* fluctuations is very short, as indicated by the negative signs in the second lag coefficient. Armenian Dram initial depreciation in 1998:Q2 with consequent depreciation and current account deterioration progressing into Q3 coincided with the peak of the Russian financial crisis and RUS (Russian ruble) devaluation. That event had a strong negative implication on the balance of payments and monetary positions of CIS economies with strong links to the Russian market.

Current account recovery started in the fourth quarter of 1998, surpassing complete improvement towards 1999:Q1, confirming one lag in our regression. The story repeated between 2001:Q2 and 2001:Q3; 2002:Q3 and 2002:Q4. The upward trend continues (albeit with a recent sharp offset due to the financial crisis), while current account is steadily deteriorating, consistent with the long-run view of the MLC postulate. However, the economy relies on primary sector imports and increasing levels of remittance transfers—both sensitive to exchange

Table 6.2 Summary of OLS regression analysis (basic model)

Country	*Sample period*	*Constant*	*First lag coefficient*	*Second lag coefficient*	*J-curve observed*	*Endogenous variable*
Armenia	1993:Q1–2007:Q4	–0.075 (1.333)	1.104 (1.343)	–0.736 (0.894)	1 lag	BGSI
Armenia	1993:Q1–2007:Q4	–0.073 (1.560)	0.450 (0.662)	–0.475 (0.696)	1 lag	TB
Azerbaijan	1999:Q1–2007:Q3	0.821 (0.243)	3.941 (0.032)	36.328 (0.293)	1–2 lags	BGSI
Azerbaijan	1999:Q1–2007:Q3	1.285 (0.098)	1,027.697 (2.166)	–1,106.195 (2.306)	1 lag	TB
Belarus	1996:Q1–2007:Q3	–0.501 (1.232)	5.025 (6.781)	1.301 (1.737)	1–2 lags	BGSI
Belarus	1996:Q1–2007:Q3	–0.237 (1.119)	2.624 (6.806)	0.644 (1.653)	1–2 lags	TB
Georgia	1997:Q1–2007:Q4	–0.142 (1.194)	–0.053 (0.026)	–0.102 (0.049)	NO	BGSI
Georgia	1997:Q1–2007:Q4	–0.125 (1.427)	0.512 (0.34)	–0.108 (0.071)	1 lag	TB
Kazakhstan	1995:Q1–2007:Q3	–0.77 (0.567)	109.428 (3.235)	–47.901 (1.418)	1 lag	BGSI
Kazakhstan	1995:Q1–2007:Q3	0.147 (0.579)	6.050 (0.955)	–5.984 (0.946)	1 lag	TB
Kyrgyz Republic	1993:Q1–2007:Q1	–0.186 (0.234)	7.644 (0.385)	–1.601 (0.080)	1 lag	BGSI
Kyrgyz Republic	1993:Q1–2007:Q1	–0.478 (1.855)	–5.971 (0.927)	18.862 (2.932)	2 lag	TB
Moldova	1994:Q1–2007:Q4	–0.172 (1.695)	–2.406 (1.454)	–0.353 (0.226)	NO	BGSI
Moldova	1994:Q1–2007:Q4	–0.206 (1.546)	–2.813 (1.293)	0.103 (0.050)	2 lag	TB
Russia	1994:Q1–2007:Q4	0.043 (0.943)	–0.755 (1.355)	0.137 (0.247)	2 lag	BGSI
Russia	1994:Q1–2007:Q4	0.045 (1.654)	–0.512 (1.529)	0.213 (0.641)	2 lag	TB
Tajikistan	2002:Q1–2007:Q2	–0.087 (0.4)	0.029 (0.011)	–7.500 (2.678)	1 lag	BGSI
Tajikistan	2002:Q1–2007:Q2	–0.28 (0.683)	11.884 (2.285)	–7.368 (1.401)	1 lag	TB
Ukraine	1994:Q1–2007:Q3	0.042 (0.017)	–13.945 (0.393)	17.722 (0.515)	2 lag	BGSI
Ukraine	1994:Q1–2007:Q3	0.014 (0.032)	–2.07 (0.334)	1.84 (0.305)	2 lag	TB

Source: author's calculations based on the IFS data.

Note
Absolute values of the *t*-statistic are in parentheses.
One lag corresponds to one quarter lag.

rate change fluctuations—which suggests a J-curve effect possibility depending on the current account and exchange rate fluctuations magnitude (Gevorkyan and Gevorkyan, 2010).

Azerbaijan: Data for Azerbaijan were available for the period from 1999:Q1 through 2007:Q3. Graphic analysis in Figures 6.4 and 6.5 of one lag change of *TB, BGSI* and *REER* indicates an average of at least two lags in *TB* response to *REER* fluctuation. This is partially due to low t-statistic values confirmed in the *BGSI* case. There is almost immediate recovery when we look at trade in goods only with significant *t*-statistic values. Regression results are validated in the point-in-time event analysis as quick current account corrections are observed between the periods of 2003:Q1 and 2003:Q2; 2004:Q1 and 2004:Q2/Q3, and a few others. Given Azerbaijan's strong reliance on primary commodities exports (fuels) quoted in the international markets in US$, these results are not surprising and are repeated below in the cases of other net exporters.

Belarus: Data for Belarus cover the period between 1996:Q1 and 2007:Q3. Regression analysis offers strong support to the J-curve hypotheses as both first and second lag coefficient estimates returned with positive signs and statistically significant t-values. However, careful review of the point-in-time even studies presented in Figures 6.6 and 6.7 of the Appendix do not offer clear conclusions. There is one apparent incident of the J-curve effect between 1997:Q4 and 1998:Q2. Unfortunately, charts for other periods are inconclusive, which may suggest validity of the MLC theory in this case. It is plausible, given the relative stability of the Belarus currency, its low international trade diversity, and dominance of manufacture/machinery in the country's export structure, as explained in Chapter 1.

Georgia: Trade balance and balance on goods and services, and net income transfers and exchange rate fluctuations time series were tested for Georgia for the period between 1997:Q1 and 2007:Q4. Our regression results indicate no evidence of the J-curve effect in the *BGSI* case and weak (due to low t-statistic values) evidence of one lag J-curve effect in the case of goods trade. In other words, trade balance *TB* response to real exchange rate depreciation was delayed one quarter.

According to the current account and exchange rate change charts (see Figures 6.8 and 6.9 of the Appendix), there are at least three periods where the J-curve effect is observed. Those are 1999:Q2 through 1999:Q3; 2002:Q2 through 2002:Q4; and 2004:Q2 through 2004:Q4. The Georgian case is intriguing as the country, similar to Armenia, is the primary commodity exporter (food) and importer (fuel). In addition, Georgia receives high remittance inflows (up to 8 per cent of GDP) and foreign aid. Hence, we would expect to find more evidence of the J-curve effect. The explanation is most likely in the relative stability of the Georgian national currency—the Lari, which, according to chart analysis, has not been subject to any abrupt fluctuations since the early 2000s. Political stability and monetary tightening have contributed to this situation.

Kazakhstan: Expectations in testing for J-curve effect on the data for Kazakhstan—a major primary commodities/fuels exporter—are validated in the point-in-time analysis and regression results. A quick adjustment of one lag is indicative of a major fuel exporting country, whose main international trade commodity

is quoted in foreign currency. Available time series data covers the period between 1995:Q1 and 2007:Q3. Positive first lag coefficients with significant t-statistic values are returned for both *TB* and *BGSI* regressions, with both regressions returning negative and statistically significant second lag coefficients. With the exception of the mid-1990s J-curve effect between 1996:Q1 and 1996:Q4, current account recovery following domestic currency depreciation has been within one quarter. This result is clearly captured in Figures 6.10 and 6.11 of the Appendix.

Kyrgyz Republic: Data for the Kyrgyz Republic cover the period between 1993:Q1 and 2007:Q1. As a major recipient of foreign labor remittance income and a net importer, the country regression analyses indicate the presence of a within one quarter recovery on *BGSI* (i.e. inclusive of income transfers) and a two-lag recovery on *TB*. Event study results can be seen in Figures 6.12 and 6.13 of the Appendix. At least three periods could be identified with the J-curve effect: 1995:Q3–1996:Q3; 2003:Q1–2003:Q3; and 2005:Q4–2006:Q2.

Moldova: The data sample for Moldova covers the period from 1994:Q1 through 2007:Q4. Results can be seen in Figures 6.14 and 6.15 of the Appendix. Unlike Armenia or Georgia, Moldova does not possess a strong travel service industry and relies mainly on primary agricultural exports in its international trade. This explains the peculiar nature of Moldova's *REER* to *BGSI* trend. In fact, our analysis indicates no short-term positive relationship between the two variables. Moldova's long-run trend offers strong support for the Marshall-Lerner condition with evidence of simultaneous currency depreciation and improvements in current account (e.g. period from 1998:Q2 through 2000:Q4).

However, seen more as a very short-term result, the J-curve effect was most significant in 1994:Q4–1995:Q1, 1997:Q3–1998:Q2, and 2000:Q1–2001:Q2, although *BGSI* did not recover fully in each case to the preceding levels in terms of volumes. As of 2005:Q2, data shows Moldova entering into possibly another cycle of the J-curve phenomenon. It is interesting to note the country's current account strong response in 2003:Q4 to the currency's appreciation that commenced in 2003:Q2. In fact, between Q2 and Q3 of the same year, we note the case of a "reverse J-curve effect"—an improvement in current account after currency appreciation.

Russia: The data sample for Russia covers the period between 1994:Q1 and 2007:Q4. Graphical event study results can be seen in Figures 6.16 and 6.17 of the Appendix. Of all the former republics, Russia has the largest economy and perhaps the most open to international trade in volumes and values. Over the last decade, it has experienced several shocks to its financial system as well as undergone significant structural market changes. Earlier analysis in other net exporter countries (Azerbaijan and Kazakhstan) indicates a possibility of a one-lag, almost immediate, current account response to the *REER* fluctuations. However, regression analysis with Russian time series points to a two-lag positive relationship in both *TB* and *BGSI* tests.

At least five instances of the J-curve effect can be identified: 1994:Q3–1995:Q1; 1997:Q2–1997:Q4; 1998:Q4–2000:Q1; 2002:Q3–2003:Q1; 2004:Q2–2005:Q1; and others. The evidence strongly suggests export/import trade existence of a one-to-four quarters lag in full current account recovery. More

recently, Russia continued posting positive current account results, despite the ruble's appreciation, due to high volumes of oil and gas export trade.

Tajikistan: Time series data for Tajikistan cover the smallest period of all ten countries reviewed here, between 2002:Q1 and 2007:Q2. Regardless of the sample limitation, regression analysis points to a one-lag J-curve effect, with negative signs on the second coefficients in the *TB* and *BGSI* regressions. This is consistent with similar observations in Armenia, also a country with a high share of primary commodities trade and remittances to GDP shares (see Chapter 1 review). Event analysis is given in Figures 6.18 and 6.19 of the Appendix. There are three J-curve incidents to illustrate the point. Those are the periods of 2003:Q3–2003:Q4, 2004:Q2–2004:Q3, and 2005:Q2–2005:Q3.

Ukraine: In many respects, Ukraine shares some common characteristics with Russia: it is a big state with a strong agricultural tradition and reliance on trade in the primary and manufactured goods sectors. But in the Ukraine, the situation is reverse: with a strong imports share in the primary sector and strong exports share in the manufactured goods sector. Regression results indicate a two-lagged current account response to *REER* fluctuations. The results of point-in-time event studies can be seen in Figures 6.20 and 6.21 of the Appendix. Based on data available, we identify strong evidence for a lagged J-curve effect in the mid 1990s and early 2000s.

Quite notable is the magnitude of trade balance and exchange rate fluctuations. The country's exposure to primary sector import trade prompts a strong response to currency trends, with minor lags given Ukraine's contractual arrangement for Russian oil and gas deliveries. In many cases, we find a strong positive relationship between *REER* and *TB* movements after the initial J-curve effect stage, followed by another cycle of depreciation/deterioration. This is reminiscent of the S-curve effect explained above (as in Backus *et al*., 1994). Periods corresponding to the observed J-curve effect are: 1995:Q3–1996:Q1; 1998:Q3–1999:Q2; and then 2000:Q1–2000:Q2 (this is where the S-curve occurs), and a few others.

6.6 Testing for main results robustness

Results of the main model are verified by running an alternative estimation technique of the Generalized Method of Moments (GMM). As indicated in Egger *et al.* (2005), GMM provides a robust estimator even in small-sample models, independent of underlying errors distribution. In that, GMM tests outperform also the Maximum Likelihood estimators. Given the relative simplicity of our model and our primary concern with the direction of the relationship between the current account and real exchange rate, GMM appears to be an appropriate estimation technique to OLS. The core model is defined by equation (6.4), repeated below:

$$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t} + \beta * \Delta REER_{i,t-1} + e_t \tag{6.7}$$

The key specification of the GMM model is to use moment conditions that, set up as equations, are then estimated. The focus is on the three variables in the

equation (6.7)—c, $\Delta REER_{i,t}$, and $\Delta REER_{i,t-1}$—and their relation to the error terms. The assumption is that there is no correlation and all three moment conditions are equal to zero. More formally, the moment conditions are given as:

$$E[e_t c] = 0 \tag{6.8}$$

$$E[e_t \Delta REER_{i,t}] = 0 \tag{6.9}$$

$$E[e_t \Delta REER_{i,t-1}] = 0 \tag{6.10}$$

Taking sample averages, moment conditions are as follows:

$$E[e_t c] = 0 \Rightarrow \frac{1}{T}\sum_{t=2}^{T}[c(\Delta CA_{i,t} - c - \alpha\Delta REER_{i,t} - \beta\Delta REER_{i,t-1})] = 0 \tag{6.8a}$$

$$E[e_t \Delta REER_{i,t}] = 0 \Rightarrow \frac{1}{T}\sum_{t=2}^{T}[\Delta REER_{i,t} \tag{6.9a}$$

$$(\Delta CA_{i,t} - c - \alpha\Delta REER_{i,t} - \beta\Delta REER_{i,t-1})] = 0$$

$$E[e_t \Delta REER_{i,t-1}] = 0 \Rightarrow \frac{1}{T}\sum_{t=2}^{T}[\Delta REER_{i,t-1} \tag{6.10a}$$

$$(\Delta CA_{i,t} - c - \alpha\Delta REER_{i,t} - \beta\Delta REER_{i,t-1})] = 0$$

Solving moment conditions (6.8a) through (6.10a) in EViews for each country, we obtain new results, as shown in Table 6.3.

Two important observations can be made from the above GMM analysis results. First, it appears that all coefficient values and signs match earlier OLS regression results. Thus, additional support is offered to our country-specific analysis in Section 6.5. Second, almost in all cases, with few exceptions, GMM analysis has returned higher, more significant, absolute t-statistic values. This in turn validates our findings in each country case. To conclude the discussion on empirical estimation, we reiterate that existence of a positive relationship between current account (analyzed here as pure trade, i.e. goods only, balance and as balance on goods on services and net income transfers) and real exchange rate suggests a possibility of the J-curve effect. On average, in five cases out of ten considered, there is a one-lag response (i.e. reaction to change between current and prior periods) between *TB* and *REER*. Three countries, Moldova, Russia, and the Ukraine, characteristically showed a two-lag response (i.e. change going back two quarters) in both *TB* and *BGIS* regressions.

Proposed tests offer a basis for continued analysis and estimation. One must bear in mind that current account response to exchange rate may be circumstantial depending on current economic conditions and government actions. These factors are especially valid in the analysis of the transition economies of the FSU.

Table 6.3 Summary of GMM regression analysis

Country	*Sample period*	*Constant*	*First lag coefficient*	*Second lag coefficient*	*J-curve observed*	*Endogenous variable*
Armenia	1993:Q1–2007:Q4	–0.075 (1.802)	1.104 (1.860)	–0.736 (1.122)	1 lag	BGSI
Armenia	1993:Q1–2007:Q4	–0.073 (1.906)	0.450 (0.825)	–0.475 (0.770)	1 lag	TB
Azerbaijan	1999:Q1–2007:Q3	0.821 (0.500)	3.941 (0.076)	36.328 (0.244)	1–2 lags	BGSI
Azerbaijan	1999:Q1–2007:Q3	1.285 (0.236)	1,027.697 (1.75)	–1,106.195 (1.825)	1 lag	TB
Belarus	1996:Q1–2007:Q3	–0.501 (2.506)	5.025 (4.147)	1.301 (1.697)	1–2 lags	BGSI
Belarus	1996:Q1–2007:Q3	–0.237 (2.317)	2.624 (4.274)	0.644 (2.326)	1–2 lags	TB
Georgia	1997:Q1–2007:Q4	–0.142 (1.609)	–0.053 (0.077)	–0.102 (0.181)	NO	BGSI
Georgia	1997:Q1–2007:Q4	–0.125 (1.793)	0.512 (0.939)	–0.108 (0.282)	1 lag	TB
Kazakhstan	1995:Q1–2007:Q3	–0.77 (1.073)	109.428 (4.817)	–47.901 (2.025)	1 lag	BGSI
Kazakhstan	1995:Q1–2007:Q3	0.147 (1.386)	6.050 (1.435)	–5.984 (1.025)	1 lag	TB
Kyrgyz Republic	1993:Q1–2007:Q1	–0.186 (0.533)	7.644 (0.622)	–1.601 (0.164)	1 lag	BGSI
Kyrgyz Republic	1993:Q1–2007:Q1	–0.478 (2.183)	–5.971 (1.021)	18.862 (2.198)	2 lag	TB
Moldova	1994:Q1–2007:Q4	–0.172 (2.356)	–2.406 (3.083)	–0.353 (0.272)	NO	BGSI
Moldova	1994:Q1–2007:Q4	–0.206 (2.780)	–2.813 (3.528)	0.103 (0.089)	2 lag	TB
Russia	1994:Q1–2007:Q4	0.043 (1.559)	–0.755 (2.547)	0.137 (0.513)	2 lag	BGSI
Russia	1994:Q1–2007:Q4	0.045 (2.029)	–0.512 (2.704)	0.213 (1.025)	2 lag	TB
Tajikistan	2002:Q1–2007:Q2	–0.087 (0.714)	0.029 (0.012)	–7.500 (2.773)	1 lag	BGSI
Tajikistan	2002:Q1–2007:Q2	–0.28 (0.947)	11.884 (1.653)	–7.368 (2.516)	1 lag	TB
Ukraine	1994:Q1–2007:Q3	0.042 (0.039)	–13.945 (0.739)	17.722 (0.924)	2 lag	BGSI
Ukraine	1994:Q1–2007:Q3	0.014 (0.064)	–2.07 (0.511)	1.84 (0.429)	2 lag	TB

Source: author's calculations based on the IFS data.

Note
Absolute values of the *t*-statistic are in parentheses.
One lag corresponds to one quarter lag.

Note that, in Appendix B, the standard models described above are extended to varying time lags of *REER* change. In addition, we estimate new equations based on levels (i.e. expressed in US$) and growth rates data. Results are discussed in Appendix B but are consistent with the J-curve-like phenomenon.

6.7 Conclusions and policy implications

This chapter attempted to offer an alternative approach to understanding the many aspects of the ongoing transition to the market economy in the Former Soviet Union economies. Despite apparent data limitations, we have overcome lack of consensus on the issue of the J-curve in the economic literature, producing our regression model. The models helped estimate and capture the relationship between the change in real exchange rate and current account. Given each country's peculiar international trade composition, we employed two proxies to conventional current account: trade balance on goods only and a balance on goods and services and net income transfers. This is consistent with our grouping of the CIS economies as net exporters (primary commodities mainly) and net importers (and high net recipients of foreign aid and migrant workers' remittance income). Results of empirical tests and point-in-time event study analyses indicate existence of the J-curve effect in different countries to varying extents. Few general conclusions and policy initiatives can be derived from the above discussion.

The results clearly indicate a delayed current account response in relation to real exchange rate changes in the early-to-mid 1990s. This was the period of rapid fiscal and monetary adjustments, market opening, and liberalization in that part of the world. Sovereign governments had little control over evolution of the rudimentary market economies. Foreign currency, namely the American dollar, was used as the reserve and storage of wealth.

However, things have changed since the Russian crisis and Russia's currency devaluation in mid 1998. This coincided with a greater number of economies implementing new institutional frameworks and primary capital accumulation and centralization, as large companies consolidated providing backbone support for development of the rest of the economy (certainly with each case's own basket of specifics). As a result, this study's analyses indicate a shorter range in current account response to exchange rate changes. In some cases, e.g. Moldova, the Marshall Lerner condition held.

Still, countries with very high dependence on primary exports (e.g. Azerbaijan and Kazakhstan) and countries with very high share of remittance income to domestic GDP levels (e.g. Armenia and Tajikistan) exhibited shorter lags (one lag on average) in current account to exchange rate change adjustments. It should be noted that both transactions are denominated in foreign currency. As more foreign exchange flows into the domestic economy and, following the domestic currency's appreciation, the price of domestic products rises relative to imports, consumers at home switch to imported items. This chapter's analysis shows at least one-quarter lag for this to happen.

The overall conclusion: the J-curve effect does exist, although it may not always happen and is significantly dependent on a country's trade pattern and export/import composition. In the cases of the primary sector or travel services dominating the country's trade, there is almost always an immediate response of the current account to currency depreciation and, in the case of merchandise-oriented trade, the lag in response is consistent with Magee's (1973) seminal paper.

Note a strong dependence between an individual country's reliance on international trade in the primary goods sector and an almost immediate current account reaction to exchange rate movements. A stronger response lag (as well as recovery lag) exists in the case of a high share of merchandise trade in a country's net exports. On average, we observe if not a complete recovery but the improvement trend, as would have been predicted by theory after currency depreciation (i.e. the "classical J-curve").

A stable real exchange rate would reduce inherent volatility. However, achieving that is not an easy task. An often-cited trilemma problem is centered around (1) open capital accounts (full capital mobility); (2) controlled exchange rate; and (3) independent monetary policy. While Frenkel and Taylor (2006) and others argue that to be a theoretical rather than empirical phenomenon, there are practical limits to the volume of interventions that a central bank can make, coupled with complicated feedback effects. Namely the lack of a sound theory of exchange rate would suggest and legitimize the power of the country's monetary authority in regulating financial flows and acting as a scaling factor between the domestic and world price systems. In fact, Nell *et al.* (2007) would argue that to be a crucial factor in ensuring equality with the deeper spread of globalization. This approach would help bring under control the characteristic liberal reforms of the 1990s (and continuing at present) that open up the floodgates to the unregulated international capital flows that are the root cause of the perceived trilemma problem and appreciating exchange rate, hence, hurting the country's exports and developing an even stronger reliance on foreign imports.

As has already been seen from the results discussion, this creates an opportunity for the J-curve effect, which means a real economy taking the path other than might have been predicted by policy makers. This in turn affects both monetary and fiscal policy. Failure to recognize the significance of the J-curve-like situation creates major imbalances in the economy, with strong implications for industrial growth, economic development and, in some extreme cases, social welfare and peace. A solution lies in the evaluation of the problem at a case-by-case level, rather than assigning a generic hypothetical model. One major extension to this analysis would be to account for speculative capital flows in foreign currency (including labor migrants' remittances for smaller economies). Such flows have contributed to abrupt exchange rate fluctuations elsewhere, while leaving current account almost untouched. Hence, accomplishing the all-encompassing analysis requires researchers' courage in tackling the dominant postulates and scratching beyond the obvious in search of new alternatives that are relevant to the current and developing global economic environment. What is needed is continuous investigation and readiness to work with even controversial propositions, especially if

empirical evidence supports their existence, which is the case with the J-curve effect analyzed in this chapter.

Yet again this study calls on proactive and innovative measures by the state and monetary authorities to address nuanced issues of the global open economy in transition. These categories have immediate effect on social welfare and economic development in the region. The next chapter offers an amalgamated view of this framework, pushing this discussion to an applied, higher level, of analysis.

6.8 Appendix A

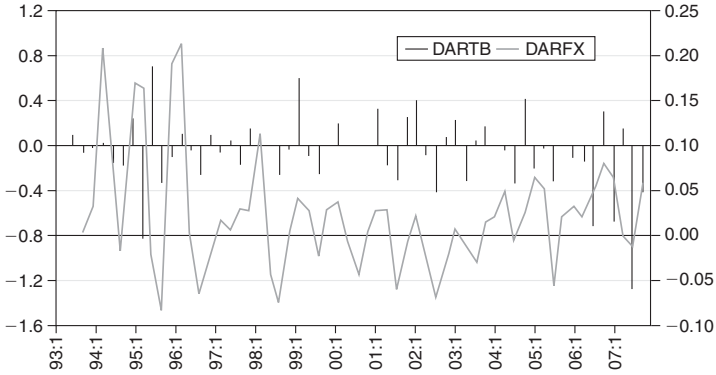


Figure 6.2 Armenia: change in *TB* over change in *REER* (1993:Q1–2007:Q4) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

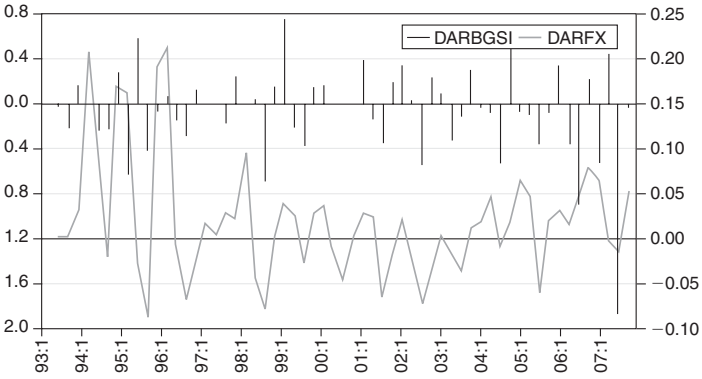


Figure 6.3 Armenia: change in *BGSI* over change in *REER* (1993:Q1–2007:Q4) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

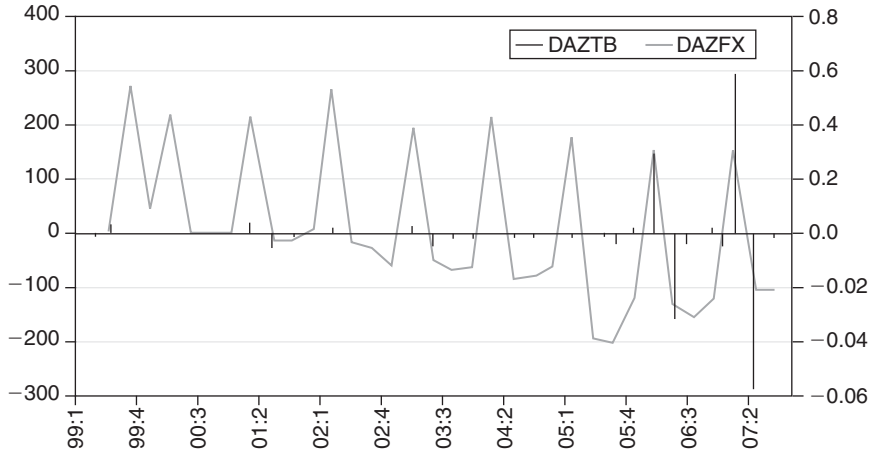


Figure 6.4 Azerbaijan: change in *TB* over change in *REER* (1999:Q1–2007:Q3) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

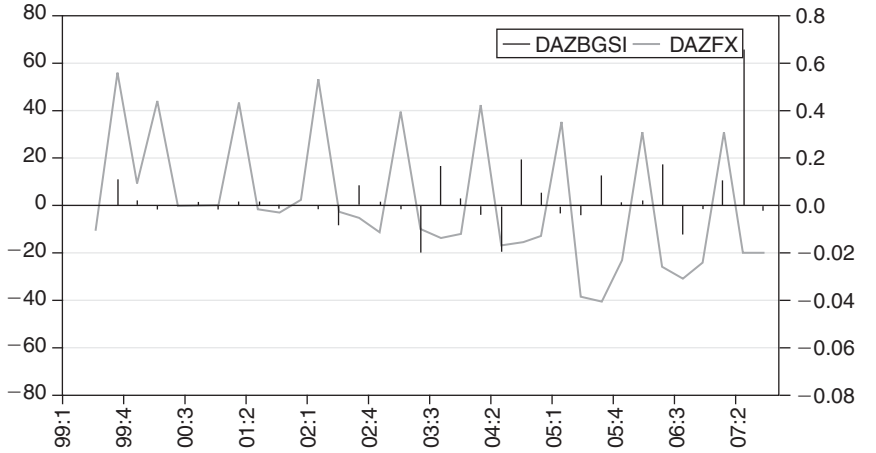


Figure 6.5 Azerbaijan: change in *BGSI* over change in *REER* (1999:Q1–2007:Q3) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

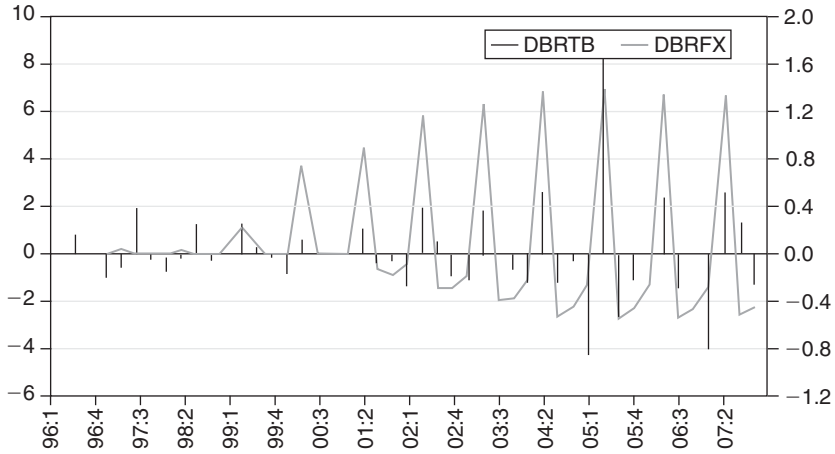


Figure 6.6 Belarus: change in *TB* over change in *REER* (1996:Q1–2007:Q3) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

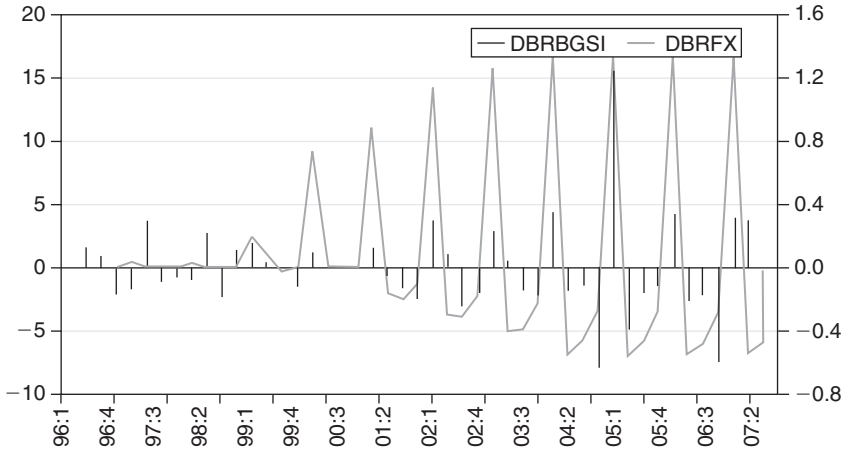


Figure 6.7 Belarus: change in *BGSI* over change in *REER* (1996:Q1–2007:Q3) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

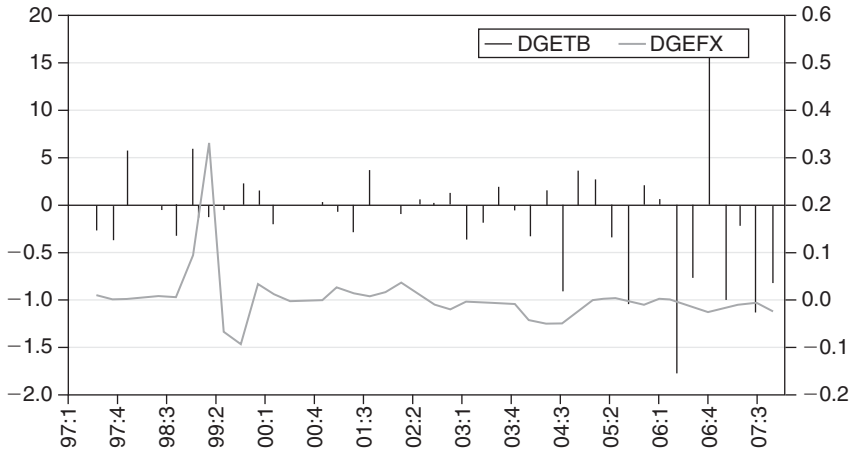


Figure 6.8 Georgia: change in *TB* over change in *REER* (1997:Q1–2007:Q4) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

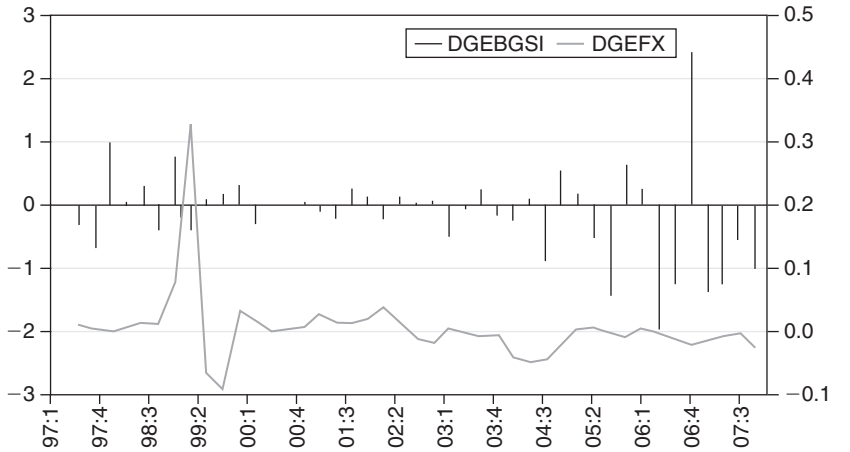


Figure 6.9 Georgia: change in *BGSI* over change in *REER* (1997:Q1–2007:Q4) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

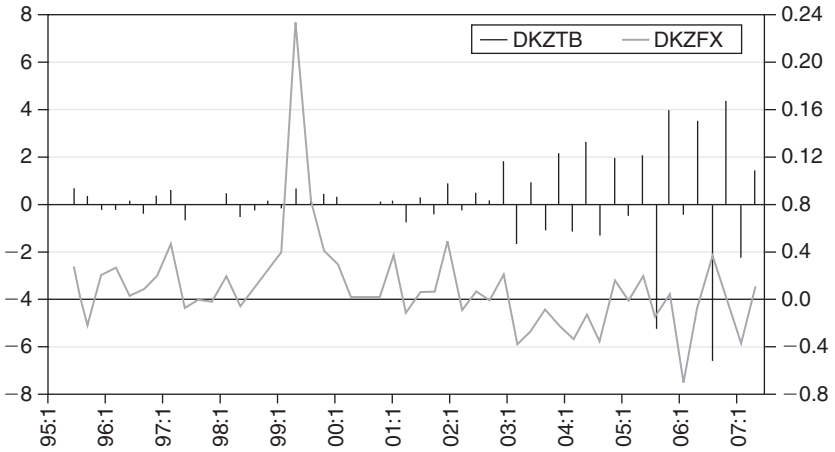


Figure 6.10 Kazakhstan: change in *TB* over change in *REER* (1995:Q1–2007:Q3) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

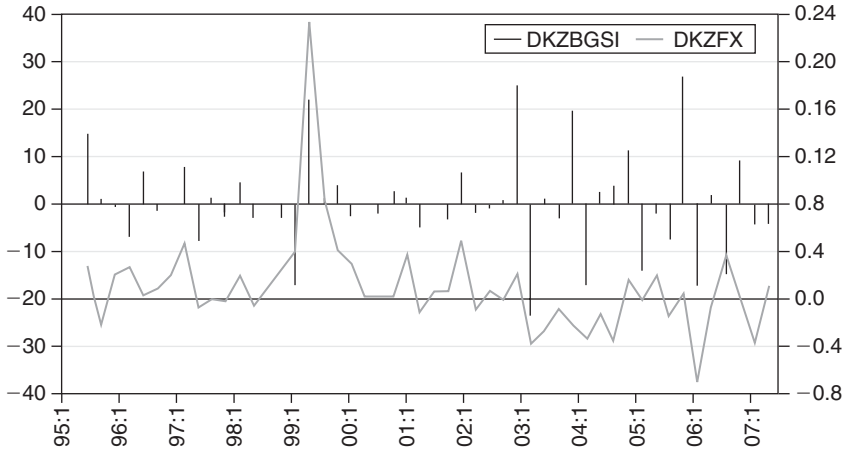


Figure 6.11 Kazakhstan: change in *BGSI* over change in *REER* (1995:Q1–2007:Q3) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

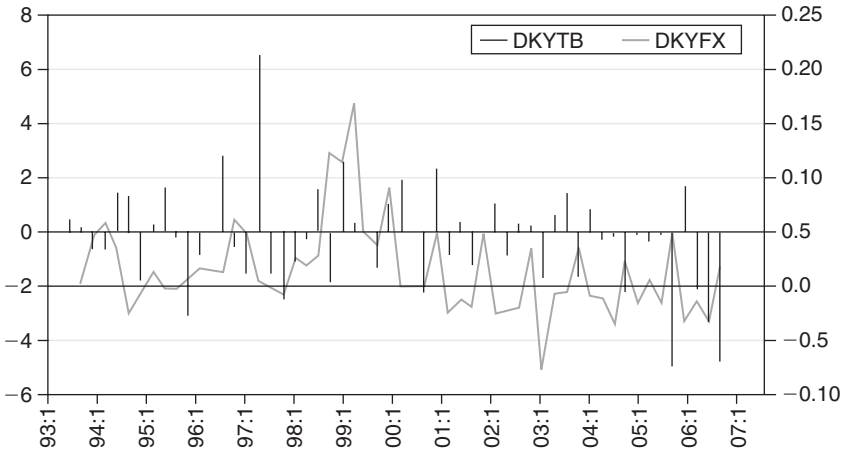


Figure 6.12 Kyrgyz Republic: change in *TB* over change in *REER* (1993:Q1–2007:Q1) (source: author's calculations based on IMF (2008).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

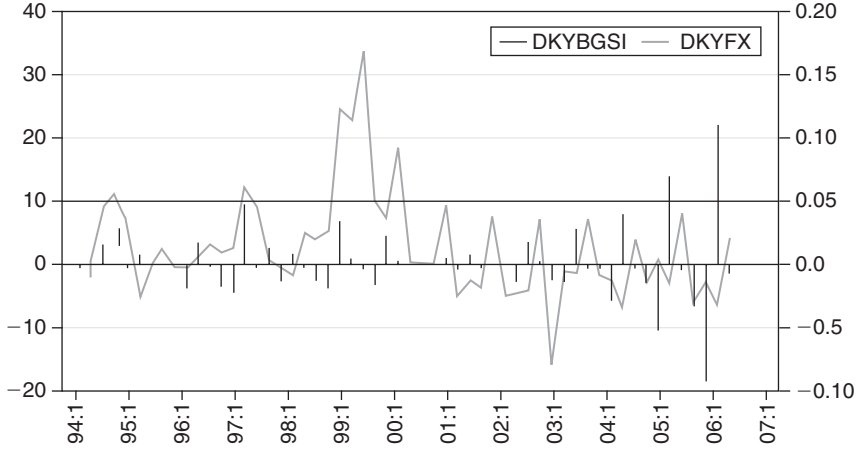


Figure 6.13 Kyrgyz Republic: change in *BGSI* over change in *REER* (1993:Q1–2007:Q1) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

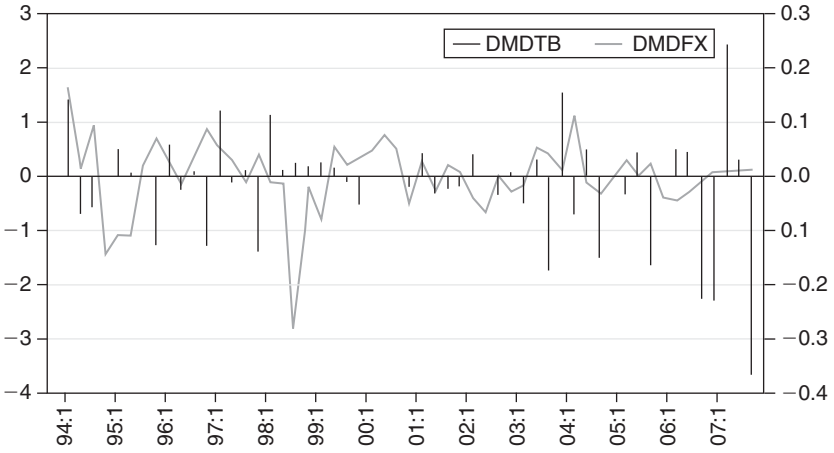


Figure 6.14 Moldova: change in *TB* over change in *REER* (1994:Q1–2007:Q4) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

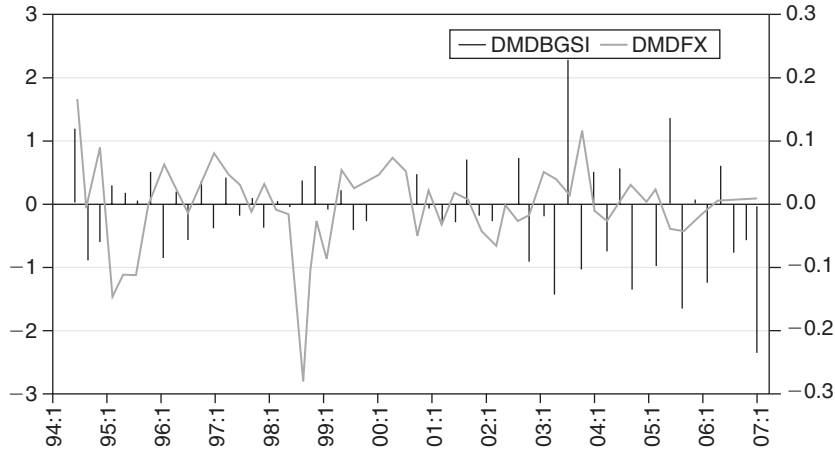


Figure 6.15 Moldova: change in *BGSI* over change in *REER* (1994:Q1–2007:Q4) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

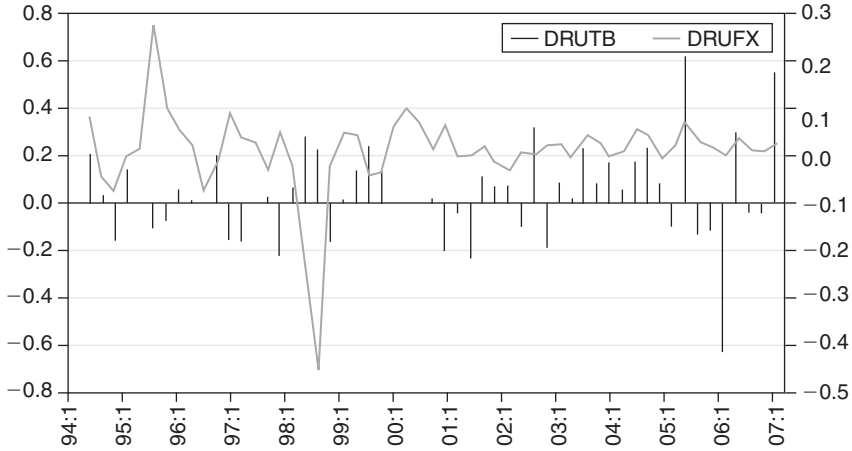


Figure 6.16 Russia: change in *TB* over change in *REER* (1994:Q1–2007:Q4) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

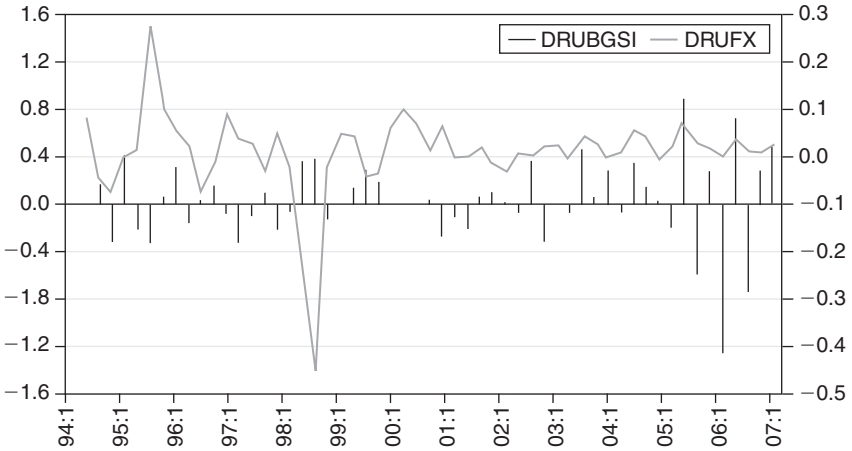


Figure 6.17 Russia: change in *BGSI* over change in *REER* (1994:Q1–2007:Q4) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

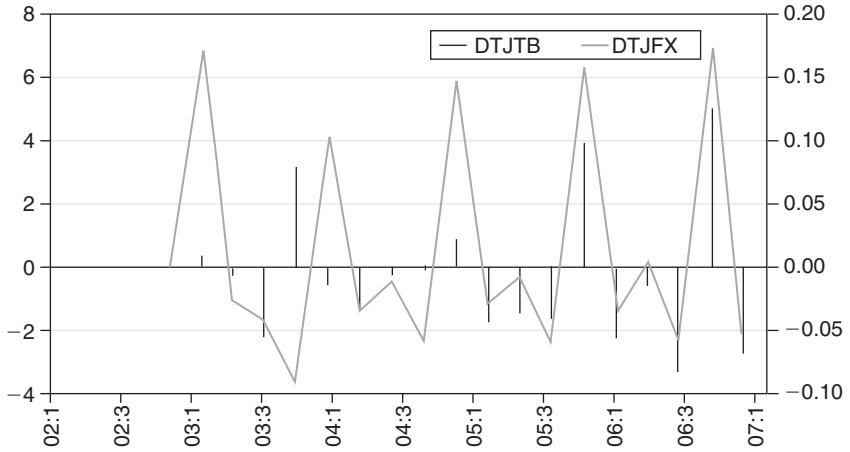


Figure 6.18 Tajikistan: change in *TB* over change in *REER* (2002:Q1–2007:Q2) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

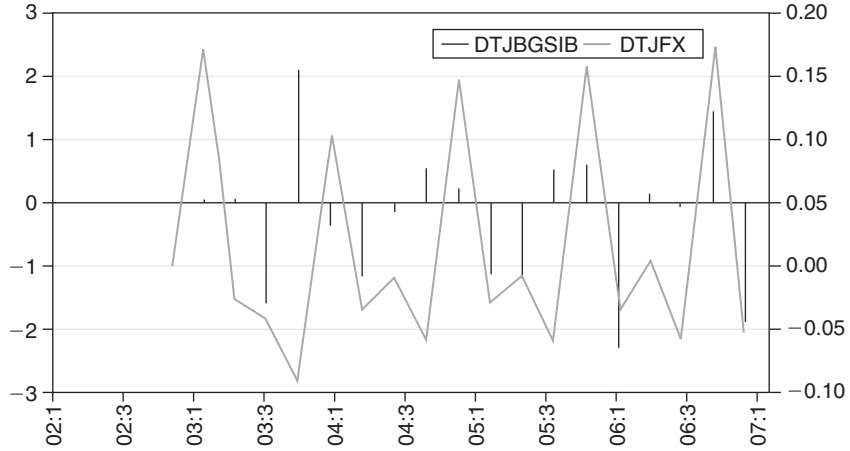


Figure 6.19 Tajikistan: change in *BGSI* over change in *REER* (2002:Q1–2007:Q2) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

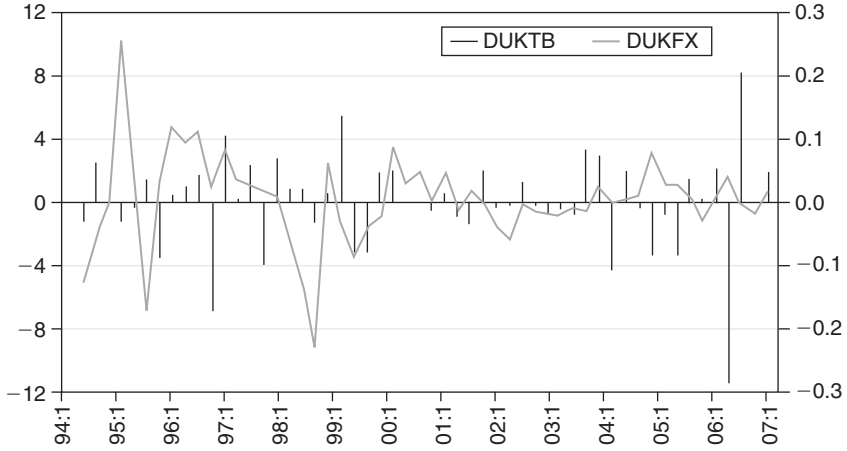


Figure 6.20 Ukraine: change in *TB* over change in *REER* (1994:Q1–2007:Q3) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

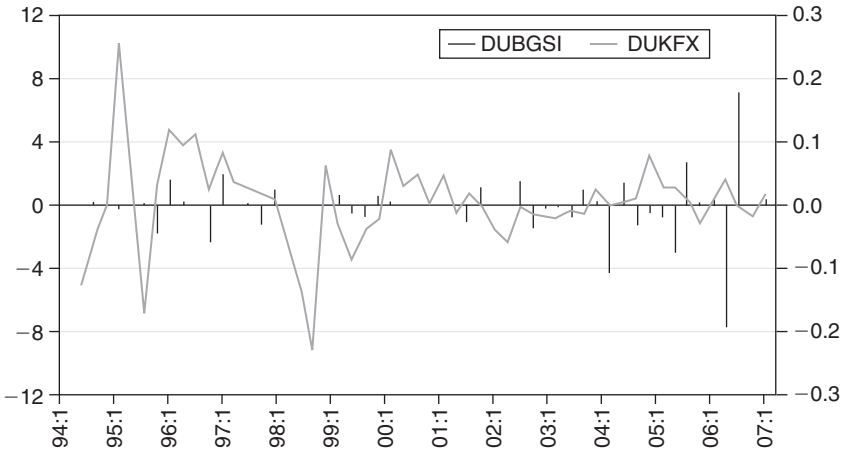


Figure 6.21 Ukraine: change in *BGSI* over change in *REER* (1994:Q1–2007:Q3) (source: author's calculations based on IMF (2008)).

Note
FX corresponds to *REER* and is measured on the right-side axis, shown on graph as a curved line.

6.9 Appendix B

This section describes a series of additional tests using the same data as in Sections 6.5 and 6.6 above. The key modification to the core regressions is the time lag variations:

$$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t} + e_t \tag{6.11}$$

$$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t-1} + e_t \tag{6.12}$$

$$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t-5} + e_t \tag{6.13}$$

All variables are defined as before. Subscripts *i* and *t* correspond to the *i-th* country and time period *t*. Note that equation (6.11) is exactly the same as (6.3). Equations (6.12) and (6.13) are similar to the first one but with added lags of one lag and five lags respectively. Because we are working with the changing values as indicated by the delta sign in front of each variable, an additional lag must be added to the final analysis. This implies that (6.12) reflects a two-lag effect and (6.13) a six-quarter-lag effect. The rationale for testing these models is to seek short- and long-frequency response adjustments in the current account. Based on theoretical discussions in the text, it is reasonable to assume an almost perfect adjustment in the long run (six-period lag), while probability of a J-curve may be greater in the shorter run.

Additionally, the new model is tested on actual levels with values expressed as presented in the data discussion section and on growth rates. Final output is shown in Table 6.4. The top section of the table represents results of levels regressions with coefficient labels and main equations defined in columns. The bottom section represents growth rate estimation results.

Results offer confirmation to the earlier derived conclusions based on estimation tests and event analyses. Contrasting with the general view of long-term adjustment, it is clear that not all countries exhibit immediate current account adjustment in response to changes in exchange rate, neither in the short run nor in the longer run. In rare cases, going between levels- and growth rates-based regressions produced opposite results (e.g. Armenia and Moldova). This is more likely due to data issues. Still, as speculative as these results may seem, they suggest continued empirical study into the phenomenon of J-curve, despite these complexities. Undergoing volatile social and economic transformation processes, the economies of the CIS do not follow an allegedly normal development path. Their entire economic performance to date throws a challenge to the standard macroeconomic theory, which is yet to develop a consistent set of checks and tests to give a well-weighted objective characteristic of the transition process and its future outlook.

Table 6.4 Extended model estimation results (GMM)

LEVELS			$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t} + \beta * \Delta REER_{i,t-1} + e_t$				$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t} + e_t$		
Country	*Sample period*	*Endogenous variable*	*Constant*	*One lag coefficient*	*Two lags coefficient*	*J-curve observed*	*Constant*	*One lag coefficient*	*J-curve observed*
Armenia	1993:Q1–2007:Q4	BGSI	–0.077 (1.802)	1.104 (1.860)	–0.736 (1.122)	1 lag	–0.085 (2.16)	0.907 (1.75)	Yes
Armenia	1993:Q1–2007:Q4	TB	–0.073 (1.906)	0.450 (0.825)	–0.475 (0.770)	1 lag	–0.077 (2.109)	0.315 (0.633)	Yes
Azerbaijan	1999:Q1–2007:Q3	BGSI	0.821 (0.500)	3.941 (0.076)	36.328 (0.244)	1–2 lags	0.570 (0.357)	3.170 (0.065)	Yes
Azerbaijan	1999:Q1–2007:Q3	TB	1.285 (0.236)	1,027.697 (1.75)	–1,106.195 (1.825)	1 lag	–0.894 (0.122)	1,066.810 (1.767)	Yes
Belarus	1996:Q1–2007:Q3	BGSI	–0.501 (2.506)	5.025 (4.147)	1.301 (1.697)	1–2 lags	–0.362 (1.929)	4.658 (3.646)	Yes
Belarus	1996:Q1–2007:Q3	TB	–0.237 (2.317)	2.624 (4.274)	0.644 (2.326)	1–2 lags	–0.17 (1.707)	2.443 (3.868)	Yes
Georgia	1997:Q1–2007:Q4	BGSI	–0.142 (1.609)	–0.053 (0.077)	–0.102 (0.181)	NO	–0.146 (1/789)	–0.074 (0.110)	No
Georgia	1997:Q1–2007:Q4	TB	–0.125 (1.793)	0.512 (0.939)	–0.108 (0.282)	1 lag	–0.129 (1.944)	0.490 (0.898)	Yes
Kazakhstan	1995:Q1–2007:Q3	BGSI	–0.77 (1.073)	109.428 (4.817)	–47.901 (2.025)	1 lag	–0.799 (1.066)	94.227 (5.104)	Yes
Kazakhstan	1995:Q1–2007:Q3	TB	0.147 (1.386)	6.050 (1.435)	–5.984 (1.025)	1 lag	0.120 (1.277)	3.896 (1.328)	Yes
Kyrgyz Republic	1993:Q1–2007:Q1	BGSI	–0.186 (0.533)	7.644 (0.622)	–1.601 (0.164)	1 lag	–0.207 (0.633)	7.026 (0.689)	Yes
Kyrgyz Republic	1993:Q1–2007:Q1	TB	–0.478 (2.183)	–5.971 (1.021)	18.862 (2.198)	2 lag	–0.334 (1.550)	2.099 (0.58)	Yes
Moldova	1994:Q1–2007:Q4	BGSI	–0.172 (2.356)	–2.406 (3.083)	–0.353 (0.272)	NO	–0.140 (1.857)	–1.286 (1.035)	No
Moldova	1994:Q1–2007:Q4	TB	–0.206 (2.780)	–2.813 (3.528)	0.103 (0.089)	2 lag	–0.168 (2.139)	–1.36 (0.96)	No
Russia	1994:Q1–2007:Q4	BGSI	0.043 (1.559)	–0.755 (2.547)	0.137 (0.513)	2 lag	0.044 (1.625)	–0.694 (3.207)	No
Russia	1994:Q1–2007:Q4	TB	0.045 (2.029)	–0.512 (2.704)	0.213 (1.025)	2 lag	0.050 (2.253)	–0.389 (2.489)	No
Tajikistan	2002:Q1–2007:Q2	BGSI	–0.087 (0.714)	0.029 (0.012)	–7.500 (2.773)	1 lag	–0.240 (1.574)	3.277 (1.272)	Yes
Tajikistan	2002:Q1–2007:Q2	TB	–0.28 (0.947)	11.884 (1.653)	–7.368 (2.516)	1 lag	–0.420 (1.508)	15.056 (2.113)	Yes
Ukraine	1994:Q1–2007:Q3	BGSI	0.042 (0.039)	–13.945 (0.739)	17.722 (0.924)	2 lag	0.031 (0.030)	–8.415 (0.574)	No
Ukraine	1994:Q1–2007:Q3	TB	0.014 (0.064)	–2.07 (0.511)	1.84 (0.429)	2 lag	–0.011 (0.056)	–0.934 (0.256)	No

Table 6.4 (*continued*)

LEVELS			$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t-1} + e_t$			$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t-5} + e_t$			$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t-6} + e_t$		
Country	*Sample period*	*Endogenous variable*	*Constant*	*Two lags coefficient*	*J-curve observed*	*Constant*	*Six lags coefficient*	*J-curve observed*	*Constant*	*Seven lags coefficient*	*J-curve observed*
Armenia	1993:Q1–2007:Q4	BGSI	–0.057 (1.464)	–0.448 (0.795)	No	–0.060 (1.608)	–0.304 (0.524)	No	0.042 (1.623)	–1.362 (3.779)	No
Armenia	1993:Q1–2007:Q4	TB	–0.065 (1.754)	–0.357 (0.633)	No	–0.072 (1.890)	–0.102 (0.164)	No	–0.054 (1.289)	–0.900 (2.46)	No
Azerbaijan	1999:Q1–2007:Q3	BGSI	0.828 (0.525)	36.183 (0.245)	Yes	0.228 (0.121)	77.408 (0.427)	Yes	1.12 (0.579)	–100.477 (0.520)	No
Azerbaijan	1999:Q1–2007:Q3	TB	3.164 (0.521)	–1,144.125 (1.843)	No	5.812 (0.865)	–1,260.496 (2.079)	No	1.964 (0.238)	–285.128 (0.712)	No
Belarus	1996:Q1–2007:Q3	BGSI	–0.167 (0.688)	–0.120 (0.132)	No	–0.183 (0.679)	–0.188 (0.172)	No	0.010 (0.039)	–2.214 (3.457)	No
Belarus	1996:Q1–2007:Q3	TB	–0.062 (0.544)	–0.098 (0.277)	No	–0.066 (0.523)	–0.161 (0.391)	No	–0.023 (0.162)	–0.564 (1.743)	No
Georgia	1997:Q1–2007:Q4	BGSI	–0.142 (1.627)	–0.109 (0.191)	No	–0.178 (2.079)	0.462 (0.938)	Yes	–0.176 (2.028)	1.107 (1.469)	Yes
Georgia	1997:Q1–2007:Q4	TB	–0.123 (1.751)	–0.033 (0.08)	No	–0.145 (1.969)	0.475 (1.224)	Yes	–0.144 (1.957)	0.917 (1.471)	Yes
Kazakhstan	1995:Q1–2007:Q3	BGSI	–0.194 (0.328)	–7.101 (0.337)	No	0.044 (0.063)	–31.341 (1.166)	No	–0.370 (0.502)	10.389 (0.855)	Yes
Kazakhstan	1995:Q1–2007:Q3	TB	0.178 (1.690)	–3.727 (0.733)	No	0.254 (2.836)	–9.326 (1.46)	No	0.144 (1.319)	2.563 (0.715)	Yes
Kyrgyz Republic	1993:Q1–2007:Q1	BGSI	–0.129 (0.382)	1.710 (0.239)	Yes	–0.121 (0.353)	0.539 (0.078)	Yes	0.266 (0.733)	–27.547 (1.632)	No
Kyrgyz Republic	1993:Q1–2007:Q1	TB	–0.522 (2.281)	16.276 (2.398)	Yes	–0.503 (1.861)	10.779 (2.164)	Yes	–0.442 (1.724)	3.954 (1.120)	Yes
Moldova	1994:Q1–2007:Q4	BGSI	–0.165 (2.263)	–0.819 (0.708)	No	–0.156 (2.071)	0.929 (1.053)	Yes	–0.161 (2.035)	0.577 (0.525)	Yes
Moldova	1994:Q1–2007:Q4	TB	–0.197 (2.643)	–0.442 (0.419)	No	–0.197 (2.483)	0.569 (0.422)	Yes	–0.202 (2.481)	1.041 (0.706)	Yes
Russia	1994:Q1–2007:Q4	BGSI	0.037 (1.306)	–0.166 (0.707)	No	0.043 (1.424)	–0.480 (2.76)	No	0.046 (1.537)	–0.196 (0.828)	No
Russia	1994:Q1–2007:Q4	TB	0.041 (1.818)	0.007 (0.04)	Yes	0.458 (1.855)	–0.146 (0.841)	No	0.049 (2.030)	–0.212 (0.922)	No
Tajikistan	2002:Q1–2007:Q2	BGSI	–0.086 (0.758)	–7.513 (3.066)	No	–0.120 (0.576)	–9.883 (5.036)	No	–0.184 (0.805)	2.133 (0.877)	Yes
Tajikistan	2002:Q1–2007:Q2	TB	–0.030 (0.109)	–12.669 (3.101)	No	–0.076 (0.187)	–15.676 (3.76)	No	–0.198 (0.478)	2.926 (0.978)	Yes
Ukraine	1994:Q1–2007:Q3	BGSI	–0.022 (0.0202)	14.140 (0.860)	Yes	–0.051 (0.044)	18.425 (1.173)	Yes	0.057 (0.043)	–28.078 (1.288)	No
Ukraine	1994:Q1–2007:Q3	TB	0.004 (0.019)	1.309 (0.328)	Yes	–0.033 (0.130)	7.174 (1.525)	Yes	–0.034 (0.133)	–3.812 (0.920)	No

Table 6.4 (*continued*)

GROWTH RATES: (X-XT-1)/(XT-1)			$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t} + \beta * \Delta REER_{i,t-1} + e_t$				$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t} + e_t$		
Country	*Sample period*	*Endogenous variable*	*Constant*	*One lag coefficient*	*Two lags coefficient*	*J-curve observed*	*Constant*	*One lag coefficient*	*J-curve observed*
Armenia	1993:Q1–2007:Q4	BGSI	0.113 (3.504)	–0.183 (9.715)	0.226 (6.737)	2 lags	0.133 (3.314)	–0.068 (3.266)	No
Armenia	1993:Q1–2007:Q4	TB	0.105 (2.848)	–0.085 (2.975)	0.145 (3.59)	2 lags	0.1127 (2.571)	–0.016 (1.122)	No
Azerbaijan	1999:Q1–2007:Q3	BGSI	–0.142 (0.219)	–9.519 (0.509)	–3.354 (0.101)	No	–0.013 (0.017)	–9.731 (0.509)	No
Azerbaijan	1999:Q1–2007:Q3	TB	–0.303 (0.239)	29.745 (0.533)	–29.460 (1.117)	1 lag	–0.408 (0.333)	30.654 (0.544)	Yes
Belarus	1996:Q1–2007:Q3	BGSI	–24.135 (1.004)	12.199 (0.934)	12.832 (0.943)	1–2 lags	–20.40 (1.034)	10.77 (0.965)	Yes
Belarus	1996:Q1–2007:Q3	TB	0.818 (4.34)	–0.818 (3.140)	–0.416 (2.041)	No	0.684 (3.933)	–0.764 (3.117)	No
Georgia	1997:Q1–2007:Q4	BGSI	0.072 (2.103)	0.519 (1.407)	0.195 (0.704)	1–2 lags	0.0.76 (2.543)	0.561 (1.635)	Yes
Georgia	1997:Q1–2007:Q4	TB	0.060 (2.178)	–0.195 (0.754)	0.115 (0.677)	2 lags	0.065 (2.545)	–0.168 (0.673)	No
Kazakhstan	1995:Q1–2007:Q3	BGSI	–0.04 (0.044)	4.667 (0.593)	–20.868 (1.492)	1 lag	–0.289 (0.277)	–2.173 (0.203)	No
Kazakhstan	1995:Q1–2007:Q3	TB	3.213 (1.109)	1.840 (0.206)	–18.917 (1.636)	1 lag	2.931 (1.081)	–5.181 (0.638)	No
Kyrgyz Republic	1993:Q1–2007:Q1	BGSI	1.334 (1.844)	–4.136 (1.181)	–4.495 (0.597)	No	1.246 (2.060)	–6.471 (2.158)	No
Kyrgyz Republic	1993:Q1–2007:Q1	TB	0.222 (0.508)	4.251 (2.475)	–4.423 (1.547)	1 lag	0.131 (0.333)	1.974 (1.359)	Yes
Moldova	1994:Q1–2007:Q4	BGSI	2.191 (1.116)	47.939 (1.071)	–1.996 (0.247)	1 lag	1.994 (1.094)	38.185 (1.018)	Yes
Moldova	1994:Q1–2007:Q4	TB	–6.775 (1.003)	–148.840 (0.976)	3.668 (0.177)	2 lags	–6.288 (1.004)	–124.984 (0.986)	No
Russia	1994:Q1–2007:Q4	BGSI	0.320 (1.022)	–6.041 (2.011)	–8.282 (1.384)	No	0.254 (0.793)	–8.901 (4.164)	No
Russia	1994:Q1–2007:Q4	TB	0.324 (1.594)	–4.598 (2.038)	1.865 (0.975)	2 lags	0.365 (1.665)	–3.501 (2.026)	No
Tajikistan	2002:Q1–2007:Q2	BGSI	0.208 (2.059)	–0.273 (0.193)	2.923 (1.515)	2 lags	0.262 (3.064)	–1.47 (1.381)	No
Tajikistan	2002:Q1–2007:Q2	TB	0.298 (2.366)	–4.967 (3.341)	7.801 (1.689)	2 lags	0.455 (3.149)	–8.191 (3.658)	No
Ukraine	1994:Q1–2007:Q3	BGSI	–0.216 (0.031)	18.845 (0.672)	21.556 (0.427)	1–2 lags	–0.074 (0.010)	21.961 (0.863)	Yes
Ukraine	1994:Q1–2007:Q3	TB	–1.819 (0.762)	14.176 (1.603)	8.033 (0.706)	1–2 lags	–1.700 (0.739)	13.826 (1.503)	Yes

Table 6.4 (*continued*)

GROWTH RATES: (X-XT-1)/(XT-1)			$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t-1} + e_t$			$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t-5} + e_t$			$\Delta CA_{i,t} = c + \alpha * \Delta REER_{i,t-6} + e_t$		
Country	*Sample period*	*Endogenous variable*	*Constant*	*Two lags coefficient*	*J-curve observed*	*Constant*	*Six lags coefficient*	*J-curve observed*	*Constant*	*Seven lags coefficient*	*J-curve observed*
Armenia	1993:Q1–2007:Q4	BGSI	0.025 (0.943)	0.038 (0.422)	Yes	0.007 (0.167)	1.458 (1.575)	Yes	0.007 (0.185)	0.909 (1.383)	Yes
Armenia	1993:Q1–2007:Q4	TB	0.098 (2.771)	0.101 (2.214)	Yes	0.073 (2.773)	0.147 (1.154)	Yes	0.091 (1.852)	0.021 (0.406)	Yes
Azerbaijan	1999:Q1–2007:Q3	BGSI	–0.164 (0.241)	–3.066 (0.093)	No	0.233 (0.409)	1.079 (0.024)	Yes	0.492 (0.726)	–41.356 (8.193)	No
Azerbaijan	1999:Q1–2007:Q3	TB	–0.234 (0.181)	–30.360 (1.165)	No	–0.114 (0.079)	–36.234 (1.426)	No	0.850 (0.928)	–194.192 (3.23)	No
Belarus	1996:Q1–2007:Q3	BGSI	–21.116 (1.019)	11.793 (0.954)	Yes	–0.111 (0.184)	–0.446 (0.951)	No	–0.421 (1.156)	0.544 (0.685)	Yes
Belarus (0.90)	1996:Q1–2007:Q3 Yes	TB	–0.616 (3.77)	–0.347 (1.786)	No	0.587 (3.151)	–0.074 (0.2600)	No	0.496 (3.24)	0.294	
Georgia	1997:Q1–2007:Q4	BGSI	0.075 (2.395)	0.296 (0.996)	Yes	0.092 (3.191)	0.023 (0.111)	Yes	0.089 (2.94)	–0.398 (1.801)	No
Georgia	1997:Q1–2007:Q4	TB	0.059 (2.116)	0.076 (0.443)	Yes	0.068 (2.392)	–0.092 (0.664)	No	0.067 (2.404)	–0.327 (1.648)	No
Kazakhstan	1995:Q1–2007:Q3	BGSI	0.008 (0.008)	–19.386 (1.312)	No	–0.961 (0.962)	–7.664 (1.601)	No	–1.172 (0.987)	0.587 (0.068)	Yes
Kazakhstan	1995:Q1–2007:Q3	TB	3.232 (1.108)	–18.333 (1.634)	No	2.66 (1.011)	30.093 (0.668)	Yes	–0.001 (0.002)	0.212 (0.114)	Yes
Kyrgyz Republic	1993:Q1–2007:Q1	BGSI	1.251 (1.691)	–6.648 (1.056)	No	1.018 (1.538)	0.240 (0.077)	Yes	1.185 (1.595)	–2.577 (0.712)	No
Kyrgyz Republic	1993:Q1–2007:Q1	TB	0.306 (0.693)	–2.209 (0.92)	No	0.594 (1.036)	–8.351 (1.577)	No	0.286 (0.992)	–0.53 (0.154)	No
Moldova	1994:Q1–2007:Q4	BGSI	2.131 (1.116)	7.881 (0.735)	Yes	2.265 (1.063)	38.935 (0.997)	Yes	2.377 (1.091)	2.604 (0.368)	Yes
Moldova	1994:Q1–2007:Q4	TB	–6.587 (1.004)	–26.997 (0.857)	No	–7.006 (0.961)	–137.063 (1.044)	No	–7.354 (0.995)	–16.105 (0.727)	No
Russia	1994:Q1–2007:Q4	BGSI	0.275 (0.843)	–10.447 (1.971)	No	–0.134 (0.341)	3.666 (0.758)	Yes	–0.069 (0.189)	0.923 (0.301)	Yes
Russia	1994:Q1–2007:Q4	TB	0.290 (1.336)	0.217 (0.208)	Yes	0.278 (1.284)	2.202 (0.913)	Yes	0.329 (1.317)	–0.662 (0.605)	No
Tajikistan	2002:Q1–2007:Q2	BGSI	0.202 (1.960)	3.040 (1.964)	Yes	0.233 (1.837)	5.603 (6.192)	Yes	0.235 (1.565)	–1.268 (1.618)	No
Tajikistan	2002:Q1–2007:Q2	TB	0.188 (1.532)	9.926 (2.173)	Yes	0.250 (0.881)	12.676 (3.083)	Yes	0.322 (1.331)	–2.467 (2.186)	No
Ukraine	1994:Q1–2007:Q3	BGSI	–0.088 (0.012)	25.413 (0.523)	Yes	0.473 (0.062)	–58.288 (1.153)	No	0.476 (0.065)	–48.498 (0.412)	No
Ukraine	1994:Q1–2007:Q3	TB	–1.723 (0.732)	10.934 (0.83)	Yes	–1.960 (0.771)	26.665 (0.917)	Yes	–2.028 (0.791)	30.971 (1.351)	Yes

Source: author's calculations based on the IFS data.

Note
Absolute values of the *t*-statistic are in parentheses.
One lag corresponds to one quarter lag.

7 A model of fiscal policy, currency crisis, and foreign exchange reserves dynamics

7.1 Introduction

Most of the recent economic downturns have followed a similar pattern: instability spreads beyond the financial sector, resulting in significant contraction. Some of the well-documented cases are the Mexican crisis of 1994, the East Asian crisis of 1997, the Russian crisis of 1998, and the Argentinean crisis of the late 1990s and early 2000s. Today, as developed economies seem to be slowly pulling out of recession and the chaos of the 2008–2009 global financial crisis, the destiny of the financial systems and entire economies of the emerging and transition countries remains unclear.

The discussion in the preceding chapters offers an excellent opportunity to explore additional open economy and fiscal policy aspects in the CIS. In the current economic environment, shaped in large by the ongoing global financial crisis, attention is once again drawn to the problems of the exchange rate, currency runs, and foreign exchange reserves. Related to that, in the current context, is also the concept of foreign currency denominated debt. This chapter extends the theoretical approach of Kato *et al.* (2008) to the specific case of the transition economies of the CIS with additional debt considerations.

A key dimension here is a potential run on domestic currency evolving into a self-fulfilling currency crisis (as discussed in Krugman, 1979, 2000; Flaschel and Semmler, 2003; and Kato *et al.*, 2008). In the CIS, with an implicit direct link between fiscal and monetary authorities, decisions of monetary control and budget policy are interconnected. Compounded with volatile financial markets and sporadic inflows and outflows of speculative foreign capital, as well as domestic capital flight, the twelve CIS economies have seen large, unexpected exchange rate fluctuations and run a risk of abrupt crisis in the future. Complicating matters further is the layering of foreign currency-denominated sovereign debt issues and ineffective monetary policy. That has led in the past to unexpected exchange rate-forced devaluation. A most notable example, with all of the above elements, was the Russian crisis of 1998.

Today, with an improved macroeconomy, some of the CIS economies have accumulated significant stockpiles of foreign exchange reserves that allow for gradual devaluation. Reserves can be thought of as insurance as monetary

authorities target an interest rate aware of the interest parity and exchange rate effects. Similarly, for the government, reserves may provide stimulus to the economy by smoothening current account deterioration and controlling the value of debt given an imminent currency fall. Finally, despite immediate opportunity costs of such massive sovereign savings, reserves offer a domestically controlled financing mechanism in the situation of a country's inability to secure sufficient IMF credit or inability to comply with the external lender's terms.

That parallels the current situation that CIS economies face. In fact, as Kato *et al.* (2008) note, mere anticipation of currency depreciation may spur foreign capital outflow, resulting in disastrous aftershocks to the economy. So far, evidence suggests that reserves have played an important role in holding up the exchange rate across the CIS. While not every country in the region has accumulated large reserves, in relative terms, there is still a valuable lesson to explore. A theoretical framework with the monetary control problem is amended in this study to account for changes in reserves and foreign currency-denominated debt. The last term matters in the CIS, due to inherent instability of the countries' public and private sector liabilities given abrupt currency changes. This analysis will distinguish specific debt types between the net exporters and net importers.

In the deteriorating economic environment and global credit squeeze, which started roughly toward the end of 2007, there is a potential snowball effect as capital flees the country, draining the foreign exchange reserves (managed in the CIS by the Central Bank and Ministry of Finance), exacerbating depreciation risk. Under the conditions of increasing foreign currency-denominated debt, which is also characteristic of the current CIS situation, authorities may choose to use a certain share of reserves to improve the aggregate balance sheet. Depending on reserves availability, this then worsens the sudden depreciation effect further and raises risks of sovereign default (with varying degrees between two country groups, as will be discussed below). It is then apparent that foreign reserves play a significant role in protecting not just the currency but also the economy, sustaining the current CIS development path.

The rest of the chapter is structured as follows. A rundown on stylized facts from international experience is offered in Section 7.2. In addition, theoretical arguments from relevant literature are discussed. Section 7.3 gauges empirical discussion to the case of the CIS economies. Section 7.4 develops a two-country group monetary control theoretical framework applicable in the CIS case. Section 7.5 discusses the stabilization effects of the monetary policy model, as well as reviews possible analytical scenarios of impacts on output, exchange rate, and reserves in the background of ongoing global recession. The chapter ends with Conclusions and policy implications and an Appendix.

7.2 Some theory, empirics, and stylized facts of international experience

It has long since been noted that there is an apparent correlation between a country's financial openness and predisposition to and intensity of a financial crisis

(e.g. Krugman, 2000; Flaschel and Semmler, 2003). Introduction of floating exchange rates and liberalization of capital account, characteristic of an "open market economy," appear to be the key driving factors (e.g. Obstfeld, 1984; Kato *et al.*, 2008; Krugman, 2000; and others) in spreading the crisis contagion across regions and economic sectors.

A financial crisis may not be just a monetary problem affecting exchange rate and interest rates through some type of interest parity condition. For an increasing number of countries, a crisis comes in two dimensions: as credit crisis and as currency crisis.[1] By credit crisis, the present analysis refers to 1) a sudden drop in liquidity in the market; and 2) a rapidly increasing indebtedness of domestic agents (including corporate, banking, and household debt). If debt liabilities are denominated in foreign currency, as is often the case for countries that cannot borrow in their own currencies, and in the CIS in particular, that may negatively affect capital flows, pressuring currency depreciation.

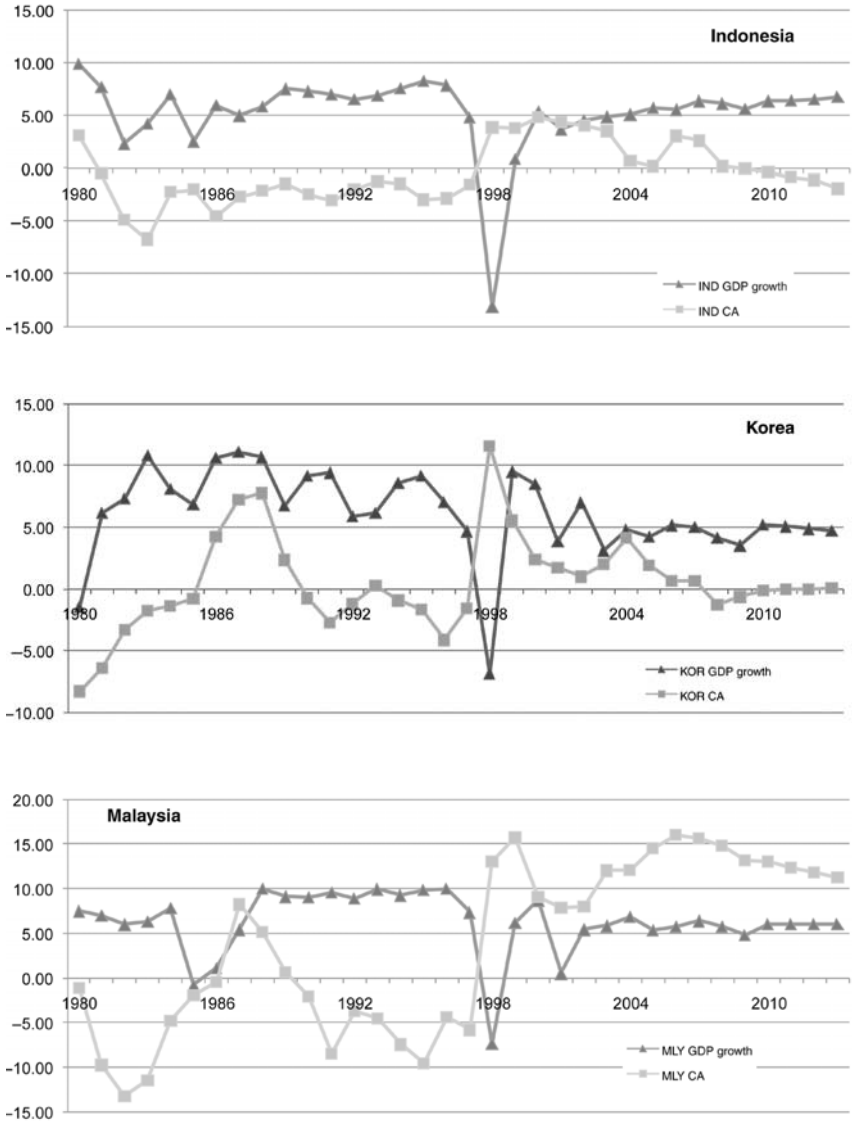
The self-propagating mechanism then leads to increasing interest rate and instability in the stock markets, further decreasing cross-bank lending, and by extension contracting the real economy, incited by lack of credit to sustain operations. Flaschel and Semmler (2003) note, however, that such a classical scenario and the strains on national balance sheets may be relaxed and instability may not be propagated. That depends largely on existence of sufficient net wealth against which domestic agents borrow. Similar considerations have already been reviewed elsewhere in this book by alluding to the intertemporal approach to debt management in the earlier discussions. The central issue now is the severity of the expected depreciation that causes foreign currency-denominated liabilities to suddenly increase and whether that can be controlled via some policy.

The crises of the 1990s, carry another important lesson for the current research. Specifically, there is a strong correlation between current account deficit, and probability and severity of a crisis. Corsetti *et al.* (1999) observe that the East Asian countries that saw significant collapses in the currency regimes were primarily those with large current account to GDP ratios (e.g. Thailand, Malaysia, and others). Across those economies, current account deficit ranged anywhere between 3 per cent and 10 per cent of GDP before and during the crisis. The imbalance was primarily due to trade balance and low net factor payments to the rest of the world. Countries with better current account to GDP ratio performance, although still affected, escaped the crisis' worst impacts on their currencies and financial system. As Corsetti *et al.* (1999) observe, those with large current account to GDP deficits saw their currencies depreciate over 100 per cent against the US$—that still remains the primary currency for international transactions.

Kato *et al.* (2008) and other observers note that, despite severe deterioration, currency depreciation led to competitiveness improvement as the economies were able to revert current account deficit to current account surplus. Country specifics are important. One must keep in mind the economic development process of East Asia preceding the crisis of 1997 and the export-oriented structure of those economies. East Asian goods competitiveness in quality, then, was

aided by additional competitiveness in price due to sharp deterioration. Lest one forgets the J-curve effect described in Chapter 6.

Nevertheless the crisis and, with it, current account deficit soon reverted in growth. Figure 7.1 helps illustrate the tendency by outlining the GDP growth and current account to GDP ratio across East Asian economies.[2] The initial collapse due to the crisis around 1997 and the eventual pickup within a year or so afterwards are clearly seen, in particular for Korea and Indonesia. But it is this real



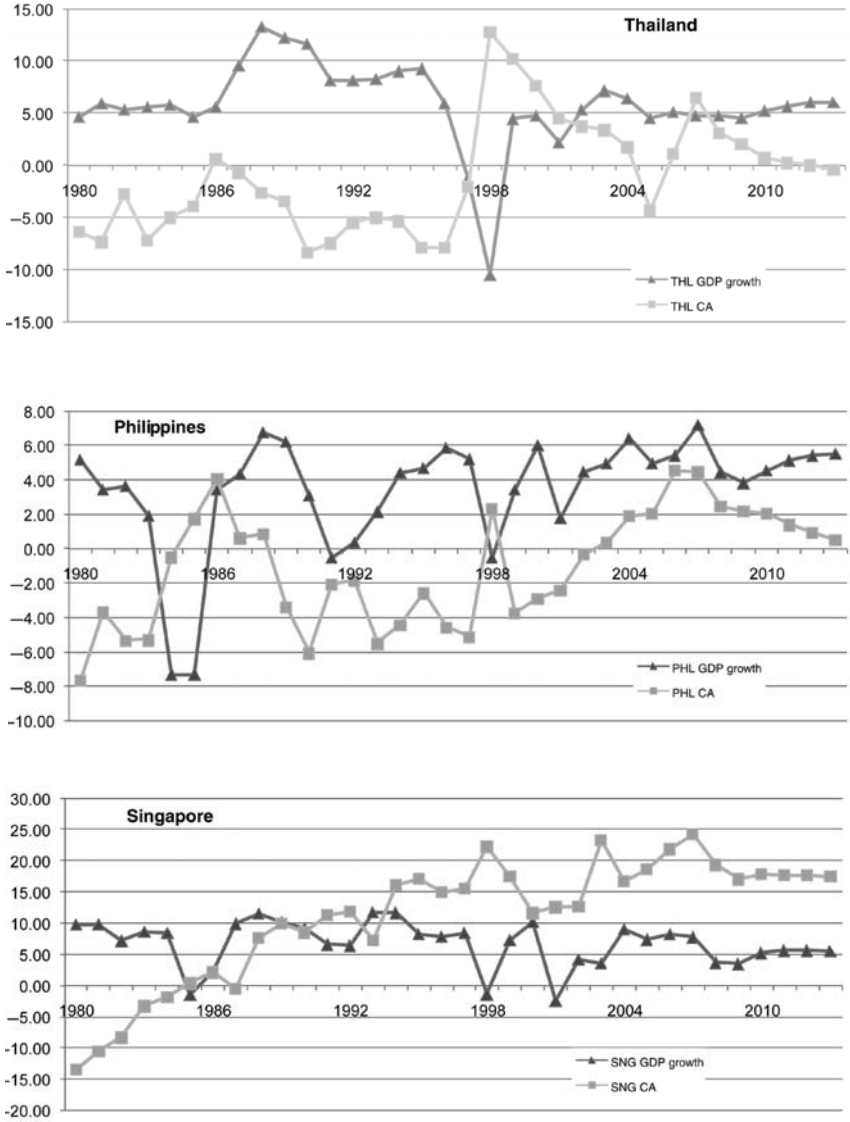


Figure 7.1 Current account (per cent of GDP) change and GDP growth in East Asia, per cent (source: World Economic Outlook, IMF (2009)).

Note
Current account is expressed as a ratio to GDP.
Estimates beyond 2008 are from IMF, based on 2007 actual data.

economy's diversification and competitiveness that the economies of the CIS, and in fact transition countries of Central and Eastern Europe, lack the most.

Based on the above arguments, it is possible to derive a set of general characteristics of a typical financial crisis. These facts are inspired by discussions in Kamin (1999), Corsetti *et al.* (1999), and significantly by the work of Flaschel and Semmler (2003), adapted for the purposes of this study:

- A currency crisis is preceded by current account deficit (increase in current account deficit to GDP ratio).
- There is an increase in overall indebtedness of economic agents. Often private debt of "too-big-to fail" entities is guaranteed by the state.
- Reversal of capital flows ("capital flight") puts pressure on domestic financial markets and currency.
- As foreign exchange leaves the economy, there is sharp (and often unexpected) currency depreciation. That leads to a sudden rise in foreign currency denominated liabilities as debt becomes more costly to service.
- Increase in interest rates, via monetary policy, possible abruption or panic in the stock markets, and banking crises as lending activity contracts.
- Eventual deterioration in real economy as firms are unable to procure credit for operations and long-term investment.

It is striking how the above observations fit the current global economic environment. Concluding our general review of financial currency characteristics, we note that, since the crises of the late 1990s, rapidly developing countries of East Asia and many CIS economies have accumulated significant foreign exchange reserves. Figure 7.2 illustrates change in total reserves to GDP for selected countries. For generality, the *x*-axis reflects five years before and after the crisis.

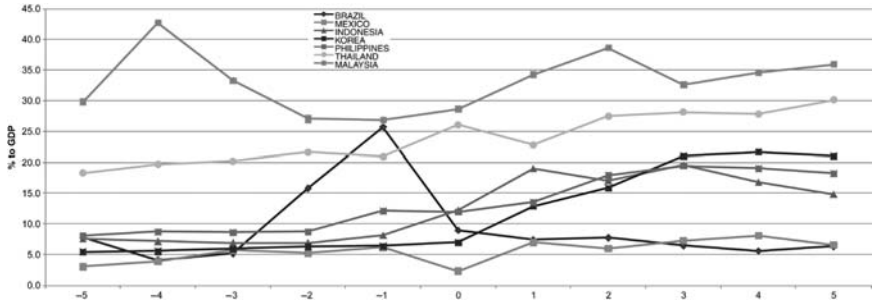


Figure 7.2 Total foreign reserves (less gold) to GDP ratio, per cent (source: author's calculations based on the IFS (IMF IFS, 2008) data).

Note
Time period 0 indicates the year of the crisis in each economy.

The general trend observed from Figure 7.2 is the sharp increase in international reserves by the countries hit particularly hard by the crisis. It has been suggested that reserves serve a precautionary purpose, helping economies defy any potential currency runs (e.g. Kato *et al.*, 2008). This ultimately suggests a managed float exchange rate policy. Aizenmann and Turnovsky (2002) also argue that sufficient reserves built up acts as collateral to sovereign borrowing in the international capital market. By that logic, rising international reserves reduce the default risk that lenders face. Credibility then helps borrowing economies attract more in loans and potentially invest in productive sectors. This, and the implied guaranteed return, potentially raises welfare in the borrowing and lending economies.[3] Kato *et al.* (2008) offer clarification to an increase in international reserves in the emerging markets. The authors note that initial increase in reserves comes from the pickup in economic growth. The second effect is that the actual reserves build up as part of the macroeconomic policy.

Factors reviewed in this section—foreign currency-denominated debt, currency runs, currency depreciation, banking crises, current account deterioration, monetary policy and built-up international reserves—matter significantly in the CIS case. In general, given today's rapidly deteriorating global financial situation and economic contraction across the region, it is very doubtful that the crisis of 2008–2009 would end mildly for the entire group of transition economies. The following section reviews CIS-relevant empirical evidence before constructing the analytical model.

7.3 Stylized facts from the CIS

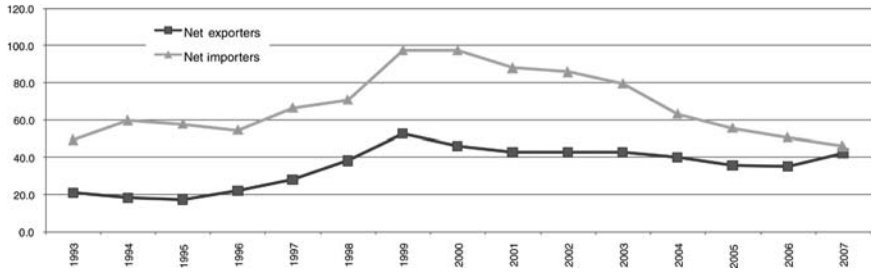
Key relevant factors have been identified and discussion can now be geared closer toward the specific case of the CIS. History matters just like the present for the region. This general supposition, carried through our entire study, is central to proper analysis of the CIS economies and their potential predisposition to a financial crisis, its potential impacts, and related policy issues.

Chapters 1 and 2 explored extensively external performance in the CIS. Based on that analysis, the twelve CIS transition economies were categorized into two country groups: *net exporters* and *net importers*. The latter group presents a case of a chronic current account deficit and strong reliance on imported consumer and capital goods, and, although to a smaller degree, agricultural products. Across the study, it has been shown that countries in this group are highly dependent on cross-border foreign currency flows and lack any particular core industry in terms of the development model. The net exporters, on the other hand, exhibit current account surplus over the past several years. The surplus has been guaranteed by consistent improvement in net exporting countries' terms of trade, as international prices on basic commodities and energy products—the primary exports of the seven net exporters—have been on the rise recently, keeping up with strong demand in the rest of the world. A recent drop in global demand and sharp declines in raw material prices under the ongoing global economic slowdown have negatively affected the large CIS economies. It may be a

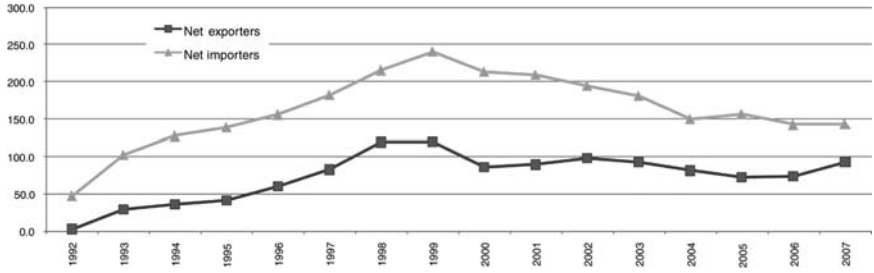
matter of time then before the net exporters' current account surplus reverts to a deficit. Hence, for the region, current account deficit may propagate the crisis in the economy.

Foreign currency-denominated debt poses another instability threat to highly dollarized CIS economies. Much of the intra-region trade, hence, is priced in either US$ or euros. As Curtis *et al.* (2005) note in their analysis of Ukraine's economy, persistent dollarization is due to domestic currency inflation, exchange rate instability, and remaining shadow economy. These arguments are valid and apply across the region, albeit to varying extents.

Much of the public, commercial banking, corporate, and household debt then is either explicitly denominated in foreign currency or implicitly pegged to prevailing exchange rate. For example, the largest economy in the region, Russia, has accumulated foreign currency-denominated private debt of over US$500 billion, just a notch under its October 2008 total reserves level (Mau, 2009). Latest CBR estimates indicate foreign currency-denominated liabilities of the Russian banking sector adding up to 83 per cent of total liabilities as of April 2009. Across the CIS, total external debt (in foreign currency) is also high, as seen in Figure 7.3.



(a) External debt to GDP



(b) External debt to total exports

Figure 7.3 External debt ratios in the CIS by country groups, per cent (source: author's calculations based on the EBRD (2009) data).

Krugman (2000) reviews these ratios as indicative of a country's openness and possibility of default on its liabilities. There is an evident concern for the net importer states primarily. To illustrate the point, consider the current debt situation in Central and Eastern Europe. According to the most recent estimates (e.g. Lemer *et al.*, 2009), increasing of credit to the region by the Western European banks since the early 2000s is now holding entire economies hostage to capability of extending the credit lines. With up to US$1.5 trillion total exposure by the Eurozone banks in 2008, both Europe's crippling financial system and shaky transition economies could suffer immensely if the credit lines break. In relation to GDP, the stakes of developed economies' banks range anywhere from 12 per cent in Russia to 146 per cent in Estonia. Since January 2008, domestic currencies lost their value in relation to the euro by up to 38 per cent, as in Ukraine, for example. But the process is ongoing and events develop rapidly (see Chapter 8).

Total international reserves accumulation is another integral component shaping today's macroeconomic policy decisions in the transition economies. The spread is not even between two country groups. Figure 7.4 outlines the trend for the past ten years between the two country groups.

Due to their advantageous endowments, net exporters have been more successful in building up significant reserve stockpiles. Russia—the largest economy in the net exporters group and in the CIS—reported up to US$600 billion at its high in mid 2008. In relation to GDP, net exporters' total reserves range anywhere between 20 and 35 per cent. That is a significant number, given the relative sizes of the transition economies.

A crucial characteristic of the transition economies, the CIS in particular, is the blending of policy actions between monetary and fiscal authorities. Studies addressing the issue of central bank independence in transition (e.g. Wagner, 1999, 2000; Loungani and Sheets, 1997, and others) point to the *de jure* central bank independence, but a strong *de facto* link with the executive powers. It then

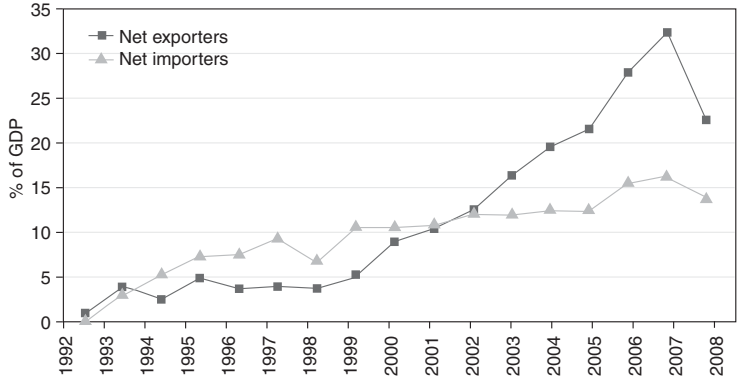


Figure 7.4 Total international reserves to GDP ratio in the CIS by country groups (source: author's calculations based on the EBRD (2009) data).

Note
Total foreign exchange reserves, less gold, annual average per cent.

comes with no surprise that not only the central bank has control over the foreign exchange reserves. Further, as discussions in Chapters 1 and 3, for example, suggest, fiscal authorities (in the net exporting countries) actively use reserves in allocation across various national funds and even investment in foreign financial assets.

With the global financial crisis, as the external pressure on the fragile economies intensifies via foreign currency-denominated debt and capital flight, authorities have substantially spent out of the reserve coffers to defend domestic currencies from dramatic depreciation. Exactly that explains the sharp decline in CIS reserves, clearly seen in Figure 7.4, starting in early–mid 2008 (see Chapter 8 for details). On yet another macroeconomic policy dimension is the interest rate. In the CIS, the average refinancing rate—analogous to the US Fed discount rate—has settled in the range of 5 to 14 per cent. Figure 7.5 shows the trend for Russia: following consistent monthly declines, there appears to be a sharp increase in the refinancing rate to approximately 13 per cent toward the end of 2008 and a decline since mid 2009 (CBR, 2010).

The trend over the past decade can be seen in Figure 7.6, which clearly conveys the differences between the two country groups, showing higher rates for the net importers compared with net exporters. However, countries in both groups have followed a similar pattern of starting off with very high rates in the early transition period, followed by a gradual reduction, with two spikes around 1998 and the early 2000s. That is partially explained by the aftershocks of the Russian crisis and monetary tightening inspired by macroeconomic stabilization later on. However, larger-scale macroeconomic concerns are still significant.

The standard argument suggests that a relatively high interest rate may be regarded as a positive aspect in terms of staving off inflation and, in an open economy, sustaining competitive currency value, assuming some type of interest parity condition holds. At the same time, too high interest rates set by the central bank translate into more expensive loans by commercial banks, adding to the

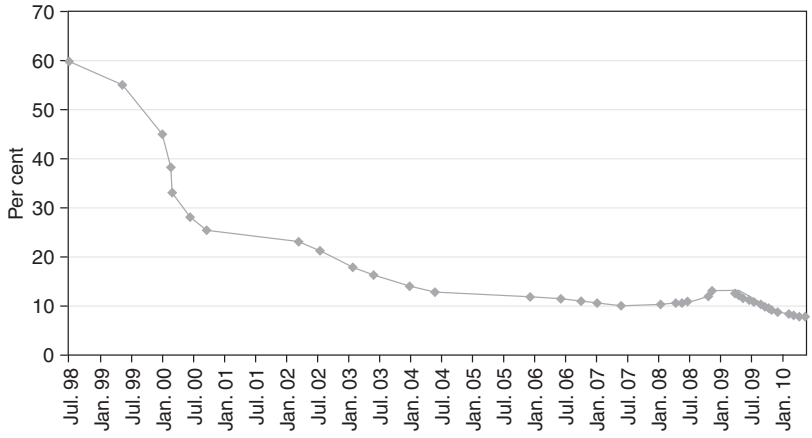
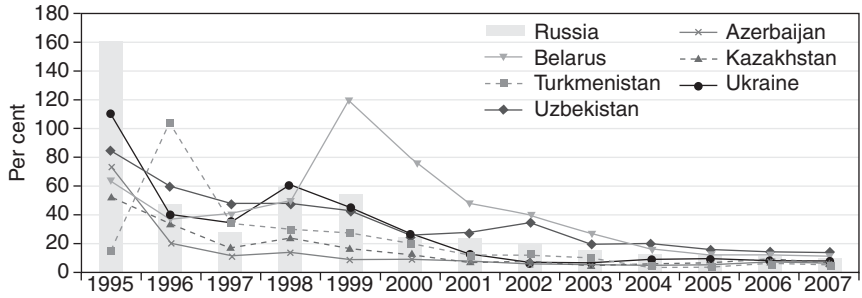
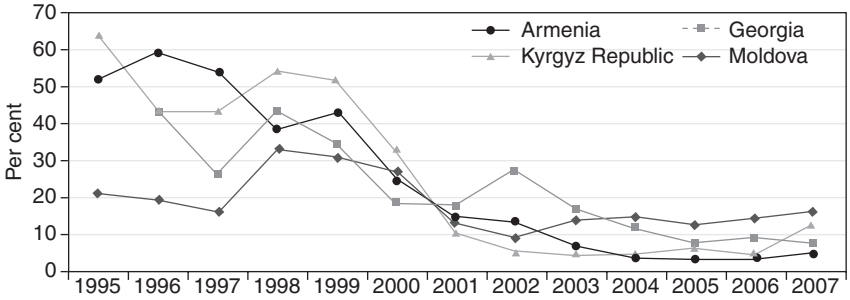


Figure 7.5 Official Central Bank of Russia rate of refinancing (source: author's calculations based on the CBR data).



(a) Net exporters



(b) Net importers.

Figure 7.6 Refinancing interest rate in the CIS by country and country groups (source: author's calculations based on the EBRD (2009) data).

overall economy's solvency worries.[4] In the CIS economies, this standard view is filled with rich political economy content. Implicitly, both effects were reviewed in Chapter 1 of this book. For politically vulnerable import-relying economies, preventing sharp depreciation of their domestic currencies then becomes a matter of social content as well and not just a topic of macroeconomic policy debate. Similarly, abrupt sustained increase in price levels poses a risk to the destabilizing economy and society. Such intermix of seemingly purely economic with social aspects in the CIS development is key to understanding the unique nature of those economies and their path.

So far, this section has briefly outlined some stylized facts and literature on financial crises. Attention has been drawn to the fact that a financial crisis, and sudden drop in liquidity, can be linked to currency crises or a run on a currency and capital flight. It is the opinion of this research that the CIS economies are dealing with the risk of a pure currency crisis. Monetary (and fiscal) authorities

will have to consider a multitude of factors in monetary policy targeting and/or revising monetary rules.

7.4 A two country-group theoretical model with foreign reserves

This section develops a theoretical model for a small open economy running a high currency run risk. As mentioned earlier, this analysis is built on the model introduced by Kato *et al.* (2008). This model is modified for considerations of the CIS specifics, debt, and existence of two country groups. The economy is defined by the following:

$$y = \alpha - \beta(i - \pi^e) + X(e^e);\ X'(e^e) > 0 \tag{7.1}$$

$$\pi = \pi^e + \eta(y - y_n) \tag{7.2}$$

$$e = i - i^f - \rho\,(i - i^f, R, b, d);\ \rho_{i\text{-}if} > 0,\ \rho_R < 0,\ \rho_b > 0,\ \rho_d > 0 \tag{7.3}$$

where equation (7.1) describes a standard open economy output y relation that depends negatively on real interest rate i and positively related to the net exports $X(e^e)$, which in turn react positively to expected exchange rate e^e depreciation; α and β are positive constants. Equation (7.2) describes domestic inflation rate π that depends on expected inflation rate π^e and a variation of actual output from the natural level y_n (NAIRU). Note that, for convenience, we assume policy target $y^* = y_n$.

Equation (7.3) is a modified interest rate parity condition, where i is the domestic interest and i^f is the foreign interest rate (average one-year LIBOR rate for convenience); and ρ is a country-specific risk premium to cover uncertainty. One of the risk factors is the exchange rate volatility that causes high uncertainty. That is captured in ρ by $i - i^f$. The second risk factor relates to potential losses associated with financial instruments, such as foreign exchange reserves, R. Since the reserves become a closely watched proxy for domestic currency's stability, per the earlier discussion, an abrupt drop in reserves may indicate high risk of keeping assets denominated in local currency for a potential investor. Within the model, reserves dynamics can be expressed as follows:

$$\dot{R} = X(e^e) + F(e^e, R);\ F_{e^e} < 0,\ F_R > 0 \tag{7.4}$$

where $F(e^e, R)$ is the net inflow of financial assets that also results in an increase in foreign exchange reserves and can be expressed as:

$$F(e^e, R) = n(e^e) - z(e^e, R);\ n'(e^e) < 0,\ z_{e^e} > 0,\ z_R < 0 \tag{7.5}$$

where net inflow is the difference between inflow n and outflow z (for simplicity, we subdue any interest rate and expected exchange rate effects). Note that, in

equation (7.5), only z is a function of expected exchange rate e^e and reserves, R. This accounts for the earlier statement on investors' reaction to reserves depletion: as reserves decrease, there is a potential risk for currency depreciation, hence motivation for foreign investors to pull out of the economy.

Note that equation (7.3) above carries two new terms: b, ratio of total foreign currency-denominated sovereign debt to national income, y, $b \equiv B/y$, where B is the total sovereign debt level; and a term d, $d = D/y$ where D is the total debt level. The latter term d is interpreted differently depending on the exact CIS country group. This helps gauge the theoretical model closer to the CIS case.

For the net exporters, d represents a ratio of total foreign currency-denominated private debt to national income y and, for the net importers, it is the ratio of total foreign currency-denominated public debt to income y. Net exporters have seen increasing private (corporate, banking, and households) indebtedness, D_{prv}. For example, Russia's private debt now exceeds the levels of the country's public debt at the time of the 1998 default. The current estimate of Russia's private debt of US$500 billion also exceeds the total value of the country's foreign reserves (Mau, 2009). Since many large corporations and financial entities (principal borrowers) are implicitly supported by the state, debt increases in the background of the currency depreciation and loss of foreign reserves destabilizes the economic situation significantly. For the net importers, aside from the regular sovereign debt B, a major factor in the economy is state borrowing. Net importers' state debt is D_{pub} in the model. Primary concern is with foreign currency-denominated debt that affects balance sheets via implied foreign currency peg.

For the fragile transition economies, change in value of foreign currency-denominated debt has a strong impact on the economy and investors' decisions to stay or pull out of the country. Krugman (2000), Flaschel and Semmler (2003), and others provide theoretical justification for such a framework. Then, in the transition economies' environment, where government has direct influence over the central bank's decisions, sustaining a competitive exchange rate may be a priority given the high value of foreign currency-denominated debt (to offer support to private–state enterprises or sustain fiscal balance). Expected exchange rate depreciation then explodes the debt-to-be-repaid value.

At the same time, increasing liabilities and indebtedness may stir expectations of a country's insolvency, default, and spur capital flight. It is important to bear in mind that relationship (7.3) does not necessarily imply causality of related effects but identifies their interrelation. Hence, both the sovereign debt and private debt (net exporters) or public debt (net importers) carry a risk premium that compensates investors for the implied uncertainty. The debt dynamics can be described as follows:

$$\dot{b} = \gamma b - \frac{X(e^e)}{y} - g_y * b \tag{7.6}$$

$$\dot{d}_{prv} = inv - s(p - ud_{prv}) - g_y * d_{prv} \tag{7.7}$$

$$\dot{d}_{pub} = g - t + zd_{pub} - g_y * d_{pub} \tag{7.8}$$

Consider the first term b, net sovereign debt, to income ratio described by relationship (7.6). Change in b is given by the difference in total interest payments γb and current account, or net exports, $\frac{X(e^e)}{y}$ (all expressed as ratios to income), less the product of the real GDP growth rate and debt-to-income ratio: $g_y * b$. Note that, per earlier assumption, current account to income ratio for net exporters reflects a surplus position and a deficit position in the net importers' case. The interest rate on debt is $\gamma = i + \tau_1$; where i is the domestic interest rate found in the model and τ_1 is a transition economy risk premium, equal to or greater than zero. For example, sovereign bonds issued to the Diaspora (as discussed in Chapter 4) would carry a very low τ_1 risk, and the yield is then determined by domestic interest rate, i. A more conventional bond issuance, on the other hand, would require a value greater than zero on the risk premium term τ_1 as investors require higher returns given increased exchange rate risk, country risk, and risk of outbound growing debt in the transition economies. Equation (7.6) applies in both net exporters' and net importers' cases in the model.

Next, change in private debt to income ratio in the net exporting economies, as in equation (7.7) above, is determined by a share of required investment to income ratio, *inv*, less the remaining balance of profits to income ratio p, covering interest payments ud_{prv} income share, reduced by debt to income ratio growing proportionately to total income, $g_y * d_{prv}$, where s is a positive constant share. Note that interest rate u is determined by $u = i + \tau_2$; where i is the domestic real interest rate and $\tau_2 > 0$ is the country-specific risk premium.

Finally, net importers' specific debt equation (7.8) describes the change in public debt to income ratio, d_{pub}. Here, fiscal budget, difference between government purchases g and tax revenues t, is offset by required interest payments, zd_{pub}, and reduced by debt to income ratio growing proportionately to total income, $g_y * d_{pub}$. Consistent with the rest of the debt equations layout, all variables are introduced as proportionate to total GDP rather than as levels. Interest rate is defined as $z = i + \tau_3$, where i is the domestic real interest rate and $\tau_3 > 0$ is the country-specific risk premium. Intuitively, the value of in τ_3 in the net importer economies will be significantly higher than basic interest rate due to increased country-specific risk.[5]

With the above characterization of a transition economy and related components, it is possible to look closely into policy specifics. From the central bank's point of view, there are three targets: the inflation rate, the output gap, and precautionary foreign exchange reserve buildup, as discussed earlier. Despite the closeness of the monetary and fiscal authorities' decision-making process, we take the debt characterizations out of exchange rate change equation and introduce them at a later stage in the model. That reverts equation (7.3) to its original form, as in Kato *et al.* (2008).

$$e = i - i^f - \rho(i - i^f, R);\ \rho_{i\text{-}if} > 0,\ \rho_R < 0 \tag{7.3a}$$

Hence, the monetary instrument that the central bank has at its disposal, indirectly affecting three targets in normal times, is the real domestic interest rate. Then the central bank's objective is to minimize its loss, defined by the following:

$$\min_i L = \int_0^\infty e^{-rt}\left[\frac{\lambda_1}{2}(\pi - \pi^*)^2 + \frac{\lambda_2}{2}(y - y^*)^2 + \frac{\lambda_3}{2}(R - R^*)^2\right]dt \tag{7.9}$$

where the new terms are π^*, y^*, R^* and correspond to the target levels of inflation rate, output level, and foreign exchange reserve stock. The parameters λ_1, λ_2, and λ_3 measure relative weight of each variable in the objective function.

Then, using equations (7.1) and (7.2) in (7.9), the objective function is:

$$\begin{aligned}\min_i L = \int_0^\infty e^{-rt}\Bigg[&\frac{\lambda_1}{2}(\pi^e + \eta(\alpha - \beta(i - \pi^e) + X(e^e) - y^*) - \pi^*)^2 \\ &+ \frac{\lambda_2}{2}(\alpha - \beta(i - \pi^e) + X(e^e) - y^*)^2 + \frac{\lambda_3}{2}(R - R^*)^2\Bigg]dt\end{aligned} \tag{7.10}$$

subject to equations (7.3a), (7.4), and boundary conditions for e^e and R. A further detailed specification to expression (7.10) and relevant derivation is offered in the Appendix. Solving the model, the first steady state solution is:

$$q_1 = \frac{\lambda_1\beta\eta(\pi^e - \pi^*) + \beta(\lambda 1\eta^2 + \lambda_2)(\alpha - \beta(i - \pi^e) + \varepsilon e^e - m - y^*)}{1 - \sigma 2(i - i^f)} \tag{7.11}$$

Incorporating (7.11) in (7.26)–(7.29) (see the Appendix) and setting $\dot{q}_1 = \dot{q}_2 = \dot{e}^e = \dot{R} = 0$ and solving for i, e^e, R, q_2, a new set of steady states is derived. Note that specific solutions for debt ratios expressed from equations (7.6)–(7.8) are:

$$b = \frac{m - \varepsilon e^e}{y(g_y - \gamma)} \tag{7.12}$$

$$d_{prv} = \frac{inv - sp}{g_y + su} \tag{7.13}$$

$$d_{pub} = \frac{g - t}{g_y - z} \tag{7.14}$$

Equations (7.12), (7.13), and (7.14) then allow us to derive steady state values for b, d_{prv}, d_{pub} within the model. Recall that we are including debt relationships post factum, maintaining the original model's integrity, which best replicates central bankers' policy decisions.

Finally, note that in all three cases, among other factors, domestic interest rate i and specific risk premiums τ_1, τ_2, τ_3 have a strong effect on the debt ratios, via γ, u, z, as defined earlier. Calibrating the parameters in the next section helps analyze some of the specific effects of the above sketched model.

7.5 Numerical analysis and possible scenarios

Policy and effects without explicit reserves targeting

The model is calibrated for the twelve CIS economies using average macro indicators for the 2000–2008 period. All actual data are derived from the latest EBRD and IMF sources. Consistent with our approach, we run two country-groups analysis: net exporters and net importers. In addition, for each country group, two distinct cases of the model are reviewed: 1) without foreign exchange reserves (R*) target level; and 2) with explicit foreign exchange reserves (R*) target level. The first case of no reserves target opens the discussions. For brevity, only a few possible scenarios that may be extrapolated from the model are reviewed.

To begin with, assume a simple case of no reserves targeting and no risk premium to foreign investor for holding assets in the domestic currency. Hence, the relative reserves target weight in the central bank's loss function is set equal to zero, $\lambda_3 = 0$ and $\sigma_1 = 0$ and $\sigma_2 = 0$, which also means $\rho = 0$. For convenience, we set $m = 0$ and assume expected inflation, π^e, to be a constant. Fine-tune parameters for foreign exchange net inflow by setting both $\nu > 0$ and $\mu > 0$. Following earlier discussion of equation (7.4), set both $\nu > 0$ and $\mu > 0$ with the implication that change in the foreign exchange reserves is influenced by exchange rate and current reserves levels R.

Average parameters for the seven net exporting economies in the simple case of no reserves targeting are shown in Table 7.1. The bottom row of the table includes averages specific to our extended version of the model with debt equations (7.6) through (7.8). Note that net importers' specific parameters (government spending g, tax revenue t, and risk premium τ_3) are excluded since they are not relevant to this simulation.

Similarly, a separate simulation for the net importing economies is run with the parameters as described in Table 7.2. Here, the non-net importer economy parameters are set to "n.a." accordingly.

Table 7.1 Net exporters' parameter values, no R targeting

λ_1	λ_2	λ_3	π^*	π^e	y^*	R^*	i^f	r
1	1	0	0.1	0.1	250	0	0.05	0.05
α	β	η	σ_1	σ_2	ε	m	ν	μ
125	25	0.0007	0	0	0.3	0	70	10
g	t	inv	p	g_y	s	τ_1	τ_2	τ_3
n.a	n.a	0.3	0.25	0.09	1	0.1	0.05	n.a

Table 7.2 Net importers' parameter values, no R targeting

λ_1	λ_2	λ_3	π^*	π^e	y^*	R^*	i^f	r
1	1	0	0.12	0.16	15	0	0.03	0.05
α	β	η	σ_1	σ_2	ε	m	ν	μ
5	1.5	0.0009	0	0	–0.01	0	10	100
g	t	inv	p	g_y	s	τ_1	τ_2	τ_3
0.27	0.13	n.a	n.a	0.05	n.a	0.005	n.a	0.005

Table 7.3 Net exporters' steady state, no R targeting

Steady state	R	π	i	y	e	b	d_{prv}
1	13,731	0.1	0.05	250	412.5	8.25	0.26
2	185.44	0.016	0.05	130.2	13.11	0.50	0.26

Table 7.4 Net importers' steady state, no R targeting

Steady state	R	π	i	y	e	b	d_{pub}
1	94.36	0.15	0.03	5.17	2.11	0.27	9.3

Note that the value of the μ parameter is raised for the net importers case to 100 and ν is lowered to 10. This allows us to assign a greater value to the risk of reserves outflow from the smaller and less financially protected economies. In addition, this calibration uses higher inflation rate but lower output level values to better reflect the specifics of the small five net importer economies.

Given the parameter values in Table 7.1 and Table 7.2, we derive unique steady state solutions, presented in Tables 7.3 and 7.4 for the reserves R, inflation rate π, interest rate i, output y, exchange rate e, external debt to output b, private debt to output ratio d_{prv} (for the net exporters' case), and public debt to output ratio d_{pub} (for the net importers' case). Employing software package *Mathematica*, the steady state for the given parameters using equations (7.25)–(7.30) (see Appendix) and equations (7.12)–(7.14) is computed.

As is clear from Tables 7.3 and 7.4, we obtain multiple steady state solutions. However, one must interpret these results with caution. First, we reject the results with negative exchange rate due to lack of economic rationale. In other words, while the mathematical result is accurate, it is difficult to imagine a real-life situation with a negative exchange rate.[6]

Then for the net exporters (steady state 1 in Table 7.3), there is a range for R between 0 and 13,731, pushing currency reserves away from the zero level. Such move requires strong exchange rate depreciation. That then implies potentially sustainable, very high external debt-to-output ratio (in this case, it is greater than 1). Hence, large reserves buildup would be required to sustain very large b as the group over-borrows in the international capital markets and has to keep up with the interest payments. Partially, this result is confirmed by and relates to the circum-

stances described for such countries as Kazakhstan and Ukraine with external debt-to-GDP ratios over 100 per cent during the 2000s. Realistically, however, sustainability of such high debt may not hold in the longer run and as first signs of any risk (currency, political, or financial instability) appear, risk of default intensifies. In fact, the financial market perceives a ratio greater than 1 as risky, indicating a country's vulnerability, and deterring additional capital flows into the economy.

In the steady state 2 in Table 7.3—with the derived equilibrium solutions for reserves, exchange rate, and interest rate—net exporting economies' sustainable external debt to output ratio is lower, at 0.50. On average, that is a more reasonable level for the group (see Figure 7.3(a), for example). Sustainable private debt-to-income ratio is also at an empirically reasonable level given exogenously defined investment and profit rates. Note, however, that these equilibrium solutions correspond to low inflation and output below its target. In addition, one would expect exchange rate depreciation as indicated by a move from steady state 2 to steady state 1 as output approaches its target level.

Similarly for the net importers, the equilibrium solution is in steady state 1 in Table 7.4. This corresponds to a situation of high inflation and significantly lower, compared with the net exporters, R and b values. This is reasonable, reflecting smaller economies' limited presence in the international capital markets (see discussion in Chapter 4). However, results also indicate sustainable public debt-to-GDP ratio, d_{pub}, greater than 1. Clearly, this is the case of government over-borrowing. Sustaining such high debt may not be feasible in the longer run and poses risks of governmental insolvency. Note that in the fiscal policy analysis, Chapter 3 presented evidence of such high over-borrowing in the net importer economies (e.g. Kyrgyz Republic and Moldova). We find support for our proposition, i.e. generating larger primary surplus as one of the requirements to sustain high public debt, in a recent study of public debt sustainability in the emerging economies (IMFWEO, 2003).

Further, analytically (see equation 7.14), in case of existent structural issues that may be restricting primary surplus improvement, large public debt sustainability also requires a pickup in economic growth. This then relates to our argument for a proactive and strategic fiscal policy. In other words, despite high levels of g, allocating funds in revenue-generating economic activity helps deal with domestic debt sustainability, expand tax base, and feed into economic growth. While exact causality may vary on a country basis, existence of the relationship cannot be denied.

The next test preserves the same parameters as above with only one change. For the net exporters, set $\sigma_1 = 2$, and $\sigma_1 = 0.5$ and for the net importers. This introduces a risk premium to foreign investors due to low levels of currency reserves (so that $\rho > 0$). Multiple steady state solutions are obtained and presented in Tables 7.5 and 7.6.

Results in Tables 7.5 and 7.6 above reflect only non-negative exchange rate e steady state solutions. For the net exporters, the upper steady state 1, corresponding to the highest reserves level, also implies strong deflation, while real interest rates are out of bounds. Note that this equilibrium solution is achieved at a

Table 7.5 Net exporters' steady state, no R targeting, $\sigma_1 = 2$, non-negative e

Steady state	R	π	i	y	e	b	d_{prv}
1	13,732	–0.75	48.73	–967.1	412.5	–0.003	–0.010
2	219.3	0.02	0.06	130.3	14.19	0.47	0.25

Table 7.6 Net importers' steady state, no R targeting, $\sigma_1 = 0.5$, non-negative e

Steady state	R	π	i	y	e	b	d_{pub}
1	93.48	0.15	0.04	5.16	2.10	0.42	14.5
2	3.49	0.15	0.17	4.97	0.70	–0.01	–1.1

negative output level. Due to that aspect, we exclude this steady state from a reasonable solutions set.

Then, according to solution 2 in Table 7.5 with increasing risk $\rho > 0$, targeting predetermined levels of output and inflation for the net exporters implies an increase in required reserves levels, while exchange rate continues to depreciate (vs. comparable results in Table 7.3). In terms of debt sustainability, both external b and private debt d_{prv} ratios are lower than earlier results. Hence, existence of positive risk associated with low currency reserves translates into reduced levels of sustainable external and private debt for the net exporters.

Table 7.6 presents two steady state solutions for the net importers. For this country group, compared with the initial case, adding a risk factor, $\rho > 0$, results in a similar equilibrium solution for the R, π, i, y, and e in steady state 1. Importantly, there is an observed increase in the state variable i and a slight decline in reserves level. These solutions then correspond to increased levels of sustainable external debt and public debt (compared with solutions in Table 7.4). The earlier comment, regarding $d_{pub} > 1$, a vulnerable situation of over-borrowing, applies again: to guarantee debt sustainability fiscal authorities must generate large primary surplus and foster economic growth. Otherwise, with output and inflation targets and given primary account, such public borrowing levels are not feasible in the medium run. Therefore, this result is treated with caution.

Finally, increase in b refers to higher sustainable levels of foreign debt. This seems to be reasonable only if the net importers' economies start with high initial net foreign assets value or expect capital inflows from elsewhere that could be used as a guarantee in the net importers' capital market access. For example, these economies (as reviewed in Chapter 4) may be receiving high foreign aid transfers or negotiating external funding from the IMF or World Bank (alternatively, in the CIS, the largest creditor is Russia; some specifics of recent loans from Russia to the smaller CIS economies will be reviewed in Chapter 8). Hence, even with the added perceived risk of low currency reserves, there is a possibility for equilibrium with a higher sustainable external debt position for the net importer economies.

The second case in Table 7.6 relates to a situation of lower steady state with reserves at low level, output close to the target and non-depreciating exchange rate. At the same time, real interest rate is high and negative ratios of external and private debt to income indicate the country group is a net lender (starting off with an initial net assets position) in both external and domestic capital markets. This puts the economy in stringent conditions. Analytically, what may help define this initial position are high (relative to output) transfer levels of foreign aid and foreign currency-denominated remittances from labor migrants abroad. Still, it is unlikely that these debt solutions would hold in the near-term, as the empirical data on net importer states' borrowing indicates (e.g. see Section 7.3 or Chapters 2 and 3).

It is, however, reasonable to conclude that steady state 2 in Table 7.6 cannot be a stable value for the economy, and there is an upward pressure with exchange rate depreciation and increase in output and reserves levels. Another way to interpret the negative signs on the debt ratios is to argue that this reflects a tendency that financially less-protected economies may be curtailing their sustainable borrowing, either due to an inability to access financial markets or due to lacking solid macroeconomic performance (see Chapter 4 for discussion on international capital markets access), or both. Hence, one might perceive of currency reserves as offering an extra safety cushion, motivating the economy's borrowing. In terms of public debt, two key factors—primary surplus and economic growth—remain vital for ensuring sustainability. The next steps analyze the case of explicit reserves targeting by the central bank.

Policy and effects with explicit reserves targeting

Following the above analysis, Table 7.7 for the net exporting economies and Table 7.8 for the net importing economies present a set of parameters with

Table 7.7 Net exporters' parameter values, with R targeting, $\sigma_1 = 2$

λ_1	λ_2	λ_3	π^*	π^e	y^*	R^*	i^f	r
1	1	10	0.1	0.1	250	100	0.05	0.05
α	β	η	σ_1	σ_2	ε	m	ν	μ
125	25	0.0007	2	0	0.3	0	70	10
g	t	inv	p	g_y	s	τ_1	τ_2	τ_3
n.a	n.a	0.3	0.25	0.09	1	0.1	0.05	n.a

Table 7.8 Net importers' parameter values, with R targeting, $\sigma_1 = 0.5$

λ_1	λ_2	λ_3	π^*	π^e	y^*	R^*	i^f	r
1	1	10	0.12	0.16	15	10	0.03	0.05
α	β	η	σ_1	σ_2	ε	m	ν	μ
5	1.5	0.0009	0.5	0	–0.01	0	10	100
g	t	inv	p	g_y	s	τ_1	τ_2	τ_3
0.27	0.13	n.a	n.a	0.05	n.a	0.005	n.a	0.005

explicit individual R targets. For net exporters, we set $R^* = 100$ and for the smaller net importer economies $R^* = 10$, to accentuate the difference in response between the two country groups. In addition, in both groups $\lambda_3 = 10$, which represents a strong central bank reaction to *R's* deviation from its target level.

Here, introduction of new parameters results in multiplicity of steady states for the reserves R, inflation rate π, interest rate i, output y, exchange rate e, external debt to output b, private debt to output ratio d_{prv} (for the net exporters), and public debt to output ratio d_{pub} (for the net importers). Consistent with our earlier analysis, we calibrate the model for two possible scenarios, with a risk premium to foreign investors due to low levels of currency reserves (so that $\rho > 0$) and without that (so that $\rho = 0$). Results are interpreted for economic meaning, and only unique and economically significant outcomes are reported in Tables 7.9 through 7.12.

Calibration results for the above parameter values and $\rho = 0.0$ for the net exporters and net importers are shown in Tables 7.9 and 7.10. For the net exporters, $\sigma_1 = 0.0$ and steady state reserves level R is slightly above the $R^* = 100$ target, with associated exchange rate depreciation and real interest rate $i = 0.05$, while output is below its target level (vs. results reported in Table 7.3). Given these equilibrium conditions, net exporters' sustainable debt-to-income ratio decreases to $b = 0.38$, down from the pre-R-target level of $b = 0.5$ (as in Table 7.3).

Two aspects are important here: 1) the new conditions allow for any potential accumulation of R above the R^* level to be channeled into the economy, hence reducing the actual required external debt; and 2) having the required R^* target pushes the economy's resources in the direction of compensating that level, hence decreasing the real economy's potential to sustain high debt-to-income ratio. Which of the two takes precedence will vary based on country specifics. Finally, there are no changes to sustainable public debt-to-income ratio (vs. Table 7.3): initial explanation remains and there is no effect of reserves target on private debt in the short run.

For the net importers, with $R^* = 10$ and $\sigma_1 = 0.0$, results are given in Table 7.10. There are two steady state solutions. In terms of reserves, the lower limit is at $R = 0.002$, while the upper is closer to the announced R^* level. Achieving that higher steady state implies exchange rate depreciation (from 0.055 to 0.99),

Table 7.9 Net exporters' steady state, with R targeting, $\sigma_1 = 0.0$

Steady state	R	π	i	y	e	b	d_{prv}
1	100.05	0.015	0.05	129.25	10.01	0.38	0.26

Table 7.10 Net importers' steady state, with R targeting, $\sigma_1 = 0.0$

Steady state	R	π	i	y	e	b	d_{pub}
1	9.97	0.15	0.03	5.18	0.99	0.13	9.3
2	0.002	0.15	0.03	5.19	0.055	0.007	9.3

while inflation and real interest rate stay the same. In terms of debt: b increases from 0.007 to 0.13, moving from the lower to the upper steady state solution. However, when compared with the results without R^* targeting (in Table 7.4), there is a decrease in the sustainable external debt-to-output ratio to $b = 0.13$ at the upper steady state level. This is the same dynamic as in the net exporters. Clearly, both country groups face similar constraints, but the crucial difference is in the levels (net exporters' sustainable b is significantly higher than the net importers' value), which in the real economy helps buy time and procure strategic financing. Note that there is no change in net importers' public debt-to-output ratio. This again raises the concern of sustainability of high debt, and the risk of domestic default intensifies.

The next simulation introduces the risk premium for both country groups. Using the same parameters as in Table 7.7 and Table 7.8 ($\sigma_1 = 2$ for net exporters and $\sigma_1 = 0.5$ for net importers), we obtain unique steady state solutions as reported in Tables 7.11 and 7.12.

In both net exporters' and net importers' cases, reaching their respective target levels of R^* is accompanied by a higher real domestic interest rate, which helps control exchange rate depreciation, setting it at the same equilibrium levels as before (compared with results reported in Table 7.9 and Table 7.10). However, solutions for debt-to-output ratios in both country groups change under these new steady states.

Net exporters' sustainable foreign debt-to-output ratio falls to $b = 0.29$ and sustainable private debt-to-output ratio declines slightly to $d_{prv} = 0.24$ (when compared with equilibrium solutions with and without R^*). Decreases in the sustainable debt ratios in net exporting economies may be explained similarly to the earlier case of $R^* = 100$ but $\sigma_1 = 0.0{:}1$) reserves accumulated above target level substituting external borrowing, or 2) keeping up with the target reserves requirement, the economy cannot afford to borrow beyond the steady state-determined level of b in the international markets. The new results in Table 7.11 add the increased perceived risk and hence market instability, transmitting negative signals to investors, dropping the ratio further down. Also, with $\sigma_1 > 0$ there is added pressure to account for the risk premium $\sigma_1 = 2$, restricting sovereign borrowing (in the case of external debt B). Private debt-to-output ratio, d_{prv}, is

Table 7.11 Net exporters' steady state, with R targeting, $\sigma_1 = 2$

Steady state	R	π	i	y	e	b	d_{prv}
1	100.11	0.015	0.069	128.75	10.00	0.29	0.24

Table 7.12 Net importers' steady state, with R targeting, $\sigma_1 = 0.5$

Steady state	R	π	i	y	e	b	d_{pub}
1	9.97	0.15	0.08	5.11	0.99	–0.055	–3.98

clearly affected by the changes in the interest rate. Hence, an increase in i corresponds to a reduction in sustainable levels of d_{prv}. This result is manifested in the currently ongoing monetary tightening, such as in Russia, which raises fears over a potential collapse across the banking system and curtailing of corporate lending (see Belton and Wagstyl, 2009 for insightful discussion).

The case of net importers (Table 7.12) suggests similar dynamics as in the net exporting economies. The difference is in levels, in mathematical terms. In economic terms, this difference translates into being a natural advantage to net exporters in terms of time and the economy's financial maneuver, with a benefit of a potential medium-run balance, while net importers must be wary of immediate short-term results. The rationale for the change in negative debt ratios under explicit reserves target and added risk premium is the same as has already been provided in discussion of the Table 7.6 results. It matters whether the countries enter financial markets with an initially high level of net wealth, which can potentially turn them into net lenders (negative b value). It can be extrapolated from the results that there is a general tendency for the sustainable external and public debt-to-output ratios to decline in net importer economies as the central bank chooses a reserves target too high, given positive risk premium. That then drives the domestic real interest rate, making domestic borrowing too expensive to sustain at high levels.

To help finalize the numerical analysis and shed additional light on the development aspects of the currency reserves targeting with debt implications model, one more simulation is attempted. Keeping steady state solutions for the reserves R, inflation rate π, interest rate i, output y, exchange rate e, as in Tables 7.11 and 7.12, the country's risk premiums and growth rates are changed in each group case to observe changes in debt ratios. These calibration results are shown in Tables 7.13 and 7.14.

For net exporters (Table 7.13), with R* = 100 and $\sigma_1 = 2$, a reduction in real growth rate to $g_y = 0.05$ lowers the level of the sustainable foreign debt by ten basis points to $b = 0.19$. Sustainable private debt to output ratio decreases as the group-specific risk premium increases, $\tau_2 = 0.1$.

For net importers, higher associated country risk, $\tau_1 = 0.01$, partially offset by a pickup in real output growth, $g_y = 0.08$, then produces larger (vs. previous result) negative foreign and public debt-to-output ratios (Table 7.14). This

Table 7.13 Net exporters' steady state, with R*, $\sigma_1 = 2$, $\tau_2 = 0.1$, $g_y = 0.05$

Steady state	R	π	i	y	e	b	d_{prv}
1	100.11	0.015	0.069	128.75	10.00	0.19	0.227

Table 7.14 Net importers' steady state, with R*, $\sigma_1 = 0.5$, $g_y = 0.08$, $\tau_1 = 0.01$, $\tau_3 = 0.02$

Steady state	R	π	i	y	e	b	d_{pub}
1	9.97	0.15	0.08	5.11	0.99	–0.19	–6.96

outcome is only possible, as mentioned earlier, if the net importer economies initially hold net assets. However, this is a very stringent condition and, while hypothetically possible, may not be a repeated viable outcome in real life. But an exception may apply in the case of the net importer economies receiving large unilateral transfers, such as foreign aid. Another example of such transfers is the sustained inflow of foreign currency-denominated remittances from labor migrants abroad. This then alleviates pressures on the state for some social and public project outlays. Finally, note that increasing negative public debt-to-output ratio is also due to a high chosen reserves target relative to GDP and increasing real interest rate, which then curtails borrowing. The general tendency alluded to before is reconfirmed: as the foundational macroeconomic parameters improve (in this case, real growth rate), so does the net borrowing position.

The above numerical model calibration examples enhance our understanding of the modified central bank's objective with the output, inflation, and currency reserves targets. Also it is possible to derive several general conclusions on debt dynamics. The numerical calibration is applied to the case of the CIS net exporter and net importer states. The next subsection analytically works through the generalized scenarios, derived from the model calibration results. This is done with the current recession in mind.

A possible currency crisis scenario in the CIS

Equipped with the above results and overall analysis, we can attempt to derive a general outcome fitted to the ongoing financial crisis and economic slowdown in the CIS economies. Figure 7.7 offers a consistent analytical summary and presents a hypothetical economy with the demand curve GG (characterized by IS equation similar to equation (7.1) above) and financial markets curve AA. Suppose an economy starts at point E_0, corresponding to natural output level Y_0 and competitive exchange rate level e_0 (expressed as units of domestic currency for foreign currency). With the deteriorating external position and as access to credit dries up, real output shrinks (expressed in a leftward shift) and the economy enters a period of recession.[7]

As the crisis develops and liquidity leaves the emerging market (as most CIS economies are such) and risk premiums on foreign, private, and public debts increase (i.e. increases in τ_1, τ_2, τ_3, with investors demanding higher risk premiums associated with reserves and exchange rate volatility, $\rho > 0$), there is an imminent pressure on domestic currencies for drastic depreciation. In the background, this is accompanied by a reduction in net exports and risks of high inflation.

All of the above concerns have materialized in various forms during the recent 2008–2009 crisis, with both systemic and sporadic responses between both country groups. Within each group, each country's individual responses have varied as well. Below, some very general conclusions based on these observations are drawn.

At the same time, sustainable levels of foreign, domestic private, and public debts decline (consistent with our model's analysis). This then evokes blended

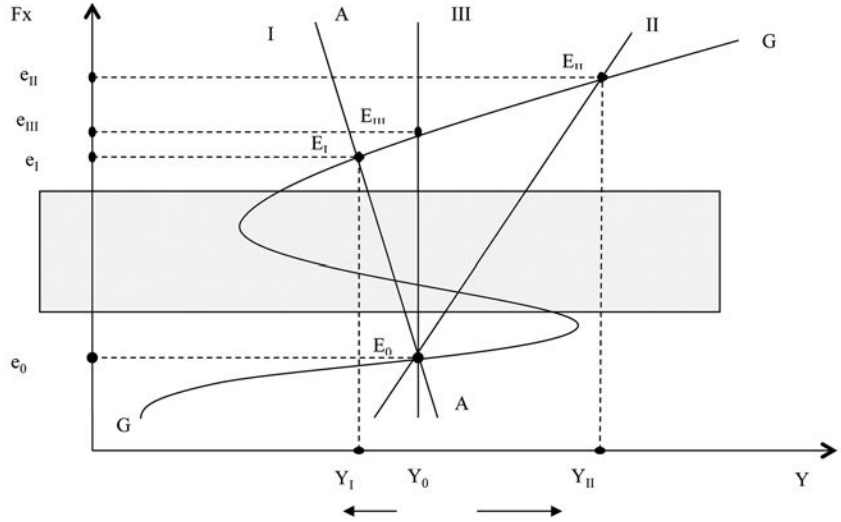


Figure 7.7 Possible currency crisis scenario, CIS economies.

fiscal and monetary authorities' decisions: the central bank follows extended Taylor-type monetary policy rules, as described above, and fiscal authorities watch over the levels of sustainable debt (including large, semi-private corporations' exposure to debt).[8]

There are two possible ways out of this situation: 1) countries with large foreign exchange reserve stockpiles rely on the existent reserve capacity to prevent sharp currency depreciation and throw some liquidity in the markets; and 2) countries without access to reserves face sharp depreciation, hence requests for external funding are practically inevitable. It then does not come as a surprise if we report both scenarios playing out in real time in both types of the CIS economies: for example, Russia is providing credit line to the smaller net importer economies, while itself is spending reserves on smoothing the exchange rate depreciation effects. These trends are indirectly confirmed by the stylized facts discussion above.

Going back to Figure 7.7, one then can hypothesize at least three post-crisis scenarios with three distinct outcomes. This is based on our numerical model calibration exercise conducted earlier. In all three cases, we expect exchange rate deterioration (Krugman, 2000 refers to this as increased price of reserves):

- Scenario 1: Following unstable development pattern during the crisis (shaded area), economy ends up at point E_I with reduced (or below target) output level Y_I and depreciating exchange rate at e_I. This scenario, however, does not guarantee return to the same foreign exchange reserves level.

- Scenario 2: Following unstable development pattern during the crisis (shaded area), economy ends up at point E_{II} with output growing above the pre-crisis level to Y_{II} and exchange rate depreciating even further, e_{II}. According to this scenario, there is a chance for an economy not only to regain its productive capacity but also to restore and increase its currency reserve stockpiles (e.g. recall exceptionally high steady state levels for the net exporter economies).
- Scenario 3: Following unstable development pattern during the crisis (shaded area), economy ends up at point E_{III} with output at the pre-crisis level to Y_0 and exchange rate depreciating to level e_{III}, which is between the Scenarios 1 and 2 exchange rates. Accordingly, it is safe to assume that an economy restores its productive capacity and pre-crisis foreign exchange reserves stockpile. This is likely only in the case of explicit reserves target R^*, which, in our model, if set too high given the economy's real capacity adversely affects debt sustainability.

This analytical framework serves as a suitable summary to the model analyzed in this chapter. How things are going to play out for the CIS economies will become clear only with time. Possible development scenarios must be considered and blending of the monetary and fiscal authorities' decisions cannot be excluded from consideration. Figure 7.7 identifies the pitfalls of the strategies for pushing out of the crisis that focus solely on output increase, for example. For highly indebted CIS economies that almost entirely rely on imported consumer goods, sharp depreciation causes economic vulnerability and social instability. At the same time, setting too high reserve targets lowers the sustainable debt-to-output ratios and the value of foreign currency-denominated debt explodes with domestic currency depreciation.

Scenario 2 then represents a possible best-case scenario, considering the circumstances. Provided smooth exchange rate depreciation, as is currently done in Russia, for example (see CBR data for additional discussions on Russia's current monetary policy), there is the potential for restoring the economy to the pre-crisis output levels. Having clearly identified reserve targets then proves as a beneficial strategy, controlling for various aspects of the economy, including borrowing. But, as we noted, a lot depends on the relative value of R^* chosen. That comes from macroeconomic and political economy considerations in the CIS.

Above analysis is directional and results may change if the model is applied to a specific country and under new conditions. One should bear in mind the importance of meaningful assumptions and economic relevance of obtained mathematical results. The next section summarizes the above discussion and offers some immediate policy implications.

7.6 Conclusion and possible policy implications

This chapter analyzed an extended version of the Kato *et al.* (2008) Taylor-type monetary policy rules model, with the possibility of self-fulfilling expectations

and effects on external, domestic private, and public debt. Analysis is carried out within the context of currency crises based on theory and known stylized facts. Discussion was geared towards the CIS and analysis was applied consistently for two country groups: net exporters and net importers. The theoretical model was introduced and calibrated with the focus on currency reserve targets, different for each country group, and accounting for each group's risk premium factors. For each country group, the model was calibrated first without and then with explicit foreign exchange reserve targets.

Working through economically reasonable equilibrium solutions, a tendency for exchange rate depreciation as steady state settles at a higher level of reserves, R, was observed. These results are better accentuated with introduction of a currency risk premium ($\sigma_1 > 0$) reflecting vulnerability and risk of low actual currency reserves, increasing the possibility of a crisis. Then, given equilibrium solutions for reserves, output, inflation, exchange rate, and real interest rate, we then estimate sustainable debt ratios. For net exporters, there is a reduction in sustainable external debt-to-output ratio and private debt-to-output ratio between $\sigma_1 = 0$ and $\sigma_1 = 2$ steady states, which is intuitive. For the net importers, sustainable external debt-to-output ratio rises despite added risk premium ($\sigma_1 = 0.5$), possibly due to initially positive net asset position or implicit guarantees—for example, via procured financial aid or multilateral loans (e.g. Russia and Kazakhstan's aid to smaller economies in the current conditions). Still, public debt-to-output ratio is greater than 1, indicating significant over-borrowing by the state and the need to generate larger primary account surplus and proactive growth efforts to sustain such high borrowing levels. Otherwise, given the above equilibrium solutions for the monetary policy targets, public borrowing is not feasible in the medium run, creating risks of domestic default in the net importer economies.

With an addition of explicit reserve targets to the model, new equilibrium solutions are obtained for each country group. This helps control exchange rate depreciation and adds stability to the economy, however at a reserves level. In terms of sustainable debt, we observe a continuous decline in net exporters' sustainable foreign debt levels, especially with the addition of the currency risk. Also a decline is observed in the net exporters' private debt-to-output ratio. Net importers' results follow a similar dynamic, but with the crucial difference in the relative equilibrium levels. In the real economy, that offers larger economies time for new policy and to procure strategic financing. Extensions suggest a net-lender position based on external debt-to-output and public debt-to-output ratios, indicating a possibility of initially high net asset positions in the net importer economies. Partially then, characteristic unilateral transfers, e.g. foreign aid and sustained remittance inflows from labor migrants abroad, may help drive in aggregate net asset holder positions. But a more plausible conclusion is that there is a general tendency for the sustainable external and public debt-to-output ratios in the net importer economies to decline as the central bank chooses a reserves target too high, given positive risk premium. In equilibrium, that drives up the domestic real interest rate, making borrowing costly to sustain at high levels.

Finally, given the equilibrium conditions, adjusting real output growth rate and risk premiums for each country group reconfirms the view of basic macroeconomics' primary importance in determining sustainable levels of debt for both net exporters and net importers.

Based on a schematic summary of the model, three possible scenarios are derived that account for 1) reduction in output below target or natural level, 2) output remaining unchanged, and 3) increase in output as a post-crisis situation. There is a different effect on exchange rate depreciation, level of reserves, and implied foreign currency-denominated sustainable debt in each case. This discussion is very relevant in the CIS context now as transition economies are faced with severe capital outflows and pressures on the currency. Smaller importers are also running risks of high inflation consistent with our model calibration outcomes.

Choice of the foreign exchange reserves target then becomes crucial in the pre-, during-, and post-crisis economy's performance. A too-high reserves levels is achieved, as suggested by the model and discussion in this chapter, at a price of high depreciation (inflation stays mainly on target with the expected rate, while output reaches its target level only in the net importer economies). It is also clear from the calibration analysis that depreciation could potentially be even higher before the economy reaches a steady state in the absence of reserve targets. What helps control exchange rate depreciation with an explicit reserve target is the increase in real domestic interest rate. But then with the given exogenous determinants, sustainable debt declines, and depreciation might be too high to restore the pre-crisis reserves and output levels.

Still, a wisely chosen target level for foreign exchange reserves adds flexibility to the central bank's decision and stability to the economy overall. Lower sustainable debt-to-output levels may not be an issue, as the economy learns to rely on its own financing and becomes more financially efficient. Depending on each country's specifics, associated currency depreciation, with an absence of the J-curve effect, may result in a competitive exchange rate. Post-crisis outcome also gains from the existence of the reserves target, which helps alleviate currency pressures and self-propagating expectations.

As with all, the model's calibration results developed in this study must be interpreted with caution. Choice of the *right* reserves target is a complex one and, in the CIS, it is often a blended policy decision by the monetary and fiscal authorities in the background of vast political economy issues. This is yet another area of "innovation" in the standard view of fiscal policy that the transition economies have the opportunity to take a headstart on. The role of state in the modern economy, as the promoter of stability in the modern open economy, is non-trivial; it is crucial. The sooner this settles on the entities involved, the sooner the global economy will see a more coordinated effort in crisis prevention, as opposed to crisis resolution (e.g. G-20 meetings of 2009 and onwards). That is the innovative component in modern fiscal policy. Certainly, research is invited on the topic, with a focus on the links between debt sustainability and reserves' role as a liquidity cushion. This may help dampen negative impacts of a financial crisis and thwart potential currency runs.

7.7 Appendix

Briefly, equations (7.6)–(7.8) are derived from the following growth definitions.[9]

- For both country groups, growth in sovereign debt is $\frac{\dot{b}}{b} = \frac{\dot{B}}{B} - \frac{\dot{y}}{y} = \gamma - \frac{X(e^e)}{B} - g_y$, where all terms have been defined above. Then change in debt is exactly as in (7.6).
- For net exporters only, growth in private debt is $\frac{\dot{d}_{prv}}{d_{prv}} = \frac{\dot{D}_{prv}}{D_{prv}} - \frac{\dot{y}}{y} = \frac{I - s(\Pi - uD_{prv})}{D_{prv}} - g_y$, where all terms have already been defined above, and I and Π are the total levels of required investment and total profit, respec tively. Then change in private debt is:

$$\dot{d}_{prv} = \left[\frac{I - s(\Pi - uD_{prv})}{D_{prv}}\right] * d_{prv} - g_y * d_{prv} = \left[\frac{I - s(\Pi - uD_{prv})}{D_{prv}}\right] * \frac{D_{prv}}{y} - g_y * d_{prv}$$

  Simplified and expressed as a ratio to GDP private debt change is: $\dot{d}_{prv} = inv - s(p - ud_{prv}) - g_y * d_{prv}$, exactly as in (7.7).
- Similarly, for net importers only, from public debt growth relationship: $\frac{\dot{d}_{pub}}{d_{pub}} = \frac{\dot{D}_{pub}}{D_{pub}} - \frac{\dot{y}}{y} = \frac{G - T + zD_{pub}}{D_{pub}} - g_y$, where the only new terms are G and T are the total levels of government expenditures and tax revenue respectively. The change in net importers' public debt is then $\dot{d}_{pub} = \left[\frac{G - T + zD_{pub}}{D_{pub}}\right] * d_{pub} - g_y * d_{pub}$, which is then expressed in (7.8).

Solution to the core model is the following. From earlier definitions, the current value Hamiltonian is:

$$\begin{aligned} H = {} & \frac{\lambda_1}{2}(\pi^e + \eta(\alpha - \beta(i - \pi^e) + X(e^e) - y^*) - \pi^*)^2 \\ & + \frac{\lambda_2}{2}(\alpha - \beta(i - \pi^e) + X(e^e) - y^*)^2 + \frac{\lambda_3}{2}(R - R^*)^2 \\ & + q_1(i - i^f - \rho(i - i^f, R)) + q_2(X(e^e) + F(e^e, R)) \end{aligned} \tag{7.15}$$

The first order conditions of (7.15) are:

$$\begin{aligned} \frac{\partial H}{\partial i} = {} & -\lambda_1\beta\eta(\pi^e - \pi^*) - \beta(\lambda_1\eta^2 + \lambda_2)(\alpha - \beta(i - \pi^e) + X(e^e) - y^*))^2 \\ & + q_1(1 - \rho_{i-i^f}(i - i^f, R)) \end{aligned} \tag{7.16}$$

The differential equation for the first co-state variable is $\dot{q}_1 - rq_1 = -\frac{\partial H}{\partial e}$ then,

$$\begin{aligned}\dot{q}_1 = rq_1 - q_2(X'(e^e) - F_{e^e}(e^e, R)) - \lambda_1 \eta X'(e^e)(\pi^e - \pi^*) \\ -(\lambda_1 \eta + \lambda_2)(\alpha - \beta(i - \pi^e) + X(e^e) - y^*)\end{aligned} \tag{7.17}$$

Similarly then:

$$\dot{q}_2 = q_2(r - F_R(e^e, R)) - \lambda_3(R - R^*) + \rho_R(i - i^f, R)q_1 \tag{7.18}$$

Finally, from the model specification we know that:

$$\dot{e} = i - i^f - \rho(i - i^f, R) \tag{7.19}$$

$$\dot{R} = X(e^e) + F(e^e, R) \tag{7.20}$$

Following Kato *et al.* (2008) and to help derive concrete solutions, the following are specified:

$$\rho(R) = \frac{\sigma_1}{R} + \frac{\sigma_2}{2}(i - i^f)^2 \tag{7.21}$$

where the first term on the right-hand side is a currency run risk and the second term is the exchange rate risk due to exchange rate volatility, while σ_1 and σ_2 are constant coefficients.

$$X(e^e) = \varepsilon e^e - m \tag{7.22}$$

where m is an imports level and ε reflects elasticity of net exports to exchange rate fluctuations. Note that $X(e^e)$ in the present model assumes positive value, i.e. current account surplus, for net exporting economies and negative value, i.e. current account deficit, for the net importers. Finally:

$$F(e^e, R) = ne^e - z(e^e, R) = \frac{v}{e^e} - \frac{\mu}{R}e^{e2} \tag{7.23}$$

with v and μ as constant coefficients. Replacing the general expressions in (7.15) and in the first order conditions (7.16)–(7.20) with the specific functions (7.21)–(7.23):

$$\begin{aligned}H = \frac{\lambda_1}{2}(\pi^e + \eta(\alpha - \beta(i - \pi^e) + ((\varepsilon e^e - m) - y^*) - \pi^*)^2 \\ + \frac{\lambda_2}{2}(\alpha - \beta(i - \pi^e) + (\varepsilon e^e - m) - y^*)^2 + \frac{\lambda_3}{2}(R - R^*)^2 \\ + q_1\left(i - i^f - \left(\frac{\sigma_1}{R} + \frac{\sigma_2}{2}(i - i^f)^2\right)\right) + q_2\left((\varepsilon e^e - m) + \left(\frac{v}{e^e} - \frac{\mu}{R}e^{e2}\right)\right)\end{aligned} \tag{7.24}$$

Then FOCs:

$$\frac{\partial H}{\partial i} = -\lambda_1 \beta\eta(\pi^e - \pi^*) - \beta(\lambda 1\eta^2 + \lambda_2)(\alpha - \beta(i - \pi^e) + \varepsilon e^e - m - y^*) + q_1(1 - \sigma_2(i - i^f)) \tag{7.25}$$

$$\dot{q}_1 = rq_1 - q_2\left(\varepsilon + \frac{v}{e^{e2}} + 2\mu\frac{e^e}{R}\right) - \lambda_1\eta\varepsilon(\pi^e - \pi^*) - (\lambda_1\eta + \lambda_2)(\alpha - \beta(i - \pi^e) + \varepsilon e^e - m - y^*) \tag{7.26}$$

$$\dot{q}_2 = q_2\left[r - \mu\left(\frac{e^e}{R}\right)^2\right] - \lambda_3(R - R^*) - q_1\frac{\sigma_1}{R^2} \tag{7.27}$$

$$\dot{e}^e = i - i^f - \left(\frac{\sigma_1}{R} + \frac{\sigma_2}{2}(i - i^f)^2\right) \tag{7.28}$$

$$\dot{R} = \varepsilon e^e - m + \frac{v}{e^e} - \frac{\mu}{R}e^{e2} \tag{7.29}$$

From (7.25), the first steady state solution:

$$q_1 = \frac{\lambda_1\beta\eta(\pi^e - \pi^*) + \beta(\lambda 1\eta^2 + \lambda_2)(\alpha - \beta(i - \pi^e) + \varepsilon e^e - m - y^*)}{1 - \sigma 2(i - i^f)} \tag{7.30}$$

8 Fiscal policy lessons for the CIS beyond the economic crisis of 2008–2009

8.1 Introduction

As the work on this study neared its end, the global economic environment significantly deteriorated. Starting in the later part of 2007 and continuing onwards, the world has been engulfed in a financial crisis that has, by now, transformed into a global economic recession. Despite the late 2009 and early 2010 sparks of positive trends in the developed world and some emerging markets, things remain to be uncertain throughout the palette. The impacts on the real sector have been ruinous to both advanced and developing economies. In one of its numerous updates at the time, the International Monetary Fund predicted a global economic halt, with the world economy growing in 2009 at 0.5 per cent.[1] The worst economic downturn in sixty years was set to cost fifty million global jobs in 2009 (Guha *et al.*, 2009).

Early reports put the US economy contraction on an annualized 3.8 per cent and Japan's production dropped 9.6 per cent (Baribeau, 2009; Nakamoto, 2009). Anecdotally, in some countries, e.g. Latvia, the population has been driven to the edge by initiating a campaign for their native country's purchase by a wealthy investor, given their government's prolonged negotiations with the IMF (Tubalkain-Trell, 2009). Countries such as Iceland, Ukraine, Belarus, Hungary, and others turned to procuring IMF's credit. And the IMF expected more governments to request urgent financial assistance, which in fact happened.[2]

Yet, the fiscal austerity stipulations that come as a package in the IMF's bailout restrict the fiscal space of the recipient states. As should by now be clear from the preceding discussions, for smaller economies, induced fiscal restraint has significant repercussions in terms of development, social program sustainability, and crisis management. Hence, in the current debate, there is a greater value in the fundamental shift in accepted policy solutions toward increased role of state in the economy. This has been expressed via various political statements, including gatherings (World Economic Forum, G-20, and other similar gatherings) of the key stakeholders in the global economy, and the international development organizations. At the height of the crisis, (albeit the standard by which this benchmark level may be determined is subject to question) proactive fiscal policy was advanced as a way of breaking the global recession. With monetary

policy essentially ineffective as the leading economies' interest rates approach zero but the financial system still fails to generate sufficient credit, reshaped and reasonable fiscal policy is all that remains to stimulate effective demand. Today, there appears to be a change in the mood as debates in some countries, at least in the developed world, lean toward gradual fiscal withdrawal in the hope of a quick recovery.

How does this all affect the transition economies of the CIS? What lies ahead for them? This final chapter presents an overview of the current situation and analyzes it based on available field reports. There is no room for predictions. Instead, the problem is recognized and worked out within the underlying theme, of fiscal role in development, of the present research. The net exporters vs. net importers distinction is useful and is carried through this analysis. Section 8.2 analyzes the recent crisis situation and the authorities' response in the largest net exporter economy—Russia. Section 8.3 then reviews the circumstances of the remaining net exporters, while Section 8.4 deals with the problems of net importers. The chapter concludes with an all-encompassing analysis, focusing on implications for proactive fiscal policy and economic development in the new world.

8.2 The crisis in the CIS: the case of Russia

A general note

To put this discussion in context, a general clarification applicable to the case of the CIS is necessary. Up until early to mid 2009, it seemed that the global economic slowdown was bypassing the CIS. Moreover, early in 2010, pundits, while discussing prospects of economic recovery in the background of the possible Greek and Eurozone crisis in the developed world, often noted how the crisis did not affect the transition of Eastern Europe. This may seem a bit surprising to an informed reader, as it rightfully should be.

While the global crisis did not land in the CIS as abruptly and rapidly as elsewhere, it did have its negative effects on the fragile economies, with some delay. The delay of approximately a few months, depending on the specific case, appears to be a direct function of the given country's financial system openness. Those economies that have been more open to speculative foreign capital flows, have over-borrowed in foreign currency, or relied on foreign currency-denominated transactions in their trade (e.g. Hungary in Europe, Ukraine and Russia in the CIS) seem to have suffered first, with the crisis quickly spreading into the real sector.

Overall, the crisis in the post-socialist bloc, and the CIS specifically, has manifested itself via four key propagation channels, initially identified and described by us in late 2008 (e.g. Gevorkyan, 2009). With minor exceptions, due to country variations, the general trend has not changed, keeping these issues relevant on the economic and social agendas of transition economies. The key four crisis propagation channels are:

1 natural resources exports (i.e. decline in revenues as the primary commodities' international prices fall);
2 exchange rate (currency pressures and sharp depreciation or managed devaluation);
3 banking system and total foreign currency-denominated debt (including consumer and commercial lending);
4 foreign worker remittances through temporary labor migration.

The above four channels are not all entirely exclusive vehicles but are the crucial factors through which the crisis ruinously enters the real and social sectors of the CIS economies. For post-socialist countries, issues surfacing via the above four channels, ultimately, translate into more acute issues of rising unemployment, lacking effective demand, and, hence, overall collapse of their development model. The role of a strong state, and here being innovative is synonymous to saving the economy, able to reaffirm its resolve for economic growth and guarantee social and economic stability becomes instrumental and vital in battling the crisis. This has necessarily put strains on fiscal balance, as Figure 8.1 shows. According to the latest revisions of the 2008 and 2009 data, general government balance is likely to continue to deteriorate across the CIS economies. Given even the most conservative estimates, the net exporters are still expected to fare better than net importers, giving their governments much more room for public policy action.

To their credit, the governments in both net exporter and net importer groups have offered strong political responses. In terms of concrete economic measures, the fiscal response has varied by country. Largely, this is explained by the factors already reviewed in this study. Specifically, those are the considerations of public and private indebtedness: exposure to high shares of short-term foreign debt (in relation to GDP) and the inability to refinance or pay it out in time; lack

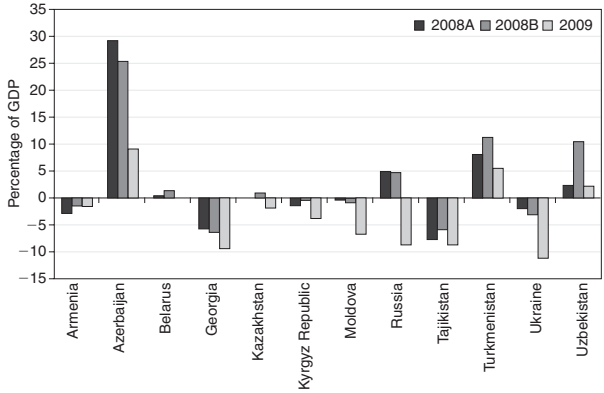


Figure 8.1 General government balance in CIS, share of GDP (2008 estimates and 2009 forecast) (source: author's calculations based on EBRD (2009)).

Notes
2008A refers to initial pre-crisis estimates.
2008B was derived in late 2009 by EBRD.

of sufficient foreign exchange to sustain currency corridors; strong dependence on consumer goods imports and reliance on primary products export revenues, as well as strong dependence on labor migrants' remittances. But the page on the crisis and hopeful recovery is yet to be turned fully. Much still has to be understood, and the recovery measures put in place must pass the stress test of real economic pressures and time.

Russia only

Here Russia is a unique case. As one of the "emerging" BRICs, Russia's economy growth is instrumental for the region and, by extension, to the global economy (Goldman Sachs, 2007). With the global crisis unraveling, the economic situation in Russia—the largest of the CIS bunch—has been worsening rapidly. In many ways, just as England's economy served as a perfect analytical model for political economy analysis of the early industrialized capitalism of the nineteenth century, Russia's economy offers unique opportunities for understanding the transition economies' development process. Despite the obvious differences among the CIS countries, there are also transition-specific similarities, such as, for example, the role of a strong government and its presence in the economy. In that regard, Russia's case is insightful. Not just one economic "missile" but a number have been fired at Russia. In fact, the global financial and economic crisis has swept over Russia in a "perfect storm" fashion (Charlton, 2009).

The trouble in Russia started in the vulnerable financial sector. While pundits argue on the exact date, the fact remains that some time since mid 2008, the Russian stock market was jetting down. Sparked by the infamous collapses and restructuring of Lehman Brothers, AIG, Merrill Lynch, and others in the US and European markets, concerns over risk and uncertainty spread on to investors in the Russian market. Towards the end of 2008, trading on the Russian exchange had to be interrupted several times by the regulators to prevent a complete run on the domestic stock market. Short selling was curtailed but the market continued its decline, even after fiscal authorities' political assurances of stability and liquidity injections as the trading restarted.

The worsening of the financial crisis globally, with continued collapses of large investment banks, bankruptcies among commercial banks, and an evident lack of funds to borrow and inability to repay or refinance loans, has negatively bounced back at the BRICs (Russia primarily). Investors started pulling out of the emerging markets in an effort to consolidate their holdings. By early October 2008, the leading Russian stock market indicator, the RTS, dropped more than 19 per cent since 1995 (Kornev, 2009; Winsent, 2009). Similarly, the MMVB index of the Russian foreign exchange market fell 70 per cent, despite the official announcement of more than one trillion Russian rubles being injected into the economy.

By the end of 2008, Russia was losing its foreign investors and faced the situation of capital flight. In October alone, approximately US$50 billion was taken out of the country. In 2008, capital flight from Russia reached an unprecedented US$130 billion level (Kornev, 2009; Winsent, 2009).

The sudden exit of foreign exchange in the form of investor pullout and capital flight as large holders in Russia moved their wealth abroad put immediate pressures on the banking system and the currency. Faced with the rapid decline of foreign exchange in the open market, the Central Bank of Russia (CBR) struggled to keep the Russian ruble from sharp depreciation. This helped alleviate immediate negative impact on the economy's real sector: recall Russia's strong dependence on the primary commodities exports and reliance on imported consumer goods. However, continuous deterioration of the global economic environment and loss of significant amounts of foreign exchange from Russia made it difficult to sustain the Russian ruble exchange rate within the preset currency corridor against both the US$ and the euro, as was done over the past decade. The domestic currency was at risk of abrupt and significant depreciation. Instead, the CBR chose to implement a policy of gradual yet somewhat aggressive RUS depreciation via a series of market interventions. The RUS depreciated a staggering 40 per cent between October 2008 and end of January 2009 (see shaded area in Figure 8.2). Based on daily CBR data, the exchange did not return to the pre-crisis levels for at least a year and a half. At the time of this research, the US$ traded at around RUS34, versus its RUS24 level in October 2008. Similarly, RUS has significantly depreciated against the euro to approximately RUS44.

This has clear and obvious implications for an economy that significantly relies on imported consumer goods, such as the Russian economy, to satisfy its domestic demand. One might argue that higher import prices, as has been alluded to in this study, may contribute to the appearance of domestic production competing with the imports. While this may hold true in the longer run, short-run data is not available to confirm this possibility.

Back in early 2009, the *Financial Times* ran a report based on interviews with officials suggesting that Russia's currency fall was approaching its final stages but the country would fall into recession in the first half of 2009 (FT Interviews, 2009). Judging by the trend in Figure 8.2, it appears that the Russian currency

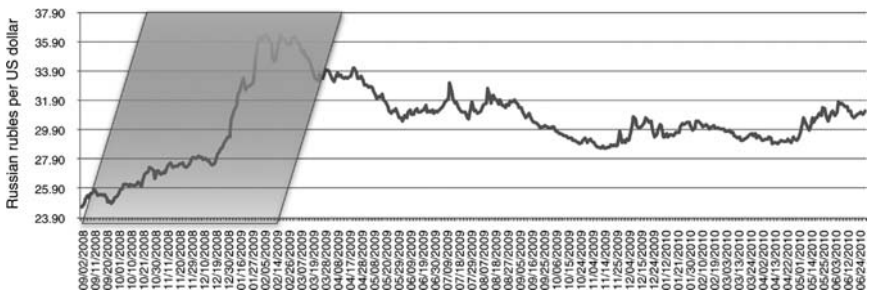


Figure 8.2 Daily nominal exchange rate RUS/US$ (September 1, 2008–June 30, 2010) (source: author's calculations based on data from the CBR (2010)).

Notes
Russian rubles per US$; average daily nominal data.
Shaded area represents period of sharp depreciation in late 2008–early 2009.

indeed stabilized within approximately the RUS30 and RUS34 band. Elsewhere, it has been suggested that Russia has fallen prey to the global crisis due to the national economy's openness to international markets. Hence, any significant changes in the global economy send shockwaves to countries worldwide and Russia in particular (Kuvshinova, 2008).

Figure 8.3 paints a contrasting yet conclusive picture. Based on the available official data, it appears that the industrial production index was falling consequently every month since at least September 2008, with some recovery toward the second half of 2009. Coincidentally, this matched the fall in oil price, causing a dry-up in state revenues and liquidity in the Russian economy. Contributing to the recession fears is the spike in the unemployment rate, from lows of around 5 per cent to over 9 per cent. Note how the unemployment situation improves toward the second half of 2009, yet deteriorates again in early 2010, suggesting that Russia's economy may not be completely out of the woods in dealing with the crisis aftershocks.

The openness of the Russian economy allowed easy access to the international commodities and financial markets. A combination of the steady increase in the price of oil—Russia's main export commodity—and the pragmatic state policy of central accumulation of excess oil and natural gas export revenues allowed Russia to build up one of the biggest stockpiles of foreign exchange reserves. According to the official data shown in Figure 8.4, following a decade of steady increase, foreign exchange accumulation reached its peak in 2008, at around US$600 billion. However, as the state and the central bank moved in to battle the liquidity dry-out and sustain the exchange rate via massive financial injections, Russia's foreign reserves accumulation declined drastically, by approximately US$200 billion within a very short period of time.

Figure 8.5 offers a monthly trend of Russia's foreign exchange accumulation for four years between January 2006 and May 2010. Of interest is the monthly

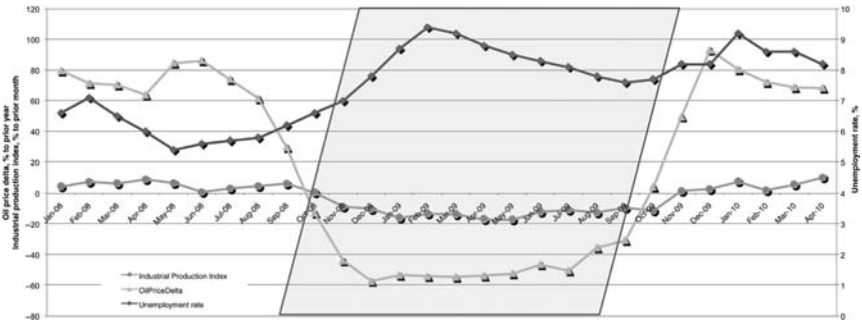


Figure 8.3 Change in oil price and Russia's industrial production index, and unemployment, 2008–2010 monthly trend (source: author's calculations based on data from the CBR (2010)).

Note
Unemployment rate is on the right axis.

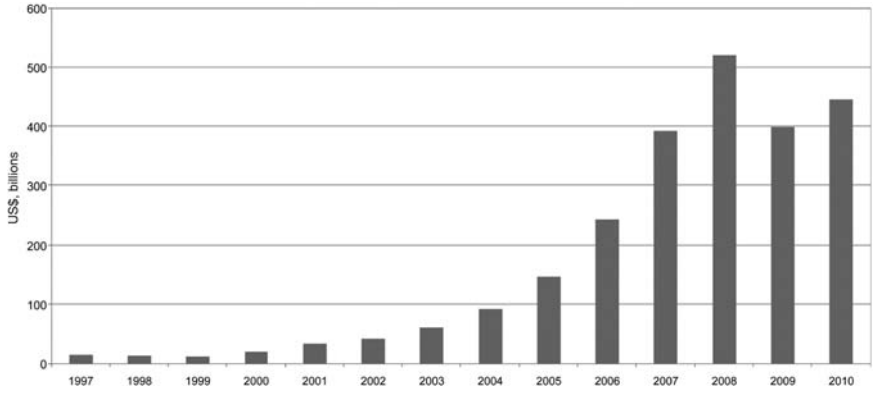


Figure 8.4 Average annual foreign reserves of Russia, US$ billions (1997–2010) (source: author's calculations based on data from the CBR (2010)).

Notes
Annual based on a monthly average.
Data for 2010 are as of July 7, 2010.

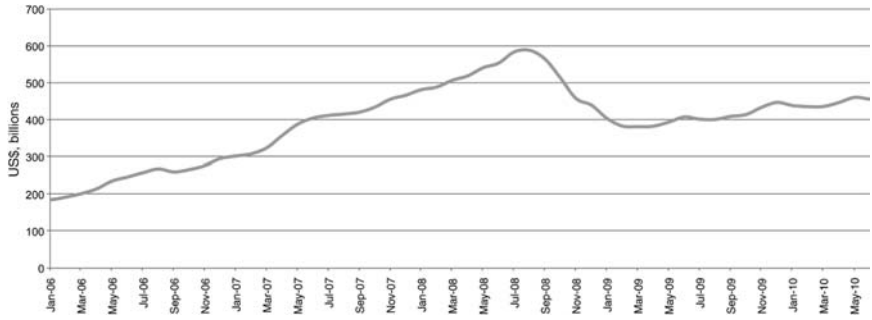


Figure 8.5 Monthly foreign exchange reserves of Russia, US$ billions (2006–June 2010) (source: author's calculations based on data from the CBR (2010)).

Notes
Annual based on a monthly average.
Data for 2010 are as of July 7, 2010.

trend between roughly mid 2007 and early 2010. While the 2009 level of official reserves is certainly high compared with the three years prior, the significant downward trend that started in July 2008 is apparent.

Why exactly did the decline in Russia's currency reserves begin in the midst of the summer of 2008? Opinions range from political to pure economic factors. The fact remains that financial-sector problems quickly transpired into the real sector. Exacerbating the situation was the effectively uncontrolled piling-up of foreign debt on the banks' and private corporate accounts. EBRD's recent

Transition Report (EBRD, 2009) points to an almost double increase in private external debt in Russia between 2002 and 2007. According to the same source, foreign currency lending as a share of total lending was approximately 30 per cent by the end of June 2004, yet dropped almost ten points by the end of June 2008. Still, in absolute values, Yershov (2008) details the evolution of Russia's public and private debt, stating that overexposure to short-term obligations strained the efficiency of the banking sector, as overall corporate foreign debt approached US$500 billion by the end of 2008. This is almost exactly the amount of the remaining official reserves at the time! The Russian Central Bank and the government acted promptly to avert the worst of the negative effects and pushed the available reserves into the banking system and in support of real economy.

Yershov (2008) also notes that, despite the above-described official reserves accumulation that began after the 1998 crisis, Russia's banks financed approximately 52 per cent of their operations from foreign short-term credit. Approximately 30 per cent of commercial debt obligations are with a one-year term. The *Transition Report* (EBRD, 2009) finds that cross-border lending grew steadily through the early 2000s in Russia, reaching almost 15 per cent in proportion of average annual GDP. The abrupt foreign creditors' pull-out and demand for either early payouts or corporate debt renegotiation at detrimental terms for the Russian financial sector led domestic banks and credit organizations to halt most of their internal lending, raise risk premiums, and reexamine loans that had already been given out, including individual mortgage, car, and student loans.

It is clear that the sustainability of the Russian corporate financial model, which relies heavily on foreign financing, is possible if there is a consistent revenue source or access to alternative financial sources that would allow short-term debt repayment or restructuring. Russia lacks both, given its low exports diversification, the falling demand for oil, and deteriorating economic environment. As the funding dries out, hundreds of high-profile enterprises run the insolvency risk, with their only realistic hope being federal financing due to public capital participation.

As access to credit is limited and demand falls, production reduction in Russia's industrial sector averaged around 10 per cent on an annual basis and even greater on a month-to-month scale (see data in Figure 8.3). For example, crude steel production declined over 36 per cent on a month-to-month scale in November 2008 (Steelonthenet, 2009). Massive layoffs across all sectors of the economy resulted (by the end of 2008) in more than six million unemployed.

At the same time, official sources were citing a drop in production prices of 7.6 per cent in December of 2008 (due to lacking demand for intermediate capital goods), but a continued inflation of 13 per cent due to strong imports demand and Russia's currency devaluation, making foreign goods more expensive. Foreign observers and country economists suggested that the worst was yet to come, as it will take at least two full quarters for Russia to start pulling out of the crisis situation (Yershov, 2008; Kudrin, 2009; Kukol, 2009).

Clearly, the current crisis, often compared to the crisis of 1998, has uncovered Russia's strong dependence on energy exports' revenue, only possible via

strong global demand. Earlier versions of the 2009 budget based on an average US$95 per barrel had to be redrafted. The new fiscal plan was redone based on a couple of scenarios, including a projected oil price of US$41 per barrel and lower. The significant decline in the price of oil has delivered the crushing blow to the fiscal budget where oil and natural gas revenues represent the main source of income, as we have shown above. This essentially means that Russia must find its way out of the crisis by restructuring its economy and fostering domestic demand.

In the meantime, the Russian government has to accept tough compromises in its fiscal spending. To avoid abrupt cuts in its public projects and provide support to the banking and real sectors, the government has relied on the foreign exchange reserves. Approximately US$40 billion has already been injected in the Russian banking system and an additional US$40 billion is expected to come from the state coffers shortly. Earlier reports showed that the state was prepared to guarantee credit obligations of up to 70 per cent in the defense sector, and up to 50 per cent for the rest of the economy. While the need for such guarantees was not required on a large scale, this and other proactive measures by the state and regulating agencies helped re-inspire the Russian economy and avert the free fall, unlike during the 1998 crisis.

In throwing the reserves to rescue the economy, the Russian government acted within the fiscal net framework described above. Nevertheless, it is clear that such a situation cannot be sustainable as the official reserves may not last for long, depending on the severity of the crisis. The fiscal net argument made earlier would call for identifying structural targets in utilizing the reserves. Such strategic projects would then work as an implied foundation in keeping the overall economy and financial sector intact.

New solutions must be found and that has been recognized via numerous public announcements and initiatives. In fact, fiscal programs are now being reconsidered and many fear that mainly budget financed initiatives, e.g. in healthcare and education, would be taking the hit. Russia is working out different scenarios to tackle the crisis after-effects. The focus is on sustaining the current production levels and social allocations. The central bank is working on instituting automatic response mechanisms on the monetary policy side, while the government attempts similar auto-stabilization strategies in the budget (Kudrin, 2009). But in a situation of global economic decline and lacking funding, it is more than challenging to sustain satisfactory levels of economic activity.

Russia will probably record a primary fiscal balance deficit for the first time in many years. Addressing the Russian Duma, Russia's Finance Minister, Aleksej Kudrin, indicated that fiscal income would contract for the first time in 2009. Continuing with fiscal spending at current levels, even if expenditure is compensated via available foreign reserves, the budget deficit would reach 6.1 per cent of GDP—a high ratio even in times of crisis (Mereminskaya, 2009). There is a need for a critical and rational review of fiscal expenditure to curtail or postpone any non-essential projects for the time being. It is expected that the

government will run a fiscal deficit up through 2011 of approximately 5 per cent of GDP (Sadovnikov, 2009).

Pumping increasing liquidity into the financial market, the Russian government has introduced more popular measures, such as significant profit tax reductions for commercial enterprises, mortgage assistance programs, increased unemployment benefits, the central bank's guarantee of certain types of commercial paper and other measures at the federal and regional levels. Other programs have included generously extending unemployment benefits to everyone without jobs, including those who left their jobs for personal reasons without being fired and reallocating workers from the city to the rural areas with guaranteed employment. Furthermore, all banks with state participation are now required to raise their loan portfolios 2 per cent a month, a curious measure to extend more credit to the private sector.

These measures are aimed to at least sustain the Russian economy at its current levels and prevent abrupt decline in the real sector. Policy makers' actions are also driven by pure social considerations as economic pains in Russia add immense volatility and tension to social relations. There is a hope of improvement toward the end of 2009 and the government has declared its preparedness to deliver quick and resolute actions. The action plan is consistently revised as new data become available and the amalgamation of global economic developments and domestically bred macroeconomic ills affect the Russian economy.

As the crisis deepens, the Russian economy—as practically every other economy in the world—has contracted (refer to data analysis in Figure 8.2). It is clear that the "free market" paradigm is no longer applicable and the state must intervene, especially in the Russian case. Therefore, in terms of fiscal policy, the above emphasizes several important aspects.

First, it is clear that the Russian economy is open to international markets and international capital flows. In fact, despite its loss of foreign exchange, Russia has not imposed any severe restrictions on capital flows—an act that typically draws negative political reactions from the international investor community. Hence the vulnerability of the financial and real sector is and will be intensified.

Second, the Russian government has been quick to seek ways of breaking the fiscal budget's dependence on energy export revenue. Unfortunately, a generation of new income sources would require time and more complex, consolidated effort. In the meantime, little can be done in the very near term to diversify exports away from primary energy commodities.

Third, the crisis has been a true test for the government in terms of fiscal program sustainability. For Russia's new economy and social structure, it is an economic, political, and social sustainability test. Availability of vast foreign exchange will provide the necessary temporary cushion. However, it will be a temporary relief and is doubtful to last long. In the fiscal policy space, the government will have to run primary deficit, and either some public projects will have to be abandoned or new revenue sources must be found.

Finally, in terms of policy, the current crisis is bound to introduce strict fiscal discipline and entice efficiency in the public and private sectors, including the

large semi-public corporations. In the Russian case, that is crucial in terms of economics, politics, social order, and further development.

It will be known in the near future whether in fact January 2009 was a consolidating month for the Russian economy. One can hope that it will be recorded as a month when the Russian economy completed its post-socialist legacy transformation and was set steady on its new path. Indeed the swiftness of complex macroeconomic packages introduced and the pragmatic approach witnessed in policy making has been unprecedented in Russia's history. That leaves great hopes for the country's future. It should also be noted that Russia has offered substantial financial assistance in terms of loans or subsidies on natural resource imports and other measures to the CIS economies. Some of those instances are reviewed below but one thing remains clear: *The complexity of fiscal policy is namely in its political and social ramifications for both the incumbent governments and society. How it all plays out in the future remains to be seen, but it is the rational immediate and medium-term effects that speak of the authorities' prudence and deeper vision of their country's future*.

As previously stated, within the CIS and net exporters group, Russia appears to be the most serious and closely watched case. This is due to the effect that the country's politics and economics have on neighboring states. Continuing with the present discussion, the next section briefly outlines the impact of the crisis on other CIS countries, starting with the case of the rest of the net exporters.

8.3 The crisis in the CIS: the case of the net exporters

The rest of the countries in the net exporters group have been affected by the crisis as well. It is too early to call the shots on whether the large CIS economies would retain their country-group designation of net exporters. Significantly, the problem is partially due to the pronounced fluctuations in the primary commodities prices, directly affecting the value of the net exporters' total exports, and due to the dynamic exchange rate forcing significant pressures on domestic currencies on top of structural issues with their economies. Figure 8.6 summarizes most recent expectations of current account balances as a share of GDP for all CIS economies. Overall, net exporters are coming in at significantly lower levels than earlier trend and pre-crisis expectations.

Ukraine has taken a tough hit early on, exacerbated by domestic political issues. The economy is still highly dependent on the global demand for its exports, consisting mainly of agricultural, machinery, chemical, and other industrial products, and the recent slump in demand has negatively affected the country. Like Russia, Ukraine is dependent on imported consumer goods. The Ukrainian industrial output consistently decreased through 2008, eventually driving the economy into recession. High overall indebtedness (the economy borrowed around US$24 billion in 2007), problems of the banking sector deterioration, and domestic credit dry-out characterize the current situation. According to the official data, private debt accounts for at least 85 per cent of the total foreign debt, which in turn is above 60 per cent of GDP.[3]

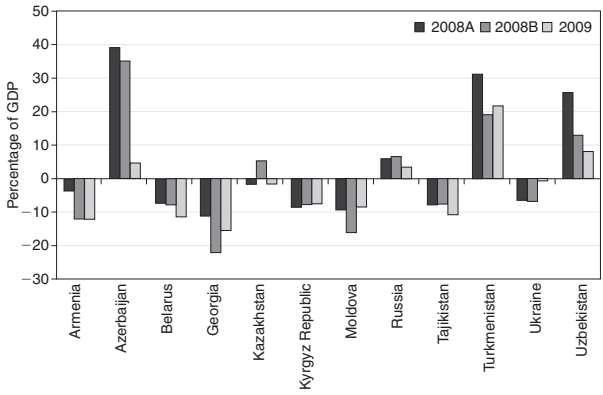


Figure 8.6 Current account as share of GDP (2008 estimates and 2009 forecast) (source: author's calculations based on EBRD (2009)).

Notes
2008A refers to initial pre-crisis estimates.
2008B was derived in late 2009 by EBRD.

Banks effectively stopped giving out loans at some point. Employers, cut off from their financing, are shedding labor. Real wage has declined for the first time in almost a decade. This affected all areas of the Ukrainian economy, including the traditionally protected agricultural sector, as the financial crisis uncovered more structural issues in the real sector.

Simultaneously, there was a sharp industrial collapse of around 28.6 per cent in November 2008, according to some sources (UNIAN, 2008). Steel production dropped over 55 per cent in November 2008 month to month. Significant reductions in oil refinery and machine building upwards of 40 per cent were recorded as well. On top of all this was the New Year dispute regarding the natural gas transit from Russia to Europe via Ukraine, which derives substantial income from the transit fees. Back in late 2008, IMF downplayed its earlier forecast of Ukraine's economic growth from 2.5 per cent to a decline of negative 5 per cent. The eventual decline in 2009 was more severe than expected, at 14 per cent, according to the most recent IMF data.

Events in Ukraine followed a similar pattern to Russia, but with a stronger severity. Despite its status of a large machinery and agricultural products exporter, Ukraine is strongly reliant on imports for consumer goods. With production at a standstill and declining incomes but strong consumer demand, the economy has practically run out of money. Strains of the financial system and by extension the real sector are very strong. At this point, Ukraine's hope is with the IMF's bailout to the amount of US$16.5 billion to satiate the urgent needs of the financial sector and sustain some real economy activity. At the same time, Ukraine's fiscal policy space is significantly more constrained when compared with reliance on diverse funding, as in Russia. It would be reasonable to suggest further deterioration of Ukraine's fiscal position and the scaling back of some public projects requiring

large investments. However, after a recent change of political power in Ukraine, the country has revamped its political and economic contacts with Russia. This might prove to be a last-minute leverage if the situation worsens.

Kazakhstan is another large economy in the net exporters group directly affected by the crisis. Similar to Russia, this country's revenues are highly dependent on primary commodities exports, mainly oil and natural gas transit. Also, the Kazakh economy is very hierarchical, with strong state involvement (as discussed in Chapter 1). Further, just like Russia and Ukraine, the Kazakh economy is characterized by significant debt buildup, especially in the corporate sector.[4]

The declining price of oil and the drop in demand for primary commodities followed an already familiar pattern in Kazakhstan, negatively affecting the economy. In terms of fiscal spending, at least 20 per cent of public projects have already been extracted from the budget three years in advance (Saidov, 2009). The government, via state banks and state corporations, finances much of the Kazakh economy with revenue derived from the oil exports. With the recent decline in oil profits, less allocation is now made to the construction and steel industries. The key industries have contracted—for example, steel production, which declined 60 per cent in November 2008 on a month-to-month scale.

Overleveraging on foreign loans resulted in the banking sector's extreme liquidity losses. This in turn forced an introduction of measures to curtail commercial lending: selling off collateral or repossessing property. Such efforts are aimed at necessary funds accumulation to pay out on short-term loans. Since October 2008, the Kazakh stock market capitalization has dropped approximately 65 per cent. In a chain reaction, other sectors are affected as the economic decline continues. Incapable of sustaining an earlier exchange rate corridor as foreign exchange leaves the country (similar to the reasons discussed in Russia's case), Kazakhstan announced a 20 per cent devaluation of its currency (Kornev, 2009). While devaluation would certainly help spur greater demand for Kazakhstan's exports, the economy's strong reliance on imported consumer goods would complicate matters significantly for the non-export sector and regular consumers.

It is not evident yet if and exactly how the government is going to utilize any of its foreign exchange reserves to support its operations and reduce the crisis's negative impacts on the economy. Much of it appears to have gone characteristically unnoticed, yet has supported the economy. Similarly, one can only speculate at this point on exact fiscal measures to be adopted by the Kazakh government in an effort to build upon the recovery momentum and alleviate the crisis burden on the economy and population.

Moving forward, official statements indicate that oil price decline has led to depression in certain sectors of **Azerbaijan's** economy (DayAz, 2009). So far, in addition to the energy sector, the crisis has negatively impacted on Azerbaijan's construction industry. Banks are not operating at full capacity as the demand for credit in the domestic market falls. This is partly due to the unpredictability of the current crisis effects on the economy. In addition, low diversification of Azerbaijan's economy precludes any large credit transfers outside the oil and construction sector, with agriculture taking the lowest share in the economy.

In fact, there is hope for sustained high agricultural production growth but it is likely to be insufficient to offset energy exports' revenue losses. Much of this is also due to the archaic structure of Azerbaijan's economy, with a preference for government-supported large energy and construction conglomerates, and the country's relative insulation from speculative international finance and capital markets (most of the investment in terms of bank loans, grants, and aid is channeled into the oil sector).

Aside from political statements on the government's support of the economy, Azerbaijan is yet to start breaking the oil revenue dependence of its economy and fiscal budget. At the time of writing, there have been no clear indications of a governmental action plan to reduce adverse effects of the crisis on Azerbaijan's economy.

The remaining three net exporting countries—**Belarus**, **Turkmenistan**, and **Uzbekistan**—present a rather peculiar case. Their economic and political insulation from the larger international markets has served as a natural buffer, protecting them from direct hits of the unraveling crisis. For a theoretical model design, it is safe to refer to these three economies as closed economies due to their insignificant share in the world's combined output.

In reality, the insulation adds a significant lagged component to the economy's response to the crisis. The state's dominant role in the three economies has essentially prevented the overleveraging of the banking and private sectors (something that happened, as we already know, in Russia and Ukraine). In fact, effects of a purely financial crisis are discounted as negligible in all three (i.e. in Belarus, Turkmenistan, and Uzbekistan). Instead, evidence points to the contrary: some expansion in credit toward the end of 2008 (Turkmenistan.Ru, 2008; NCA, 2009; Uznews, 2009; BelTA, 2009). Further, at the time, analysts predicted the growth of the Belarusian economy by 8 per cent on an annual basis. It grew 10 per cent in 2008 but declined only 1 per cent in 2009, according to the latest IMF data. This was quite an achievement, considering the environment, for a landlocked and largely closed economy! Turkmenistan and Uzbekistan were also expected to grow at 10.4 and 7.5 per cent, respectively. Instead, the latest data shows Turkmenistan growing at 4 per cent and Uzbekistan at 7 per cent (almost in line with the original forecast), according to the IMF estimates.

Such evidence allows some to speculate on the robustness of the transition economies' models. However, it has already been mentioned that the relative remoteness of the above three economies from international financial markets played a major role in protecting the domestic financial sectors, in the initial stages of the spread of the global crisis. Realistically though, a more acute problem for the three countries is their dependence on the economic links with the larger economies of Russia (primarily for Belarus) and Kazakhstan (primarily for Turkmenistan and Uzbekistan). Transactions in the Russian ruble account for approximately 60 per cent of total merchandise trade between Russia and Belarus. Uzbekistan relies on cotton and gold exports sent to Russia and Kazakhstan and, to a smaller degree, on remittances received from its labor migrants in both countries. Turkmenistan's government has moved forward

in diversifying its natural gas exports' destination. The share of the Russian business participation in Turkmenistan's gas transit remains significant.

It then becomes clear that the global crisis echoes in Belarus, Turkmenistan, and Uzbekistan through demand changes in and investment fund flows from the Russian and Kazakh economies. Given their hierarchical economic structures, the three countries could do little but attempt to sustain their current economic model, while seeking ways of robust diversification. Hence bold estimates of high growth of these economies, stated in the IMF forecast and actuals, are largely dependent on how things will continue to be in Russia and Kazakhstan.

Unlike Turkmenistan or Uzbekistan, which can rely on a mix of modest foreign exchange reserves and loans from international donors to alleviate the crisis pressures on their economies, Belarus has to borrow heavily to prevent the crisis spreading in the real sector. Faced with a falling Russian demand for its exports, Belarus applied to the IMF and other donors for monetary assistance. The government has been successful in securing US$2 billion from the IMF and is receiving a two-year loan of the same amount from Russia. In addition, Russia is considering introducing temporary discounts on the price Belarus pays for the Russian natural gas, but political negotiations have been delaying a resolution. All three countries—Belarus, Turkmenistan, and Uzbekistan, have sought bilateral agreements with their regional neighboring states and major trading partners. It is hoped that such agreements would help in regulating mutual anti-crisis assistance, easing payments and credit flows between countries.

Recent events have uncovered one major flaw with the net exporters' economic model. Namely, it is the strong reliance on primary commodities exports' revenue, low diversification of export commodities, and trade partners. Such a model works as long as there is strong international demand for the energy products, disruptions are temporary, and access to available credit remains persistent. While the former guarantees mild shocks but quick recovery to the core sectors of the economy, the latter allows public and private borrowing to continue financing activities in other sectors. There has been a cardinal change in the environment of global financial and real economic meltdown because disruptions in demand (and lower energy resource prices) are expected to last longer as liquidity in the international markets quickly dries out. That presents a real resilience test to the economy: proactive fiscal policy and strategic funds allocation will be required for the net exporters to foster domestic demand and production, overcome the crisis, and continue on their development path. Before any general conclusions based on the above observations can be drawn, a case of the net importers needs our review.

8.4 The crisis in the CIS: the case of the net importers

The logical analysis framework of the channels that propagate the global crisis in the CIS net exporting countries is relatively clear. Things, however, are not as clear-cut in the net importers' case. Smaller in terms of territory and relative economic size, these countries stand hostage to the availability of external finance

and access to capital and imported consumer goods, without (albeit, perhaps infinitesimal) support of not one leading industrial sector.

In fact the economies of **Armenia**, **Georgia**, **Moldova**, **the Kyrgyz Republic**, and **Tajikistan**—the net importer states—appear to be well insulated from the global financial imbalances, due to the relatively closed nature of their capital markets. In that, they are similar to Belarus, Turkmenistan, and Uzbekistan, as reviewed above. However, the absence of direct, immediate impact in the financial sector is not a guarantee that the crisis will leave the economy untouched. Just like for the net exporters, the smaller net importer economies are up for a sustainability test of their economic model in the near future. So far, due to their closed nature, the crisis has spared the net importers' banking system. Further, much of the import operations are conducted via a strong alliance between influential trade and banking conglomerates. Such entities' direct links to the government and their importance for each economy allow them to procure beneficial treatment in terms of subsidies and other considerations.

Consumers in the smaller net importer economies rely on remittance inflows, as we mentioned earlier. Ironically, that is the channel via which the real ills of the crisis are now imported into Armenia, Georgia, Moldova, Kyrgyz Republic, and Tajikistan from abroad. Back in 2008, optimistic forecasts put an average 6.5 per cent GDP growth for the group over the subsequent three years. In reality, however, 2009 saw a drop of 5 per cent in GDP on average, with a 15.6 per cent decline in Armenia alone. Most conservative estimates (e.g. IMF, 2010 and EBRD, 2010) point to a much more modest average growth of around 3 per cent for the group. The situation seems to have taken everyone by surprise, given the strong early belief that the crisis would bypass the group.

The drop in remittance flows is just one indirect negative impact of the crisis on the net importer economies as it relates to the bigger labor migration issue. Economic contraction in Russia and Kazakhstan—mainly in their construction and services sectors, which employ the largest shares of the CIS *guestworkers*—has put lots of migrant workers, who primarily come from the CIS net importer economies, out of their jobs. In addition, the environment has become highly politicized and economically vulnerable as native workers in the host economies of Russia and Kazakhstan continue to lose their jobs. Those daring enough then move into the economic segments previously occupied by migrant workers, such as random construction, utilities, and services jobs.

The majority of the temporary foreign workers are being pushed out of their jobs due to both of the above factors. Those few able to keep their jobs go unpaid for weeks or, at best, see their wages significantly decline. As a result, total volumes of remittance flows from Russia to net importer states have declined from 2008 highs of US$2.2 billion to just around US$1.4 billion in late 2009.

While this may carry a seasonal effect, given our earlier discussion in Chapter 5, overall money transfers have been in consistent decline since late 2008 (see Figure 8.7). At the same time, the post-initial crisis average amount of a foreign currency transfer has declined significantly from earlier estimates (see Chapter 5) falling within a US$450–550 range.

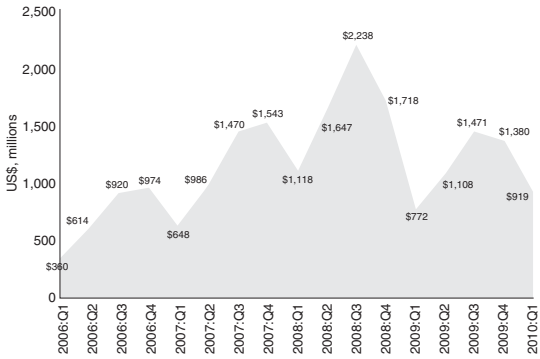


Figure 8.7 Total remittances from Russia to the net importer states (2006–2010:1) (source: author's calculations based on CBR (2010) data).

Paradoxically, there are instances of reverse remittance flows: when families from home economies start sending money to their "bread winners" in Russia or Kazakhstan (Lowe, 2009; Gevorkyan and Gevorkyan, 2010). Answering the public calls, authorities in the CIS host economies are now considering instituting significant limiting quotas for temporary foreign workers and employer penalties for exhibiting any preferences toward foreign workers instead of native ones.

Aside from significant cuts in migrants' monetary transfers (the exact figures of which are yet to be estimated), this has prompted:

- migrants returning home in large numbers from Russia and Kazakhstan; and
- disappearance of incentives for workers still in the home economy to immigrate, due to worsening job prospects in the host economies.

For the net importer governments, it also means extra measures in job creation to accommodate returning migrants, in addition to those unable to migrate.

In one of the first reactions to such changes, in Armenia the government planned on creating temporary jobs in agriculture and in its industrial, mainly metallurgical, sector (Dilanyan, 2009). Helping Armenia's government alleviate the financial burden, the World Bank pledged US$525 million in financial support, intended for new programs and technical assistance, with a possibility of increasing this up to US$800 million in the next four years (Hakobyan, 2009). In November 2008, during its annual televised event, Armenian Diaspora raised over US$35 million to fund infrastructure projects over the next few years in Armenia's rural areas. Another US$500 million is due to come as stabilization credit to Armenia from Russia (Danielyan and Babayan, 2009). Raising state-owned enterprises' overall efficiency and introducing operational improvements to the private sector's operations is among the top priorities for Tajikistan (World Bank, 2008).

Elsewhere, effects of the global economic meltdown are expected to be milder on the Georgian and Moldovan economies. Both are well under the radar

of any speculative capital attacks due to the countries' rudimentary financial systems and low debt. The Moldovan economy is oriented towards agricultural production and the government is confident it will find the market for its economy's produce (Chubashenko, 2009). Still, approximately 16–20 per cent of the Moldovan labor force is abroad, employed as low-skilled temporary labor migrants. As mentioned above, disruptions in remittances and massive migrant return may "transport" the negative impacts of the crisis home.

Recognizing potential setbacks to the economy resulting from labor migration and debt channels, the Kyrgyz Republic's government has worked out a three-year development strategy. The plan considers three growth scenarios, with the highest being 7 per cent and the lowest 2.8 per cent. The recovery plan requires up to US$8 billion, of which approximately US$5 billion would come from the state coffers, with another US$2.8 billion from the private sector and the rest from the international donor community (iStockAnalyst, 2009). Unfortunately, it is not clear how this plan has worked out and will continue to work given recent abrupt political changes in the country, partially prompted by the general population's protest against the worsening economic situation. In the meantime, Kyrgyz construction is already in decline, with 40 per cent fewer real estate put up in 2008 than in the preceding year (Gorbachev and Kadykeev, 2009).

The government promises substantial investments to restart construction and boost jobs but another problem is brewing in the banking sector. Kazakhstan's banks, which hold up to 60 per cent of Kyrgyz banks' basic assets, were pulling out to cover their international debt positions back in Kazakhstan. To avert the possibility of a banking slowdown and rising interest rates, the Kyrgyz government announced in 2009 the establishment of a refinancing fund. The purpose is to use the Kyrgyz central bank's funds to offer short-term loans to commercial banks in Kyrgyzstan in case of a liquidity squeeze. At the time of writing, the Kyrgyz government secured a major assistance loan of US$2 billion from Russia, aimed at supporting Kyrgyz's fragile economy during the crisis. In addition, Russia offered US$150 million in financial aid and wrote off Kyrgyzs debt to Russia of US$180 million.

It is characteristic of the smaller net importer states to organize their economies in close business proximity with the larger CIS countries, such as Russia and Kazakhstan. Their dependence in terms of economic activity, trade, and labor migration trends is obvious.[5] This falls within the four propagation channels pattern and the full effects of this interlink are yet to be seen.

Will the relative financial sector isolation from the instability of the international financial markets help the smaller CIS economies insulate from the negative effects of the crisis? Will the credits extended by the international donor communities and their major CIS trading partners, such as Russia and Kazakhstan, help the net importers keep their economies and societies in balance? Will fiscal efforts be sufficient to help them restructure development models?

Of course, much of this will become clear with time. But with accumulated evidence, it is doubtful that either one country is capable of escaping the spread of the crisis. In fact, it may be that the delayed impact on the net importers will

cause much more severe and longer-running problems on these economies than in relatively stronger net exporters. The last section of this chapter attempts to derive a general analysis of the circumstances presented within the main focus of the study on fiscal policy and development.

8.5 Policy implications for two country groups

When discussing the current economic crisis and its evolution in the CIS economies, one could refer to stages of crisis. For larger countries, as we have seen, problems first hit the financial sector and then move into the real economy. It is clear, however, and our brief analysis above emphasizes the fact, that issues in the financial sector uncover true flaws and complications of the real sector. For both net exporters and net importers, the global economic meltdown has propagated itself through the four key channels discussed above. While the magnitude of each differs by country, all four are relevant for each of the twelve economies of the CIS. To repeat, those channels are:

- natural resource exports;
- exchange rate;
- banking sector (consumer and commercial lending) and total debt;
- remittances through migration.

Between the two country groups, it is the net exporters—namely Kazakhstan, Russia, and Ukraine—that first feel the direct impacts via their financial system. Highly leveraged, with relatively easier access to the global capital markets founded in their strong export positions, these economies have become more vulnerable to foreign creditors' abrupt fund withdrawals, as investors attempt to limit their risk exposure in the global recession. Hence there is a lack of available liquidity to refinance short-term debt and the crisis quickly spreads into the real sector, which relies, in financing its operations, on access to domestic bank lending. Parallel to this, central authorities have become unable to guarantee a competitive exchange rate due to capital flight and dropping primary export commodity prices. The central banks attempt gradual devaluation, while governments hack into the foreign reserve coffers to sustain some of their activities at prior levels.

Precisely a combination of such factors (financial and in the real sector) causes the current crisis to be likened with a "perfect storm." Decreasing global demand for energy products and the falling oil price shift the base from under many public investment projects in these countries. The rest of the net exporter states' economies (Azerbaijan, Belarus, Turkmenistan, and Uzbekistan) are impacted indirectly and with a lag in their real sector, as exports of primary commodities decline and orders from mainly Russia and Kazakhstan drop.[6]

It may *appear* that net importers are better protected against the negative effects of the crisis. That is primarily due to the relatively small size of their economies and lower public and private debt obligations relative to their

economic sizes. That is the reason for a diverse response across countries to the crisis's evils. But, as has already been emphasized, *the appearance is not the guarantee*. Despite them being elements in the fiscal net model discussed in this book, reliance on remittance income and foreign aid should be recognized as unsustainable if taken individually and economically dangerous in the conditions of crisis.

In terms of fiscal policy, the lesson of the ongoing global crisis is of vital importance for the CIS development model. The current economic situation presents a true test in terms of political and economic balances in all twelve economies. With time, as fiscal revenues fall, CIS governments will be required to make tough choices for valuing selected public investment projects in favor of others. Some infrastructure, healthcare, education, and other social expenditure may suffer due to this, as more socially and economically urgent issues take precedence. However, country specifics matter as each government makes its call, defined by a complex of local policy priorities and uncertain economic reality.

Subsequent events will show if the net exporters can continue their reliance on primary commodities exports and if the net importers are able to at least sustain their economies given their strong dependence on external finance. At this juncture, operating with the real-time factual data, one can only build prognosis given past tendencies and contemporary changes in the CIS. The economies of the CIS would be wise to seek the momentum of the crisis to critically reassess development models and fiscal policy along these key considerations:

- A strategic reorientation of the CIS economies away from simple raw material extraction and toward more self-sufficient sophisticated production, stimulating effective demand, is a general start for all. Competitive industries must be sought and healthy competition within those sectors must be encouraged to ensure development and the introduction of new and innovative technologies. Strong reliance on imported consumer goods is another important factor exacerbating the crisis effects in the CIS.
- Strategic reevaluation of fiscal policy priorities should bring attention to the need for greater investment in the infrastructure, education, healthcare, and social services areas. In the preceding chapters, two critical vehicles that may be applicable in the CIS have been discussed. Those are the *Infrastructure Development Fund* and the *Strategic Learning Systems*, as reviewed in Chapters 3 and 4.
- On a more nuanced level, net importers, to a greater degree than net exporters, should seek their Diaspora groups' participation in the economy in an effort to diversify their financial flows and ration limited foreign exchange among the multitude of socially and economically urgent projects.
- Capitalizing on the idea of the Diaspora and addressing problems associated with labor migration and remittance transfers, both net exporters and net importers would benefit from establishment of a *Diaspora Regulatory Mechanism and Migration Development Bank*, as we have discussed in Chapter 5.

- It is prudent in the face of the reliance on imported consumer goods, evident vulnerability to export volumes, and exchange rate fluctuations to become aware and guard for the J-curve-like effects on the national balance of payments. This point is directly linked with the first one, seeking ways to diversify economies and breaking the strong dependence on the international market for raw materials.
- With the shared decisions between monetary and fiscal policy makers in the CIS, a wisely chosen international reserves target may provide the needed flexibility and stability to economy. Even if this has a real-life implication on lower sustainable debt-to-output levels, this may not be an issue. Economy learns to rely on its own financing, becoming financially efficient. The post-crisis outcome also gains from the existence of the reserves target, which helps alleviate currency pressures and self-propagating expectations. The role of state in the CIS context cannot be overemphasized in this particular situation.

The above considerations constitute our approach in terms of innovative fiscal policy as the "fiscal diamond" framework that evolves into a more encompassing "fiscal net." In the fiscal net, consideration should be given to all sources, with a healthy skepticism to help deal with possible economic deterioration as in the current crisis. There is an urgent need for an innovative approach to fiscal policy decision-making, specifically with attention to open economy in the CIS. Encouragingly, the course of economic and social development to date in the CIS suggests that governments are opting for a more pragmatic approach to their country's development, seeking ways of breaking the overdependence on international markets.

Clearly, driving the activist development targets to their ultimate success requires a well-thought-through combination of complementary policy measures. In turn, that requires a solid foundation for the launch of large-scale social and economic initiatives. For now, the unsustainable vulnerability of those sectors in the CIS, and in the broader group of transition economies (including Eastern and Central Europe) as well, has been amplified by the recent crisis. Therefore, advancing an economy further requires rethinking the fiscal policy potential. In that context, laying out key directions for proactive policy analysis and measures has been the effort of this study.

Final remarks

We have reached the end of our analytical journey. The goal in this study has been to sketch a roadmap of key fiscal policy priorities for transition economies within the scope of their development during the twenty-first century. It is this study's firm belief that problems of fiscal policy are and will be central on the agenda. Events of the ongoing crisis prove that. Quite a bit depends on the coordinated efforts by the CIS governments. The objective forces of historical and social transformation from one social formation to another necessitate an active state role. Similar examples range from the appearance of the United States as the global economic leader to the transformation of post-World War Western Europe and Japan, and the rise of the economies of the "Asian Tigers." There is a lot that CIS economies can learn from others' experiences. Accomplishing that requires expansion of the research agenda scope, adding in fiscal policy as the integral development tool.

The study categorized twelve CIS economies into two country groups: *net exporters* and *net importers*. Focusing on the problems of fiscal policy in the open economy, we addressed a variety of issues, from the questions of "twin deficits" to the problems of exchange rate pass-through. We have advocated a more proactive fiscal policy to balance domestic economy and identified several key policy priorities and sources of fiscal revenue through introduction of the "fiscal net" model.

Examinations of the alleged notion of "twin deficits" shows that a much stronger relationship exists between private consumption and current account than between fiscal balance and current account. The twin-deficits theory, derived primarily from accounting identities, suggests that both fiscal deficit and current account deficit move in tandem. This is seen as a drag on growth and development. Analysis carried out in Chapter 2 suggests the opposite.

Two specific events coincide: consumers tend to compensate for a lack of domestically produced goods with reasonably priced and higher quality imports, and the national governments engage in administrative restructuring and fundraising for internal public projects. That is the case in the post-socialist transforming CIS economies, with growing consumer societies and governments living up to their obligations to fund public projects. Alleged imports consumption financing out of government debt does not entirely hold in the case of the

CIS economies, primarily due to the greater significance of private consumption and strong demand for (in fact, reliance on) imported consumer goods. Further empirical analysis also confirmed a strong dependence on and correlation between primary commodities (fuels and ores) exports and current account balance in the net exporters group.

Chapter 3 raised concern about the sustainability of fiscal policy within the original "fiscal diamond" concept. As expected, the net importers group is at primary risk of not being able to meet its debt obligations. There appears to be some policy coordination in the net exporter economies, where our model estimates resulted in positive correlations between primary surplus and debt (as a percentage of GDP).

A traditional approach to fiscal policy is seen as a financial balance between governmental spending and receipts. Receipts are largely determined by tax collections. That in turn finances the majority of spending. In an ideal state, the two should be in balance. In the real world, governments borrow and create money through seignorage, while still relying on taxes, especially in pre-capitalist states.

Further traditional recommendation is to keep government spending at a minimum and limit it to the basic necessities. Efficient markets then take over the economy, allocating all resources along Pareto optimal distributional lines. This follows from the neoclassical view that persistent fiscal deficits "crowd out" private investment and capital accumulation. Neoclassical theory points out the direct effect of permanently increased government spending on increasing interest rates, which in turn compel higher savings and lower investment. This stifles private spending, hence, there is the "crowding out" of private capital in conditions of rational economic agents with perfect foresight to the future.

Still, according to the analysis carried out in Chapter 3, all of the CIS countries continue to accumulate debt and, unless new sustainable revenue sources are identified, there may be severe policy implications of overextending domestic borrowing. A search for new revenue sources would be viable, however, only after tax revenue inflows become better regulated and consistent, and cover the majority of fiscal expenditure. There is a need for adjustment but it is socially costly and, in some cases, impossible. This, however, should not deter the transition governments' focus from strategic funding of infrastructure, education, and healthcare projects. In relation to the first two matters, the study suggests the creation of an *Infrastructure Development Fund* and *Strategic Learning [Innovative] Systems*. The former would be formed via public—private partnership, while the latter would be managed by a state agency, with an emphasis on stimulating research and links with the real economy's demands.

Developing an entirely new framework, dubbed by us the "*fiscal net*," the study has argued for an alternative to lower priced credit. Chapter 4 proposes the introduction of a new debt instrument—*Diaspora bond*. This bond would be aimed at a Diasporan investor—a former native of a country living abroad. CIS economies, multiethnic in character, are not only homes to hundreds of Diaspora communities but also continue sending their nationals across the globe. Hence a united action by the Diaspora worldwide may be a feasible option as the

low-cost funding of a government's public project, specifically investments in infrastructure, education, healthcare, and also labor migration regulation. A *State Diaspora Supervisory Board* is suggested as a regulatory and management entity to implement the program.

The concept of a Diaspora bond is directly linked to a country's macroeconomics. Our analysis shows the strong importance of macroeconomic factors in determining first-time issuing countries' yields. Diasporas could potentially be the yet-untapped resources for the smaller net importer economies, although some net exporters (such as Ukraine) could capitalize on that as well. This discussion is timely, given the evolving global financial and economic crisis and the strain it has placed on the CIS economies in the financial and real sectors. The role of fiscal authorities in this innovation is pivotal and essential to guarantee the success of the enterprise.

Chapter 5 combines the concepts of innovative fiscal policy, "fiscal net," Diaspora, and development with the problem of temporary labor migration, which has become one of the key characteristics of the CIS transition, as all twelve economies are rapidly losing capable labor force. The proposed analytical model to understanding the impacts of labor flows offers a viable solution. One way to tackle economic and social issues caused by temporary labor migration at home and in host economies would be to establish and develop what we call a *Diaspora Regulatory Mechanism*. In essence, this would ensure a rotational and documented basis for the labor migrants, allowing for a balance in the home and host economies' labor market and real wage changes. Then, migrants' remittances could be channeled via the *Migration Development Bank*, which would hold the mandate to invest extra funds into government-sponsored infrastructure projects with high social return. This would enable some balance to be achieved in the capital flows between the economies (for which almost any inflow of foreign exchange is significant).

Related to the issues of fiscal policy and the government's role in the market economy is the analysis of the *J-curve* or exchange rate fluctuations pass-through and impact on current account. Chapter 6 finds evidence of the J-curve in several cases and articulates through statistical tests and event analysis various policy responses and circumstances surrounding each country's case. Preceding the statistical analysis is a detailed introduction to the topic. The issue of exchange rate interrelation with current account is crucial in understanding the macroeconomic factors involved in each of the CIS country groups.

Net exporters' revenues depend largely on changing raw commodities prices and any fluctuations in volume demands. Net importers rely on a diverse pool of external financing. Both groups are dependent on consumer goods imports (and in some countries imported food products). Naturally, understanding exchange rate changes and unveiling all relevant factors becomes important for the governments in question, given their strong hold over the economies. Therefore, insights offered in this work on the exchange rate to current account relation should serve as a useful insight into fiscal policy design before funds earmarked for certain projects may be disbursed.

With the preceding discussion in consideration, Chapter 7 constructs and numerically calibrates a blended fiscal and monetary authority model of currency reserves targeting, after an initial financial/currency crises' stylized facts analysis. Geared towards the CIS, the model considers foreign, domestic private, and public debt effects of policy decisions characteristic of the CIS. Detailed results analysis allows us to develop three possible scenarios out of the financial and currency crisis with the CIS-specific outcomes, with the hope for a softer, in terms of real output change, smoothed exchange rate depreciation, reasonable sustainable debt levels, and foreign exchange buildup economically necessitated. This becomes particularly relevant given the contemporary international macroeconomic environment, leading the discussion to the next chapter.

Chapter 8 helps connect all the dots between issues of development and fiscal policy in the background of the ongoing crisis. There is a clear emerging pattern, suggesting that the initial worst hits are open, and overexposed to foreign debt and capital economies of Russia, Ukraine, and Kazakhstan. Other net exporters are being hit indirectly via their reliance on exports to the larger economies of Russia and Kazakhstan and through their financial system (e.g. Belarus).

The net importers appear to be insulated, but their dependence on the larger CIS trade partners, strong reliance on transitory income such as remittances, and dependence on aid such as multiple international loans and other assistance measures, cause one to doubt if the crisis is not going to hit them *post factum*. The danger persists that, while the net exporters—providing credit and financial backing to the smaller net importers—undergo further deterioration in their real and financial sectors and set the focus on developing sophisticated recovery measures to pull their economies out of the crisis, the smaller countries suffer at a greater magnitude. Such considerations call for urgent fiscal actions along the lines discussed in this study.

The "fiscal diamond" framework must evolve into a more encompassing, pragmatic "fiscal net." There is an urgent need for an innovative approach to fiscal policy decision-making, specifically with attention to open economy problems. Encouragingly, the course of economic and social development to date in the CIS suggests that governments are opting for more pragmatic approaches to their country's development and are seeking ways of breaking an overdependence on international markets.

The premise of this research is the integral link between "pure" economics and society. A discussion of economic planning is meaningless without consideration of the human factor (i.e. at every stage of economic development, it is not the models but the people who make decisions). That raises the additional challenge of constructing the empirical model, based on the data from various sources. In light of this, the study builds a socially responsible approach to governmental involvement in transition economies, with an implication for growth and development and integration in international/regional markets, recognizing the contemporary political economy reality.

The open economy's dynamics are examined, with special attention to current account—exports/imports composition and flows—capital flows, and exchange

rate fluctuations in terms of the effect these considerations have on government borrowing practice and spending related to domestic policies, as outlined above. These aspects adequately characterize the object of this research: transition economies of the Commonwealth of Independent States.

A word of caution is overdue: empirical research and theoretical abstraction requires some degree of generalization. Individuality of each case must be recognized, despite any perceived similarities in terms of country-specific circumstances that shape the patterns of international trade, and fiscal borrowing and spending. Still, this research helps identify and discuss such factors as rapid privatization and fiscal withdrawal from the economy, as common to the economies in question. The study relies on contributions from a diverse set of economic, finance, and philosophy literature, and is drawn in the spirit of the Keynesian economics, with its recognition of financial markets' instability and the crucial role of state in the economy. The political economy discussion revolves around Marxian and heterodox traditions. There is a need for understanding history and evolution of the economy and society, building an argument for critical evaluation of ongoing reforms.

In light of this, any suggested policy prescription cannot and should not be taken as a one-size-fits-all measure but instead should be critically assessed before its variation may be adapted for the specific country setting. Perhaps this is one of the most important lessons one could obtain from this study. This project is done in its entirety with an effort to attract the greater attention of researchers, decision-makers, and all interested parties to the role and effective impact that a proactive and innovative fiscal policy and responsible state finance can have in promoting short-run and long-run socio-economic development in a transition economy. Ultimately, the topics and areas of attention raised in this study are the fundamental components for the sustainability of economic growth and prosperous social development.

A proactive and pragmatic fiscal program aimed at infrastructure and research sector development, with strategic industrial policy and attention to international finance, is the key ingredient to overcoming the crisis and continuing further on the development path. The CIS economies, both the exporters and the importers, will need the analytical tools introduced in this study as they revolutionize and transform into emerging and robust developed societies in the twenty-first century.

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New York
2010

Notes

1 Economics of transition in the new century: lessons learned and a future outlook

1 Recently, the republic of Georgia has opted out of the CIS but it is retained in this study as part of the group for consistent analysis and to account for the shared history and long time since early-1990s independence as part of the CIS.
2 For approximate estimates and detailed discussion, see Shatalin *et al.* (1990) and Gaidar (2007).
3 According to the data reported by the US Department of Energy (2008) and in Schiller (2008).
4 Hernandez-Cata (1997) offers an empirical test of price stabilization (restricted monetary policy and prudence implied by Polak's model), trade liberalization, and growth recovery. This hinges on the assumption of "quick" market entrance of new efficient enterprises. This observation is closely connected with the revolutionary bias of the 1990s reforms mentioned here.
5 The origins of the term "shock therapy" are in the post-war reconstruction of West Germany, when over a short period of time the government was able to create the necessary preconditions for economic take-off. An excellent background of events is available via interviews with primary key-players at PBS (2003).
6 On the *revolutionary* bias of the transition reforms and immediate institutional vacuum, see Gaidar (2007).
7 Various observers commented on this issue. In particular, the disconnect is explicitly articulated in Minasyan (1989) as applied to the Soviet economy and in Foley (1986 and 2006) as applied to Marx's political economy and its "predictions" in general.
8 For an excellent discussion of misinterpretation and lack of accurate comprehension of Marxian political economy and Marx's method, see Minasyan (1989).
9 In fact, Hernandez-Cata (1997) discusses the perils of rapid liberalization and drastic output losses in the short-run. However, one must be reminded of Keynes's preoccupation with getting the short-run policies right, as such have strong impact on consequent economic activity (Keynes 1936).
10 Chapter 5 reviews in detail issues of labor migration. Here, suffice it to say that each CIS economy experienced a massive loss of productive population, reincarnating the term "brain drain" with an utmost severity.
11 Transition economies have participated or continue to participate in various poverty reduction programs through the World Bank and the International Monetary Fund projects, as well as in cooperation with other multilateral development institutions. Per cent of population living at the official poverty lines ranged from 23 per cent in Kazakhstan to approximately 60 per cent in Azerbaijan and 75 per cent in Tajikistan, according to WDI in 2008.

12 For an excellent overview of inequality issues in the transition economies, see Milanovic (1998).
13 The other two of "Musgrave's trilogy," as mentioned by Tanzi (2006), being stabilization and efficiency.
14 For example, see Gevorkyan *et al.* (2008) for an alternative estimate of Armenia's unemployment under ILO standards. This approach suggests an average of 31.4 per cent for the 2002–2006 period contrasted to an officially reported 9.2 per cent for the same time frame. The core difference is in the fact that the official estimate relies on numbers of officially registered unemployed, which in the case of transition economies with still rudimentary labor market regulatory means is only a small portion of the total unemployed. See discussion in Chapter 5 on additional labor market considerations.
15 For example, see recent state of the union addresses by President V.V. Putin on Russia's development until 2020 (Putin in 2008: www.kremlin.ru) and similarly President N. Nazarbaev on Kazakhstan (Nazarbaev in 2007: www.ntu.kz). For more on "National Projects" in Russia, see a series of publications by Rossijskaya Gazeta (www.rg.ru). For *The Moscow School of Management SKOLKOVO*, see www.skolkovo.ru.
16 Chapter 4 reviews some of these considerations in further detail.

2 Fiscal policy in the newly opened economies: are there twin deficits?

1 To clarify, the negative net export position was the starting point in the free-market transition process for the CIS economies. Prior to that much trade occurred within the closed socialist market, with national income accounting at a greater, USSR, scale.
2 This, however, did not fully alleviate persistent social problems in the smaller CIS economies, like unemployment, poverty, and inequality. Some of these issues are addressed in Chapter 3.
3 For an example of a recent empirical study on a group of advanced economies, see Corsetti and Müller (2006). The authors find evidence for cyclical movement of the current account and fiscal balance, but interpret their results with caution. Their emphasis is on the crowding-out effects that fiscal expansion may have. The results, however, are peculiar to the advanced economies development.
4 One of the six puzzles of modern macroeconomics as identified in Obstfeld and Rogoff (2000). For alternative empirical treatment of the FH puzzle in the OECD case, see Coakley *et al.* (1996).
5 This certainly bears no qualitative or quantitative significance in terms of the scale of internally procured investment funding. Also, see Chapter 8 on a more detailed discussion of CIS exposure to international capital markets and implications of that for the economies in the ongoing financial crisis and global recession conditions.
6 Questions of sovereign debt are reviewed in greater detail in Chapters 3 and 4.
7 Recall that the final debt service balance is a composite of the interest rate and total debt outstanding. Reduction of this figure in relation to total exports corresponds to a lower debt burden on the economy. This frees up financial and entrepreneurial resources that may be applied elsewhere in the national economy (e.g. infrastructure improvements, as in Russia).
8 Standard national income decomposition can be found in any macroeconomics textbook, e.g. Blanchard (2006).

3 Fiscal policy sustainability in transition: is it there?

1 Recall a similar finding in Chapter 1 in reference to the Latin American experience by Goni *et al.* (2008).
2 Throughout the analysis, this study reviews an increasing tendency of state participation in the economy, in particular in non-waged goods sectors in the face of an absent

efficient market mechanism that would provide for such social goods in a developed capitalist economy.

3 To clarify, this is a slight diversion from the traditional exposition. The original "fiscal diamond" shows "improved fiscal expenditure efficiency" instead of "fiscal expenditure," shown here. The reason for this deviation is dual: a) fiscal presence and its magnitude in transition are best measured by looking at shares of actual fiscal expenditure; b) aside from lack of reliable data on the subject, it is premature to use any other proxy of fiscal improvement given the short history of independent governance and the strong influence of political environment on decision making in the transition economies.

4 See, for example, Bertola and Drazen (1993), as cited in Purfield (2003).

5 An apparent complication to conducting such a test is the obvious non-conventionality of the transition economies' structure and operations compared with the more stable industrialized world, where such tests may be more valid.

6 Certainly much public–private cooperation is stigmatized through the oligarch alliances with fiscal agents and large state corporations penetrating certain areas of the economy. However, if the South Korean *chaebols* are praised as the effective policy tools in national development (e.g. Amsden, 2001), how would the job-creating state corporations and large industrial conglomerates differ from that in, for example, Russia, Kazakhstan, or Ukraine? There is no benefit of hindsight yet to answer this question, but all indicators suggest that *state-capitalism* may have its positive moments, as well, in terms of growth and development. The problem is more precarious in the smaller—net importer—economies of course, and without reliable historical trend data, it is not possible to analyze these at this time.

7 Bohn (1998) acknowledges his results to be somewhat contradictory to mainstream findings, e.g. Trehan and Walsh (1991).

8 In fact, this policy has characterized Russia's economy of late 2007 through now, with active government involvement to avert regressive market trends and to sustain a certain level of state funding. The use of the reserve funds has proven necessary in light of recent declines in the price of oil—the major export revenue generating commodity—and the spread of the global crisis. More closely related aspects are discussed in Chapter 7 of this book.

9 The post-socialist societies went through the Ponzi-like financing experience on a large scale with the launch of the MMM fund in 1992. The company offered immediate and multiple returns on nominal investments to the first-in-line investors, by borrowing from those investing in the fund at a later date. Eventually, the scheme collapsed with its founder arrested in Russia after creating another similar pyramid, this time web-based (see Kovalev, 2003 for additional overview).

10 Lack of reliable fiscal data on transition economies of the former USSR is a characteristic feature of statistical analysis and policy focus of the early research on post-socialist transition. In fact, the missing data has played a role in shaping the main research themes in this context. This chapter has been prefaced with the statement that most of that research has been primarily focused on growth and open economy parameters of transition, rather than more intricate policy measures. Appearance of new data on various measures of fiscal policy inspires hope that the bulk of the transition economies' research will finally start following the policy priorities first, rather than following the data.

11 It may be argued that one should also account for the revenue side as the government potentially earns profits from its semi-ownership participation in the large corporations. While that is true, the reality of the current stage of transition is that the economies of the CIS have managed to establish strict rules and tax codes, which allow governments to derive their share of revenues directly from profit and other enterprise taxes, shifting the burden of competitive management of a corporation to the private sector.

12 As a reminder, all values, except the output growth y and reforms proxy P, are taken as shares of GDP.

4 Innovative fiscal policy: the how, when, and why of borrowing from the Diaspora

1 See detailed analysis of exports revenue by country in Chapter 1.

5 Innovative fiscal policy: tackling labor migration problems

1 See discussion in Chapter 4 and Table 4.1 of the Appendix for the migration data by country.
2 It should be stressed that reliable migration data for the twelve former Soviet republics is extremely difficult to come by. Our estimates in this study are based on extrapolations from the official statistics for each country, empirical research, multilateral institution databases (such as the UN and World Bank), and own surveys.
3 It is sometimes convenient to differentiate between types of migration by reference to the number of years the migrant has spent outside the country. Here, we assume permanent migration to be a non-returning exit of migrants from a CIS country, except for occasional short-term visits to the homeland in rare cases. According to the studies of migration mentioned in this analysis, permanent migration is more likely to have a stronger effect on the host than on the home country.
4 For example, of Armenia, see Gevorkyan *et al.* (2008).
5 Depending on the perspective, temporary migration can be a type of permanent migration. This happens in cases when migrants leave their home countries to never come back but travel from one host country to another during their working career. In this case, the migrant is considered to have moved permanently outside the home country, but is still regarded temporary in relation to adopted host countries. In addition, a collective term of "returning migration" is sometimes used to combine pure temporary migrants and those who had moved from their home country intending to stay abroad but later decided to return. For the purposes of this study, temporary labor migration refers to a situation of a migrant worker exiting the home country temporarily and always returning after their assignment or contract abroad is fulfilled.
6 Also see Gevorkyan (2008) and Gevorkyan and Gevorkyan (2010).
7 A typical migrant's profile is described in greater detail in two co-authored studies: Gevorkyan *et al.* (2006) and Gevorkyan *et al.* (2008).
8 The CBR estimates are based on transfers made via a range of money transfer systems and national post networks, as well as bank-to-bank transfers. These are identified here as official or reported transfers.

6 J-curve: facing exchange rate and current account fluctuation risks in the open economies of the CIS

1 In September 1949, when the UK devalued the pound sterling by over 30.5 per cent, other Western countries did the same, albeit at ranging magnitude. For specific percentage breakdown, see Flanders (1963).
2 Incidentally, the paper offers good background information on the popularization of the J-curve topic in the American scholarly and media debate.
3 Whereas "unit values" are the goods' delivery prices in US$, which assume existence of lags and difference in foreign currency denominations, i.e. not the same as "contract prices" (Carter and Pick, 1989: 719).
4 Certainly, this holds true at least partially. An alternative examination of the nature of

the shock might prompt a different conclusion. In certain cases (and this is the call for a country case study), a shock to government consumption might in fact stimulate investment, if that consumption takes the form of investment in infrastructure. For more on growth models and public spending, see Greiner *et al.* (2005).

5 IMF has produced considerable research on the issue of exchange rate, domestic prices, and balance of payments. For additional empirical testing results related to the present discussion, see, for example, Belaisch (2003), Gueorguiev (2003), and Lee and Chinn (2002), among many others.

6 The countries that required this adjustment were: Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, and Tajikistan. In all of these economies, US$ plays the major role in international exchange transactions.

7 This is opposed to efforts detecting a reverse J-curve: currency appreciation and improvement in the current account.

8 Due to severe data and sample size limitation, few tests returned very high coefficient estimates, which in more complex models most likely will not return robust results to support the main hypothesis.

7 A model of fiscal policy, currency crisis, and foreign exchange reserves dynamics

1 For a general review of banking-to-currency crisis tendencies as well as an overall financial crisis discussion based on international experience, see Kaminsky and Reinhart (1999). In addition, Corsetti *et al.* (1999) provide a critical review of events before and after the East Asian crisis.

2 For an excellent review of East Asia's development and industrialization efforts, see Amsden (2001).

3 Some key features of sovereign borrowing, including the cost of international capital for the borrowers and role of macroeconomic indicators, have been discussed earlier in Chapter 4.

4 For example, see the recent review of similar circumstances in Russia (Belton and Wagstyl, 2009).

5 Working with ratios helps deal with the exchange rate conversion. On the level scale, because e is defined as foreign currency expressed in domestic currency, foreign currency-denominated income, for example, would then be expressed as: $y^{fx} = \frac{y}{e}$.

6 The negative exchange rate and negative output solutions are suppressed from these and consequent results' summaries. Note, however, that a possible explanation for negative reserves, as Kato *et al.* (2008) suggest, is that there may be a need for an external credit line from the international lenders.

7 As shown in the next chapter, this is exactly the situation in the CIS economies at the time of writing.

8 Recall that many large corporate borrowers, especially in the larger CIS economies, are semi-private entities with implied state guarantees, hence with a risk of falling on the fiscal balance sheets.

9 For another example of debt-to-income equation derivation, see Asada and Semmler (1995).

8 Fiscal policy lessons for the CIS beyond the economic crisis of 2008–2009

1 The latest estimate is a downward revision from an earlier estimate of 2.2 per cent global growth (IMF, 2009).

2 The most prominent case in the developed world is the still-looming danger of the

Greek government's default, pulling countries like Ireland, Portugal, and even Spain with it in a chain reaction. After lengthy and obscure negotiations, the EU and IMF eventually worked out a temporary relief package, yet the final outcome is still unclear. To add to accumulated troubles, speculation rises around the possibility of numerous sovereign defaults in the near future.

3 Data for Ukraine is derived from the analysis by Kornev (2009) and Winsent (2009).

4 The reader is referred to the earlier analysis of debt to GDP ratios by country, e.g. Chapter 3.

5 One of the recent manifestations of such inter-reliance is the proposed establishment of a US$10 billion mutual assistance fund among Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, and Ukraine.

6 Azerbaijan is certainly an exception in this group, as its economy has been affected mainly by the decreasing price of oil.

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a/c = account; govt = government