WORLD BANK GROUP

Cryptocurrencies and Blockchain

Europe and Central Asia Economic Update
Office of the Chief Economist
May 2018

WORLD BANK **ECA ECONOMIC UPDATE** MAY 2018

Cryptocurrencies and Blockchain

Office of the Chief Economist

WORLD BANK GROUP

1818 H Street NW, Washington, DC 20433
Telephone: 202-473-1000; Internet: www.worldbank.org

1 2 3 4 21 20 19 18

ISBN (electronic): 978-1-4648-1299-6
DOI: 10.1596/978-1-4648-1299-6

Cover design: World Bank

Contents

Boxes

Figures

Tables

Acknowledgments

This Europe and Central Asia (ECA) Economic Update is a joint product of ECA's Office of the Chief Economist, the Macro and Fiscal Management Global Practice, and the Poverty Global Practice.

Part I was prepared by a team in the Chief Economist's Office led by Hans Timmer and including Roy Sudharshan Canagarajah, Breda Griffith, Bingjie Hu, Georgi Panterov, Charalampos Papamanthou, William Shaw, and Ekaterina Ushakova. Chapter I benefitted from forecasts (presented in Part II) prepared by economists in the Macro and Fiscal Management Global Practice. David Michael Gould, Erik Feyen, Vincent Launay, Christopher David Miller, Stela Mocan, Anthony Molle, and Young Chul Kim provided valuable comments on Part I.

Part II was prepared by teams from the Macro and Fiscal Management Global Practice (led by Andrew Burns, Maria De los Angeles Cuqui Gonzalez Miranda, Lalita M. Moorty, and Gallina Andronova Vincelette) and the Poverty Global Practice (led by Luis-Felipe Lopez-Calva), with inputs from the Developments Prospects Group (led by Ayhan Kose). These teams included the following staff: Erdem Atas, Joao Pedro Wagner De Azevedo, Sarah Nankya Babirye, Elena Bondarenko, Cesar Cancho, Marie-Anne Chambonnier, Alexandru Cojocaru, Marcel Chistruga, Pablo Facundo Cuevas, Maria Eugenia Davalos, Agim Demukaj, Mariam Dolidze, Donato De Rosa, Bakyt Dubashov, Olga Emelyanova, Josip Funda, Mismake D. Galatis, Anastasia Golovach, Claudia Gutierrez, Gohar Gyulumyan, Kiryl Haiduk, Sandra Hlivnjak, Stella Ilieva, Maria Gabriela Inchauste Comboni, Saida Ismailakhunova, Charl Jooste, Jonathan George Karver, Yeon Soo Kim, Aurelien Kruse, Sanja Madzarevic-Sujster, Mikhail Matytsin, Kristina Cathrine Mercado, Moritz Meyer, Jose Montes, Evgenij Najdov, Metin Nebiler, Minh Cong Nguyen, Trang Van Nguyen, Catalin Pauna, Habib Nasser Rab, Alisher Rajabov, Nadir Ramazanov, Julio Revilla, Monica Robayo, Paul Andres Corral Rodas, Armineh Manookian Salmasi, Apurva Sanghi, Ilyas Sarsenov, William Hutchins Seitz, Asli Senkal, Lazar Sestovic, Hilda Shijaku, Bojan Shimbov, Emilia Skrok, Karlis Smits, Sangjin Song, David Andrew Stephan, Thi Thanh Thanh Bui, Eskender Trushin, Vincent Belinga De Paul Tsoungui, Christoph Ungerer, Ekaterina Vostroknutova, Pinar Yasar and Bakhrom Ziyaev.

Ekaterina Ushakova oversaw the layout and production of the report. Barbara Karni edited and Michael Alwan typeset it. Paul Anthony Clare, Tamar Kobakhidze, Artem Kolesnikov, and Inga Paichadze provided communications and outreach support, including the dedicated webpage (http://www.worldbank.org/en/region/eca/publication/europe-and-central-asia-economic-update).

Abbreviations

ACP	Attraction Centers Program
BoA	Bank of Albania
BiH	Bosnia and Herzegovina
CAD	Current account deficit
CBA	Central Bank of Armenia
CBR	Central Bank of Russia
CBU	Central Bank of Uzbekistan
CNB	Croatian National Bank
CPI	Consumer price index
CROSTAT	Croatian Bureau of Statistics
DLT	Distributed Ledger Technology
ECA	Europe and Central Asia
ECAPOV	ECAPOV (ECA Poverty) database of standardized household surveys
EEU	Euroasian Economic Union
EFSD	Eurasian Fund for Stabilization and Development
EU-SILC	European Union Statistics on Income and Living Conditions
FDI	Foreign direct investment
FX	Foreign exchange
FYR	Fiscal year
GDP	Gross domestic product
GoA	Government of Azerbaijan
HPP	Hydro-power plant
IBA	International Bank of Azerbaijan
ICO	Initial coin offerings
ICT	Information and communication technology
IFI	International financial institution
IMF	International Monetary Fund
IPO	Initial public offering
IT	Information technology
LCU	Local currency unit
MSII	Minimum Social Inclusion Income
NBG	National Bank of Georgia
NBKR	National Bank of the Kyrgyz Republic
NBM	National Bank of Moldova
NBP	National Bank of Poland

NBR	National Bank of Romania
NBU	National Bank of Ukraine
NPL	Non-performing loans
OPEC	Organization of the Petroleum Exporting Countries
PPA	Power Purchasing Agreements
PPP	Purchasing power parity
SAR	Special administrative region
SDR	Special Drawing Rights
SME	Small and medium enterprise
SOE	State-owned enterprises
SWIFT	Society for Worldwide Interbank Financial Telecommunications
TFP	Total factor productivity
TSA	Targeted Social Assistance
UFRD	Uzbekistan Fund for Reconstruction and Development
WB	World Bank
WDI	World Development Institute

Country Codes

Albania	ALB	Hungary	HUN	Philippines	PHL
Argentina	ARG	India	IND	Poland	POL
Armenia	ARM	Indonesia	IDN	Portugal	PRT
Australia	AUS	Iran, Islamic Rep.	IRN	Romania	ROM
Austria	AUT	Ireland	IRL	Russian Federation	RUS
Azerbaijan	AZE	Italy	ITA	Saudi Arabia	SAU
Belarus	BLR	Japan	JPN	Serbia	SRB
Belgium	BEL	Kenya	KEN	Singapore	SGP
Bosnia and Herzegovina	BIH	Kazakhstan	KAZ	Slovak Republic	SVK
Brazil	BRA	Kosovo	XKX	Slovenia	SVN
Bulgaria	BRG	Kyrgyz Republic	KGZ	South Africa	ZAF
Canada	CAN	Latvia	LVA	Spain	ESP
Chile	CHL	Lithuania	LTU	Sweden	SWE
China	CHN	Luxembourg	LUX	Switzerland	CHE
Colombia	COL	FYR Macedonia	MKD	Tanzania	TZA
Croatia	HRV	Malaysia	MYS	Tajikistan	TJK
Czech Republic	CZE	Malta	MLT	Thailand	THA
Cyprus	CYP	Mexico	MEX	Turkey	TUR
Denmark	DNK	Moldova	MDA	Turkmenistan	TKM
Dominican Republic	DOM	Morocco	MAR	Ukraine	UKR
Estonia	EST	Montenegro	MNE	United Arab Emirates	ARE
Finland	FIN	New Zealand	NZL	United Kingdom	GBR
France	FRA	Nigeria	NGA	United States	USA
Georgia	GEO	The Netherlands	NLD	Uzbekistan	UZB
Germany	DEU	Norway	NOR	Venezuela, RB	VEN
Greece	GRC	Pakistan	PAK	Vietnam	VNM
Hong Kong SAR, China	HKG	Peru	PER		

Regional Classification Used in this Report

This report covers 47 countries referred to as Europe and Central Asia (ECA) countries. These are divided into 10 groups: Western Europe, Southern Europe, Central Europe, Northern Europe, Western Balkans, South Caucasus, Central Asia, Russia, Turkey, and Other Eastern Europe.

TABLE E.1 **Regional classification used in this report**

Europe and Central Asia	**European Union and Western Balkans**	**European Union**				
		Western Europe	**Southern Europe**	**Central Europe**	**Northern Europe**	**Western Balkans**
		Austria	Greece	Bulgaria	Denmark	Albania
		Belgium	Italy	Croatia	Finland	Bosnia and Herzegovina
		France	Portugal	Czech Republic	Sweden	Kosovo
		Germany	Spain	Hungary	Estonia	FYR Macedonia
		Ireland	Cyprus	Poland	Latvia	Montenegro
		Luxemburg	Malta	Romania	Lithuania	Serbia
		The Netherlands		Slovak Republic		
		United Kingdom		Slovenia		
	Eastern Europe and Central Asia	**South Caucasus**	**Central Asia**	**Russian Federation**	**Turkey**	**Other Eastern Europe**
		Armenia	Kazakhstan			Belarus
		Azerbaijan	Kyrgyz Republic			Moldova
		Georgia	Tajikistan			Ukraine
			Turkmenistan			
			Uzbekistan			

Executive Summary

With growth in Europe and Central Asia having peaked at 2.7 percent in 2017, policy makers face new challenges. How can they navigate the expected cyclical downturn? How can they boost underlying potential growth that has slowed, especially since the global financial crisis? How should they adjust regulations and reform policies to benefit from the digital revolution while mitigating the transition costs? This report summarizes the economic outlook for the region and examines the adoption of new blockchain technologies. In doing so, it touches on all three challenges.

The 2017 rates of growth of GDP (2.7 percent) and private consumption (2.5 percent) were faster than at any time since the global financial crisis of a decade ago. Growth was especially strong in Central Europe and in Turkey, but it was robust in other parts of the region as well. Unemployment rates are now close to their 2007 levels in most countries, and average inflation exceeds 2 percent, indicating that little spare capacity is left.

Deceleration of growth is expected to be modest, but a sharper correction remains possible. Cyclical forces can easily reinforce one another, and additional shocks—rising protectionism, geopolitical tensions, larger than expected disruptions caused by Brexit—could materialize. There is little room for further monetary stimulus if the expected slowdown is sharper than expected. The region has rebuilt some fiscal buffers, however. The average fiscal deficit in 2017 is estimated at just above 1 percent of GDP, down from 6 percent during the 2009 crisis and close to levels at the end of the boom that preceded that crisis. Fiscal stimulus is thus an option in several countries in case of a sharper than expected slowdown. Under the baseline scenario of only a modest deceleration, however, a further buildup of fiscal buffers seems the best strategy.

Many countries in the region have proven to be fertile ground for the development of cryptocurrencies and blockchain technologies. The emergence of these technologies is part of a broader wave of technologies that facilitate peer-to-peer (P2P) commerce, the individualization of products, and the flexibilization of production methods.

For a variety of reasons, these trends gained traction after the global financial crisis a decade ago. Blockchain technologies aim to organize P2P transactions and P2P information flows without intermediaries and central banks have opportunities to use blockchain technologies to improve their services.

It is unclear how these technologies will develop in the long run; their ultimate impact may be very different from the current applications. In response, policy makers should strike a balance between curbing the hype surrounding these new technologies and unleashing potentially transformational new opportunities. While encouraging and facilitating these innovations, they should prepare to craft new regulations to create a level playing field for new and old industries, by adjusting financial oversight, consumer protection, and tax administration. They should also address the massive volume of electricity used to mine cryptocurrencies.

PART

Economic Outlook

1

Economic Developments and Prospects

Overview

Growth is strong in Europe and Central Asia (ECA), stronger than at any time since the global financial crisis of a decade ago. GDP rose 2.7 percent, and annual private consumption rose 2.5 percent. Growth was especially strong in Central Europe and Turkey, but it was robust in other parts of the region as well.

Growth has likely peaked, however. Increased capacity utilization, unemployment rates close to their 2007 levels, and average inflation now exceeding 2 percent are all signals that growth is likely to decelerate.

The peaking of growth raises several questions

- How well is the region prepared for a sharper than expected cyclical downturn? As fiscal deficits have fallen to an average 1.5 percent of GDP, fiscal policy could be used. But in most countries, monetary tightening would probably be more appropriate.
- Why is the underlying structural growth so low? Growth in 2017 was 0.4 percentage points below the average growth rate between 2000 and 2007. The decelerating growth trend is associated with the shift toward services, the decline in capital deepening, and a slower pace of measured total factor productivity (TFP).
- Has the economic upswing been used to adjust to the new normal of digital technologies, more flexible employment contracts, and increased tradability of goods and services? An unfinished agenda remains in terms of rethinking social protection and facilitating private sector development in new, internationally competitive sectors. It is important that adjustments toward this new reality continue, even if the expected slowdown materializes or deepens.

Growth is strong throughout the region

GDP growth of 2.7 percent in 2017 translated into a robust 2.5 percent increase in per capita GDP, as the population is growing at a mere 0.2 percent a year. This rate of growth was the fastest since 2007 and 0.9 percentage points faster than in 2016 (table 1.1). Growth exceeded 4 percent in 20 of the 47 countries in the region. Ireland and Malta enjoyed growth of more than 5 percent. Romania and Slovenia in Central Europe; Armenia and Georgia in the South Caucasus; and Turkey, Tajikistan, and Uzbekistan in Central Asia also reported strong growth. Azerbaijan, Belarus, and the Russian Federation emerged from recession (although their growth was only moderate). Not a single country in the region experienced a contraction in 2017.

Private sector demand drove this vigorous performance. Government consumption increased by less than 1 percent on average in the region. Private investment rose by more than 4 percent, and growth in investment outpaced GDP growth for the fourth year in a row. The volume of exports and imports expanded by more than 5 percent in 2017, roughly twice as fast as GDP growth.[1]

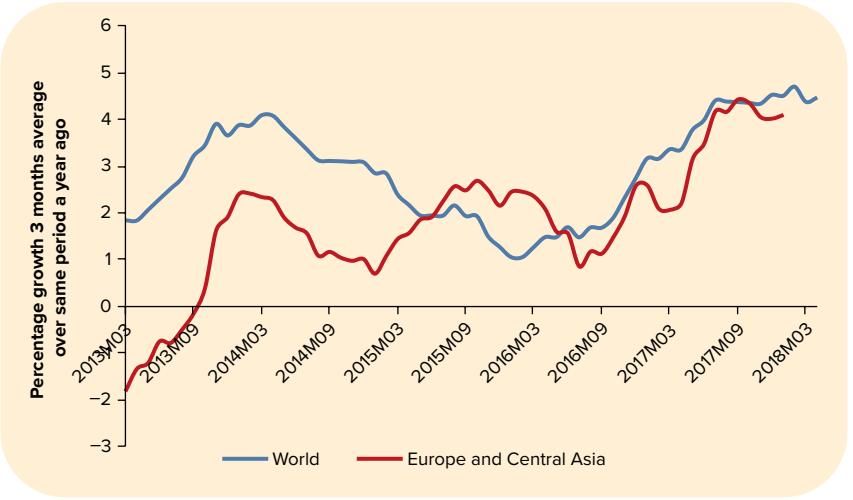
The acceleration of growth has been a global phenomenon. Since the summer of 2016, growth of global industrial production has more than doubled, approaching 5 percent in recent months, very close to the 4.8 percent global growth during the 2003–07 boom.

TABLE 1.1 Growth has reached an all-time high in most countries in Europe and Central Asia

	Annual GDP growth (percent)					Change in forecast since October 2017 (percentage points)		
Region/subregion	2015	2016	2017 (estimate)	2018 (forecast)	2019 (forecast)	2016	2017 (estimate)	2018 (forecast)
Europe and Central Asia	1.9	1.8	2.7	2.3	2.1	0.0	0.5	0.4
European Union and Western Balkans	2.2	1.9	2.5	2.2	1.9	0.0	0.4	0.4
European Union	2.2	1.9	2.5	2.2	1.9	0.0	0.4	0.4
Western Europe	2.2	1.8	2.3	2.1	1.7	0.0	0.4	0.4
Northern Europe	2.6	2.5	2.5	2.3	2.1	0.2	0.2	0.2
Central Europe	3.9	3.1	4.6	4.1	3.6	0.2	0.9	0.7
Southern Europe	1.6	1.7	2.2	1.9	1.6	0.0	0.3	0.3
Western Balkans	2.2	3.0	2.4	3.1	3.4	0.1	−0.3	−0.1
Eastern Europe and Central Asia	0.3	1.1	3.7	3.0	3.0	0.0	1.1	0.4
South Caucasus	1.7	−1.6	2.0	2.6	4.0	0.5	1.7	0.8
Central Asia	2.8	2.8	4.4	3.5	3.6	0.0	0.1	0.0
Russian Federation	−2.5	−0.2	1.5	1.7	1.8	0.0	−0.2	0.0
Turkey	6.1	3.2	7.4	4.7	4.4	0.0	3.5	1.2
Other Eastern Europe	−7.6	0.8	2.5	3.3	3.6	0.1	0.5	0.2

Source: World Bank.

FIGURE 1.1 Industrial production growth has soared since 2016, globally and in Europe and Central Asia



Source: World Bank.

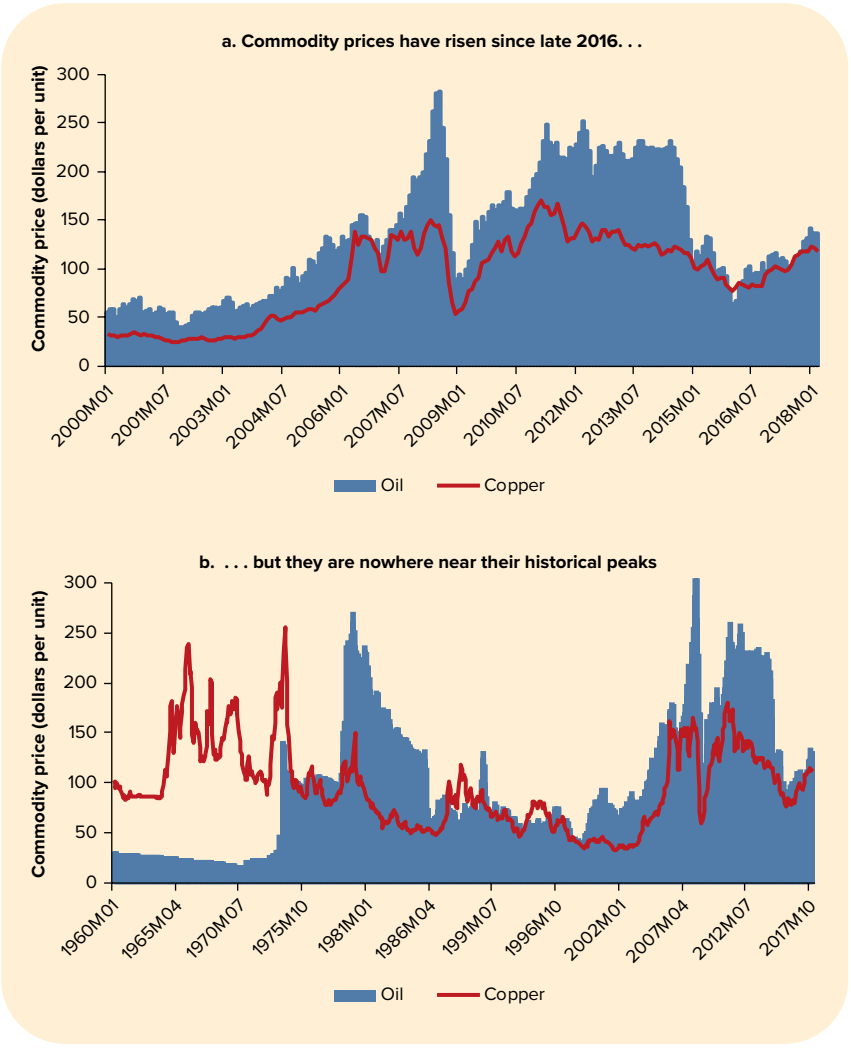
The ECA region closely followed that acceleration (figure 1.1). The region as a whole outperformed the United States in 2017, and growth of industrial production in Central Europe and Turkey was on par with growth in China and India. This performance lies in sharp contrast to performance in the aftermath of the European banking and debt crisis, when the region's performance significantly lagged that of the world as a whole.

During this global acceleration, commodity prices rebounded. Copper prices, which are closely linked to the industrial cycle, increased 43 percent between October 2016 and March 2018, more than any other commodity. Oil prices increased 30 percent over the same period (figure 1.2, panel a), providing some relief for energy exporters and recipients of remittances in the eastern part of the region. Consistent with their strong relationship with energy prices, grain prices increased 18 percent between October 2016 and March 2018. Other agricultural prices declined, leaving the index of agricultural prices flat.

The total nonoil commodity price index increased 10 percent over the last year and a half, largely reflecting the weakening of the U.S. dollar over that period, as all commodity prices are measured in dollars. The dollar depreciated 11 percent against the euro and 6 percent against the Chinese renminbi over this period. Average commodity prices expressed in these two currencies were thus relatively stable. The dollar also depreciated against other currencies in the region. Between October 2016 and March 2018, it fell 16 percent against the Czech koruna, 14 percent against the Albanian lek and the Polish zloty, 9 percent against the Russian ruble and the Hungarian forint, 7 percent against the Romanian leu, and 3 percent against the Kazakh tenge. Only a few regional currencies depreciated during this period against the dollar. The Turkish lira depreciated 27 percent, and the Azeri manat depreciated 5 percent. Metal and oil prices increased in all currencies, and many other commodity prices declined in euros or other currencies in the region.

Despite their cyclical upturn, oil prices are nowhere near their historical highs. Indeed, adjusted for inflation, global oil prices are 57 percent below their peak of

FIGURE 1.2 **Commodity prices have followed the economic upswing**



Source: World Bank.
Note: Panel a: Index of nominal prices in U.S. dollars; January 2015 = 100.
Panel b: Index of real prices (deflated with U.S. Consumer Price Index), January 2015 = 100.

July 2008 and 43 percent below the average level between early 2011 and late 2014 (figure 1.2, panel b).[2] There are no signs that oil markets will return to those record prices. Consequently, adjustments in countries that directly or indirectly depend on oil exports should continue.

Several of these countries have become more competitive in international markets and begun diversifying their economies, partly as a result of the depreciation of real exchange rates since the fall in oil prices late 2014. Unexploited opportunities remain to shift farther away from nontradable production. Domestic reforms that correct price distortions, eliminate privileges for state-sponsored companies, and unleash more competition and innovation remain essential. The recent wave of reforms in Uzbekistan sets a good example.[3] They will likely lead to further diversification and may trigger reforms in surrounding countries.

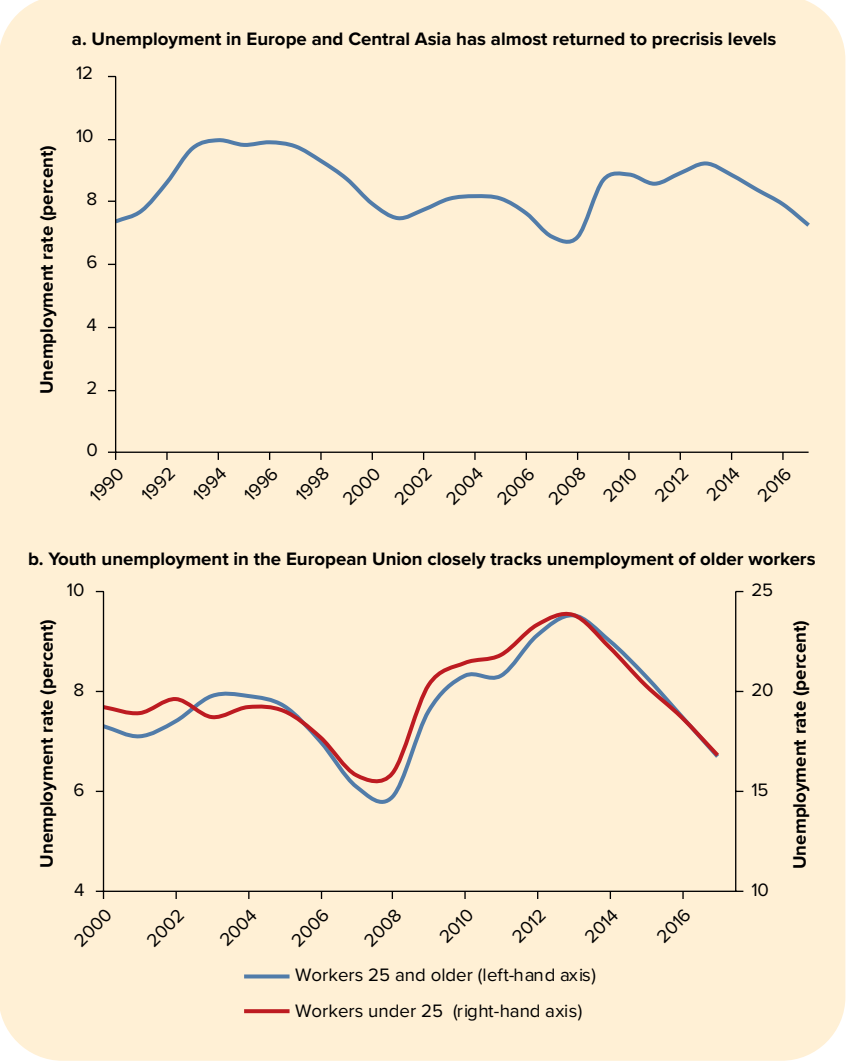
Growth appears to have peaked

Signals are mounting that global growth has peaked. With less spare capacity, lower unemployment, rising inflation, and tightening monetary policy, the potential for continued rapid growth has diminished, especially in the ECA region.

Unemployment is now close to where it was at the height of the boom a decade ago (figure 1.3, panel a). The labor market has become tight, especially in Northern Europe. The rapid decline in unemployment is remarkable, given the history of hysteresis in the region's labor markets. After every major crisis, the typical pattern in Europe was for unemployment rates to settle at higher levels.

It is especially encouraging that youth unemployment in the European Union has fallen sharply. It is now back to 2005 levels (figure 1.3, panel b), having fallen

FIGURE 1.3 Acceleration of growth has resulted in lower unemployment



Sources: World Economic Outlook, April 2018 (panel a); Eurostat (panel b).

from 24.0 in 2013 percent to 16.8 percent in 2017 (the overall unemployment rate fell from 9.5 percent to 6.7 percent over this period).[4]

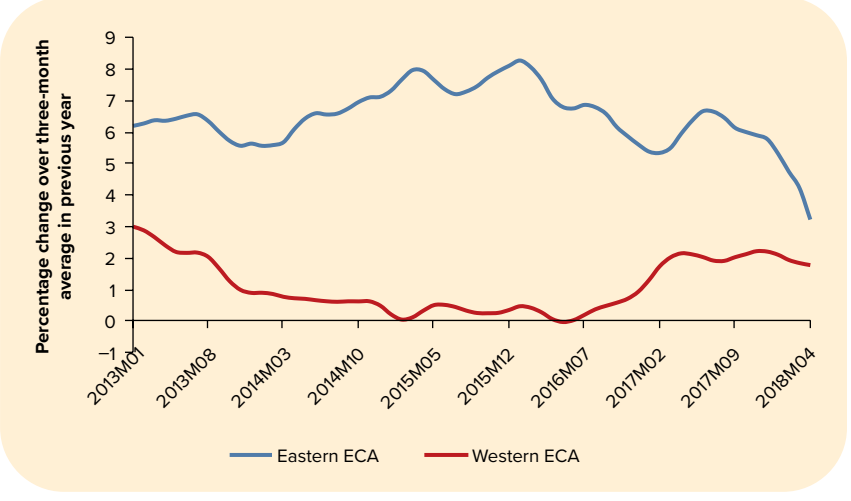
Average inflation in the western part of the region has been almost 2 percent since early 2017 (figure 1.4). That is a critical change from the deflationary threats in the aftermath of the European banking crises. Between 2012 and 2016, the consumer price index declined in at last one year in Armenia, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Estonia, Finland, Georgia, Greece, Ireland, Italy, Lithuania, Macedonia, Montenegro, Poland, Romania, the Slovak Republic, Spain, Sweden, and Switzerland. In several of these countries, the GDP deflator still rose, and the drop in consumer prices reflected terms-of-trade gains. Nevertheless, the deflationary threat was a serious concern and the manifestation of underutilized resources.

None of these countries experienced deflation in 2017. The average inflation rate of 2 percent is close to the target of monetary authorities. As a result, the European Central Bank will likely discontinue quantitative easing in 2018; central banks outside the euro area are also expected to tighten their policies. Tightening has already started in Turkey, where inflation has reached double-digit levels.

Asset prices have risen even faster than consumer prices (figure 1.5). The increase in real estate prices is not nearly as extreme as it was during the boom a decade ago, but in Northern Europe double-digit annual increases were not uncommon in 2017. This boom is an additional reason for monetary policy makers to raise interest rates.

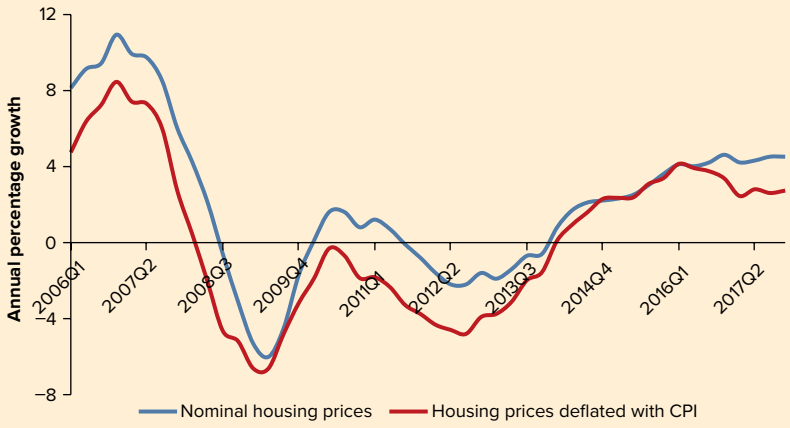
In the eastern part of the region, monetary policies are likely to tighten in coming years, even as inflation has recently fallen (figure 1.4). High inflation in 2015 and 2016 was part of a one-time price adjustment after the fall in oil prices and the subsequent unavoidable depreciations of exchange rates. That adjustment

FIGURE 1.4 Normalization of inflation in Europe and Central Asia continues



Source: World Bank.
Note: Western ECA is the unweighted average of 29 countries: Albania, Austria, Belgium, Bulgaria, Bosnia and Herzegovina, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxemburg, Latvia, Macedonia, the Netherlands, Portugal, Romania, Serbia, the Slovak Republic, Slovenia, Spain, Sweden, the United Kingdom, and Turkey. Eastern ECA is the unweighted average of nine countries: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, the Kyrgyz Republic, Moldova, the Russian Federation, and Tajikistan.

FIGURE 1.5 Housing prices in the European Union have risen since 2013



Sources: Data from Eurostat and the Federal Reserve Bank of St. Louis.

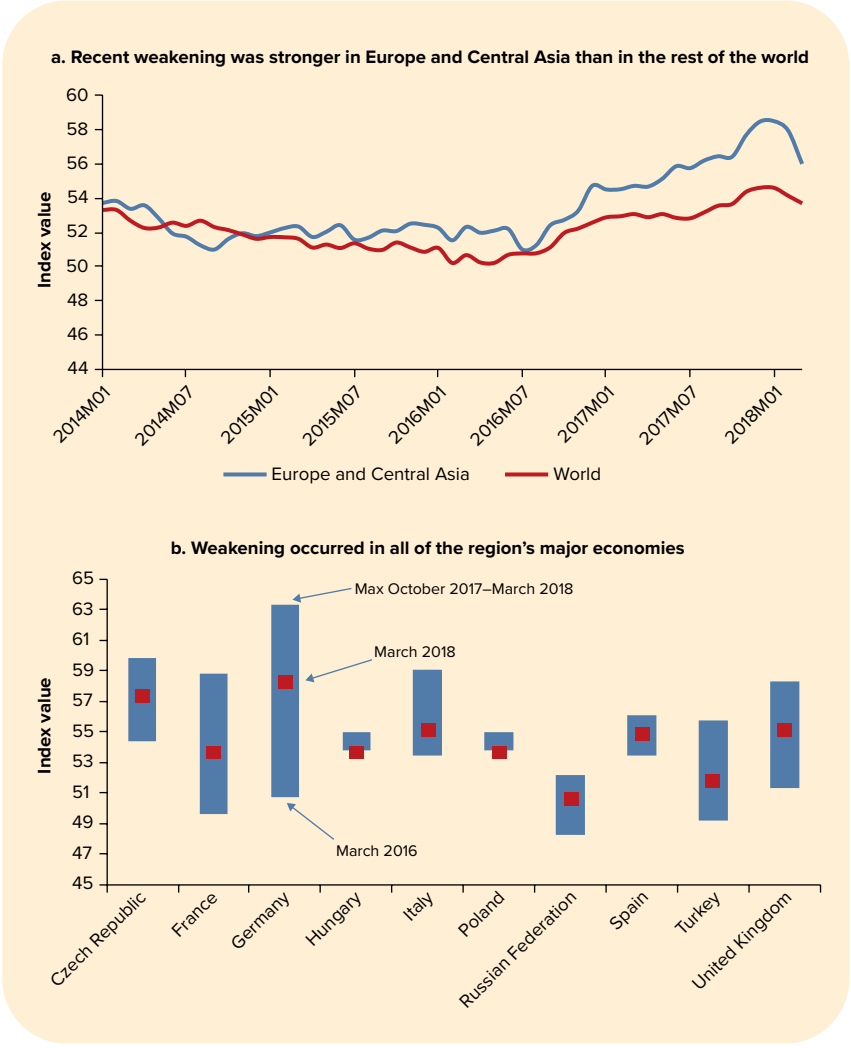
has been completed. Further inflation should now be controlled by central banks, which have to build their credibility with floating exchange rates. Now that oil prices are recovering, tighter monetary policies make sense, as they can allow higher prices to be absorbed by appreciating currencies.

Tighter monetary policy and rising interest rates will restrain domestic growth and reduce capital flows to emerging economies. The capital flows that were searching for yields in emerging economies when interest rates in high-income countries were close to zero will likely decline, moderating growth in countries with large external funding needs. In such an environment, a cyclical downturn is more likely than further acceleration or even stabilization of growth at current levels. That slowdown may already be happening. The Purchasing Managers' Index, which combines various indicators in the manufacturing sector (new orders, inventory levels, production, deliveries, employment), has fallen in the region since the beginning of 2018 (figure 1.6, panel a). The drop from the peak reached in the last six months was particularly large in France, Germany, Italy, Turkey, and the United Kingdom, even if the index was still above 50, indicating growth (figure 1.6, panel b).

The coming cyclical downturn is expected to be modest, mainly because, with few exceptions, there are no signs of overheating that require sharp corrections. Investment ratios are still at balanced levels, and no steep declines in those ratios are expected. Inflation is at normal levels, and monetary tightening can be very gradual. GDP growth for the region is expected to fall from 2.7 percent in 2017 to 2.3 percent in 2018 and 2.1 percent in 2019.

The expected slowdown is very similar for the eastern and western parts of the region. However, there are marked differences between smaller subregions. In the eastern part of the region, almost all the slowdown in growth is forecast to come from Turkey, with a modest strengthening of growth in oil-exporting countries. In the western part of the region, the slowdown is expected to be rather evenly distributed among members of the European Union, and some acceleration of growth is expected in the Western Balkans.

FIGURE 1.6 **The Purchasing Managers' Index reached an all-time high in Europe and Central Asia in 2018**

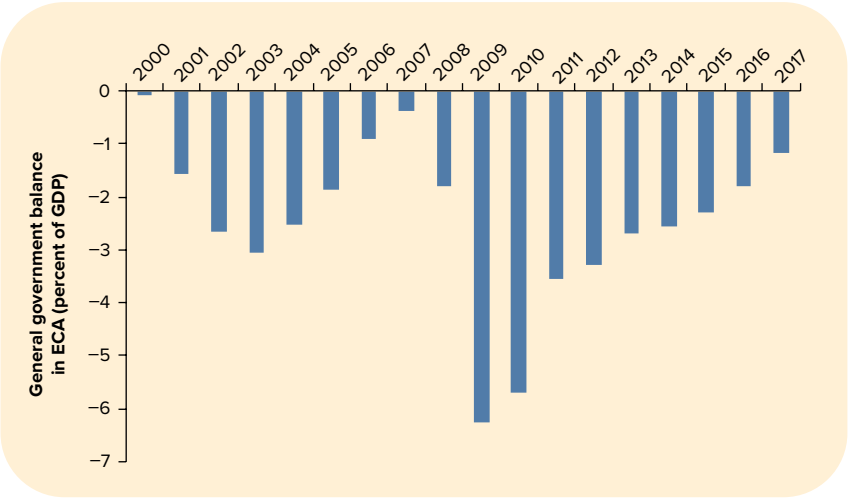


Source: World Bank.
Note: A value of more than 50 indicates expansion.

Although there are good reasons to expect only a modest deceleration of growth, a sharper correction is possible. Cyclical forces can easily reinforce one another, and additional shocks—including rising protectionism, geopolitical tensions, and larger than expected disruptions from Brexit—could slow growth.

Does the region have the capacity for countercyclical policies? There is no room for further monetary stimulus; at most, the expected monetary tightening could be delayed slightly. The region has rebuilt some fiscal buffers. The average fiscal deficit is estimated to have been just above 1 percent of GDP in 2017, down from 6 percent of GDP during the 2009 crisis; it is close to levels at the end of the boom that preceded that crisis (figure 1.7). Fiscal stimulus is thus an option in several countries in the event of a sharper than expected slowdown. Under the baseline scenario of only a modest deceleration, further buildup of fiscal buffers seems the best strategy.

FIGURE 1.7 Government deficits in the region have fallen sharply since 2009



Source: World Economic Outlook, April 2018.

Two additional questions are worth investigating. Did countries in the region use the recovery to adjust the structure of their economies, to better equip them for future challenges? Why has potential growth been slower since the crisis than it was during the boom that preceded it? The rest of this chapter addresses these questions.

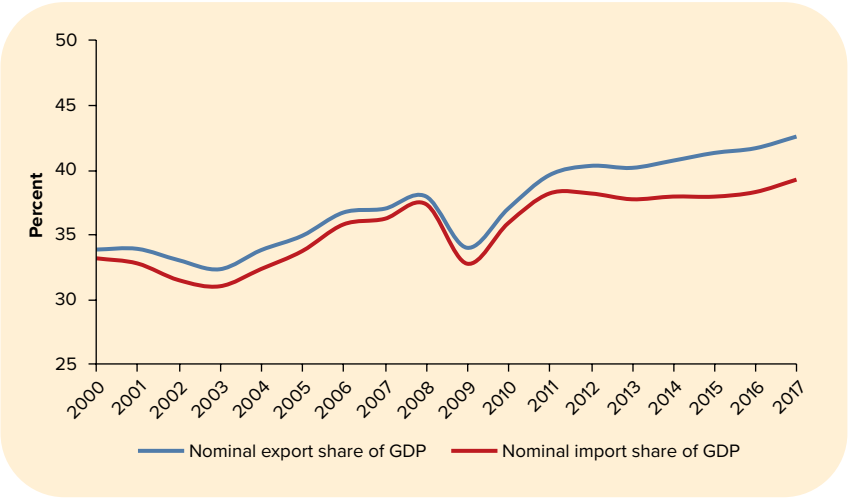
The region has shifted toward more exports. . .

The biggest and most important adjustment during the recovery has been the shift of production capacity toward exports. Despite the slowdown in global trade, the share of exports in GDP is now 10 percentage points higher than it was during the 2000s (figure 1.8). This shift is important, because the economic structure during the 2003–07 boom, when growth in many countries in the region was driven largely by expansion of nontradable sectors, was no longer sustainable. During that boom, capital inflows, oil revenues, and inflows of remittances resulted in increased domestic spending and a related loss in international competitiveness. In the new normal after the crisis, all three forms of foreign inflows are more moderate. The change has created the opportunity to become more competitive in international markets while reducing investments in real estate and other nontradable sectors.

Imports have also increased as a share of GDP, albeit by less than exports. The overall current account surplus of the region has thus increased, largely because the deficits that Central European countries financed with massive capital inflows during the boom have disappeared. These inflows came with a sharp decline in investment ratios in those countries.

This adjustment is similar to the correction in East Asia after the 1998 financial crisis (box 1.1). During the 1990s, emerging East Asian economies received large capital inflows after they opened up to global markets, just as Central Europe did later, during the 2000s. The reversal of capital flows in 1998 had similar effects on East Asia as the 2008 crisis did on Central Europe.

FIGURE 1.8 **Since the crisis, production in Europe and Central Asia has shifted toward exports**



Source: World Bank.

. . . and adapted to technological change

Apart from this macroeconomic adjustment, countries are adapting to the rapid change in technologies caused by the digital revolution, which has far-reaching consequences for the way production, labor, and commerce are organized. The analysis of how countries are adapting is beyond the scope of this chapter. Chapter 2 examines ECA's involvement in some of these new technologies.

In both regions, large current account deficits during the boom were financed with capital inflows that were reversed during the crisis. Emerging economies in East Asia received large capital inflows during the 1990s, after they opened their economies to global markets. Central European economies received large flows of foreign direct investment and other capital before and during their accession to the European Union. Their aggregate current account deficit widened to more than 8 percent of GDP in 2007. Heavy borrowing in foreign markets increased the vulnerability of both corporate and financial sectors to capital flow reversals (Truman 2013). In both cases, the reversal of capital inflows led to a steep and immediate decline in investment rates. In East Asia the loss in income was larger, so the immediate fall in investment rates was greater. Investments rates bounced back subsequently, but they remained below the preceding boom levels.

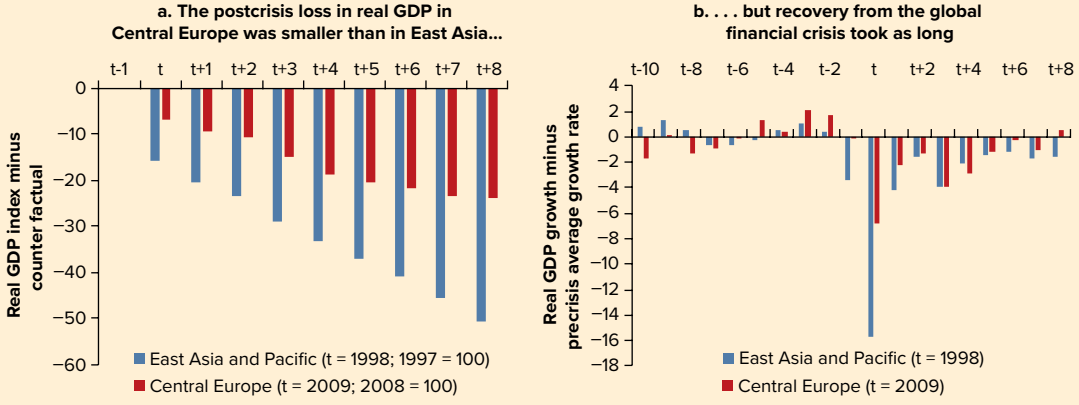
A combination of factors caused the decline in labor productivity after the crisis

Growth in ECA returned to precrisis levels in 2017. It has not been strong enough to compensate for the production losses that have occurred since the crisis, however (figure 1.9). Moreover, as little spare capacity is left, it is unlikely that these losses can be recouped in the coming years. Thus not only actual growth but also potential growth has declined since the crisis.

BOX 1.1 Similarities between recoveries in Central Europe after 2009 and East Asia in the late 1990s

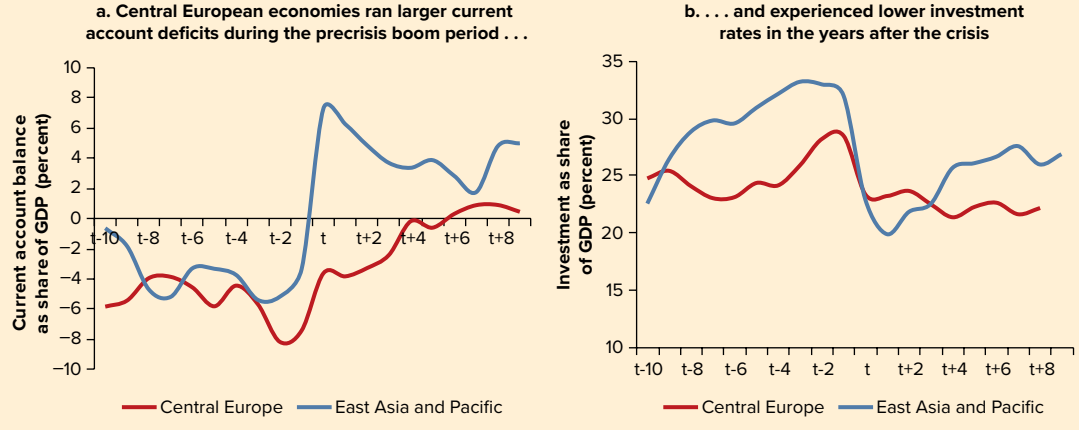
The recovery of economies in Central Europe from the 2008–09 global financial crisis was comparable to the recovery of East Asia following the 1998 financial crisis. Both recoveries took about eight years. In East Asia, however, the impact of the crisis was much greater. Five years after the crisis began, GDP in East Asia was 37 percent below its precrisis level. In Central Europe, the corresponding loss was 20 percent.

FIGURE B1.1.1 Recovery in Central Europe was similar to recovery after Asian financial crisis



Source: Data from World Development Indicators and Eurostat.
Note: The postcrisis counterfactual real GDP series were constructed assuming that annual GDP growth remained at the precrisis average growth rates. East Asia and Pacific includes Indonesia, Lao PDR, Malaysia, the Philippines, Thailand, and Vietnam.

FIGURE B1.1.2 Investment rates adjusted immediately to reversal in capital flows



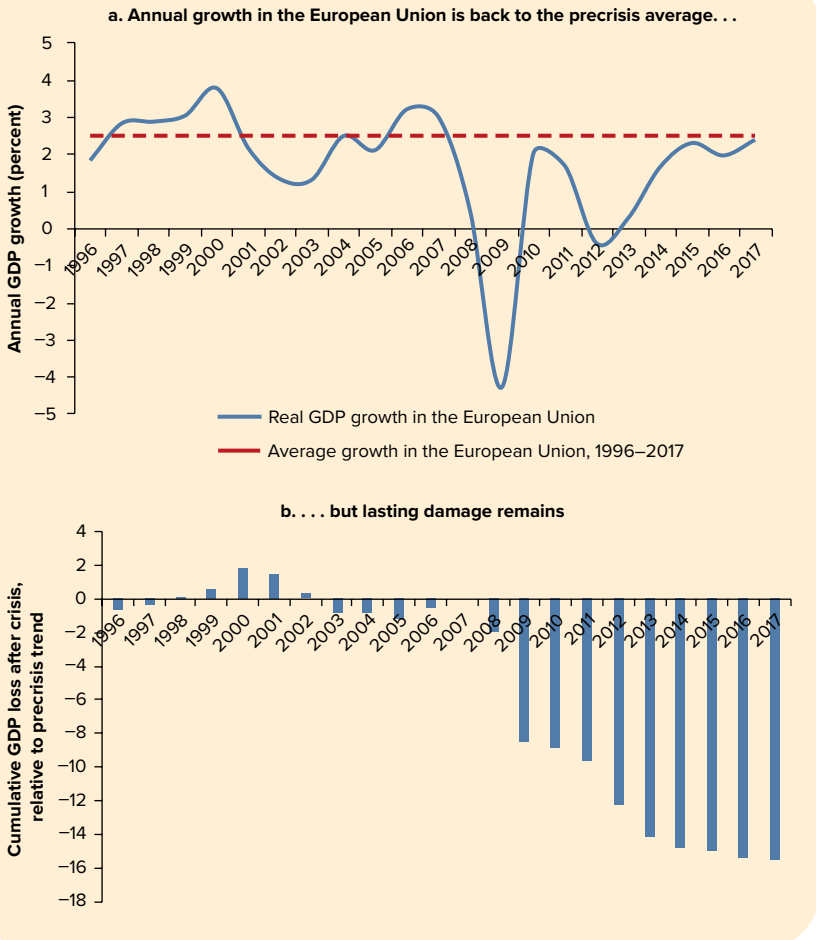
Source: Data from World Development Indicators and Eurostat.
Note: East Asia and Pacific includes Indonesia, Lao PDR, Malaysia, the Philippines, Thailand, and Vietnam.

(Continued next page)

BOX 1.1 (continued)

In both regions, large current account deficits during the boom were financed with capital inflows that were reversed during the crisis. Emerging economies in East Asia received large capital inflows during the 1990s, after they opened their economies to global markets. Central European economies received large flows of foreign direct investment and other capital before and during their accession to the European Union. Their aggregate current account deficit widened to more than 8 percent of GDP in 2007. Heavy borrowing in foreign markets increased the vulnerability of both corporate and financial sectors to capital flow reversals (Truman 2013). In both cases, the reversal of capital inflows led to a steep and immediate decline in investment rates. In East Asia the loss in income was larger, so the immediate fall in investment rates was greater. Investments rates bounced back subsequently, but they remained below the preceding boom levels.

FIGURE 1.9 Even after full recovery, the effects of the global financial crisis remain

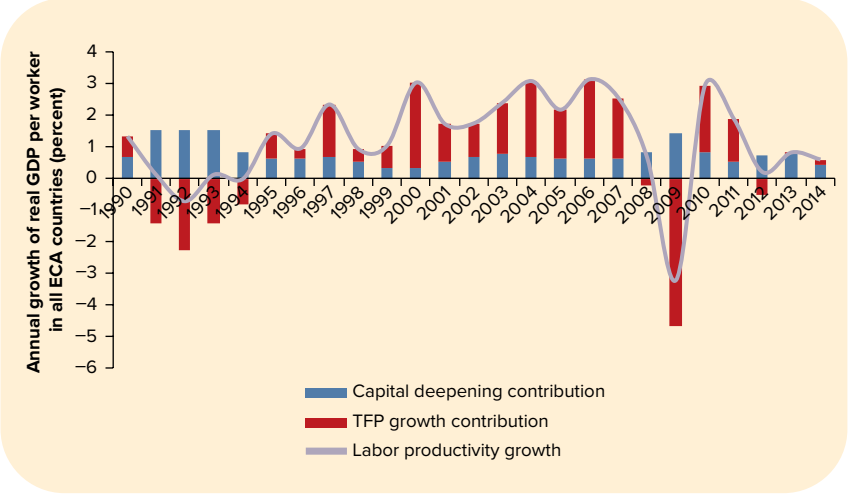


Source: Eurostat.

In the region's middle-income countries, slower labor productivity growth caused most of the deceleration in potential growth; only 0.35 percentage points of the slowdown in potential growth can be attributed to slowing labor supply growth (World Bank 2018). The changing pace of capital deepening cannot explain this slowdown in labor productivity, most of which is reflected in total factor productivity (TFP), the unexplained factor in production functions (figure 1.10).

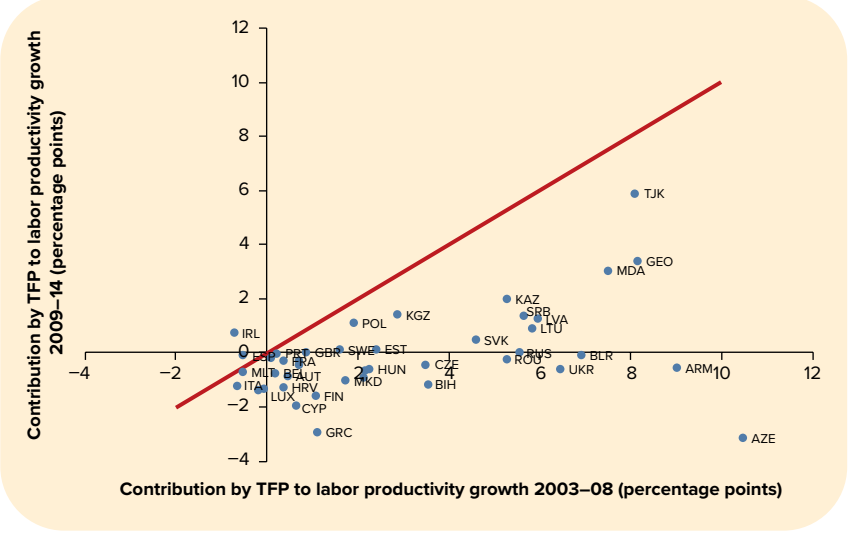
Differences across countries were considerable, and many idiosyncratic events occurred. But after the crisis, every country in the region except Ireland experienced a decline in the contribution of TFP to labor productivity growth (figure 1.11). In most countries, TFP actually fell.

FIGURE 1.10 After the crisis, labor productivity increased at a slower rate



Source: Penn World Table 9.0 dataset.

FIGURE 1.11 The contribution of total factor productivity (TFP) to labor productivity growth declined after the crisis



Source: Penn World Table 9.0 dataset.

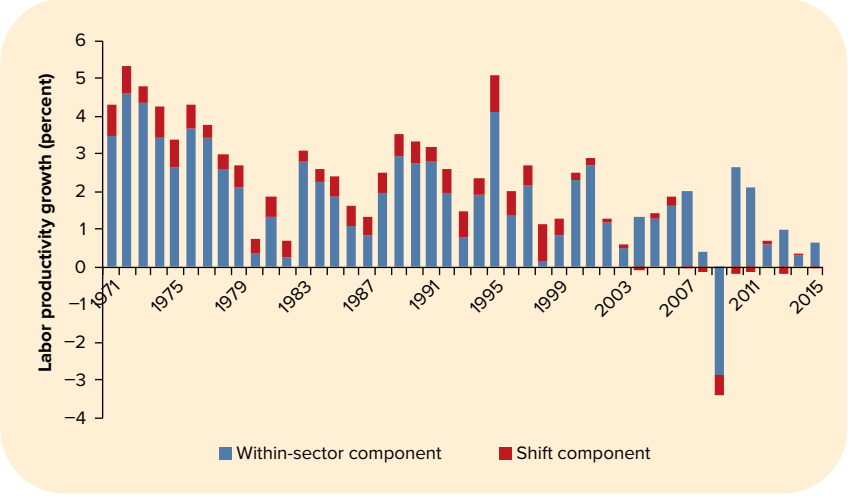
Labor productivity growth can be decomposed into three components:

- changes in labor productivity within each economic sector (the within-sector component)
- changes in labor productivity resulting from the reallocation of labor across sectors (the shift component)
- a cross component that represents the interaction between the change in labor productivity within a given sector and the change in labor input share of that sector.[5]

As the third component is numerically insignificant, analysis of labor productivity growth can be based on the within-sector and shift components. This decomposition reveals three important trends in the drivers of labor productivity in Germany and some countries in ECA (figure 1.12).

- The deceleration in labor productivity growth in Germany started during the 1980s and continued in subsequent decades. Most of it was caused by weaker productivity growth within sectors. This pattern is also evident in other major European countries.
- The contribution of sectoral shifts to overall labor productivity growth in Germany changed markedly over time. Between the 1970s and the start of the 2000s, the shift of employment toward more productive sectors increased labor productivity growth by about half a percentage point. The contribution of sectoral shifts to labor productivity growth fell to zero after 2000 and turned negative around the time of the 2008 global financial crisis. The long-term trend of labor shifting toward sectors with higher labor productivity, and likely higher capital intensity, came to an end when the digital economy started in earnest (see below). The contribution to labor productivity growth of the shift of labor to more productive sectors was greater in Central European countries than in Germany before the crisis, but as in Germany, it diminished

FIGURE 1.12 Labor productivity growth in Germany is on a long-term downward trend



Source: Data from KLEMS dataset (available at http://www.euklems.net/). Data for years before 1995 are KLEMS estimates.
Note: Labor productivity is calculated as real value added per hour worked.

after the crisis. This change is in line with the boom and bust in the growth in FDI flows to these countries (EBRD 2015; World Bank 2018). During the boom period, FDI inflows created high-productivity jobs. These flows plummeted after the crisis. The contribution of the sectoral shift to productivity declined also in Armenia after the crisis (box 1.2).

- Major crises—the second oil crisis of the late 1970s and the global financial crisis—led to a permanent loss in productivity. Even where productivity growth returned to the original (downward) trend, the damage of the crisis was not recouped. Productivity remains below the levels that would have been achieved had the crisis not occurred. The lasting impact of deep crises on productivity growth may have been caused by the loss of capital and skills that become obsolete or by a loss in confidence by workers who suffered extended bouts of unemployment.

The reasons for the long-term decline in within-sector labor productivity growth, in many ECA countries and globally, have been debated in the economic literature. The change in within-sector labor productivity can be decomposed into changes generated by capital deepening and changes that cannot be explained (TFP). The contribution of capital deepening shrank significantly in several, but not all, countries during the years around the 2008 crisis. And almost all countries experienced a decline in within-sector TFP growth.

The literature has suggested several possible causes for the slowdown in TFP. First, deep reforms led to a temporary rise in productivity growth in several ECA

BOX 1.2 A new normal in Armenia

Armenia's economy changed markedly following the global crisis. Per capita GDP growth fell from 8.4 percent a year in 2003–09 to 3.2 percent a year in 2010–16. Labor productivity growth was similar in the two periods (6.7 percent a year before the crisis and 6.2 percent after), but migration flows, employment levels, and the composition of labor productivity growth changed dramatically.

During the boom, many people found jobs abroad, especially toward the end of the period, when oil revenues skyrocketed in Russia. As a result, Armenia's population declined by almost 5 percent between 2003 and 2009. At the same time, many jobs were created in construction and other nontradable sectors, to satisfy domestic demand fueled by remittances. The combination of emigration and job creation boosted the share of the population that was employed from 36 percent in 2003 to 40 percent in 2009. During those six years, the shift toward capital-intensive construction led to an increase in labor productivity of 4 percentage points a year. Within-sector productivity growth contributed only 2.7 percentage points to overall labor productivity growth, perhaps because elevated domestic demand reduced competitive pressures on the supply side.

These patterns reversed in the aftermath of the crisis. Emigration slowed, the population increased by 1.7 percent between 2010 and 2016, and the construction sector and other nontradable sectors laid off workers. As a result, the share of the population that was employed fell to 34 percent. The impact of sectoral shifts on productivity growth turned negative, and the within-sector contribution to annual labor productivity growth increased to 7.4 percentage points. The increase may have reflected increased competition, as domestic demand declined and production shifted toward goods and services that are tradable in international markets.

countries. Productivity growth subsequently fell when major aspects of the reform agenda were completed. In Central Europe, reforms connected to EU accession initially boosted the growth of GDP and productivity. Reform momentum, and productivity growth, slowed after EU accession, in the mid-2000s (World Bank 2018). In Central Asia and the South Caucasus, TFP growth accelerated in the 1990s with institutional reforms in the early transition period. It plunged by the beginning of 2000s, perhaps because such benefits diminished as the room for further reforms narrowed.

Second, across the world, technological changes in advanced and emerging economies affected the measurement and growth of productivity. The digital revolution that began in the 1990s led to a massive shift of resources to information and communications technology (ICT) industries. The output of these industries is notoriously difficult to measure (for example, how does one value free Internet services financed by advertisements?). If the value of these new services is understated, then aggregate measurements of productivity may also be understated, particularly if growth slows in more traditional industries that are losing labor and capital to the ICT sector. Given the magnitude of the slowdown, however, not all of it can be attributed to measurement issues (Syverson 2016).

The shift to ICT industries may also be connected to lower productivity. It is costly and time consuming to overcome the special difficulties involved in commercializing novel technologies (David 1990). Because it may take time to realize the return on the labor and capital moving to these new industries, shifts of labor and capital to (initially) low-return industries may depress aggregate productivity growth. In the United States, for example, the slowdown before the 2008 crisis occurred mainly in industries that produce information technology (IT) services or use such services intensively (Fernald 2015; Gordon 2016).

Third, declining flexibility in some advanced countries may be reducing productivity growth. Business dynamism has declined in the United States, as reflected in the drop in reallocation rates for jobs (after 1990) and workers (after 2000) (Davis and Haltiwanger 2014), and the pace of startup creation in the United States declined over the 2000s (Haltiwanger 2011). Across OECD countries, productivity growth in the most advanced firms remained robust over the 2000s, but the difference in productivity levels between leading and lagging firms widened (Andrews, Criscuolo, and Gal 2015; Haltiwanger 2011). This phenomenon may have deepened the productivity slowdown if barriers to the reallocation of labor and capital intensified.

Fourth, long-term trends in the global economy may be contributing to the slowdown in productivity growth. Aging and other demographic factors may account for part of the decline (Maestas, Mullen, and Powell 2016). The slowdown in global trade integration following the crisis may also be contributing to slower TFP growth (Adler and others 2017).

No single factor is responsible for the observed deceleration of productivity growth: long-term trends, sectoral shifts, reform momentums, and global crises all play roles. No silver bullet can reignite productivity growth. Policy makers need a diverse set of instruments to encourage innovation, build up skills and infrastructure, and facilitate competition.

Notes

1. That used to be the rule globally, but after the global financial crisis a decade ago, that ratio came down closer to one. As illustrated in earlier ECA Economic Updates, the global decline in the income elasticity of trade has not materialized in Europe and Central Asia.
2. Current real copper prices are also 57 percent below their historical peak, which was reached in April 1974.
3. A key reform in Uzbekistan was the elimination of the dual exchange rate, which reduced domestic price distortions and opened up new export opportunities. The government also reduced import duties and is harmonizing the duty code with Eurasian Economic Union norms.
4. The much higher rate for youth unemployment is normal, for a variety of reasons. Search unemployment is much higher for people entering the labor market than for workers who already have jobs. Cyclical changes in unemployment also tend to be more pronounced for young people. During crisis periods, the lack of job vacancies disproportionately hurts people entering the labor market for the first time. During economic recoveries the opposite happens, as the opening up of new vacancies disproportionately benefits newcomers to the labor market.
5. This decomposition is based on sector-level data on real value added and the number of hours worked. We follow the methodology of Molnar and Chalaux (2015).

References

Adler, Gustavo, Romain Duval, Davide Furceri, Sinem Kilic Celik, Ksenia Koloskova, and Marcos Poplawski-Ribeiro. 2017. "Gone with the Headwinds: Global Productivity." IMF Staff Discussion Note 2017/04, International Monetary Fund, Washington, DC.

Andrews, Dan, Chiara Criscuolo, and Peter N. Gal. 2015. *Frontier Firms, Technology Diffusion and Public Policy: Micro Evidence from OECD Countries.* The Future of Productivity: Main Background Papers. OECD Publishing, Paris. http://www.oecd.org/eco/growth/Frontier-Firms-Technology-Diffusion-and-Public-Policy-Micro-Evidence-from-OECD-Countries.pdf.

David, Paul A. 1990. "The Dynamo and the Computer: An Historical Perspective on the Modern Productivity Paradox." *American Economic Review* 80 (2): 355–61. http://www.dklevine.com/archive/refs4115.pdf.

Davis, Steven, and John Haltiwanger. 2014. "Labor Market Fluidity and Economic Performance." NBER Working Paper 20479, National Bureau of Economic Research, Cambridge, MA. http://www.nber.org/papers/w20479.

EBRD (European Bank of Reconstruction and Development). 2015. *Transition Report 2015–16: Rebalancing Finance.* London: European Bank for Reconstruction and Development.

Fernald, John G. 2014. "Productivity and Potential Output before, during, and after the Great Recession," *NBER Macroeconomics Annual* 29: 1–51. https://doi.org/10.1086/680580.

Gordon, Robert J. 2016. "Perspectives on the Rise and Fall of American Growth." *American Economic Review* 106 (5): 72–76. DOI: 10.1257/aer.p20161126.

Haltiwanger, John. 2011. "Firm Dynamics and Productivity Growth." *European Investment Bank Papers* 16 (1): 116–36. https://ssrn.com/abstract=1984016.

Maestas, Nicole, Kathleen J. Mullen, and David Powell. 2016, "The Effect of Population Aging on Economic Growth, the Labor Force and Productivity." NBER Working Paper 22452, National Bureau of Economic Research, Cambridge, MA. http://www.nber.org/papers/w22452.

Molnar, M., and T. Chalaux. 2015. "Recent Trends in Productivity in China: Shift-Share Analysis of Labour Productivity Growth and the Evolution of the Productivity Gap." OECD Economics Department Working Paper 1221, OECD Publishing, Paris. http://dx.doi.org/10.1787/5js1j15rj5zt-en.

Syverson, Chad. 2016. "Challenges to Mismeasurement Explanations for the U.S. Productivity Slowdown." NBER Working Paper 21974, National Bureau of Economic Research, Cambridge, MA. http://www.nber.org/papers/w21974.

World Bank. 2018. "Global Economic Prospects Broad-Based Upturn, but for How Long?" January. Washington, DC.

2

Cryptocurrencies and Blockchain: Hype or Transformational Technologies?

Overview

- The emergence of cryptocurrencies and blockchain technologies is part of a broader wave of technologies that facilitate peer-to-peer (P2P) commerce, individualization of products, and flexibilization of production methods. For a variety of reasons, this wave gained traction after the global financial crisis a decade ago. Large digital platforms, such as Alibaba, Amazon, Uber, and Airbnb, are replacing many brick-and-mortar stores, service companies, and long-term employment relationships.
- Blockchain technologies aim to go one step farther. They organize P2P transactions and P2P information flows without companies that operate digital platforms. Whether these technologies will completely eliminate middlemen or whether new forms of trusted intermediaries will emerge remains to be seen.
- Cryptocurrencies are the first—and therefore most developed—application of blockchain technologies. They create money without central banks and facilitate payments without financial institutions. The success of several cryptocurrencies puts competitive pressure on transaction methods by existing financial institutions. However, serious limitations have become apparent. Decentralized organization of markets without trusted intermediaries can be very costly, and the volatility of the value of cryptocurrencies is a big obstacle to their becoming an alternative to legal tender.

- Other potential applications of blockchain technologies, from smart contracts to decentralized databases and open source social networks, could well become more transformational than cryptocurrencies. Current experiments are likely to result in lasting innovations, even if current applications do not stand the test of time.
- The emergence of blockchain technologies has triggered a flurry of activities in Europe and Central Asia (ECA), where people use cryptocurrencies for cross-border transactions and as speculative investments. Start-up companies are mining cryptocurrencies and providing blockchain services. Governments are experimenting with blockchain technologies to make their services more secure and more transparent.
- Many factors provide a fertile ground for these activities in ECA. Several governments actively support innovation by start-ups. Governments are eager to digitize and streamline their services. Lack of trust in existing financial intermediation makes cryptocurrencies an interesting alternative in some countries. Cryptocurrencies are also used to sidestep oversight of cross-border transfers. Cheap electricity (in Iceland and Georgia, for example) entices the mining of cryptocurrencies.
- Cryptocurrencies and blockchain technologies pose a range of policy challenges. They include the need to (a) apply rules of financial oversight, consumer protection, and tax administration while at the same time encouraging and facilitating innovation; (b) deal with the massive volume of electricity used to mine cryptocurrencies; and (c) determine whether governments and central banks can use blockchain technologies to improve their services. Policymakers should find a balance between curbing the hype and unleashing potentially transformational new opportunities. International coordination is needed to share best practices, avoid regulatory arbitrage, and explore how to regulate global decentralized networks.

Introduction

Ten years after an ingenious experiment to create a cryptocurrency that allows secure and anonymous digital transactions to take place without the involvement of central banks or commercial banks, cryptocurrencies have become a multibillion-dollar industry. By December 2017, the average price of one bitcoin (the first cryptocurrency) had risen from just a few cents in 2009 to $15,000, doubling its value in a single month. These gains attracted many investors across the world. On December 1, 2017, the U.S. Commodity Futures Trading Commission approved trading in bitcoin futures. Although the price of a bitcoin had declined to about $8,000 in April 2018, the value of bitcoins in circulation was about $150 billion as of April 10, 2018.

Big companies, and individuals working together in large pools, are competing for the right to add new transactions to the existing chain of transactions. Their revenues, in the form of new bitcoins and transaction fees, are close to $20 million a day.

In the wake of bitcoin's success, hundreds of alternative cryptocurrencies have been created. Digital tokens have been issued as general currency; for specific purposes (for example, to rent computer capacity or cloud storage); and as an alternative to traditional shares in companies.

Cryptocurrencies have evoked strong reactions. Critics call these virtual currencies a bubble, a scam, and even evil (Krugman 2013; Popper 2018). Supporters predict that cryptocurrencies will ultimately replace money (Rooney 2018).

There is less disagreement about the underlying blockchain technology, a protocol to achieve decentralized consensus about the validity of a common database, stored in multiple locations. Many recognize that the blockchain protocol can lead to tamper-proof, secure information systems without the need for a single administrator. But even here views differ markedly about how transformational this technology is. Believers foresee utopian societies of self-regulating individuals, without government or trusted intermediaries. Doubters argue that the number of useful applications has been exaggerated, that lack of regulation can have disastrous effects, and that in most cases trusted intermediaries will continue to provide useful services.

It is unclear how these technologies will develop in the long run. Conceivably, they could be absorbed by existing institutions, with central banks issuing digital cash, governments using blockchain to maintain information systems, and commercial banks putting payment systems on the blockchain.[1] Many intermediaries might become obsolete, and many new financial instruments might be created by companies that do not yet exist. The main legacy of cryptocurrencies may not be the blockchain technology but standardized digital IDs using a combination of public and private keys on open-source software.[2] Such a development would allow individuals to own more of their data, instead of participating in proprietary information networks (Johnson 2018).

Whatever the future brings, cryptocurrencies and blockchain protocols are part of a tidal wave of new technologies that is changing the way production and commerce are organized. Digital platforms, the sharing economy, apps, and 3D printers are fragmenting production and facilitating P2P transactions.

Many of these new applications originated soon after the global financial crisis of 2008, when the bankruptcies of established companies convinced many people that the economy would never be the same again. Investors were looking for new investment opportunities. Workers who had lost their jobs were willing to accept more flexible working relations. Consumers were persuaded to use some of their underutilized assets commercially.

The fact that bitcoin was created in 2009, soon after the crisis, was probably no coincidence. Trust in financial institutions had eroded, and the time was ripe to explore fundamentally different approaches. Whatever the future of cryptocurrencies and blockchain technologies may be, the trends toward decentralization and P2P transactions are unmistakable.

Cryptocurrency and blockchain activities are widespread in Europe and Central Asia (ECA). Massive mining of cryptocurrencies takes place in Iceland, Sweden, and Georgia. Many Russians own digital wallets, and experiments are ongoing in Serbia and Tajikistan to use blockchain technology to make the sending of

remittances more efficient (UNDP 2018). Estonia is using blockchain software in registries and plans to extend its use to medicine (https://e-estonia.com/). Start-ups in many countries in ECA are contributing to these technologies, attracting finance for their activities via initial coin offerings (ICOs).[3] Household investments in cryptocurrencies are not insignificant. Switzerland aims to become a cryptocurrency and blockchain hub and is leading in adjusting regulations to these new technologies.

Comprehensive, global information on cryptocurrency and blockchain activities is not available. But anecdotal evidence suggests that ECA is more active than many other parts of the world, likely because of a combination of factors. Governments of many countries—from Estonia to Georgia and Slovenia—are experimenting with blockchain technologies. In many countries in the region, a supportive business climate encourages start-ups. And, especially in the eastern part of the region, the relatively new financial sector provides fertile ground for experiments. The lack of legacy technologies in the financial sector—and the lack of trusted intermediaries—makes exploring new financial instruments attractive.

The rest of this chapter is organized as follows. Section 2.2 looks at the successes and drawbacks of cryptocurrencies, examining whether there is a future for money not issued by central banks. Section 2.3 looks at the possibility of smart contracts. It assesses whether markets can be organized without intermediaries and explores the possibility of secure decentralized databases. Section 2.4 summarizes some of the activities in ECA, with an emphasis on the experience in Georgia, which has been particularly active. Section 2.5 addresses the many policy challenges these new technologies have triggered.

Creating digital money without central banks

Since the emergence of e-commerce, myriad attempts have been made to develop electronic payment systems.[4] Many successful and unsuccessful attempts were linked to credit card systems.

Attempts to create digital cash are especially thought-provoking. Like coins and banknotes, digital cash should be anonymous and counterfeit-proof. People should be able to use it without the intermediation of banks, in the same way traditional cash is used outside the banking system. But unlike traditional cash, individuals, rather than a central bank, would create these digital coins. Private parties rather than the government would thus accrue the seigniorage.

The white paper that started bitcoin in 2008 outlined a way to create and operate a decentralized electronic cash system (Nakamoto 2008). The payment system would not be under the control of a bank or a central authority. Rather, a large number of independent participants would operate it. The paper used existing cryptographic techniques of public and private keys to create anonymous and secure IDs. It used existing cryptographic time stamps, based on hash functions, to make past transactions irreversible. With those elements, electronic cash could become (pseudo)anonymous and counterfeit-proof.[5] But the main contribution of the white paper was the method it proposed to keep track of past transactions without a trusted intermediary. It would be done through an automatic process

that would achieve consensus among most participants about the cumulative history of transactions, even if a minority of participants sent erroneous messages to the network.

The solution to this so-called *distributed consensus problem* was to let participants compete for permission to add a new batch of transactions to the decentralized database. Participants use their computer power to solve a difficult puzzle. The solution, which is considered proof of work, is impossible to find analytically; it can be reached only through trial and error. The first person who solves the puzzle can add a block of new transactions to the chain of existing transactions—hence the term *blockchain*—and broadcast the new block to the network, so that all participants can update the blockchain in their own copy.[6]

Although the puzzle is difficult to solve, its solution is easy to verify. Therefore, the nodes in the bitcoin network can easily determine if a proposed block is valid and should be added to the chain. Even if a node goes offline for a period of time, the network is not jeopardized. When the node goes back online, it accepts the longest valid chain as the correct one. If most of the computer power is owned by honest participants, the expectation is that they will create the longest chain, as the probability that they add new blocks is proportional to their computer power. As a result, the longest chain can be considered the consensus view. If a dishonest participant adds a block that is not accepted by others in the chain, that block will not become part of the longest chain, because the participant will not have enough computer power to add more blocks to the chain quickly enough. The difficulty of the puzzle is adjusted every two weeks, in order to create about one block per 10 minutes. Limiting the addition of a new block to the blockchain to one every 10 minutes (on average) prevents the network from being overwhelmed and keeps the size of the blockchain manageable.

Competition for the right to add a block to the blockchain also solved the problem of the creation of new electronic coins. People who solve the puzzle receive a combination of newly minted coins and transaction fees.[7] With every block, new coins are created. Every four years the number of new coins per block is cut in half, until the maximum number of 21 million bitcoins is reached. Most of the remaining bitcoins will be added over the next 15 years. The creation of new digital coins is like unearthing gold, which is why the puzzle solvers are called *miners* in the world of cryptocurrencies.

Ten years after the publication of the white paper, the concepts underlying bitcoin have proven successful. The blockchain technology is working and secure. Seventeen million bitcoins have been created, with an aggregate value of $137 billion in 2018. Numerous alternative cryptocurrencies have emerged, and many companies and research groups are exploring additional blockchain applications. Cryptocurrencies have unleashed a wave of financial innovations, putting competitive pressure on the financial sector, especially its facilitation of cross-border transfers.

Bitcoin's biggest success has also become its most worrisome weakness. The proof-of-work concept that ensured achievement of a decentralized consensus has become excessively costly and wasteful. Attracted by the reward of newly minted digital coins, investors have created massive computer power with specialized chips to compete for permission to add a block to the blockchain. Over

the past few months, the reward for solving the puzzle ranged from $100,000 to $250,000, depending on the price of bitcoin, the fees per transaction, and the number of transactions in a block. As more computer power was added to the network, the puzzle automatically became more difficult (figure 2.1). As a result, more and more electricity was needed to solve the puzzle.

The system currently consumes an estimated 53 TWh of electricity a year—almost as much as the entire country of Bangladesh consumes (Digiconomist n.d.). The cost of electricity used to process a single average transaction (about $20) can power about five households in a high-income country for a day.

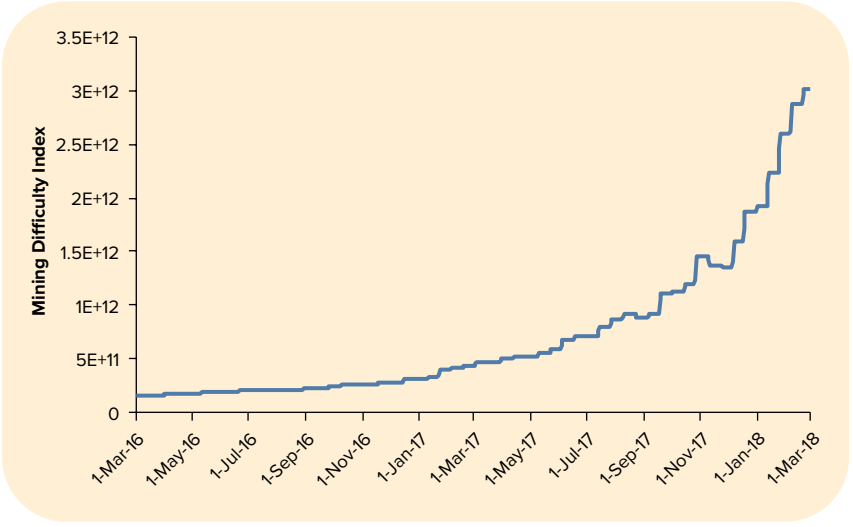
These electricity costs are likely to rise. Because miners' profits of are still large, more computer power is being added to the network, increasing the difficulty of the puzzle. People who use the network to transfer bitcoins do not directly experience these costs, because miners are paid mainly through seigniorage rather than fees. But the costs in terms of electricity use, and the resulting burden on the environment, are real.

A paradoxical side-effect of the rapid increase in computing power is that computer power has become more concentrated. A few companies have installed huge computer capacity in large dedicated factories, using specialized chips. Their exploitation of economies of scale leads to concentration of market power.

Participants with less computer power started working together in pools (figure 2.2). With limited computing power, the probability of being the first to solve the puzzle is very small, and the income stream is irregular and thus unpredictable. By pooling forces, participants can generate a small but steady income stream.

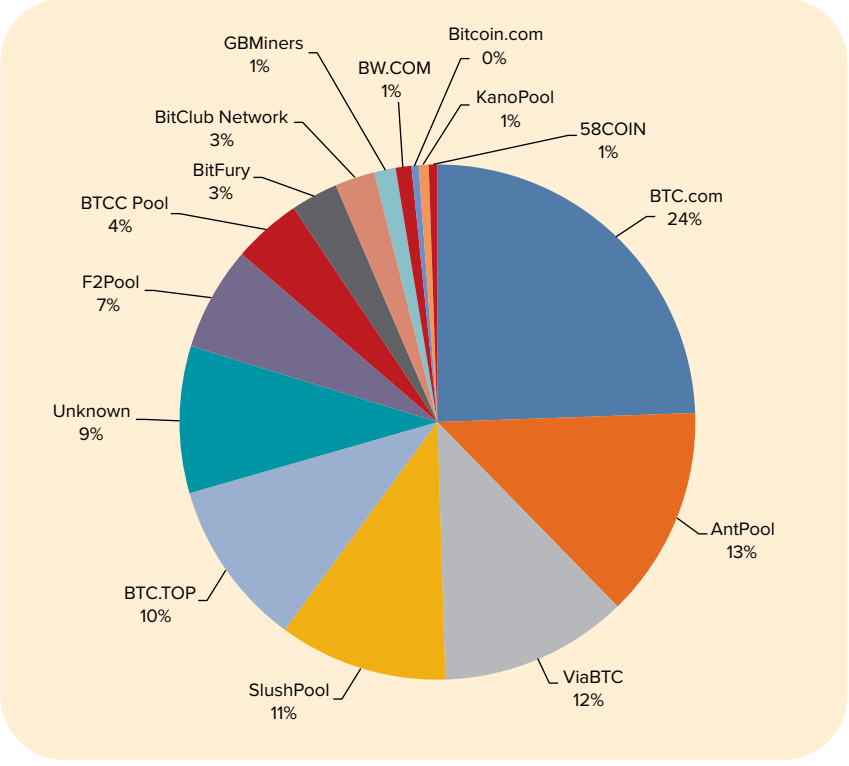
This concentration of computer power makes the network more vulnerable to malicious attacks. Even without attacks, if the market becomes an oligopoly, miners could manipulate transaction fees, refuse to process certain types of transactions, or deny service to users.

FIGURE 2.1 As the price of bitcoin soared in 2017, so did competition among miners



Source: blockchain.info.
Note: The bitcoin difficulty index measures the difficulty of finding a new block on the blockchain. The greater the difficulty, the longer the time it takes on average for a miner to find a valid block. The difficulty in the first block of the bitcoin blockchain was 1. The difficulty is adjusted up or down every 2,016 blocks. If the previous 2,016 blocks take less than two weeks to generate, the difficulty is increased (and vice versa).

FIGURE 2.2 Three large mining pools provide half of all network blocks



Source: blockchain.info.
Note: Data are for March 2018.

The danger of market concentration is likely to increase. As the number of newly minted bitcoins declines, the income of miners will increasingly depend on fees. Lower profits will discourage new investors from entering the market, and smaller, inefficient miners are likely to exit. The sustainability of a completely decentralized payment system will be tested if miners must forgo the large profits coming from seigniorage.

An advantage of declining profits because of disappearing seigniorage is that electricity use will no longer increase and might even decline. Box 2.1 models the long-term mechanisms determining the degree of difficulty of the puzzle, energy use, user fees, and even the price of bitcoins. The model is simplistic, particularly as it ignores adjustment lags and speculative bubbles, which likely play a significant role in reality. But it sheds light on balancing mechanisms in the cryptocurrency market and provides a framework for exploring the consequences of the disappearance of seigniorage.

As of spring 2018, the total reward a miner received per transaction was just below $100 (figure 2.3). Most of it comes through seignorage (the bitcoin block reward) rather than fees. The impact on the demand for bitcoin if this reward shifts away from seignorage toward fees may not be dramatic. Large international bank transfers can involve similar levels of fees (through the SWIFT international payment system).

BOX 2.1 Equilibrium mechanisms in the bitcoin market

Over time, as fewer and fewer bitcoins are created, the income of miners will shift from seigniorage toward fees. This box models the consequences of the shift for electricity use and other characteristics of the mining process.

Assume that miners use the following production function to solve the puzzle that allows them to add transactions to the blockchain:

(2.1.1) $$T^S = \frac{AK^{\alpha}E^{1-\alpha}}{D}$$

where T^S is the total number of transactions miners supply, A is the level of technology, K is the capital stock, E is the electricity consumption, and D is the difficulty of the puzzle. There is substitution between capital and electricity: miners can install more advanced, more electricity-efficient equipment to achieve the same solution power with less electricity.

Miners minimize costs under the restriction of the production function, where the cost per transaction is

(2.1.2) $$c = (r+\delta)P_h K + P_e E$$

where c is the cost per transaction, r is the return to capital, δ is the depreciation rate of the equipment, P_h is the price of the capital goods, and P_e is the price of electricity.

This optimization leads to the following cost per transaction c:

(2.1.3) $$c = D\left[\frac{(r+\delta)P_k}{\alpha}\right]^{\alpha}\left[\frac{P_e}{1-\alpha}\right]^{1-\alpha}/A\,.$$

If there are profits, new miners will keep entering the market, which will cause the difficulty of the puzzle to adjust so that in equilibrium profits equal zero:

(2.1.4) $$np + f = c$$

where n is the block reward in terms of the number of newly minted bitcoins, p is the price of bitcoin, and f are the fees.

The market is not yet in equilibrium. Miners' profits are still large, as is the risk-adjusted return. As a result, still more investments in computing power should be expected, which will increase the difficulty of the puzzle. In equilibrium, the difficulty of the puzzle is given by

(2.1.5) $$D = \alpha^{\alpha}(1-\alpha)^{1-\alpha}A\frac{np+f}{[(r+\delta)P_k]^{\alpha}[P_e]^{1-\alpha}}\,.$$

Demand for transactions by consumers is downward sloping in the size of the transaction fees:

(2.1.6) $$T^D = Bf^{-\beta}$$

where T^D is the total desired number of transactions miners supply, and B is a scaling factor. The fees will be determined by the condition

(2.1.7) $$T^D = T^S = T.$$

If consumers want more transactions than miners can facilitate, fees will go up and demand for transactions will adjust. Miners are constrained by the rule that only one block with not many more than 2,000 transactions can be added to the blockchain. This restriction is represented by T. Consequently, fees are determined by consumer preferences and the maximum number of transactions allowed in the system:

(2.1.8) $$f = \left(\frac{B}{T}\right)^{1/\beta}.$$

The final price to endogenize is the price of a bitcoin. Currently, speculative behavior, which is very difficult to model, is likely to be one of the determinants of that price. A standard money demand function can describe the main determinants:

(2.1.9) $$pM^D = \frac{aT^D}{V}$$

where p is the price of bitcoin, a is the average size of transactions, and V is the velocity of money. If people want to keep bitcoins in their wallet because they expect the price to rise, then the velocity of circulation will fall and the current price will rise. If people want to transfer larger values with bitcoins, pushing up the average value of transactions, the price will also rise. These factors may have been the two main drivers behind the sharp increase in the bitcoin price in December

(Continued next page)

BOX 2.1 (continued)

2017. Market participants bought bitcoins to transfer large sums, and speculation pushed the price farther up. In equilibrium the bitcoin price would be given by

(2.1.10) $$p = \frac{aT}{VM^S}$$

where M^S is the exogenously given number of bitcoins in circulation. Substituting this result in the difficulty expression yields

(2.1.11) $$D = \alpha^{\alpha}(1-\alpha)^{1-\alpha} A \frac{n\frac{aT}{VM^S} + \left(\frac{B}{T}\right)^{1/\beta}}{[(r+\delta)P_k]^{\alpha}[P_e]^{1-\alpha}}.$$

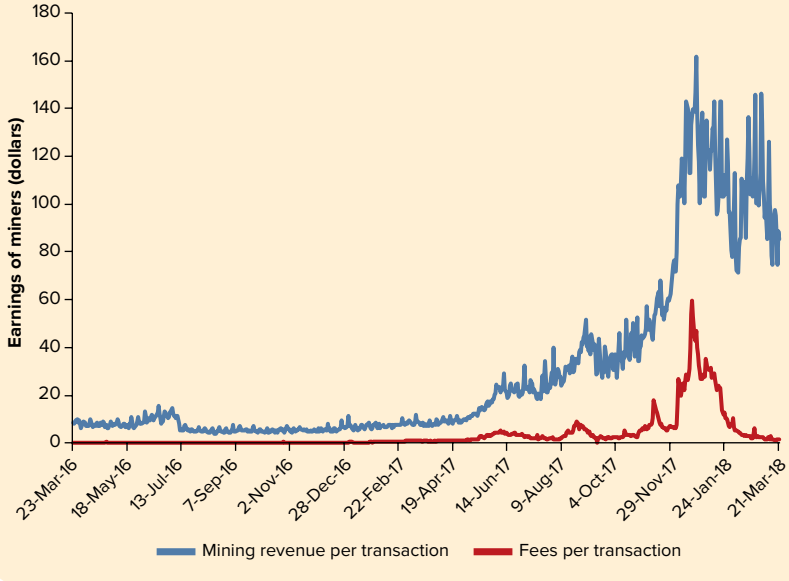
The reduced-form equation for energy use per transaction is

(2.1.12) $$\frac{E}{T} = (1-\alpha)\frac{n\frac{aT}{VM^S} + \left(\frac{B}{T}\right)^{1/\beta}}{p_e}.$$

This model suggests that the system could achieve a long-term equilibrium in which electricity consumption is lower because fewer bitcoins are created. A decline in n reduces the energy use per transaction. Increasing the price of energy can also reduce energy use. Such a price increase would not increase the cost of transactions, it would merely reduce the difficulty of the puzzle, as some miners are pushed out of the market. Increasing the overall energy efficiency of mining (increasing A in equation 2.1.1) does not reduce energy use. It merely makes the puzzle more difficult.

The long-term equilibrium can be achieved at a lower electricity use, but this raises other concerns. It could lead to even more concentration of mining power, as in the process many miners would exit the market, making it easier for highly specialized mining facilities to capture larger shares of the computational power. The concentration of mining power could erode trust in the network and thus reduce incentives to hold bitcoins long, increasing the velocity of money, which would cause a drop in the price and further instability in the network.

FIGURE 2.3 Most mining revenue comes from the seignorage (block reward) of the network



Source: blockchain.info.

The lack of scalability of the bitcoin payment system is another limitation. The proof-of-work concept prevents malicious participants from overwhelming the blockchain, ensuring its veracity. But it limits the addition of new blocks to one every 10 minutes and each block to a maximum size of 1 MB. The average number of transactions that can be included in a block of this size is 2,000. In its current form, the bitcoin payment network can thus process only three transactions per second. By contrast, credit card companies process thousands of transactions per second. This constraint makes it impossible for bitcoin to substitute for large-scale digital payment systems.

Many attempts have been made, through new cryptocurrencies or additions to the bitcoin network, to avoid the electricity-consuming puzzle and to increase scalability. A leading concept is proof of stake, which could replace proof of work.[8] In this concept, participants are elected to add a new block to the blockchain on the basis of the amount of own coins they want to attach to the contract. This proof-of-stake concept is like putting coins in escrow to earn permission to intermediate and charge transaction fees. Selection would still be probabilistic, but richer participants would have a higher probability of being selected. Ethereum, which runs a popular cryptocurrency, may adopt this approach. It represents a shift back in the direction of trusted intermediaries. The concept is not very different from existing financial institutions that are trusted because they have a stake in preserving their company.

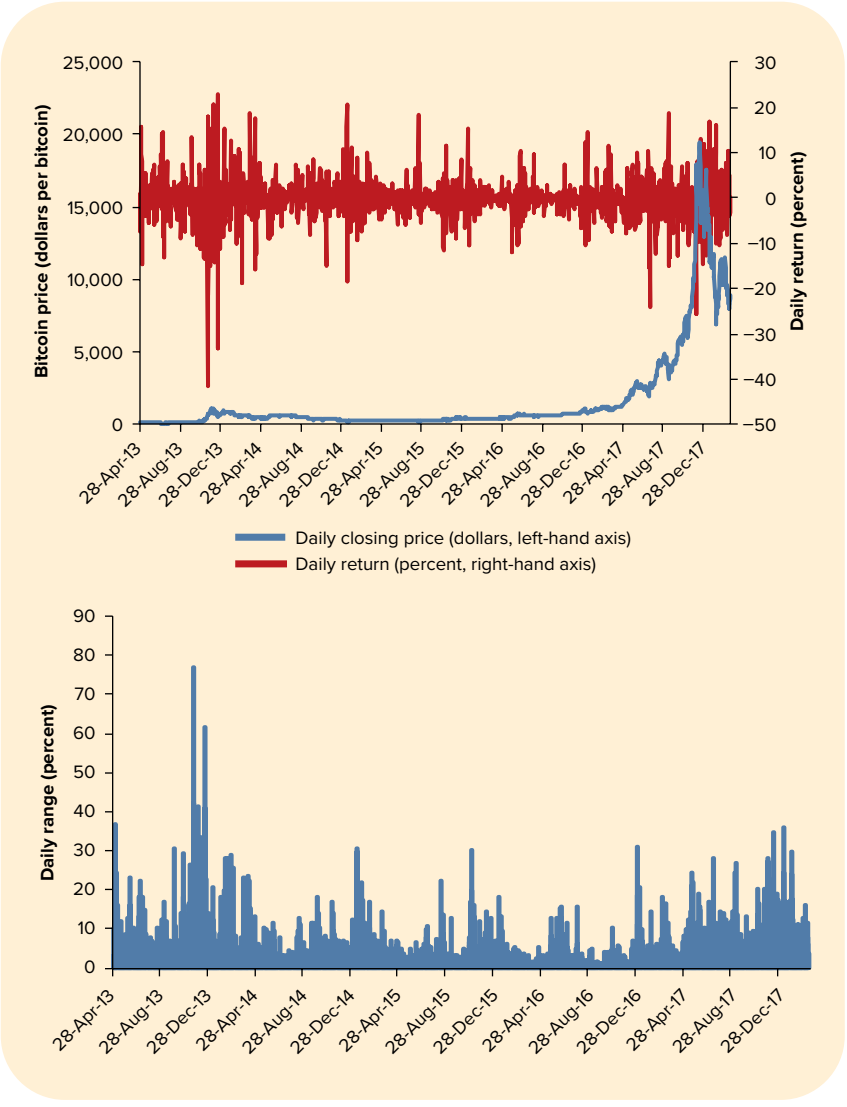
An even more radical departure from proof of work is to grant the authority to maintain the blockchain to a limited number of preselected, trusted participants. Ripple has taken this approach, working with commercial banks. It reinstates trusted intermediaries into the blockchain network.

Another experiment to reduce electricity costs is to design a simple, albeit less secure, system for small transactions and to put only the balances of many small transactions on the blockchain. Lightning Network is taking this approach, as an addition to the bitcoin blockchain (Poon and Dryja 2016).

Most of the discussions in the cryptocurrency community are about mechanisms to make trusted intermediaries superfluous. But another important question is how well cryptocurrencies perform the traditional functions of money. Money is useful because it can serve as medium of exchange, a unit of account, and a store of value. Like other forms of electronic money, cryptocurrencies have advantages over physical commodities like gold or banknotes. They are easier to store and easier to transfer over large distances. However, some inherent drawbacks of cryptocurrencies make them less optimal than legal tender in most countries.

The most important drawback is the volatility of the purchasing power of cryptocurrencies, as illustrated by their exchange rate vis-à-vis legal tender (figure 2.4). That volatility in purchasing power makes them very risky to accept as a medium of exchange. It also makes them suboptimal as a store of value, as there is no guarantee that their value will not drop to zero. Advocates argue that cryptocurrencies cannot be inflationary, because their supply is fixed or at least limited. In fact, cryptocurrencies can be extremely inflationary if demand for them

FIGURE 2.4 Daily price movements of bitcoin continue to be large



Source: coinmarketcap.com.
Note: Panel a shows the percentage difference between the opening and closing price for the day. Panel b shows the percentage difference between the highest and lowest price in a day.

drops (because, for example, customers prefer alternative cryptocurrencies that are more user-friendly, are more scalable, or provide more privacy). The volatility of their purchasing power also reduces the value of cryptocurrencies as a unit of measurement. With large overall price swings, it becomes difficult to discern movements in relative prices.[9]

In fact, there may be a natural limit to how stable the price of bitcoin can become. Unlike other commodity-type assets, bitcoin does not have a feedback loop from the supply side.

Sustained volatility can be very inefficient for a bitcoin-based economy. Extracting information about relative prices would be very costly. Entering into long-term contracts could become prohibitively expensive.

The blockchain has proven to be very secure, but it is impossible to avoid security concerns altogether. Cryptocurrencies have been stolen by hacks into exchanges, where they are exchanged against legal tender or other cryptocurrencies, and hacks into mining pools. Users can protect stored cryptocurrencies by keeping their wallets offline. These offline wallets are called *cold wallets*; wallets that are online are called *hot wallets*. Exchanges cannot be avoided; they remain a weak link. The problem is especially severe because once stolen there is little recourse to recover the funds.

Many of these problems are already being addressed. The security breaches of exchange sites forced many exchanges to use hot and cold wallets. This practice involves storing most deposits in an offline wallet, whose private keys are secure and are never stored on a network-connected device. A small portion of the deposits is transferred to the hot wallet, which is used for daily transactions and payments. If there is a security breach, potential losses are limited to the amount stored in the hot wallet; at least in theory, most deposits should be protected.

The attractiveness of cryptocurrencies will be tested once governments extend their financial oversight to cryptocurrencies in their efforts to fight money laundering, tax evasion, and illicit transactions. Doing so will challenge the (pseudo) anonymity of the cryptocurrencies. This oversight will be easier if the concentration of mining power continues to increase. To the extent that current use is motivated partly by the desire to avoid oversight, increased surveillance will reduce demand for cryptocurrencies. However, it is also possible that oversight may make the use of cryptocurrencies more attractive, as it becomes easier to incorporate them in the overall financial infrastructure.

The innovative power of cryptocurrencies has been impressive. They have already put some competitive pressure on cross-border payment systems. The concept is promising, because it potentially improves financial access for people who live in remote areas that are not covered by financial institutions.

It would be wrong to judge cryptocurrencies on the current state of affairs. As with many new technologies, childhood diseases will be outgrown. However, their real contribution may turn out to be very different from originally foreseen.

The original designer of bitcoin and the blockchain technology wrote that "the main benefits are lost if a trusted third party is still required" (Nakamoto 2008). In fact, the future benefits may appear precisely because the networks shift back to trusted intermediaries. It is even conceivable that the most successful cryptocurrencies will be linked to legal tender and issued by central banks.

Creating digital markets without intermediaries

The ability to achieve distributed consensus, and to store immutable information in a decentralized database, makes a wide variety of P2P contracts possible without a centralized authority. Enthusiasm about other possibilities is enormous. As one observer put it, "The paradox about bitcoin is that it may well turn out to be

a revolutionary breakthrough and at the same time a colossal failure as a currency" (Johnson 2018).

Smart, or self-executing, contracts are examples of blockchain applications that go well beyond instantaneous transfers of funds with cryptocurrencies. Such contracts could be used on a blockchain platform to engage in commitments over time, without the help of middlemen. Ethereum, which has been operational since the summer of 2015, enables the creation of P2P contracts that outline the conditions under which future payments occur.

One example of such a smart contract is a parametric insurance contract, such as a contract that insures farmers against drought. The seller commits to pay a certain amount if rainfall remains below a certain threshold. The contract is preprogrammed to read the realized rainfall from a trusted weather data feed at a point in the future. The buyer purchases the contract with a one-time payment. The seller commits funds equal to the maximum payout in case of a drought. As the contract is fully collateralized, there is no counterparty risk. At the expiration date, either the buyer or the seller can execute the contract to check if the trigger condition has been met. The contract distributes the funds between the buyer and the seller and terminates itself. This type of contract could be handled without intermediation (although insurance companies could also provide such contracts). Storing these contracts on the blockchain makes them immutable and guarantees their enforcement.

Smart contracts could also be used for financial instruments other than insurance. Entrepreneurs already sell tokens to fund new companies through ICOs and promise future dividend payments in a smart contract on a blockchain. The tokens are similar to shares issued in an initial public offering (IPO), but there are key differences. Shares are sold on stock markets and typically give the right via shareholder representation to participate in decision making. In contrast, tokens are traded on a P2P blockchain with no privileges outside what is written in the smart contract. Regulators across the world are working on directives that would extend oversight to ICOs. Doing so would increase the similarities between ICOs and IPOs, but the financial smart contract would provide a new, innovative, instrument to fund start-ups. It creates relatively liquid new financial instruments that can be used to finance small-scale risky ventures.

The potential advantages of such P2P contracts are obvious. They could be available to people who have no access to financial instruments (box 2.2). They could also increase access to financial services that is now limited because of distrust in financial institutions. Currently, enforcement of contracts is not straightforward in parts of ECA. Smart contracts are secure, even if the counterparties do not know each other. Blockchain platforms could make these financial products more liquid if the new products could be traded outside specialized markets.

There are potential disadvantages of smart contracts. Adjustments to the current blockchain platforms are likely required for them to work in a user-friendly, efficient, and scalable way. These drawbacks may be the reason why, outside ICOs, there have not yet been large-scale applications of smart contracts.

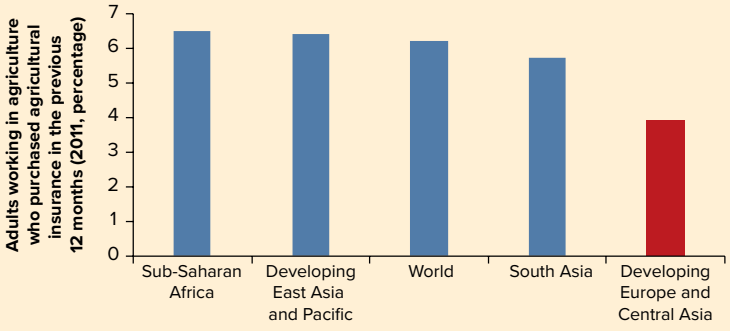
The first disadvantage of existing platforms is the volatility of the value of cryptocurrencies, which is especially inconvenient with contracts that span many

BOX 2.2 Providing access to secure insurance

In many countries, individuals, farmers, and small- to medium-size businesses have limited or no access to insurance or hedging instruments for commodity price risks, floods, hurricanes, exchange rate volatility, and the like. Markets are incomplete or not available. When they are available, contracts are often not trusted to be enforced or are very costly, particularly for small transactions. Lack of this key financial service is associated with a high risk of falling into poverty, business failure, and the absence of entrepreneurship.

Especially in the transition economies of ECA, financial markets are incomplete. Market-based financial institutions were established only in the early 1990s in these economies, and they are still only partially developed. Insurance products are particularly underdeveloped. The insurance rate of farmers in ECA is well below the global average (box figure 2.2.1). A recent report finds that these incomplete financial sectors are associated with lower growth of the bottom 40 percent of the income distribution (Gould and Melecky 2017).

FIGURE B2.2.1 Farmers in Europe and Central Asia are underinsured



Source: World Bank Findex Survey.

Suppose that a small wheat farmer in a developing country is 30 days away from harvest. Although she may be happy with the current wheat price, she knows that she can sustain at most a 20 percent drop between now and the time she sells her harvest. In order to hedge against a larger decline, the farmer can purchase a put option with a duration of one month and a strike that is 20 percent lower than the current market price. Entering in such a contract will ensure that if the price falls below the strike price, the contract will pay the difference. The contract mitigates the risk by creating a price floor.

Despite the relative simplicity of these contracts, many frictions may prevent small farmers from entering into such agreements. Although bilateral over-the-counter agreements are possible, the legal framework may not be well adapted to accommodate them, and enforcement can be difficult and costly. Small- and medium-size farmers are not likely to have access to international financial markets in which these contracts are well established and markets are deep, and the need for intermediaries can make the process prohibitively expensive.

Government interventions to support such contracts have often been ineffective. Such policies are either too costly from the government fiscal standpoint or create moral hazard if noninsured risks are covered by government payouts in the event of widespread loss.

Blockchain technology and smart contracts raise the potential for insurance/minimum price contracts that are flexible, low-cost, secure, and highly customizable to a multitude of risks and payouts (large and small), with only marginal transactions costs. This approach would provide easy access to foreign insurers, and enforcement costs would be low if the payout were collateralized in the blockchain.

years. Parties to the contract likely want security in terms of the purchasing power of payments. That goal could possibly be met by linking the contracts to futures markets, but it seems more promising to use tokens that are linked to legal tender. Doing so would be a major step away from the original concept of cryptocurrencies, as it requires a trusted party that can guarantee the value of the token. Still, it could be a natural development of the smart contracts.

Fizzy is a parametric insurance application by the insurance company AXA (https://fizzy.axa/), in which passengers purchase insurance by sending funds to the smart contract along with their flight information. If their flight is delayed for more than two hours according to a publicly accessible database, the smart contracts pays out compensation in euros. Fizzy could be developed into an Ethereum-based smart contract, but the volatility of the Ether token is likely to prove too much of a drawback for a large-scale application.

If contracts shift to tokens that are linked to legal tender, the market can no longer operate without a trusted intermediary. Such an intermediary must sell additional tokens in exchange for legal tender if demand for tokens increases. The intermediary must hold part of the legal tender in reserve, so that tokens can be repurchased if demand declines. Such reserves are similar to the reserves financial institutions must hold when they create electronic accounts or mobile payment systems. In the case of tokens linked to legal tender, participants who maintain the blockchain would no longer be rewarded with the seigniorage of new coins; the reward would consist only of fees paid by the parties in the contract. These fees might not be enough to attract enough participants who want to compete with one another. It is plausible that such a system would naturally converge to a permissioned blockchain, in which several preselected servers update the blockchain, eliminating the need for costly competition among servers and making the maintenance of the platform more efficient.

A second disadvantage of smart contracts is that they are collateralized by freezing potential payouts on the blockchain. The blockchain provides security, but it is also inefficient (like putting money in escrow, where it cannot be used productively). Insurance companies can pool risks and invest the cash flow. As a result, they should be able to provide cheaper services than offered in P2P contracts, in which investing the cash flow is not possible. Cutting out insurance companies could thus increase costs.

There may be a trade-off between efficiency and independence from intermediaries. Higher costs may be worth paying where the public does not trust that normal contracts will be enforced. Where trust exists, the public might prefer to deal with insurance companies rather than anonymous peers. If blockchain contracts are used, trusted intermediaries will likely offer contracts without freezing the assets in the contract, reintroducing trust into these transactions.

A similar argument holds for standard financial intermediation by banks. Because P2P contracts likely have a broader reach and can create innovative instruments, they could provide competitive additions to existing banking products. However, commercial banks have a big advantage in financial intermediation. By pooling risk, they can turn short-term liabilities into long-term assets. Because intermediation between savings and investments is much more difficult in independent P2P contracts without risk pooling, smart contracts are likely to be com-

bined with, or even integrated into, existing financial institutions, rather than replacing them. Risk pooling could also be explicitly programmed in smart contracts, implying that these contracts will not be completely risk free.

A third potential disadvantage of following the original blockchain design for smart contracts is the public nature of the blockchain. Transparency is attractive because it makes it easy to audit the validity of contracts by virtually anyone with an Internet connection. But participants in transactions may want more privacy. Therefore, it is plausible that smart contract applications will develop in the direction of more encryption, more restricted-read access, or both.[10]

Many governments are experimenting with blockchain to digitize their services. Experiments with land and real estate registries are popular. One objective is to avoid the vulnerabilities of a centralized server. Decentralized storage of data means that several servers are always online, making it more difficult to alter data.

Another objective is to prepare for a link with smart contracts, so that real estate could be sold online without the help of notaries, as ownership could be verified on the blockchain. Governments would still take responsibility for the information, including information about zoning and restrictions on sales. The goal is thus not to purge governments from transactions but rather to make government services more efficient and more trustworthy.

In these applications, the registry can be updated by a limited, selected number of servers (a permissioned approach). There is no need to let an undetermined number of miners compete for the updates. There is, however, a need for full transparency. Not everyone should be able to write on the system, but everyone should be able to read the registry. The reading provides the actual service and is also a mechanism for double-checking the veracity of the information.

Another government application could be public procurement. The central government could issue a token backed by the national currency. Each ministry or municipality could be issued an address and allocated tokens as part of the budget process. They would use the tokens to pay contractors for public purchases; contractors would redeem their tokens with the central government. This mechanism would make all purchases not only fully transparent but also instantly auditable by anyone, reducing graft. Social protection transfers could benefit from a similar set-up, although privacy concerns would have to be addressed.

Large companies are also exploring blockchain applications. Companies need to be online all the time, for internal communications and communications with clients. One central server is not reliable in this respect; a system that provides a common view of information through communication between independent servers is superior to a central server. Decentralized information is also more difficult to alter through hacks, because hackers would have to break into more than one server.

Companies are experimenting with different versions of the blockchain protocol to transition toward a more decentralized information strategy. Experiments are moving toward permissioned systems, with a preselected number of servers maintaining the decentralized database. Decentralizing reduces the probability that participating servers become malicious, makes it easier to secure them, and

prevents the costly competition that is needed in a permission-less system. The decentralized consensus problem is easier to solve than in the original bitcoin application. However, with a small number of servers, data systems other than blockchain could be used. The advantages of a permissioned system may be the reason why there are no large-scale blockchain applications yet in these companies, despite the many experiments.

Blockchain technology could also be used to manage vast and diverse data systems, such as health records, that are too complicated for a central server. They could benefit from decentralized servers that communicate with one another and always reflect the latest update of treatments and test results. The existence of secure, decentralized digital health records could significantly increase the efficiency of the health care industry.

The main challenge for these kinds of data systems is privacy. Both reading and writing of health records should be limited. This requires adjustments to the original blockchain design, which is public, in the sense that everyone can read it. A health record application would be private, with secure encryption to protect confidentiality of medical information.

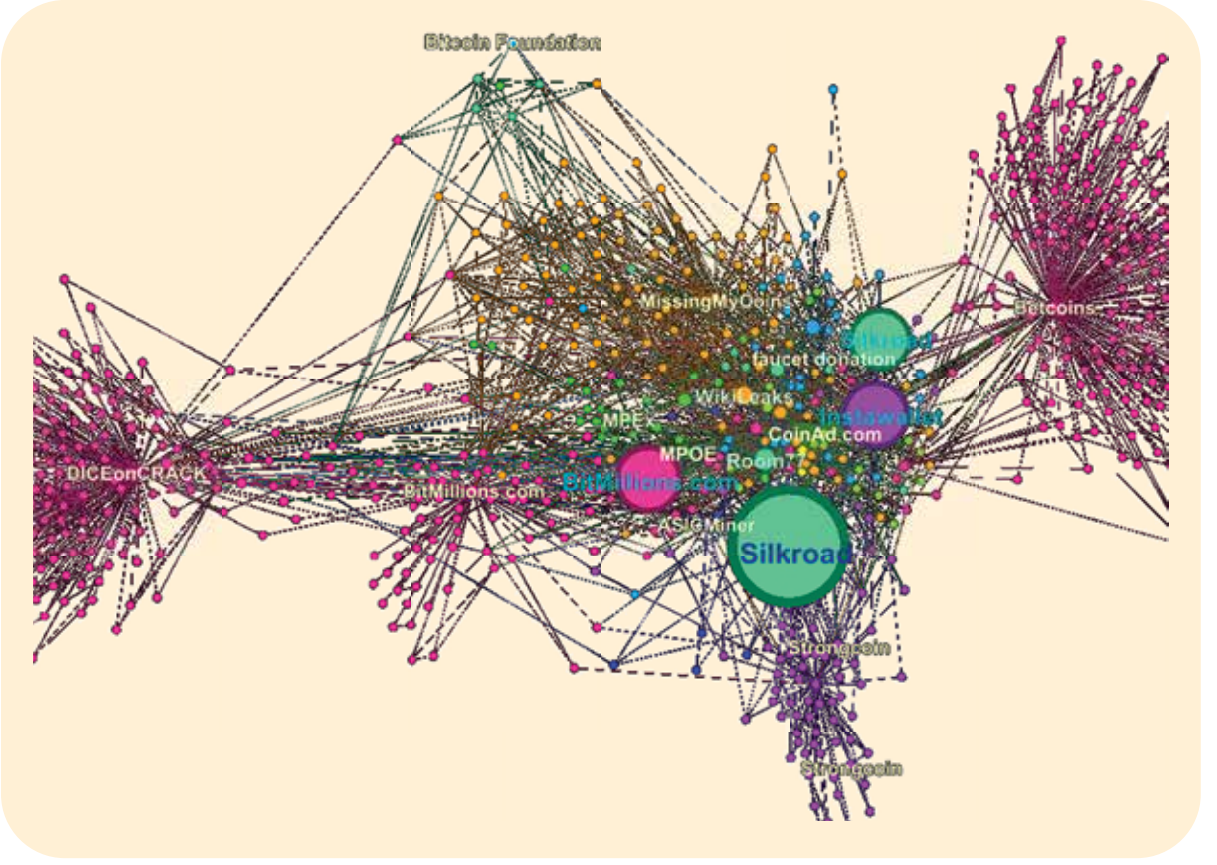
These examples show the broad range of potential applications of blockchain. They also suggest that many of them could be very different from the original blockchain design. Instead of a public database, with an unlimited number of participants that maintain the blockchain and an independent cryptocurrency to be used in transactions, the most successful future applications could work with private information, a limited number of permissioned servers, and a token linked to legal tender for transactions.

The most important components of those future applications could become the cryptography behind personal IDs, the time stamps that make data irreversible, and the open source character of the platform. These applications would not eliminate trusted intermediaries, they would make more competition between intermediaries possible. Digital platforms like Facebook, Uber, Airbnb, and Amazon use proprietary software and organize their own user IDs; the veracity of their data is not protected through decentralized storage. All these platforms can gain natural monopoly power because of network effects, because the platforms become more useful and more powerful if more people participate. A standardize system of digital IDs and open-source networks could break that monopoly and increase entry opportunities. Experiments with P2P digital interactions are very important for this reason. Even if current applications do not stand the test of time, the ultimate result could well be transformational.

Blockchain applications in Europe and Central Asia

Many countries in ECA have provided fertile ground for cryptocurrencies and blockchain technologies, especially since late 2016. When cryptocurrencies emerged, almost 10 years ago, activities were small-scale. As everywhere else in the world, early transactions were used largely for gambling or for the purchase illegal products on the dark web (figure 2.5).[11]

FIGURE 2.5 **Early use of bitcoin was clustered around gambling and the dark web**



Source: blockchain.info.
Note: Each link ("edge") in the figure represents a bitcoin transfer between nodes. The size of the nodes represents the total inflows of funds (one entity can have multiple addresses).

The use of cryptocurrencies intensified at the end of 2016, especially for large cross-border transfers. When the prices of cryptocurrencies skyrocketed in 2017, investments in mining capacity increased sharply and people began investing in cryptocurrencies in the hope of benefitting from further price rises.

Investments in blockchain technologies surged. Governments in many ECA countries began experimenting with blockchain to improve their services. Some central banks are studying the issuance of legal tender in the form of digital currency, and financial institutions are piloting blockchain applications to incorporate them in the existing financial architecture.

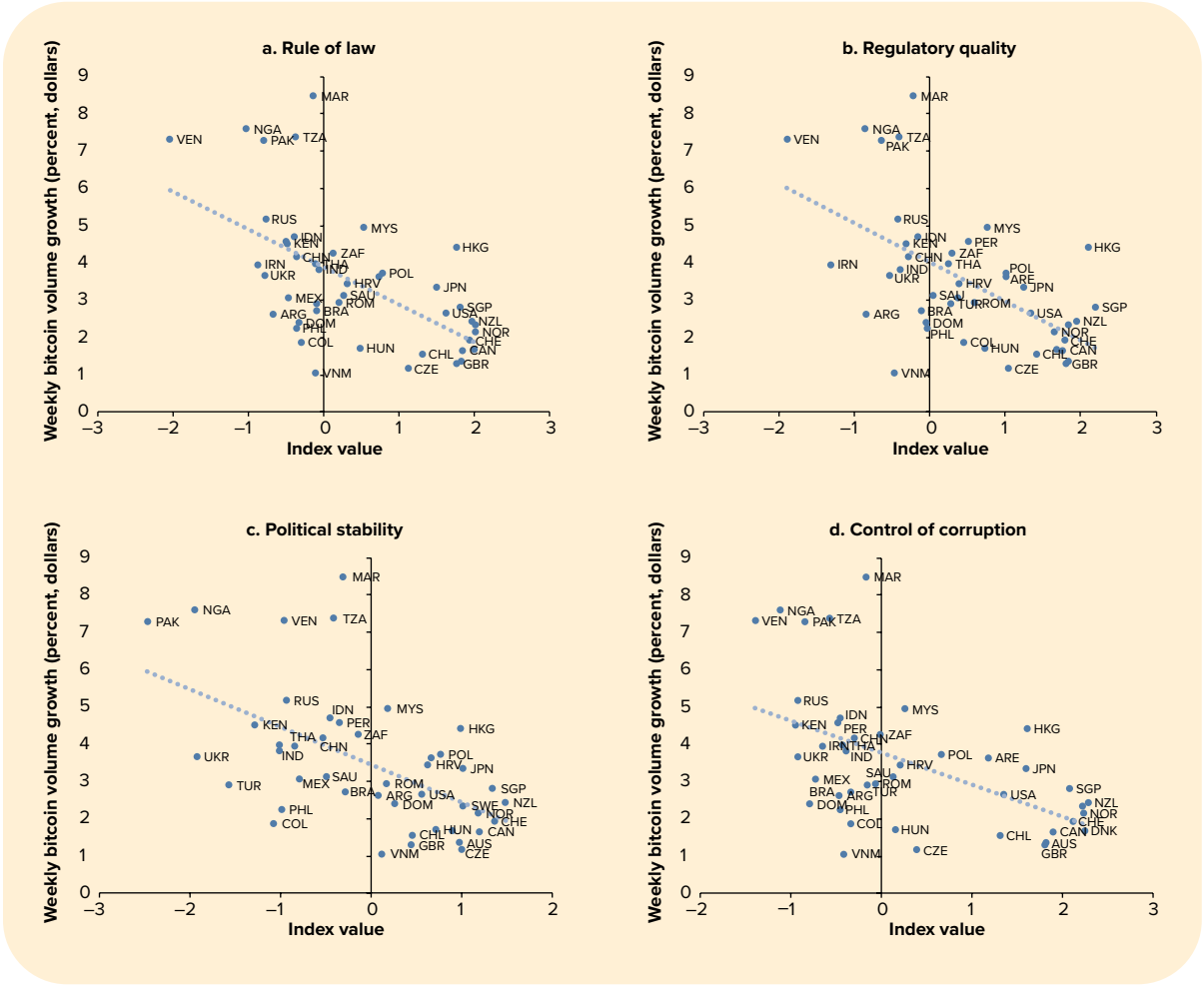
ECA has become an important center for ICOs. In terms of the number of projects, the Russian Federation ranks third globally (with 8.8 percent of all projects), Switzerland fifth (6.9 percent), Estonia seventh (3.0 percent), and Lithuania eighth (2.8 percent) (figure 2.5). This section examines the reasons for the strong interest in blockchain technologies in ECA, based on anecdotal evidence.

Blockchain technologies, which place a heavy emphasis on making financial intermediaries redundant, are particularly attractive in countries where trust in

financial institutions is lacking, people want to avoid oversight, and/or financial sectors are underdeveloped (Aris 2017). Countries where corruption and political instability are higher, confidence in the rule of law is lower, and regulatory quality is lower tend to adopt bitcoin more rapidly (all four correlations shown in figure 2.6 are statistically significant).

A prime example is Republica Bolivariana de Venezuela, where people seek alternatives for the bolivar, the value of which been eroded by hyperinflation. Such extreme examples of hyperinflation no longer exist in ECA. Nevertheless, some anecdotal evidence suggests that weak institutions or vulnerable banks are one reason behind the interest in cryptocurrencies.[12] Financial dollarization remains substantial in the eastern part of the region, reflecting lack of trust in

FIGURE 2.6 Adoption of bitcoin is negatively correlated with the quality of institutions



Source: World Development Indicators and localbitcoins.com.
Note: As bitcoin is traded on a global network, it is difficult to determine the geographic origin and destination of transactions. This analysis uses the currency denomination on a popular P2P bitcoin exchange (localbitcoins.com). The vertical axis shows the speed of adoption of bitcoin, measured by the average weekly growth of the volume of bitcoins exchanged on this exchange. The institutional variables are sourced from the World Bank's Governance Indicators database.

existing legal tender. It has resulted in much lower savings at banks than in other parts of the world (Gould and Melecky 2017). Households are looking for alternative saving options.

Another reason for the use of blockchain technologies in ECA is the desire to develop alternative means of transferring large funds. Russia is the largest issuer (more than $956 million)—followed by the United States ($811 million) and Switzerland ($514 million)—because of the $850 million raised for the TON blockchain.[13] One of the goals of that ambitious project is to provide an alternative to the SWIFT international interbank payment system (Aris 2017). Russia also has the largest number of users of the digital wallet on blockchain.com (UNDP 2018). Despite these examples, it is doubtful that ICOs will have a broader application as venture capital if security is not built in for investors.

Established financial centers are striving to adjust to meet the competition from a disruptive technology like blockchain. Switzerland is leading in adjusting financial regulations to cover ICOs, ensuring that they are incorporated into the existing financial architecture rather than developed as an outside alternative (see Atkins 2018a, 2018b; Financial Times 2018). Its aims to become a cryptocurrency and blockchain hub is reflected in its vibrant ICO activities. For example, Sirin Labs raised $157 million for the development of a blockchain-based smartphone. In line with these developments, a Swiss foundation, advised by Jacob Frenkel, chairman of JPMorgan Chase International, and Nobel laureate Myron Scholes, raised $50 million to develop a cryptocurrency backed by Special Drawing Rights (SDRs). Saga would have a stable value and be integrated into the existing financial sector, including anti-money-laundering checks, with deposits in the International Monetary Fund's SDR holdings. France is also planning a regulatory framework for ICOs (Aris 2017).

Governments in ECA are accumulating in-house experience with blockchain pilots to improve government services. Estonia, Georgia, and Ukraine have experimented with blockchain to set up land and real estate registries. They are still searching for more specialized and more efficient designs, but the experiments have given a boost to efforts to digitize government services.

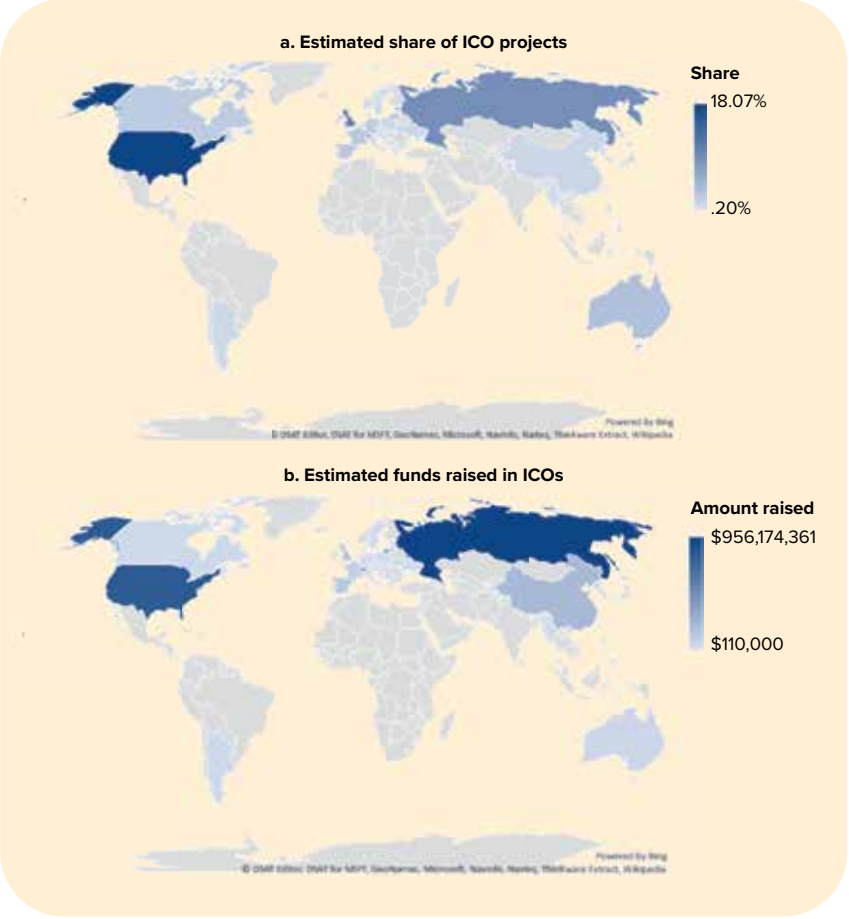
Some government banks in ECA are seeking to improve their services through the use of blockchain technologies. The Russian state-owned VEB bank is piloting a new blockchain-based payment system with the regional government of Kaliningrad (Milano 2018). Another state-owned bank, Sberbank, is partnering with Russia's federal anti-monopoly service to use blockchain technologies to store and transfer documents.

Official bodies in ECA are investing in blockchain research to improve services. The European Commission has funded a blockchain observatory to encourage blockchain technologies and help formulate policy recommendations, especially for smart contracts and the improvement of government services (Young 2017; Nicholson 2018). Lithuania has opened a blockchain center to incubate start-ups, partnering with similar centers in Melbourne and Shanghai (MediTelegraph 2017). Separately, the central bank of Lithuania offers a one-year sandbox environment for start-ups that develop new digital financial technologies. Estonia is exploring opportunities to use blockchain technologies in medicine

(https://e-estonia.com/).Georgia is investigating the possibility of supporting smart contracts. Serbia and Tajikistan are experimenting with remittances on blockchain, in cooperation with the United Nations Development Programme (UNDP 2018). Azerbaijan is experimenting with digital IDs for banking using blockchain (SputnikInternational 2018). The Swedish central bank is considering launching its own digital currency (Aris 2017).

Small ECA countries with a supportive business climate and the absence of legacy financial instruments are well placed to introduce new financial instruments based on blockchain technologies. Tokenization and ICOs enable small start-ups, which lack easy access to finance, to raise funds in global markets. Dynamic start-ups in the Baltic countries and several other small countries, including Georgia, have issued ICOs (figure 2.7). These examples are instructive for other economies in the region that have long been dominated by state-owned enterprises and have grown primarily through the nontradable sectors. For many of those economies, the challenge is to unleash new growth potential in

FIGURE 2.7 Europe and Central Asia is the site of many initial coin offerings (ICOs)



Source: Websites for ICO listings (icowatchlist.com, icobench.com, and tokenreport.com).

internationally competitive sectors. The new P2P technologies provide a gateway to these markets. More specifically, activities on and contributions to blockchain networks are automatically exposed to international competition.

Seemingly more than in other parts of the world, governments in ECA are restraining natural monopolies of tech giants. People in the region show strong privacy concerns when data become proprietary and are captured by tech companies. The open character of the blockchain architecture could break the monopoly on data. Several governments and the European Commission are looking at the possibility of using the new technologies to reduce the power of large digital network companies.

The anecdotal evidence presented here suggests that there may be multiple explanations for the blockchain activities in Europe and Central Asia:

- In the eastern part of the region, market-based financial sectors are relatively new and have not fully matured. Insurance and capital markets are underdeveloped. Land registration and cadasters of real estate can still be improved. Blockchain technologies could help fill these gaps.
- Vulnerabilities in the banking sectors after the transition in 1991, the global financial crisis in 2008, and the plunge in oil prices in 2014 have eroded trust in financial institutions. In the eastern part of the region, bank deposits are exceptionally low, and consumers are looking for alternative ways to invest their savings (Gould and Melecky 2017)
- Throughout the region, banks dominate financial sectors. Venture capital that does not require collateral is scarce. New forms of fund raising could help tech start-ups that have a potential to grow quickly in competitive global markets.
- Demand for new ways of making cross-border transfers is strong. Remittances are large in the region; the high transactions costs associated with them is onerous. The region also has a large share of illicit financial flows, linked to money laundering, tax evasion, and the circumventing of capital controls or sanctions.
- Governments in the region provide a broad range of services. They oversee elaborate social security systems, and most of them play an integrating role in health care, pensions, and education. There is continuous demand to make these services more efficient and more transparent. Many governments are experimenting with blockchain technologies to achieve those goals.
- Governments in the region are looking for ways to break the power of large tech companies and increase privacy.

It is unclear which experiments will have a lasting impact. The transformational impact may come from applications that are very different from the original blockchain design. The blockchain experiment has already boosted innovation and competition, in both the private sector and government. For that reason alone, blockchain experiments deserve support.

ECA is active in the mining of cryptocurrencies. Georgia is home to one of the largest mining companies of the world (Bitfury) as well as many smaller miners (box 2.3). Bitfury, which is building additional facilities in Canada, Iceland, and Norway, controls about 10–15 percent of global mining.

BOX 2.3 Cryptocurrency mining and the demand for electricity in Georgia

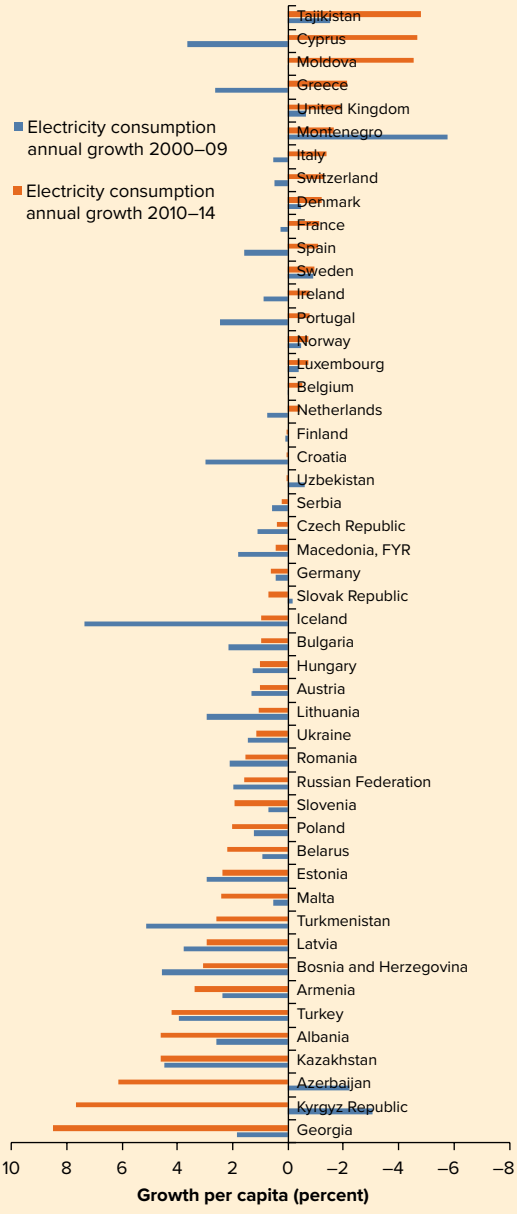
Mining of cryptocurrencies is surprisingly widespread in Georgia, thanks to tax exemptions and low electricity prices. Indeed, Georgia has had the fastest-growing electricity consumption per capita in all of ECA since 2009 (box figure 2.3.1).

This process was jumpstarted when Bitfury, one of the world's largest bitcoin miners, built a 20MW data center in Gori and a 40MW mining facility in Tbilisi, with funding from the Georgian Co-Investment Fund. The Tbilisi facility, located in a free industrial zone, has daily revenue of $250,000–$400,000. Bitfury recently sold this facility to its Chinese partner, Asian Chong Sing Holdings. It is now building mobile data centers to be sold to other investors. Other companies have built mining facilities in free industrial zones in Kutaisi.

Many households have joined mining pools. Surveys indicate that up to 5 percent of households in Georgia are engaged in cryptocurrency mining or investments.

These mining activities have had a striking impact on electricity consumption, turning Georgia from a net exporter to a net importer of electricity. Estimates of the share of Georgia's electricity demand devoted to cryptocurrency mining range from 10 to 15 percent—and the figure could be even higher, because it is difficult to observe small-scale mining activities. Per capita electricity consumption in Georgia was 3,343 KWh in 2016, almost three times higher than in countries with similar levels of per capita income. Even after correcting for historically high electricity consumption in Georgia (likely because of the availability of inexpensive hydropower), energy use in recent years is remarkable. Between 2014 and 2016, per capita energy consumption increased by 655 KWh, of which only 65 KWh can be explained by rises in income. Some 590 KWh, or 18 percent of total demand, remains unexplained. Even before 2015—actually, since the start of bitcoin, in 2009—the unexplained part of electricity demand was rising (box figure 2.3.2).

FIGURE B2.3.1 Georgia had the fastest-growing electricity consumption in Europe and Central Asia in 2010–14

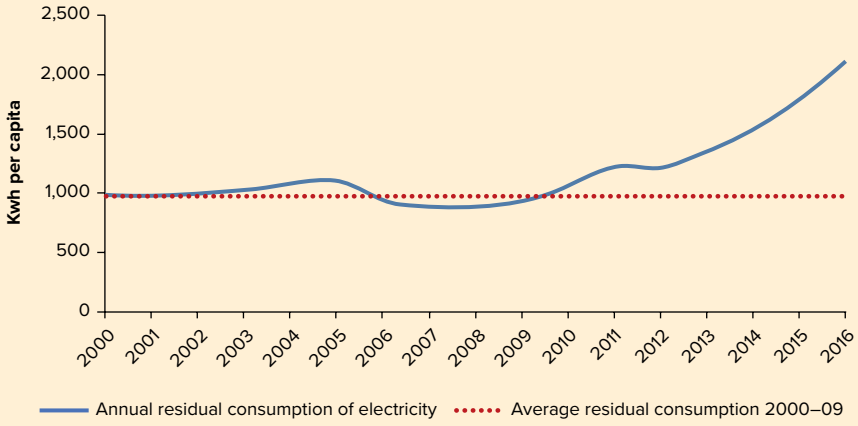


Source: World Development Indicators and the International Energy Agency.

(Continued next page)

BOX 2.3 (continued)

FIGURE B2.3.2 Unexplained electricity demand in Georgia has risen rapidly since 2009



Source: Data for 2000–14 are from World Development Indicators and the International Energy Agency. Data for 2015 and 2016 are from Georgia's energy services company.

Of course, the mining of cryptocurrencies also raises incomes. Mining revenues in Georgia could well contribute several percentage points to GDP, even if these revenues are not registered as part of GDP (if they were registered, they would probably be classified as exports). What is observable is the additional consumption and imports not only of electricity and computer parts but also of more general consumption financed by the mining revenues. This increase is similar to the increase in consumption as a result of large inflows of remittances. It would be interesting to see how the financing of these activities shows up in the balance of payments. Revenues in cryptocurrencies are likely exchanged into legal tender at exchanges abroad, after which part of the legal tender is transferred back to Georgia.

Investment opportunities in mining cryptocurrencies likely attract foreign direct investment. It is too early to draw conclusions about the spillovers to other sectors of the economy. It may trigger other innovative activities, or it could crowd out investments in other activities.

Cryptocurrency mining is also booming in Iceland (Perper 2018), which is on track to use more electricity for mining than it uses to power all of its residences. Armenia is set to be home to a 50MW mining farm (Murphy and Stafford 2018). Slush Pool, a bitcoin mining pool with a market share of about 7 percent and many participants from all over the world, is run by Satoshi Labs, a mining company based in the Czech Republic. KnCMiner is a mining pool in Sweden. Another mining pool is in Russia.

Cryptocurrency mining thrives in a cold climate (avoiding the need for cooling) and in areas where electricity costs are low. En+ Group, a Russian energy company, is preparing to offer electricity to cryptocurrency miners at five plants in Siberia (Marson 2017; Helms 2018). The electricity capacity available for miners could well dwarf the capacity of existing mining facilities in ECA. EN+ could attract Chinese miners, who are currently dominant players in the global market but find a less and less hospitable environment in China.

These mining activities illustrate the dynamic response to new opportunities by entrepreneurs in the region. They bode well for the development of other applications of these technologies. But the heavy electricity use by companies that compete for the right to mine cryptocurrencies is a growing problem. How to accommodate and mitigate growing electricity demand from cryptocurrency miners and prepare for future declines in demand if mining activities relocate or mining stops altogether in its current form are the most urgent challenges as these markets develop.

There are multiple approaches to meeting these challenges. The cryptocurrency community is looking for more efficient ways to update the blockchain. Governments are reconsidering their tariff policies; in order to curtail energy use, they need to raise electricity tariffs for miners or create more market-based mechanisms to determine tariffs. If unchecked, electricity use could rise before alternatives are found, possibly resulting in long-term damage to the environment. In addition, the fiscal costs of investments in power plants (or contingent liabilities, where new power plants are developed in partnership with the private sector) could threaten public finances if demand for electricity driven by cryptocurrencies collapses.

Policy challenges

Cryptocurrencies and blockchain technologies pose difficult challenges for policy makers. There is no regulatory framework for transfers made with cryptocurrencies or smart contracts. Transfers occur outside anti-money-laundering compliance programs, and smart contracts are not subject to consumer protection laws or financial oversight.

Tax codes do not fully cover the new markets if cryptocurrencies are not recognized in the law as payment systems but are instead viewed as commodities. It is difficult to determine the geographic location of the value added created by cryptocurrency mining. Tax legislation therefore has to be adjusted to incorporate these new activities into direct and indirect tax systems.

Another ambiguity for policy makers is whether these new activities should be supported or constrained. Should they be encouraged because of positive externalities and first-mover benefits? Or should they be constrained, because they crowd out investments with greater social return?

Another pertinent question for policy makers is whether and how they can use these technologies to improve their own services.

It is too early to offer specific advice, because there is still great uncertainty about the future of cryptocurrencies and blockchain technologies. But experiences with other digital technologies—such as e-commerce, digital platforms, and the sharing economy—suggest that the following general guidelines should be followed.

- *Give the new technologies space, and avoid imposing restrictive legislation before initial ambiguities are resolved.* Even if these technologies are ultimately unsuccessful, the experiments can help develop entrepreneurial skills, put competitive pressure on more traditional activities, and trigger innovations in other

sectors. A dynamic business climate should encourage innovations, experiments, and risk taking.

- *Make implicit subsidies explicit, and be clear about risks.* If activities are not yet covered by the tax code or are undertaken in special economic zones, the implicit subsidy and its temporary nature should be calculated and made public. Consumers should be warned about risks, such as the risks associated with volatile cryptocurrencies.
- *Start planning for leveling the playing field.* If these technologies become successful, they should be integrated into the formal economy. Tax codes and regulations should be adjusted, so that both old and new technologies operate on a level playing field.[14]
- *Innovate as government.* The corporate motto "think big, start small, quit soon, and scale fast" is relevant for governments, too. Blockchain technologies provide a stimulus to further digitize government services. Most successful governments are bold in their ideas, know when to terminate experiments that are not successful, and have the professionalism to quickly scale small experiments that are promising.

An undesirable side effect of the cryptocurrencies is the outsized use of electricity in mining. If mining companies pay a lower electricity price than the marginal cost of supplying more electricity, governments should consider raising tariffs or at least calculating the implicit subsidy. The sharp increase in electricity demand might be an opportunity to develop an electricity market with intra-day price fluctuations, so that price differentiation reflects actual costs. Uncertainty about future electricity demand for cryptocurrency mining warrants a rethinking of contingent liabilities of governments where additional power plants are built by public-private partnerships. Guarantees related to future demand for electricity used in cryptocurrency mining are riskier than for other electricity demand. At some point, electricity tariffs for mining could be used as indirect taxation of the value added created by miners. Although it is difficult to determine the geographic location of the output of these activities, it is easy to locate the inputs.

Ultimately, financial oversight will cover cryptocurrencies and smart contracts. This process will be a gradual one of trial and error, and it will depend on the direction in which blockchain applications develop. First steps have already been taken, in the United States (where bitcoin can be traded on futures markets), in Switzerland (where regulation of ICOs was proposed), and in the Netherlands (where guidance was provided about the tax treatment of cryptocurrency holdings). Oversight to prevent money laundering, tax evasion, pump-and-dump schemes, and illicit cross-border transfers focuses on transactions in which cryptocurrencies are exchanged for legal tender.[15] At some point, this oversight could extend to miners and other companies that update the blockchain. The ultimate goal of all these efforts is to create a level playing field, so that blockchain application can be integrated into existing markets. The long-term outcome could be that supervision becomes much more effective, because the transparency of the blockchain could provide supervisors and courts with access to real-time information. This access would also make it easier to develop valuable early-warning systems.

The many experiments and brainstorms by governments and central banks throughout the region are inspiring. Just as blockchain opportunities put competitive pressure on private financial sectors, they also trigger creative thinking in governments. It is important that these experiments not consider current blockchain designs as the full universe of possibilities. Even if decentralized maintenance of digital government data can have major advantages, a permissioned system seems much more appropriate and efficient for governments than the original system that maintains the blockchain for cryptocurrencies. The ultimate conclusion might even be that other data systems are better suited for specific applications than blockchain technologies, including in the creation of digital currencies by central banks (box 2.4). The flurry of experiments shows the success of the blockchain revolution, but it also illustrates that progress may come from innovations that are quite different from the original design and objective of the blockchain protocol.

BOX 2.4 Will central banks issue digital currencies?

Central banks are exploring the possibility of issuing digital money, for several reasons. First, the use of traditional cash is steadily declining (Rogoff 2014). Second, cryptocurrencies have provided a working digital alternative to cash, replicating the original characteristics of cash in digital format. Like cash, cryptocurrencies allow anonymous P2P transactions without involvement of middlemen. Third, demand for tokens that are linked to legal tender is increasing. These tokens could be used in the same way as cryptocurrencies but without the drawback of high volatility in their value. It seems a natural development to transform actual coins and banknotes into digital tokens with the same legal protection and subject to the same price stabilization as all money issued by central banks.[a] The transparency of transactions with central bank digital currencies could facilitate the systematic conduct of monetary policy (Bordo and Levin 2017).

There are serious concerns about the issuance of digital money by central banks. Digital tokens issued by central banks could potentially replace not only cash but also electronic payment systems operated by commercial banks, which already offer electronic accounts, mobile money, and value cards. These systems can be uploaded and used offline.

The Swedish central bank is exploring the possibility of making electronic accounts and value cards directly available to the public. The idea is to administer this digital money in a central register at the central bank. This proposal to replicate instruments that already exist in the private sector stems from the understanding that the government has the legal obligation to provide means of payment to the public. It could, however, undercut the traditional financial intermediation role of commercial banks, which transform liquid liabilities into long-term assets. A central bank cannot take over the role of pooling liquidity to finance investments.

If a central bank chose blockchain technologies to administer digital transactions in a decentralized way, it would compete more directly with cryptocurrencies, with the advantage of providing a token with a more stable value. Still, the system would differ fundamentally from the early cryptocurrency protocols. Supply of central bank coins would be endogenous—in order to link their value to legal tender—and seigniorage would accrue to the central bank. Such a system would undoubtedly become a permissioned blockchain, with only preselected servers participating (Danezis and Meiklejohn 2016).

a. Bech and Garratt (2017) provides a comprehensive overview of the differences between central bank digital currencies and cryptocurrencies.

Notes

1. Electronic accounts are much more popular than cash. Central banks do provide electronic accounts to banks; they do not yet provide digital cash or electronic accounts directly to the public.
2. The public key functions as a pseudonym in communications. The private key is used to prove one's identity. If this digital ID becomes a standard on open-source platforms, it could make IDs and passwords on proprietary platforms like Facebook or Google redundant.
3. See, for example, the Georgian start-up Golden Fleece (https://goldenfleece.co/).
4. Clark (2017) describes the early history of digital payment systems.
5. A bitcoin address is an identifier of 26–35 alphanumeric characters that are equivalent to unique IDs. Every transaction is recorded on the public blockchain, so anyone can view each address involved in each transaction. However, it is difficult to know the real identity of the people involved in the transactions. For this reason, the bitcoin network is often described as being pseudo-anonymous rather than completely anonymous.
6. In the bitcoin protocol, a block can contain about 2,000 new transactions.
7. The block rewards are hard-coded, but there is no guidance on what the fee should be. As miners have discretion over which transactions to include, they select the transactions with the highest fees. As the size of each block on the blockchain is limited to 1 MB (roughly 2,000 transactions), if a user wants her transaction to be included in the next block, she has to offer a high enough fee so that her transaction is among the approximately 2,000 that are selected.
8. Other new concepts, often variations of the proof of stake, are proof of activity, proof of burn, proof of capacity, and proof of elapsed time (Rooney 2018).
9. The Austrian school and Keynesian economists have long debated the pros and cons of private, decentralized money versus government-sanctioned legal tender. What is an attraction for one group of economists (no reliance on governments, which are inclined to impose an inflation tax) is a nightmare for the other (financial instability, lack of monetary instruments).
10. ZeroCash (http://zerocash-project.org/) is a good example of a platform that provides more encryption.
11. Silk Road, an online market for illegal drugs that used bitcoins, started in 2011. The FBI took it down in 2014.
12. The vulnerability of banks in oil-exporting countries after the fall in oil prices was one of the reasons for the formation of the Blockchain and Cryptocurrency Association (Dyussembekova 2017).
13. This project is spearheaded by Pavel Durov, one of the founders of the Russian social media platform Vkontakte, and the encrypted messaging app Telegram (Khrennikov and Voitova 2018).
14. Carstens (2018) strongly advocates this point.
15. Levin, O'Brien, and Zuberi (2015) discusses the regulation of cryptocurrencies. Bal (2015) discusses tax issues. He and others (2016) provide a comprehensive overview of all oversight measures.

References

Aris, Ben. 2017. "Russia's Blockchain Revolution." *Moscow Times*, October 6. https://themoscowtimes.com/articles/eastern-europes-blockchain-revolution-59179.

Atkins, Ralph. 2018a. "Swiss Authorities Tread Wary Path through CryptoValley." *Financial Times*, March 20. https://www.ft.com/content/bea458ba-25fc-11e8-b27e-cc62a39d57a0.

———. 2018b. "Switzerland's Stock Exchange Chairman Calls for 'e-Franc.'" *Financial Times*. February 25. https://www.ft.com/content/fcc7d27a-186e-11e8-9376-4a6390addb44.

Bal, Aleksandra. 2015. "How to Tax Bitcoin." In *Handbook of Digital Currency: Bitcoin, Innovation, Financial Instruments, and Big Data,* ed. David Lee Kuo Chuen. Cambridge, MA: Academic Press.

Bech, Morten Linnemann, and Rodney Garratt. 2017. "Central Bank Cryptocurrencies." September 17. Bank for International Settlements, Basel. https://www.bis.org/publ/qtrpdf/r_qt1709f.htm.

Bordo, Michael D., and Andrew T. Levin. 2017. "Central Bank Digital Currency and the Future of Monetary Policy." NBER Working Paper 23711. National Bureau of Economic Research, Cambridge, MA. http://www.nber.org/papers/w23711.

Carstens, Agustin. 2018. "Money in the Digital Age: What Role for Central Banks?" Lecture by the general manager of the Bank for International Settlements, House of Finance, Goethe University, Frankfurt, February 6. https://www.bis.org/speeches/sp180206.htm.

Castor, Amy. 2017. "A (Short) Guide to Blockchain Consensus Protocols." CoinDesk. May 17. https://www.coindesk.com/short-guide-blockchain-consensus-protocols/.

Clark, Jeremy. 2017. "The Long Road to Bitcoin." Foreword to "Distributed Ledger Technology (DLT) and Blockchain," Harish Natarajan, Solvej Karla Krause, and Helen Luskin Gradstein, World Bank, FinTech Note No. 1, Washington, DC. http://documents.worldbank.org/curated/en/177911513714062215/Distributed-Ledger-Technology-DLT-and-blockchain.

Danezis, George, and Sarah Meiklejohn. 2016. "Centrally Banked Cryptocurrencies." https://arxiv.org/pdf/1505.06895.pdf.

Digiconomist. n.d. Bitcoin Energy Consumption Index. https://digiconomist.net/bitcoin-energy-consumption.

Dyussembekova, Zhazira. 2017. "Kazakh Organizations form Blockchain and Cryptocurrency Association." *Astana Times*, November 23. https://astanatimes.com/2017/11/kazakh-organisations-form-blockchain-and-cryptocurrency-association/.

Financial Times. 2018. "Bringing Swiss Order to Initial Coin Offerings." February 19. https://www.ft.com/content/36ef310c-1566-11e8-9e9c-25c814761640.

Gould, David Michael, and Martin Melecky. 2017. "Risks and Returns: Managing Financial Trade-Offs for Inclusive Growth in Europe and Central Asia." World Bank, Washington, DC. https://openknowledge.worldbank.org/handle/10986/25494.

He, Dong, Karl Habermeier, Ross Leckow, Vikram Haksar, Yasmina, Almeida, Mikari Kashima, Nadim Kyriakos-Saad, Hiroko Oura, Tahsin Saadi Sedik, Natalia Stetsenko, and Concepcion Verdugo-Yepes. 2016. "Virtual Currencies and Beyond: Initial Considerations." IMF Staff Discussion Note SDN/16/03, International Monetary Fund, Washington, DC. https://www.imf.org/external/pubs/ft/sdn/2016/sdn1603.pdf.

Helms, Kevin. 2018. "Five Siberian Power Plants Attracting Crypto Miners with Surplus Electricity." February 15. https://news.bitcoin.com/five-siberian-power-plants-attracting-cryptocurrency-miners-surplus-electricity/.

Levin, Richard B., Aaron A. O'Brien, and Madina M. Zuberi. 2015. "Real Regulation of Virtual Currencies." In *Handbook of Digital Currency: Bitcoin, Innovation, Financial Instruments, and Big Data,* ed. David Lee Kuo Chuen. Cambridge, MA: Academic Press.

Johnson, S. 2018. "Beyond the Bitcoin Bubble." *New York Times*, January 16. https://www.nytimes.com/2018/01/16/magazine/beyond-the-bitcoin-bubble.html.

Khrennikov, Ilya, and Olga Voitova, 2018. "Telegram Triples Price in Largest Initial Coin Offering." Bloomberg Technology, February 28. https://www.bloomberg.com/news/articles/2018-02-28/telegram-said-to-triple-price-in-largest-initial-coin-offering.

Krugman, Paul. 2013. "Bitcoin Is Evil." *New York Times*, December 28. https://krugman.blogs.nytimes.com/2013/12/28/bitcoin-is-evil/.

Marson, James. 2017. "Frigid, Industrial Siberia: Primed for the Digital Era." September 3. https://www.wsj.com/articles/frigid-industrial-siberia-primed-for-the-digital-era-1504436400.

MediTelegraph. 2017. "Lithuania Emerges as Blockchain Gateway to Europe." December 5. http://www.themeditelegraph.com/en/green-and-tech/technology/2017/12/05/lithuania-emerges-blockchain-gateway-europe-YVX3gnWsH60lH36eLrU3qL/index.html.

Milano, Annaliese. 2018. "Regional Government in Russia to Test Blockchain Payments." *Coindesk*, February 20. https://www.coindesk.com/regional-government-russia-test-blockchain-payments/.

Murphy, Hannah, and Philip Stafford. 2018. "Blockchain Explainer: A Revolution Only in Its Infancy." *Financial Times*, February 1. https://www.ft.com/content/6c707162-ffb1-11e7-9650-9c0ad2d7c5b5.

Nakamoto, Satoshi. 2008. "Bitcoin: A Peer-to-Peer Electronic Cash System." https://bitcoin.org/bitcoin.pdf.

Nicholson, Sibel. 2018. "EU Opens Blockchain Observatory, Looking to Invest up to €340 Million." *Interesting Engineering*, February 2. https://interestingengineering.com/eu-opens-blockchain-observatory-looking-to-invest-up-to-340-million.

Perper, Rosie. 2018. "Iceland May Use More Electricity Mining Bitcoin than Powering Homes This Year." BusinessInsider, February 12. http://www.businessinsider.com/iceland-bitcoin-mines-are-booming-2018-2.

Poon, Joseph, and Thaddeus Dryja. 2016 "The Bitcoin Lightning Network: Scalable Off-Chain Instant Payments." Lightning Network, January 14. https://lightning.network/lightning-network-paper.pdf.

Popper, Nathaniel. 2018. "As Bitcoin Bubble Loses Air, Frauds and Flaws Rise to Surface." *New York Times*, February 5. https://www.nytimes.com/2018/02/05/technology/virtual-currency-regulation.html.

Rogoff, Kenneth. 2014. "Costs and Benefits to Phasing Out Paper Currency." *NBER Macroeconomics Annual*, vol. 29. http://www.nber.org/chapters/c13431.

Rooney, Kate. 2018. "Peter Thiel Is Betting on Bitcoin Because One Cryptocurrency Will Become the 'Online Equivalent to Gold.'" CNBC, March 15. https://www.cnbc.com/2018/03/15/peter-thiel-is-betting-on-bitcoin-to-be-the-online-equivalent-to-gold.html.

SputnikInternational. 2018. "Cryptocurrency Boom: Armenia Set to Be Home to 50 MW Mining Farm." February 7. https://sputniknews.com/business/201802071061451274-cryptocurrency-boom-armenia-mining-farm/.

Truman, Edwin M. 2013. "Asian and European Financial Crises Compared." WP13-9, Peterson Institute for International Economics, Washington, DC. https://piie.com/publications/wp/wp13-9.pdf.

UNDP (United Nations Development Programme). 2018. *The Future Is Decentralised: Block Chains, Distributed Ledgers, & The Future of Sustainable Development*. New York. https://www.blockchain.com/assets/pdf/TheFutureisDecentralised.pdf.

Young, Joseph. 2017. "Why the EU Is Investing $540,000 in Blockchain Development and Pilot Test." BTCmanager.com, May 1. https://btcmanager.com/why-eu-is-investing-540000-in-blockchain-development-and-pilot-test/.

PART II

Selected Country Pages

ALBANIA

Table 1	2017
Population, million	2.9
GDP, current US$ billion	12.5
GDP per capita, current US$	4297
International poverty rate ($1.9)[a]	0.9
Lower middle-income poverty rate ($3.2)[a]	6.6
Upper middle-income poverty rate ($5.5)[a]	34.7
Gini coefficient[a]	32.1
School enrollment, primary (% gross)[b]	113.7
Life expectancy at birth, years[b]	78.2

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2012), 2011 PPPs.
(b) Most recent WDI value (2015).

Growth is estimated to have strengthened at 3.8 percent in 2017 supported by investments and is projected to moderate to 3.6 percent in 2018 as large FDI-financed energy projects wind down; growth will be driven by household consumption, and a pickup in exports. Growth created jobs, contributing to poverty reduction. Public debt declined in 2017, but the pace of fiscal consolidation slowed. Fiscal consolidation, improvement in spending efficiency, and implementation of structural reforms remain critical to fostering confidence and growth.

Recent developments

Albania's real GDP grew by 3.8 percent in 2017, up from 3.4 percent in 2016. Key drivers were private investment and consumption. Investment dynamics reflected two large energy projects financed by FDI (the Trans -Adriatic Pipeline and a hydropower plant). Private consumption was supported by a recovery in employment, wages and credit. Public consumption made a small contribution to growth, reflecting growth of the public-sector wages. High tourism exports and recovering commodity exports more than compensated for the high investment-related imports of machineries and equipment as well as for the drought-related energy imports.

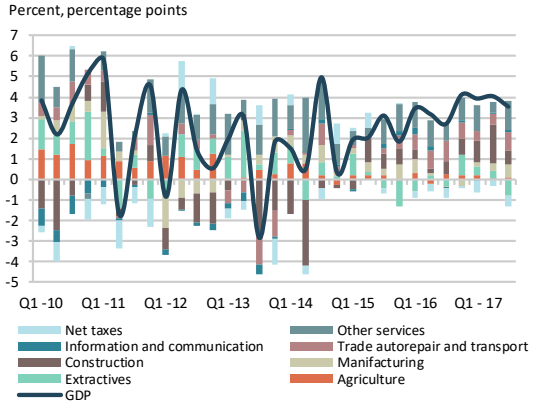
Growth stimulated job creation. Employment grew by 2.9 percent in the first three quarters of 2017, following a strong expansion of 6.5 percent in 2016. Labor force participation increased to 58 percent, up by 0.4 percentage points year-on-year. Besides improved employment prospects, the increase in labor force participation may reflect the Government's anti-informality campaign – including increased audits and higher penalties for non-compliance. The unemployment rate declined by 1.7 pp to an average of 13.9 percent in the first three quarters of 2017. Real wages in the formal employment have started to pick up in 2017 in construction, energy, and tourism.

Poverty is estimated to have declined as growth and employment continued to pick up. The poverty rate (measured as US$ 5.5/day, 2011 PPP) is estimated to have decreased in 2017 to 32.8 percent, compared to 33.9 percent in 2016. Labor force participation of women, particularly young women, has started to decline throughout 2017, a trend that needs to be closely monitored to avoid reversing previous gains.

Fiscal policy supported a reduction of public debt, but the pace of fiscal consolidation slowed in 2017. The 2017 fiscal deficit is estimated at 2 percent of GDP, slightly above the deficit of 1.8 percent in 2016. Revenue gains, from increased economic activity and the recovery of commodity prices, were estimated at an additional 0.9 percent of GDP in comparison to 2016. On the expenditure side, under-execution of public investments and lower interest expenditures partially compensated drought-related emergency support to the electricity sector and higher local governments spending. Prudent fiscal policy supported the public debt decline to 71 percent of GDP in 2017, compared to 72.4 percent in 2016.

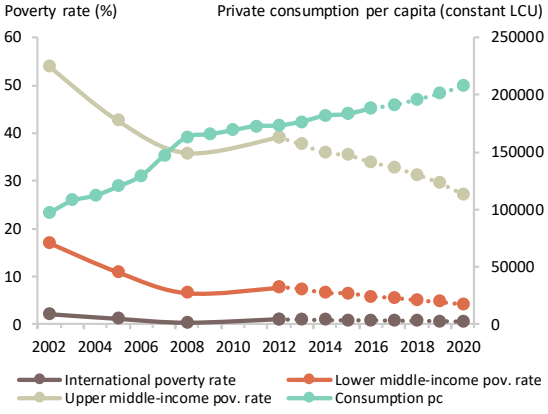
The Bank of Albania's (BoA) policy stance continues to be accommodative and credit growth recovers. Average inflation picked up to 2 percent in 2017, but remained below the BoA's 3 percent target, prompting no changes in the policy rate, which remains at 1.25 percent since May 2016. Underlying price pressures have remained subdued, helped by an appreciation of the national currency relative to the euro by 1.7 percent in 2017. The restructuring of NPLs from large borrowers and mandatory write-offs led to a decline in the NPL ratio to 13.2

FIGURE 1 Albania / Real GDP growth and contributions to real GDP growth



Sources: Instat, Bank staff calculations.

FIGURE 2 Albania / Actual and projected poverty rates and real private consumption per capita



Sources: World Bank. Notes: See Table 2.

percent of total loans as of December 2017. Low interest rates, progress in dealing with NPLs and economic growth stimulated an increase of private sector credit issuance by 13.5 percent in 2017.

The current account deficit widened in 2017. The current account deficit is estimated to have widened, reaching 8 percent of GDP in 2017. FDI-related investments in the energy sector and drought-related electricity imports increased imports. Tourism and commodity prices increased the value of exports. The resulting financing needs were covered by significant FDI inflows. With much of the financing coming through FDIs, external debt declined by 2 percentage points reaching 70.4 percent of GDP in 2017. Foreign exchange reserves have remained stable, covering 6 ½ months of imports of goods and services.

Outlook

Growth is projected to moderate to 3.6 percent in 2018, as two large FDI projects in the energy sector wind down, and then average 3.5 percent in the period 2019-20. As the demand stimulus from the large energy FDI projects winds down and economic activity increases to close to potential, growth will moderate. Growth will be increasingly relying on private consumption, supported by improved labor market conditions, and net exports supported by improved foreign demand. Investment will continue to support growth, reflecting a public investment drive to reduce infrastructure gaps and private investment, reflecting structural reforms and improvements in the business climate. Labor market improvements will support private consumption. Poverty is expected to decline from 31.3 percent in 2018 to 29.5 percent in 2019.

Sustained fiscal consolidation and structural reforms are expected to gradually reduce the fiscal deficit to 1.5 percent of GDP by 2020, and the debt-to-GDP ratio to 60 percent of GDP by 2022. Under the Government medium term fiscal framework, fiscal consolidation will continue until 2021 – lowering expenditures on personnel, operational and maintenance, social outlays and local governments. On the revenue side, the introduction of a newly valued property tax in 2018 is expected to yield additional revenues. While the government is planning sustained capital expenditures at 5 percent of GDP over the medium term, it has also announced sizable investments financed through public private partnerships (PPPs) to be contracted starting from 2018.

Risks and challenges

Economic prospects are vulnerable to downside risks. Given high public debt, the government needs to implement fiscal consolidation and strengthen tax compliance to preserve the macro-fiscal stability as a foundation for growth. The Government needs to strengthen its PPP management framework to contain fiscal risks from PPPs and to ensure that investment is cost-effective. Harnessing growth will require progress on structural reforms improving the business climate - including judiciary, financial and energy reform -, strengthening the skills of its labor force - and removing barriers to jobs for the population. Lower than expected growth in trading partners and higher global interest rates are also key risks for Albania's growth and public finances. Reforms should be informed by equity considerations to ensure continued poverty reduction and inclusion.

TABLE 2 **Albania** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	2.2	3.4	3.8	3.6	3.5	3.5
Private Consumption	1.1	2.9	1.7	2.7	2.7	3.5
Government Consumption	-1.1	3.8	2.3	1.2	0.4	0.6
Gross Fixed Capital Investment	4.0	6.0	6.8	3.5	3.1	1.9
Exports, Goods and Services	1.0	13.0	7.5	6.5	6.5	6.3
Imports, Goods and Services	-2.9	7.4	5.7	4.8	4.8	4.9
Real GDP growth, at constant factor prices	3.1	3.4	3.7	3.6	3.5	3.5
Agriculture	0.8	0.7	0.8	1.5	1.8	1.8
Industry	5.1	3.2	3.5	3.6	4.2	4.2
Services	3.4	5.1	5.5	4.9	4.0	4.1
Inflation (Consumer Price Index)	1.9	0.9	2.0	2.1	2.3	2.8
Current Account Balance (% of GDP)	-7.8	-6.8	-8.0	-7.1	-6.9	-6.7
Financial and Capital Account (% of GDP)	6.4	5.6	6.8	5.9	5.7	5.5
Net Foreign Direct Investment (% of GDP)	8.0	8.7	9.4	8.5	7.0	6.5
Fiscal Balance (% of GDP)	-4.9	-1.8	-2.0	-2.0	-1.6	-1.4
Debt (% of GDP)	73.1	72.4	71.0	69.0	66.6	64.3
Primary Balance (% of GDP)	-2.2	0.7	0.2	0.1	0.9	1.1
International poverty rate ($1.9 in 2011 PPP)[a,b]	0.8	0.8	0.7	0.7	0.6	0.5
Lower middle-income poverty rate ($3.2 in 2011 PPP)[a,b]	6.5	5.8	5.6	5.1	4.7	4.2
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	35.4	33.9	32.8	31.3	29.5	27.2

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on ECAPOV harmonization, using 2012-LSMS. Nowcast: 2015 - 2017. Forecast are from 2018 to 2020.
(b) Projection using neutral distribution (2012) with pass-through = 0.87 based on private consumption per capita in constant LCU.

ARMENIA

Table 1	2017
Population, million	3.0
GDP, current US$ billion	11.6
GDP per capita, current US$	3813
International poverty rate ($1.9)[a]	1.8
Lower middle-income poverty rate ($3.2)[a]	14.1
Upper middle-income poverty rate ($5.5)[a]	43.5
Gini coefficient[a]	32.5
School enrollment, primary (% gross)[b]	98.5
Life expectancy at birth, years[b]	74.2

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2016), 2011 PPPs.
(b) Most recent WDI value (2015).

Firming international metal prices, economic recovery in Russia, and stronger domestic demand supported a real GDP growth rate of 7.5 percent in 2017, the largest annual expansion in a decade. Growth in the medium term is projected to converge towards its potential of around 4 percent, accompanied by a continued (albeit gradual) decline in the poverty rate. However, external vulnerabilities and delayed structural reforms could undermine economic growth.

Recent developments

Armenia's economic performance outperformed expectations in 2017, recording the highest rate of growth since 2007. Following a flat economic performance in 2016, real GDP expanded by 7.5 percent, mainly driven by a recovery in the external environment. Growth was also supported by a strong rebound in domestic demand. Consumption benefited from higher incomes—buoyed by a boost to remittance inflows of about 12 percent year on year and nominal average wage growth of 3 percent—which also benefited poor and vulnerable households.

On the production side, growth was driven by a significant expansion in trade (16 percent), industry (10 percent) and services (9 percent). Also the construction sector showed modest growth (3 percent), but output remains below its pre-crisis level of 2008. The agriculture sector shrunk (by 4 percent), due to unfavorable weather conditions.

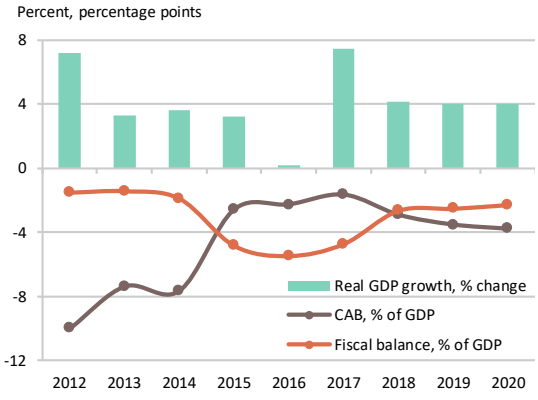
A period of deflation came to an end in 2017 and inflation began rising, reaching an annual rate of 2.6 percent by year-end, within the central bank's inflation target of 4 percent (+/- 1.5 percentage points). Recovering domestic demand, gradually rising commodity prices and excise tax hikes resulted in higher prices for food, beverages, cigarettes, and transport, affecting the purchasing power of poor and vulnerable groups, which traditionally spend a higher share of their budget on these items.

The fiscal deficit narrowed slightly in 2017, to 4.7 percent of GDP (down from 5.5 percent in 2016), but remained wider than the budgeted deficit of 2.8 percent of GDP. While tax revenue increased by 7.3 percent year on year in 2017—driven by higher collections of excise taxes, customs duties and environmental taxes—as a percentage of GDP revenue declined by 0.8 percentage points compared with 2016. Capital expenditure rose by 36 percent year on year in nominal terms, but tight control over current spending resulted in a decline of 1.6 percentage points in overall expenditure as a share of GDP. At the end of 2017, public debt (including CBA debt) totaled almost 59 percent of GDP.

The current account deficit continued to narrow for a third consecutive year and is estimated to have fallen to under 2 percent of GDP in 2017. The improvement in the current account was driven by a strong increase in export earnings (up 25 percent year on year)—particularly from minerals and processed food products—robust growth in tourist arrivals and exports of other services (such as ICT), and improvement in the income account. The strong inflows were partially offset by a significant increase in import spending (28 percent year on year), a large share of which comprised capital imports linked to investment.

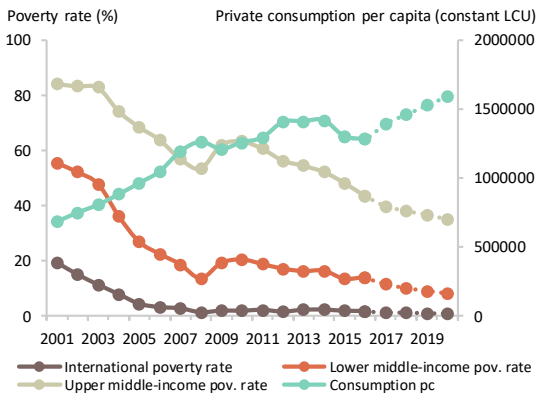
Banking sector performance remained solid, with a capital adequacy ratio of just under 20 percent on average at end-2017, well above the minimum requirement of 12 percent. At the end of 2017, the nonperforming loan ratio stood at 5.5 percent, its lowest level since the 2014 Russian

FIGURE 1 **Armenia** / GDP growth, fiscal, and current account balance



Sources: National Statistics Service of Armenia, Central Bank of Armenia and World Bank staff projections.

FIGURE 2 **Armenia** / Actual and projected poverty rates and real private consumption per capita



Source: World Bank (see notes to Table 2).

crisis. Dollarization ratios for bank deposits and loans declined slightly but remained high at around 60 percent. Total lending grew by 10 percent, while the Dram lending rate fell by 260 basis points over the course of 2017.

The economic recovery in 2017 is expected to have supported a further reduction in poverty rates, which have been on a declining trend since the global economic crisis. The absolute poverty rate (measured at the 2011 PPP-adjusted US$3.2/day poverty line) is estimated to have fallen from 14.1 percent in 2016 to 11.6 percent in 2017.

Outlook

Armenia's economic outlook remains positive. The strong performance in 2017 suggests the opening of a window of opportunity to undertake the reforms needed to make growth inclusive and sustainable. On the assumption of sustained favorable external economic conditions and robust structural reforms, medium-term growth is forecast to be around the potential growth rate (4 percent), supported by private-sector, export-led activity. In particular, the agribusiness, information and communication technology (ICT), and tourism sectors are expected to deliver solid growth as efforts to boost competitiveness and connectivity start to deliver results. As the economy continues to grow and incomes rise—and remittance inflows continue to support livelihoods thanks to a benign external environment—the absolute poverty rate is forecast to decline to 8.1 percent in 2020.

Although price pressures are forecast to increase in the short term, mainly due to higher customs duties and excise taxes on fuels starting in 2018, inflation is projected to remain within the official target range.

The new Tax Code, which becomes fully effective in 2018, lays the foundation for better tax administration and higher tax revenues. Implementation of the upgraded fiscal rule (approved in December 2017) will result in stronger discipline for current spending and will provide some room to increase growth-friendly capital expenditures while also stabilizing and eventually reducing the public debt.

Risks and challenges

Armenia's vulnerability to economic conditions in Russia and its other trading partners—as well as its low level of export diversification—will remain high. Adverse shocks linked to the Russian recovery or metal export prices would have a negative impact on economic growth rates over the near to medium term. Fiscal slippage could trigger the need for sharper adjustments in public spending, undermining domestic demand and real economic activity. Fiscal policy should remain prudent to contain public debt levels. Avoiding fiscal procyclicality will help prevent macroeconomic imbalances and reduce the risks associated with overheating (including potential competitiveness losses) during periods of strong economic growth. Continuing coordination with the monetary authorities and the maintenance of a flexible exchange rate will be vital to avoid episodes of real exchange rate appreciation that can lead to losses in competitiveness.

Sustaining robust economic growth will require bold structural reforms—such as providing a fair and competitive business and investment environment—to address fundamental problems in Armenia's economy. Increasing country-wide access to economic opportunities will help to boost household incomes and drive a further reduction in poverty, particularly in secondary cities where poverty is highest.

TABLE 2 **Armenia** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	3.2	0.2	7.5	4.1	4.0	4.0
Private Consumption	-7.8	-1.3	8.8	5.0	4.7	4.5
Government Consumption	4.7	4.1	9.8	4.3	3.7	3.5
Gross Fixed Capital Investment	2.5	-11.4	7.3	4.5	4.2	4.1
Exports, Goods and Services	4.9	19.1	23.2	10.1	9.8	9.5
Imports, Goods and Services	-15.1	7.6	24.0	10.3	9.5	8.9
Real GDP growth, at constant factor prices	4.3	0.7	7.2	4.1	4.0	4.0
Agriculture	13.2	-5.8	-4.0	2.5	2.7	2.4
Industry	2.8	-0.9	8.0	5.4	5.2	5.1
Services	2.1	4.0	10.5	3.9	3.8	3.9
Inflation (Consumer Price Index)	3.7	-1.4	1.0	3.5	3.8	4.0
Current Account Balance (% of GDP)	-2.6	-2.3	-1.7	-2.9	-3.5	-3.8
Financial and Capital Account (% of GDP)	4.0	4.5	1.4	2.9	3.5	3.8
Net Foreign Direct Investment (% of GDP)	1.5	2.6	4.1	4.4	4.5	4.7
Fiscal Balance (% of GDP)	-4.8	-5.5	-4.7	-2.6	-2.5	-2.3
Debt (% of GDP)	48.7	56.6	58.8	58.6	58.3	57.5
Primary Balance (% of GDP)	-3.0	-3.6	-2.7	-0.5	-0.3	0.0
International poverty rate ($1.9 in 2011 PPP)[a,b]	1.9	1.8	1.4	1.3	1.0	0.8
Lower middle-income poverty rate ($3.2 in 2011 PPP)[a,b]	13.5	14.1	11.6	10.1	9.1	8.1
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	48.3	43.5	39.9	38.2	36.8	35.2

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on ECAPOV harmonization, using 2016-ILCS. Actual data: 2015, 2016. Nowcast: 2017. Forecast are from 2018 to 2020.
(b) Projection using neutral distribution (2016) with pass-through = 0.7 based on private consumption per capita in constant LCU.

AZERBAIJAN

Table 1	2017
Population, million	9.9
GDP, current US$ billion	40.7
GDP per capita, current US$	4128
School enrollment, primary (% gross)[a]	106.6
Life expectancy at birth, years[a]	71.8

Source: WDI, Macro Poverty Outlook, and official data.
Notes:

(a) Most recent WDI value (2015).

Azerbaijan's economy had a very modest recovery in 2017. Benign public financing, improved confidence, and a favorable external environment supported non-oil economic growth, but this was offset by an OPEC-led decline in oil production. Going forward, growth is expected to strengthen, driven mainly by a fiscal stimulus, a rise in hydrocarbon prices, and an increase in gas exports. Social conditions remain a major source of concern, as real wages and spending on social protection programs declined in 2017.

Recent developments

The Azerbaijani economy had a very modest recovery in 2017, as a rebound in the non-oil economy was offset by a contraction in the oil sector due to substantial OPEC-led cuts in oil production and capacity constraints. In particular, the non-oil sector rebounded by 2.7 percent year-on-year (y/y), supported by benign public financing, stronger external demand, and improved confidence in response to recovering oil prices. With the exception of the construction sector, output increased in all non-oil sectors with strong y/y growth recorded in transport (8.5 percent), information and communication technologies (6.6 percent), tourism (5.9 percent) and agriculture (4.2 percent). On the downside, and despite higher oil prices, oil GDP contracted by 5 percent y/y.

Annual end-year inflation declined from 15.6 percent in 2016 to 7.9 percent in 2017, as the effect of the exchange rate pass-through and the impact of administrative tariffs dissipated. The high inflation rate recorded for food items (9.4 percent y/y) was due to a strong external demand for agricultural products. To curb inflation, the central bank continued to tighten the monetary policy stance by actively absorbing manat liquidity through the use of deposit auction operations and the issuance of notes.

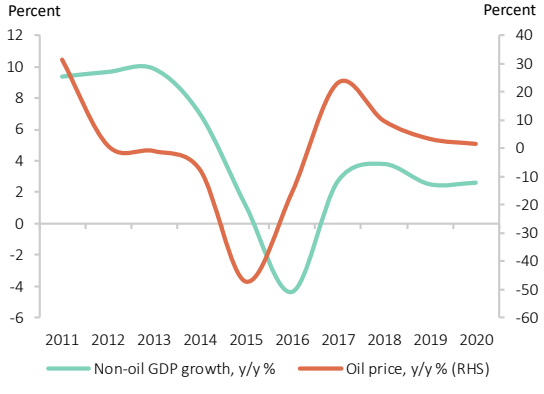
Higher oil prices, sluggish import growth, and expanded non-oil exports helped to improve Azerbaijan's balance of payments in 2017. Exports expanded by 50 percent y/y, led by a rise in oil exports, as oil prices recovered (oil exports accounted for 90 percent of total exports), while imports rebounded by 3 percent y/y (compared to a drop in 2016). Non-oil exports increased by 22 percent y/y, supported by stronger external demand, mainly from Russia. The current account recorded an estimated surplus of 4.3 percent of GDP in 2017.

The tightening monetary policy, improved external environment, and transfers from the Oil Fund to the central bank helped to maintain a broadly stable exchange rate at 1.7 AZN per USD in 2017. As a result, the central bank's reserves increased by 34 percent y/y in 2017 and totaled US$5.3 billion by end-2017. The Oil Fund's assets rose by 8.02 percent y/y and totaled US$ 35.8 billion (about 87% of GDP) in January 2018, mainly due to higher oil prices and a portfolio revaluation.

In June 2017, the Government of Azerbaijan (GoA) relaxed its fiscal consolidation program, and public spending was revised up to primarily inject capital equivalent to 0.7 percent of GDP in the Azerbaijan Deposit Insurance Fund[1]. Higher budget spending is estimated to have widened the consolidated fiscal deficit (comprising State Budget, the Oil Fund, the Social Protection Fund and the Nakhchivan Government) from a nearly balanced position in 2016 to a deficit of 1.5 percent of GDP in 2017.

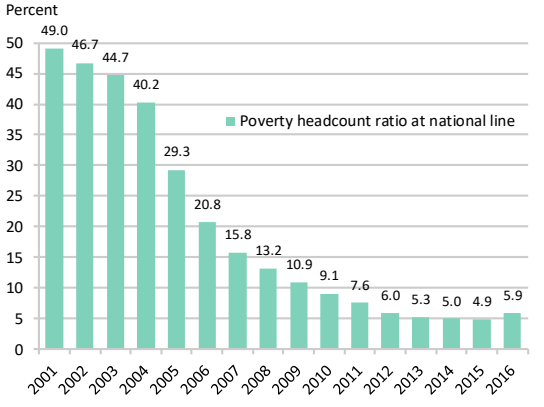
There were signs of recovery in Azerbaijan's financial sector in 2017, supported by the stabilization of the manat exchange rate and growth across the non-oil sectors. The level of non-performing loans is reported to have dropped from 33 percent

FIGURE 1 Azerbaijan / Non-oil sectors influenced by oil price



Source: State Statistical Committee.

FIGURE 2 Azerbaijan / Official poverty rate



Source: State Statistical Committee.
Notes: The official national poverty rates for 2013-16 have not been reviewed by the World Bank.

in 1Q2016 to 19 percent in 4Q2017, thanks to the restructuring (largely at fiscal cost). The restructuring of the largest bank — the state-owned International Bank of Azerbaijan (IBA)—was completed. IBA's external liabilities worth US$3.3 billion were converted into longer-term liabilities and the sovereign debt.

High inflation adversely affected household incomes and reduced the real purchasing power. In 2017, the increase in the minimal cost of living and nominal average wages by 11.6 percent y/y and 6 percent y/y, respectively, was not sufficient to compensate for higher prices. As a result, poverty likely increased in 2017 and was probably worsened by the 50-percent cut in the coverage of the country's most important social assistance program.

Outlook

Azerbaijan's economy is projected to expand by 1.8 percent y/y in 2018, supported mainly by the fiscal stimulus. The growth is expected to accelerate in the medium term, driven by an expansion of natural gas production, as the main pipeline that will deliver gas to Europe from the Shah-Deniz II field will be operational by end-2018. Since the OPEC-deal is extended until the end of 2018, Azerbaijan's crude oil output is not expected to decline much further. Moreover, average oil prices will firm up somewhat in 2018 relative to 2017 and are projected to stabilize at robust levels in the medium term. Non-oil GDP growth is expected to accelerate in 2018, fueled by an 83-percent y/y increase in budgeted public investment. Nevertheless, growth in the non-oil economy is expected to remain moderate due to a protracted recovery of the banking sector and a weak business environment.

The GoA plans a fiscal stimulus in 2018 through boosting capital spending, which will be primarily financed by an increase in budget transfers from the sovereign wealth fund. The consolidated fiscal balance is likely to be slightly positive in 2018 and is estimated to average 1.3 percent of GDP in the medium term, as oil prices remain firm and gas exports rise.

To contain inflation, the central bank needs to continue tightening monetary policy. Azerbaijan's external sector is expected to continue to improve due to an increase in hydrocarbon production and a continuation of non-oil export growth, supported by a rise in external demand and enhanced government support to exporters of non-oil products. However, spending cuts on social protection, as well as a moderate economic recovery, are not conducive to poverty reduction.

Risks and challenges

Following the recovery in oil prices after the 2014-16 shock, the likelihood of a procyclical economic policy rather than economic reforms to stimulate growth is rising. The main challenge is to preserve the reform momentum induced by the shock and strengthen institutions to ensure the resilience of the economy to future external shocks. Moreover, progress on the structural reform agenda to stimulate private-sector participation and jobs creation remains limited. An adaptive and effective social protection system and programs aimed at productive inclusion of poor and vulnerable households are needed to reduce poverty.

1/ ADIF was established in 2007 to protect individual deposits when banks are closed.

TABLE 2 Azerbaijan / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	1.1	-3.1	0.1	1.8	3.8	3.2
Private Consumption	5.4	-2.8	2.7	3.2	3.3	3.4
Government Consumption	-7.1	-8.1	1.8	3.0	0.3	-0.7
Gross Fixed Capital Investment	-8.7	-20.0	-5.0	2.5	4.5	4.4
Exports, Goods and Services	-1.0	-2.0	-1.1	0.3	4.0	3.5
Imports, Goods and Services	-5.0	-10.0	0.2	2.2	2.4	2.8
Real GDP growth, at constant factor prices	1.0	-3.1	0.1	1.8	3.8	3.2
Agriculture	6.6	2.6	4.2	4.0	4.1	4.2
Industry	-2.0	-4.9	-2.8	-0.1	3.2	2.7
Services	6.9	-0.3	5.4	5.0	4.8	4.0
Inflation (Consumer Price Index)	7.7	15.6	7.9	6.4	4.2	3.9
Current Account Balance (% of GDP)	-0.4	-3.6	4.3	5.9	7.2	7.9
Financial and Capital Account (% of GDP)	-16.8	-7.2	-4.3	-5.9	-7.2	-7.9
Net Foreign Direct Investment (% of GDP)	3.2	3.2	2.8	2.6	2.3	2.1
Fiscal Balance (% of GDP)	-6.2	0.3	-1.5	0.4	1.4	2.1
Primary Balance (% of GDP)	-5.5	1.0	-0.4	1.7	2.3	2.7

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast. Fiscal accounts are calculated using Global Economic Prospects oil projections.

BELARUS

Table 1	2017
Population, million	9.4
GDP, current US$ billion	57.0
GDP per capita, current US$	6039
Upper middle-income poverty rate ($5.5)[a]	0.7
Gini coefficient[a]	27.0
School enrollment, primary (% gross)[b]	1013
Life expectancy at birth, years[b]	73.6

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2016), 2011PPPs.
(b) Most recent WDI value (2015).

Improving external conditions, stronger domestic demand, and prudent macroeconomic policies supported a cyclical recovery in 2017 and early 2018. Real incomes started to pick up, but accelerated wage growth, along with other fiscal stimulus, could pose risks to macro stability. Rising public debt levels and continued dependence on external financing make the economy vulnerable to macroeconomic shocks. The revival of economic growth requires addressing structural bottlenecks impeding productivity improvements.

Recent developments

The modest cyclical expansion continues, supported by improving external conditions and recovery in industry. In 2017, the economy grew at 2.4 percent y/y, a rebound from the contraction of 2.5 percent y/y in 2016. Modest economic growth in Russia and a gradual increase in commodity prices boosted merchandize exports and supported an increase in domestic business activity. On the demand side, real wage increases helped to increase household consumption by almost 6 percent in 3Q 2017 (vs. 6.5 percent fall in 3Q 2016). In the same period, growth of gross fixed capital formation recovered to 1.8 percent – mainly due to rebound of public investment – versus the dramatic fall by 18.9 percent in 3Q 2016.

In 2017, annual average inflation slowed to 4.6 percent helped by better anchored inflation expectations, moderation in administrative price adjustments, and imported disinflation. Moderating inflation has allowed the National Bank to cut its benchmark rate from 17 to 10.5 percent during 2017, leading to an almost twofold reduction in nominal lending rates in national currency. As a result, supply of new credit in nominal terms went up by almost 30 percent y/y. However, NPL levels remain at around 13 percent and a comprehensive NPL resolution mechanism is still not put in place.

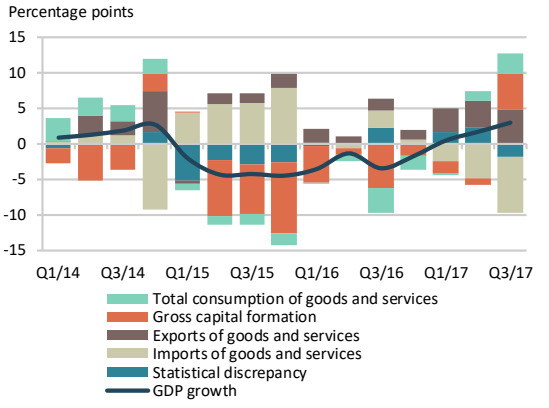
Quasi-fiscal expenditures continue to put pressures on public debt levels and external financing needs. Recorded primary budget surplus has been spent on repayment and servicing public debt in foreign currency, which amounted to US$3.26 billion, or 6.9 percent of GDP. Pressures were partially eased by the disbursement of the two tranches of the EFSD loan (totaling US$600 million), disbursement of a bilateral loan from Russia (US$700 million), and the issuance of Eurobonds—US$1.4 billion in 2017, and US$0.6 billion in February 2018. Exports recovered, helping to bring down the current account deficit to 1.1 percent of GDP in January-November 2017 (vs 3.2 percent a year ago), yet driven by the primary income deficit of 4 percent of GDP.

Real wage increases have stopped the deterioration of household incomes. In 2017, real wages and disposable incomes grew by 6.2 and 2.4 percent respectively, benefiting from lower inflation. Disposable incomes growth was the highest in Minsk, but also in regions with higher absolute poverty rates, such as Brest and Gomel. The hires-to-terminations ratio throughout 2017 exceeded that of 2016 by an average of 12 percent. The share of households below the official poverty threshold remained stable throughout the first three quarters of 2017.

Outlook

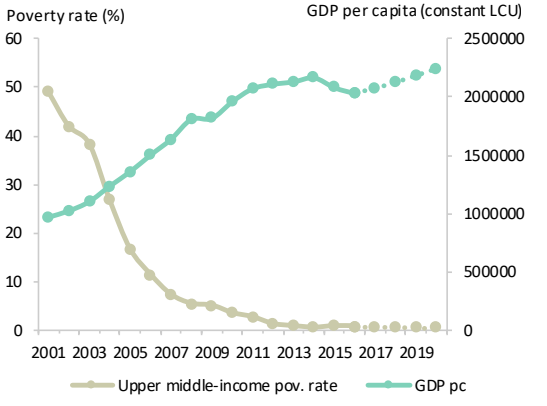
While the recovery is underway, annual economic growth rates are unlikely to exceed 3 percent. Improved household consumption and investment activity, along with gradual increase in exports, will help

FIGURE 1 Belarus / Real GDP growth and contributions to real GDP growth



Sources: World Bank Staff Calculations based on Belstat data.

FIGURE 2 Belarus / Actual and projected poverty rates and real GDP per capita



Sources: World Bank. Notes: see Table 2.

the economy to grow. At the same time, persisting domestic structural bottlenecks related to unaddressed legacy issues of misallocation of capital and low export diversification will continue to constrain the growth potential. Weak foundations for a sustainable growth recovery imply that income per capita gaps between Belarus and its neighbors may widen as the economies of the Baltic States and Poland are projected to grow on average above 3 percent per annum. At the same time, modest growth would ease balance-of-payment pressures, allowing to maintain a current account deficit between 2 and 3percent of GDP over the next three years.

Risks and challenges

Downside risks from external factors are coming from two sources. First, although the headline current account deficits have narrowed down, a public debt to GDP ratio is likely to remain close to a half of GDP in the medium term. Majority of gross external debt pertains to the public sector and is characterized by a heavy and uneven debt service profile with repayment peaks every few years. As the public debt is largely denominated in foreign currency, there is a risk of disorderly adjustment in external imbalance due to tightening of global financial conditions. Second, Belarus remains vulnerable to changes in global commodity prices and in terms of its energy trade policy with Russia.

Either of these developments would make it harder for the government to generate the foreign currency needed to service its debt. Belarus's experience with the 2017 Eurobond issuance indicates that access to external market financing – in contrast to loans from Russia and China – comes at a high cost. A ten-year, US$0.6 billion tranche was priced at 7.625 percent, higher rates than the ones obtained by emerging economies. In 2018, the Government will allocate US$3.1 billion for external public debt repayments and service (or about 5.4 percent of forecasted GDP), while domestic obligations of the Government denominated in foreign currency add another US$0.7 billion (or about 1.2 percent of GDP).

Downside risks from domestic factors relate to a possibility of a disorderly unwinding of financial sector imbalances if mechanisms for addressing insolvent SOEs and NPL resolution are not put in place. In addition, there are risks to fiscal sustainability arising from existing quasi-fiscal deficits related to the excesses of the expansionary policies of the past. Reintroduction of short-term demand stimulus is risky, leaving little prospects for improving enterprise performance and strengthening of financing sector. The effects of lower interest rates are limited, as highly indebted enterprises are unable to invest more. Boosting productivity of available capital and labor remains a sustainable way to overcome prolonged stagnation of growth and incomes.

TABLE 2 **Belarus** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	-3.8	-2.5	2.4	2.9	2.7	2.5
Private Consumption	-2.3	-3.9	2.5	3.0	3.1	3.1
Government Consumption	-0.5	-0.6	1.3	0.8	1.3	1.3
Gross Fixed Capital Investment	-15.5	-16.1	9.9	6.5	5.6	5.2
Exports, Goods and Services	2.1	2.8	7.5	7.2	8.3	8.9
Imports, Goods and Services	-10.6	-2.1	9.2	8.0	8.7	9.1
Real GDP growth, at constant factor prices	-4.6	-2.9	2.9	2.9	2.7	2.5
Agriculture	-2.8	3.8	4.1	4.5	3.9	3.8
Industry	-6.8	-4.6	6.1	7.2	8.3	7.7
Services	-2.3	-2.8	-1.1	-2.8	-5.1	-5.9
Inflation (Consumer Price Index)	13.5	11.8	4.6	6.0	6.5	6.5
Current Account Balance (% of GDP)	-3.3	-3.6	-2.7	-2.9	-3.0	-2.8
Financial and Capital Account (% of GDP)	-2.3	-1.7	1.7	2.6	1.4	1.2
Net Foreign Direct Investment (% of GDP)	2.9	2.6	2.4	2.6	2.6	2.3
Fiscal Balance (% of GDP)	2.5	0.1	3.7	2.1	2.1	2.1
Debt (% of GDP)	26.5	43.3	45.9	46.1	46.4	46.8
Primary Balance (% of GDP)	3.7	1.6	6.1	4.7	4.3	3.9
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	0.7	0.7	0.6	0.6	0.6	0.5

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on ECAPOV harmonization, using 2016-HHS. Actual data: 2015, 2016. Nowcast: 2017. Forecast are from 2018 to 2020.
(b) Projection using neutral distribution (2016) with pass-through = 0.7 based on GDP per capita in constant LCU.

BOSNIA AND HERZEGOVINA

Table 1	2017
Population, million	3.8
GDP, current US$ billion	17.2
GDP per capita, current US$	4544
School enrollment, primary (% gross)[a]	n.a.
Life expectancy at birth, years[a]	76.6

Source: WDI, Macro Poverty Outlook, and official data.
Notes:

(a) Most recent WDI value (2015).

Economic growth in Bosnia and Herzegovina (BiH), which reached an estimated 3 percent in 2017, is expected to pick-up starting in 2018 with the implementation of structural reforms and heavy infrastructure investment. Translating this growth into improvements in labor markets will be critical to observe declines in poverty. As BiH enters general elections year, political turmoil may be a risk for economic growth.

Recent developments

Growth reached an estimated 3 percent in 2017. Domestic demand remains the dominant driver of growth with consumption adding 3pp, investment 0.8 pp and imports 5.1pp. Improved external demand has supported exports growth, but a strong rise in imports is offsetting this momentum. With negative overall net exports, they are estimated to have subtracted from growth (-0.8 pp). Unemployment remains high, although some improvements are observed in the labor market. The unemployment rate fell from 25.4 percent in 2016 to 20.5 in 2017, driven by a fall in activity rate and a slight rise in employment. The decrease in unemployment was more pronounced among workers with primary education (from 26 percent in 2016 to 18 percent in 2017), which should have made poverty recede in 2017.

After almost two years of deflation, inflation started to pick up in 2017, owing mainly to the recovery of global oil price. The consumer price index increased by 1.2 percent year-on-year (y-o-y) in December 2017. The biggest driver of the increase was transport, tobacco and rental housing. In contrast, prices decreased notably on alcohol, clothing, and telecommunication services. Given similar growth in nominal salaries, the effect on real incomes was neutral.

In 2017, the fiscal balance is expected to remain in surplus. The latest consolidated data project a 2.0 percent of GDP surplus in 2017, up from a deficit of 0.3 percent in 2016. In 2017, revenues rose mainly due to stronger collection of indirect taxes while expenditure declined mainly because of continued restraint on current government spending. At the same time, sluggish capital spending reflected implementation delays.

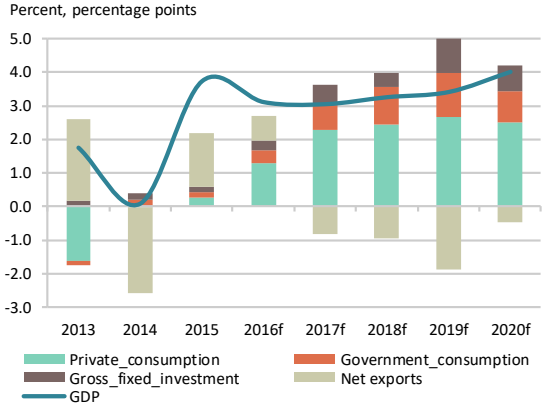
Current expenditures are expected to remain on a downward, driven by the commitment of the authorities to reduce the wage bill. Total public debt in 2017 remained at 37 percent of GDP (external public debt was 27 percent of GDP) and consisted largely of concessional debt to international financial institutions.

The latest available poverty data using the national poverty line is for 2015 and was estimated at 16 percent, very close to the 15 percent poverty rate estimated for 2011. Rural poverty (19 percent) was higher than urban poverty (12 percent). Behind the minimal movement in poverty in 2011 -2015 there was a small positive effect of pensions on household incomes, countered mainly by a decrease in employment rate and a decline in self-employment earnings. The implementation of new labor laws in both BiH entities, and continuation of support schemes for first-time job seekers are expected to improve labor markets outcomes in the coming years, hence also supporting poverty reduction.

Outlook

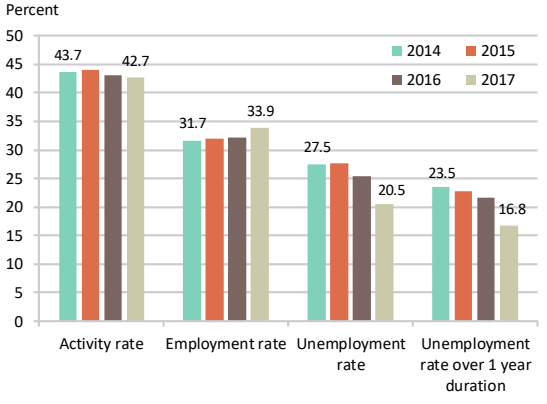
Supported primarily by consumption and to some extent by public investment, economic growth is projected to strengthen to

FIGURE 1 Bosnia and Herzegovina / Real GDP growth and contributions to real GDP growth



Sources: BiH Agency for Statistics (BHAS), World Bank staff estimate.

FIGURE 2 Bosnia and Herzegovina / Labor market indicators, 2014-2017



Sources: LFS 2014-2017 report, World Bank staff calculations.

about 4 percent by 2020. As the BiH's reform agenda advances, a moderate rise in exports is expected, but strong demand for imports implies that net external demand will continue to be a drag on growth. Remittances are likely to remain stable, and, together with progress on reforms, will underpin a gradual pickup in consumption, which will remain a major driver of growth. Investments in energy, construction, and tourism will support investment growth generally, as well as job creation in those sectors. Because of these dynamics, real GDP growth is projected to build up gradually from 3 percent in 2017 to 3.2 percent in 2018 and up to 4 percent in 2020.

As poverty is strongly associated with unemployment and inactivity in BiH, for economic growth to translate into poverty reduction, improvements in labor market participation and employment will remain key. However, with high unemployment and the expectations of flat real wages due to the substantial remaining slack in the labor market, poverty is projected to decline only slowly over the next couple of years.

The current account deficit (CAD) is forecast to rise slightly in 2018 as both imports and exports started to pick up in 2017. In the medium run, with improved progress on ongoing structural reforms and higher demand for foreign savings, CAD is expected to deteriorate from 5.8 percent of GDP in 2017 to 6.8 percent of GDP by 2020. Overall, in the medium term both fiscal and external deficits will persist until 2020.

Risks and challenges

Achieving prudent, efficient, and effective fiscal policy, addressing persistent unemployment and continuing to safeguard the banking sector, will remain central to the BiH reform agenda. Although external deficits continue to be moderate, on the fiscal side the tax burden is high, and public spending is inefficient, as evidenced by poorly-targeted benefits. Fiscal consolidation and provision of an effective safety net will not be effective if structural rigidities in spending are not addressed—especially the high public wage bill. However, support from the international partners can help the BiH authorities to deliver on their challenging reform agenda. Without continued implementation of structural reforms, it would be difficult to address rigidities in public employment, pensions, and debt.

There are notable risks, both domestic and external. The main domestic risk is the challenging political environment, which makes structural reforms difficult in such areas as infrastructure, telecommunications, energy sector, and transport. It also raises risks to the economic outlook. Despite some delays, BiH has submitted a detailed Questionnaire to the European Commission, a major step towards becoming a candidate country. Main external risk for BiH remains slow growth in the EU and rising inflation in developed countries and interest rates.

TABLE 2 **Bosnia and Herzegovina** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	3.7	3.1	3.0	3.2	3.4	4.0
Private Consumption	0.4	1.8	3.2	3.4	3.7	3.5
Government Consumption	0.8	1.8	3.6	5.5	6.3	4.2
Gross Fixed Capital Investment	1.0	1.7	3.8	2.5	6.5	4.7
Exports, Goods and Services	6.3	4.1	12.5	9.2	4.7	3.6
Imports, Goods and Services	0.9	1.2	9.9	8.0	6.5	3.3
Real GDP growth, at constant factor prices	3.1	3.1	3.0	3.2	3.4	4.0
Agriculture	9.2	5.0	2.8	3.0	3.0	3.0
Industry	3.4	3.0	2.7	3.0	3.0	3.0
Services	2.3	2.9	3.1	3.4	3.6	4.5
Inflation (Private Consumption Deflator)	1.0	-0.8	1.2	1.4	1.4	1.4
Current Account Balance (% of GDP)	-5.7	-4.5	-5.8	-6.2	-6.8	-6.8
Financial and Capital Account (% of GDP)	-2.0	-1.4	7.0	7.4	8.1	6.9
Net Foreign Direct Investment (% of GDP)	-1.4	-1.6	1.2	2.5	2.8	2.8
Fiscal Balance (% of GDP)	0.6	-0.3	2.0	1.3	0.2	0.0
Debt (% of GDP)	40.6	41.1	36.8	33.3	30.8	29.5
Primary Balance (% of GDP)	1.5	0.8	3.2	2.8	1.4	0.9

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.

BULGARIA

Table 1	2017
Population, million	7.1
GDP, current US$ billion	55.8
GDP per capita, current US$	7887
International poverty rate ($19)[a]	10
Lower middle-income poverty rate ($3.2)[a]	3.8
Upper middle-income poverty rate ($5.5)[a]	7.5
Gini coefficient[a]	37.4
School enrollment, primary (% gross)[b]	97.2
Life expectancy at birth, years[b]	74.5

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) See Notes to Table 2.
(b) Most recent WDI value (2014).

Economic growth remained strong in 2017, slightly lower compared with 2016. The employment rate peaked and wages were pushed up by labor and skill shortages. Output and employment growth contributed to a reduction in poverty. Further gains in growth, poverty reduction and shared prosperity hinge on the implementation of policies to boost productivity. Policy areas that require attention include strengthening institutions, enhancing the skills of the labor force, and improving the effectiveness and efficiency of public spending.

Recent developments

Economic growth remained strong in Bulgaria at 3.6 percent in 2017, only slightly lower than 3.9 percent in 2016. Consumption and investment were the main drivers of growth while the contribution of net exports was negative in 2017. Consumption was supported by a dynamic labor market, rising wages, and eased financial credit conditions. Investment expanded at a solid rate, despite slow implementation of public investment projects. On the production side, the greatest contributions to GDP growth came from manufacturing; construction; real estate; trade, transport, and tourism.

Strong domestic demand and higher energy and commodity prices pushed inflation up. After three years of deflation, inflation turned positive to 2.1 percent in 2017.

Fiscal performance remained positive on the back of improved revenue collection and lower than planned public investment spending. Tax revenues grew by 10 percent in 2017 compared with 2016 thanks to strong economic activity, better compliance, higher minimum wages and an increase in the pension contribution rate. Like 2016, capital investment was well below expectations as implementation of EU funded projects remained slow. Instead of planned deficit of 0.6 percent of GDP, fiscal accounts were balanced for the second year in a row.

The current account surplus narrowed to 3.9 percent of GDP in 2017 compared with 5.3 percent in 2016 following the deterioration of the trade balance and lower EU transfers.

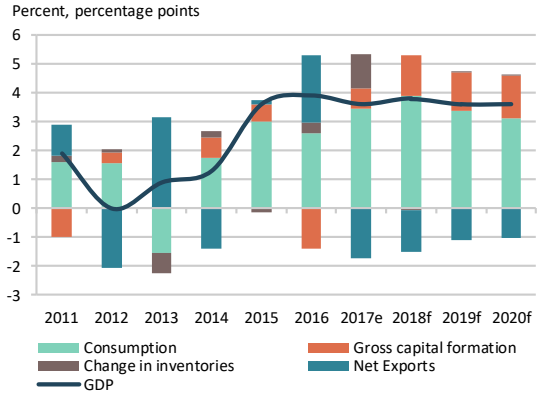
At 72.1 percent, the employment rate (20-64) reached record high levels while unemployment was close to pre-crisis levels. However, the working age population continued to shrink constraining the expansion of potential growth. Labor and skill shortages as well as rising minimum wages pushed overall salaries up about 9 percent compared with 2016.

Strong labor market conditions supported continued improvement in poverty reduction. Poverty measured using the Upper Middle-Income Class line of $5.5 per day (in 2011 PPP terms) is estimated to have declined from 8.5 percent in 2015 to 7.5 percent in 2017 (see Notes to Table 2). However, income inequality in Bulgaria is the highest in the EU and has been increasing over the last few years, with the income of the richest 20 percent of the population equal to almost eight times that of the poorest 20 percent in 2015. The coverage and adequacy of the social transfer system remains low. Unemployment has declined significantly but regional variations and long-term and youth unemployment remain high. Inactivity among certain groups of the population persists and many citizens – including the elderly, people living in rural areas, and the Roma – are excluded from economic opportunities.

Outlook

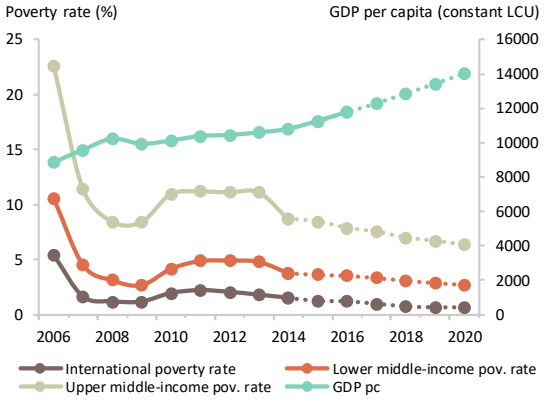
GDP growth is expected to remain robust, reaching 3.8 percent in 2018. Domestic

FIGURE 1 Bulgaria / Real GDP growth and contributions to real GDP growth



Sources: NSI; MFMod, World Bank.

FIGURE 2 Bulgaria / Actual and projected poverty rates and real GDP per capita



Sources: World Bank (see notes to Table 2).

demand will continue to support growth as the expected intensified absorption of EU funds will boost investment, likely outweighing the negative contribution of net exports. Private consumption is expected to continue expanding thanks to tight labor markets and rising real estate prices in large cities. Going forward, GDP growth is projected to moderate to 3.6 percent in 2019 and 2020. Domestic demand should remain the driver of growth with an increasing contribution of investment.

The current account balance is likely to remain in surplus, but narrow net exports will continue to deteriorate and an expected slowdown in EU growth due to higher oil and commodity prices.

The fiscal position is likely to weaken slightly in 2018 and 2019, reflecting plans for expansion of public investment and increasing wages and social assistance payments. Strong revenue collection, driven by further improvements in compliance and an increased pension contribution rate in 2018, is likely to support fiscal consolidation in the medium term. Lack of improvement in spending efficiency in health, public order, and infrastructure could undermine fiscal consolidation and limit the potential of public spending to enhance growth.

Poverty reduction is expected to continue at a modest pace in the near term. Sustained improvements in employment and wages, as well as recent increases in the minimum pension, should support real incomes and therefore further reductions in poverty. Poverty is projected to fall from 7.5 percent in 2017, as measured at $5.5 a day in 2011 PPP, to 7.0 percent in 2018, and to 6.3 percent by 2020.

Risks and challenges

Risks to the projected growth path are broadly balanced. Lower than expected European growth could undermine export growth, while tightening global financial market conditions could increase the cost of lending to the private sector with negative implications for investment. Continued wage growth at a faster pace than productivity could translate into increasing unit labor costs and therefore undermine competitiveness. Further acceleration of real estate prices in large cities could negatively affect the quality of bank portfolios. Upside factors likely to lead to higher-than expected growth are an enhanced economic sentiment in Europe and stronger global economic activity.

The key challenges for Bulgaria are to accelerate convergence with the rest of the EU and to build a more inclusive society. Accelerating convergence requires improvements in productivity and labor force participation as the demographic transition is weighing on the size of the working age population. Enhancing productivity growth requires addressing governance challenges (public administration, judiciary, business environment, governance of SOEs) that have undermined Bulgaria's structural transformation. Enhancing the skills and employability of all Bulgarians, more effective and efficient public spending on health, pensions and long-term care are also needed to ensure inclusiveness and sustainability of growth in the face of demographic changes.

TABLE 2 **Bulgaria** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	3.6	3.9	3.6	3.8	3.6	3.6
Private Consumption	4.5	3.6	4.8	5.2	4.7	4.5
Government Consumption	1.4	2.2	3.2	3.2	1.7	0.8
Gross Fixed Capital Investment	2.7	-6.6	3.8	7.3	6.7	7.2
Exports, Goods and Services	5.7	8.1	4.0	3.9	4.0	4.0
Imports, Goods and Services	5.4	4.5	7.2	5.9	5.4	5.2
Real GDP growth, at constant factor prices	3.0	3.2	3.7	3.8	3.6	3.6
Agriculture	-6.8	5.3	-0.1	2.1	1.9	1.9
Industry	3.6	3.2	3.4	3.2	3.5	3.8
Services	3.3	3.1	4.1	4.2	3.7	3.6
Inflation (Consumer Price Index)	-0.1	-0.8	2.1	2.1	2.1	2.2
Current Account Balance (% of GDP)	0.0	5.3	3.9	2.3	1.4	0.7
Financial and Capital Account (% of GDP)	4.6	0.5	-3.8	-2.3	-1.3	-0.6
Net Foreign Direct Investment (% of GDP)	5.5	1.4	1.8	2.3	2.3	2.4
Fiscal Balance (% of GDP)	-1.6	0.0	0.0	-0.2	-0.2	0.2
Debt (% of GDP)	26.0	29.0	25.6	24.3	23.0	21.4
Primary Balance (% of GDP)	-0.7	0.9	1.0	0.7	0.7	1.1
International poverty rate ($1.9 in 2011 PPP)[a,b]	1.2	1.2	1.0	0.7	0.6	0.6
Lower middle-income poverty rate ($3.2 in 2011 PPP)[a,b]	3.6	3.6	3.3	3.1	2.9	2.7
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	8.5	7.9	7.5	7.0	6.7	6.3

Source NSI; BNB; Eurostat; World Bank, Macroeconomics and Fiscal Management Global Practice, and Poverty Global Practice.
Notes: e = estimate, f = forecast.
(a) Calculations based on EU-SILC harmonization, using 2014-EU-SILC. Nowcast: 2015 - 2017. Forecast are from 2018 to 2020.
(b) Projection using neutral distribution (2014) with pass-through = 0.87 based on GDP per capita in constant LCU.

CROATIA

Table 1	2017
Population, million	4.1
GDP, current US$ billion	54.9
GDP per capita, current US$	13297
Lower middle-income poverty rate ($3.2)[a]	1.3
Upper middle-income poverty rate ($5.5)[a]	5.8
Gini coefficient[a]	30.8
School enrollment, primary (% gross)[b]	98.0
Life expectancy at birth, years[b]	77.3

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2015), 2011 PPPs.
(b) Most recent WDI value (2015).

Economic growth decelerated to 2.8 percent in 2017 due to a slowdown in government investment and a rebound in imports. The poverty rate is projected to have declined to 5.1 percent as disposable incomes have increased. Strong fiscal consolidation continued in 2017, leading to a further fall in the debt ratio. However, the reform momentum has faltered and, without addressing substantial economic and institutional weaknesses, prospects for reinitiating real convergence and promoting inclusive growth are weak.

Recent developments

GDP growth slowed from 3.2 percent in 2016 to 2.8 percent in 2017. Exports of goods and services was the main driver of growth in 2017. Tourism recorded exceptional performance with foreign tourist nights rising by over 11 percent, and strong growth of merchandise export continued. Private consumption also made a positive contribution to growth, supported by favorable labor market developments and personal income tax rate cuts. However, the share of imported durable goods in consumption increased. On balance, the effect of net exports on growth turned negative. In addition, growth slowed down because investment growth decelerated markedly. This was mainly due to a weaker absorption of EU funds, which led to a sharp fall in government investments.

Following deflationary pressures in 2016, prices increased by 1.1 percent y-o-y in 2017 on the back of the recovery of international oil and food prices. With inflation still subdued, the Croatian National Bank (CNB) continued to pursue an expansionary monetary policy throughout 2017.

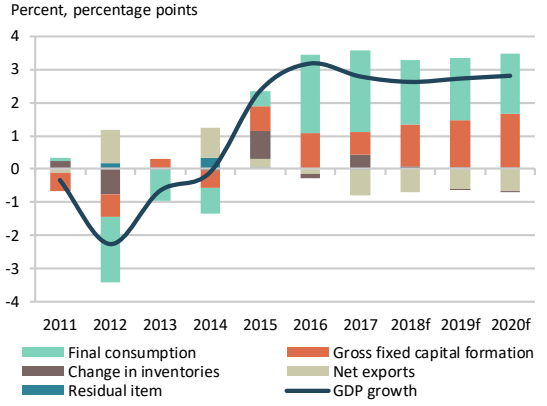
Fiscal consolidation also continued in 2017, with the budget surplus estimated at 0.1 percent of GDP, down from a deficit of 0.9 percent in 2016. The surplus was achieved by buoyant tax collection and constrained growth in expenditures in line with the November 2017 budget revision. The combination of a significant primary surplus and a small debt reducing interest-rate growth differential resulted in a stronger than expected fall in the government's debt ratio to 80 percent of GDP in 2017, down from 82.7 in 2016.

External imbalances narrowed further as the current account surplus increased to 3.7 percent of GDP in September 2017 (on a four-quarter basis). This rise is expected to be only temporary, as it reflects a fall in banks' profits resulting from their exposures to Agrokor Group. External debt (of the public and private sectors) declined to 84.2 percent of GDP in November 2017, 5.6 percent lower than 2016, as banks and the private corporate sector continued to deleverage.

Employment rose across the board, with manufacturing, tourism and construction accounting for more than a half of the increase. Together with negative migration flows, this led to a marked decline of the survey-based unemployment rate to an estimated 11 percent in 2017, down from 13.1 percent in 2016. Real net wages increased by 4.2 percent y-o-y in December. The positive wage trends are due the recovery of firms' profitability, labor shortages in some sectors, a 6-percent rise in public sector wages and cuts in the personal income tax rate.

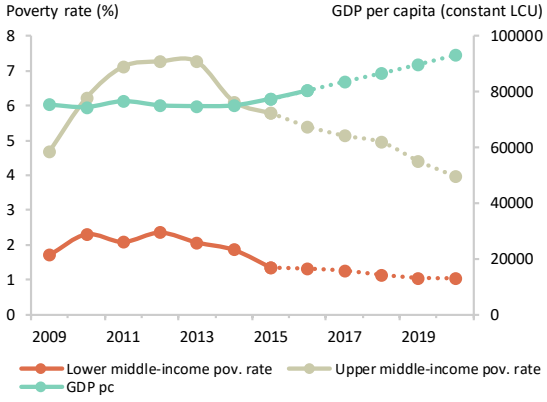
Economic recovery and labor market improvements are now starting to reduce absolute poverty, after increasing during six subsequent years of economic recession. The poverty rate measured at the upper middle-income class poverty line of $5.5 at 2011 PPP per capita fell from 7.3 percent in 2013 to 5.8 percent in 2015, which is still higher than the pre-crisis rate. The poverty rate for 2017 is projected at 5.1 percent, suggesting that

FIGURE 1 Croatia / Real GDP growth and contributions to real GDP growth



Sources: CROSTAT, World Bank.

FIGURE 2 Croatia / Actual and projected poverty rates and real GDP per capita



Sources: World Bank (see notes to Table 2).

the reduction in poverty is slowing down. While real per capita income has returned to its 2008 level, output is still about 4 percent lower than in 2008. Therefore, the rebound in per capita income reflects the impact of demographic trends.

Outlook

Growth is expected to slow further to 2.6 percent in 2018, due to a slowdown in private consumption as the favorable effects of the tax reform on real wages start to fade. Furthermore, exports of tourist services are expected to slow in 2018, due to capacity constraints. On the other hand, better absorption of EU funds will give a boost to investment spending. These trends suggest an average economic growth of 2.8 percent for 2019 and 2020.

The government balance is expected to stay in surplus and may reach 1 percent by 2020, leading to a further decline in public debt to below 70 percent of GDP. However, the overall fiscal stance will become moderately pro-cyclical, as the structural budget balance is expected to worsen.

Positive labor market developments are expected to support the growth of disposable income for all segments of the welfare distribution. The continued decline in the share of long-term unemployed and NEETs will reduce the absolute poverty rate further to 4.0 percent in 2020.

Risks and challenges

Risks are slightly skewed to the downside. As the operational restructuring of Agrokor Group unfolds in 2018, the negative effects on investment activity and private consumption might be greater than currently envisaged. In addition, although the positive contribution of exports of goods to GDP growth is expected to stay high, it is exposed to the risk of a slowdown in external demand from the EU. Furthermore, the still high level of public debt makes Croatia vulnerable to interest rate shocks and worsening external financing conditions. Finally, the cyclical upturn and the sounder fiscal position may foster continued complacency. The lack of reforms would have an adverse effect on growth over the medium term.

Croatia's prospects for improving higher and more inclusive growth remain weak. Currently low potential growth calls for a strong structural reform agenda. Substantial economic, social and institutional weaknesses should be addressed to boost private sector productivity and competitiveness, raise the quality of human and physical capital and modernize public services. This would lead to increasing economic activity and employment, which are crucial for a further reduction in poverty.

TABLE 2 **Croatia** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	2.3	3.2	2.8	2.6	2.7	2.8
Private Consumption	1.1	3.5	3.6	3.0	2.8	2.6
Government Consumption	-0.9	1.9	2.0	1.5	1.5	1.6
Gross Fixed Capital Investment	3.8	5.3	3.4	6.4	6.9	7.4
Exports, Goods and Services	9.4	5.6	6.1	5.8	5.0	5.0
Imports, Goods and Services	9.2	6.2	8.1	7.4	6.3	6.4
Real GDP growth, at constant factor prices	2.3	2.8	2.8	2.6	2.7	2.8
Agriculture	1.3	0.6	-2.2	2.2	2.2	2.2
Industry	2.6	4.4	1.3	3.6	2.8	2.8
Services	2.3	2.3	3.6	2.3	2.7	2.8
Inflation (Consumer Price Index)	-0.5	-1.0	1.5	1.4	1.4	1.5
Current Account Balance (% of GDP)	4.5	2.6	3.6	2.6	1.7	1.0
Financial and Capital Account (% of GDP)	-3.5	-1.7	-3.2	-1.5	-0.6	0.0
Net Foreign Direct Investment (% of GDP)	0.5	4.0	1.3	2.6	2.6	2.8
Fiscal Balance (% of GDP)	-3.3	-0.9	0.1	0.5	0.6	1.0
Debt (% of GDP)	85.4	82.7	80.1	76.0	72.1	67.7
Primary Balance (% of GDP)	0.2	2.3	3.1	3.2	3.2	3.5
Lower middle-income poverty rate ($3.2 in 2011 PPP)[a,b]	1.3	1.3	1.3	1.1	1.0	1.0
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	5.8	5.4	5.1	5.0	4.4	4.0

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on EU-SILC harmonization, using 2015-EU-SILC. Actual data: 2015. Nowcast: 2016 - 2017. Forecast are from 2018 to 2020.
(b) Projection using neutral distribution (2015) with pass-through = 0.87 based on GDP per capita in constant LCU.

GEORGIA

Table 1	2017
Population, million	3.7
GDP, current US$ billion	15.5
GDP per capita, current US$	4194
International poverty rate ($1.9)[a]	4.2
Lower middle-income poverty rate ($3.2)[a]	17.1
Upper middle-income poverty rate ($5.5)[a]	45.5
Gini coefficient[a]	36.5
School enrollment, primary (% gross)[b]	116.8
Life expectancy at birth, years[b]	73.0

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2016), 2011 PPPs.
(b) Most recent WDI value (2015).

Georgia's growth accelerated to 5.0 percent in 2017, on the back of an improved external environment. In 2018 growth is projected at 4.5 percent, led by investment. The fiscal deficit declined to 3.8 percent of GDP in 2017, slightly improving from 2016; while fiscal consolidation will continue in 2018, public investment is expected to remain robust. Poverty is expected to return to its declining trend as economic growth recovers and translates into higher income.

Recent developments

The economy performed well in 2017. GDP growth improved markedly to 5 percent—from 2.8 percent in 2016—led by an improved external environment. Prudent macro-fiscal policies helped preserve fiscal space and supported price stability. Inflation spiked to 6.7 percent (eop) in 2017 in response to higher excise taxes on tobacco and fuel, but dropped to below 3 percent in February 2018. With inflation above the ceiling of its target range in 2017 and rapid credit growth, the NBG increased the policy rate by 0.75 bps to 7.25 percent over 2017.

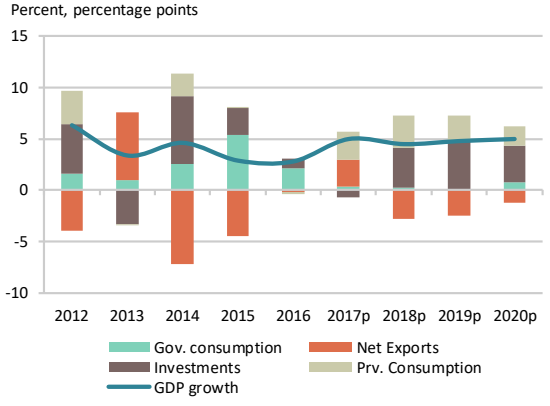
Georgia's external position improved considerably. Export of goods expanded by 24 percent on the back of strong demand from Russia, Azerbaijan, Ukraine, China, and the US; tourism proceeds rose by 27 percent; and worker's remittances increased by 21 percent in 2017. Import growth was relatively lower, reflecting gradually the firming oil prices. Gross FDI inflows increased in 2017 to 12.3 percent of GDP, helping strengthen the international reserve position, which stood at 4 months of imports of goods and services. Total external debt remained high at 112 percent of GDP at the end September 2017.

Fiscal policy was prudent. Despite eliminating the income tax on reinvested profits starting in 2017, revenues increased by 11 percent. To prioritize social and infrastructure spending, the authorities generated savings of about 0.8 percentage points of GDP from reduced administrative costs in 2017. This helped to scale up public investments to 8.3 percent of GDP and slightly narrow fiscal deficit to 3.8 percent of GDP from the 3.9 percent observed in 2016. Georgia's public debt remained sustainable at 44 percent of GDP as of end-2017.

The banking sector is well capitalized, profitable and with low non-performing loans (NPLs), although structural vulnerabilities persist. The sector yielded a return on assets of 2.8 percent and a return on equity of over 20 percent as of end-2017. Also by December 2017, NPLs represented only 2.4 percent of gross loans, down from 3.6 percent as of end-2016. At the same time, systemic vulnerabilities persist, including the large market concentration by the top two banks, the high retail loan growth (including by non-bank financial institutions), and elevated dollarization, against the backdrop of deficient financial safety nets. NBG plans to address the latter issues with the support from the WB and IMF.

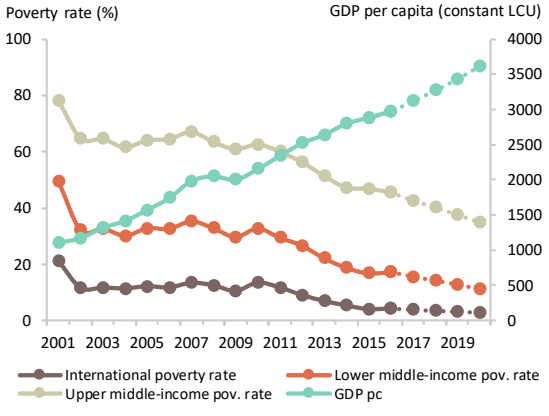
Poverty is estimated to have fallen in 2017, driven by an increase of employment opportunities related to the expansion of the construction and services sectors, resuming the decreasing trend started in 2010 (and which stalled in 2016). The spike in inflation in 2017 may have offset—albeit to a minor extent—the positive effect of employment on poverty by reducing households' purchasing power. The most recent poverty figures available for the country are for the year 2016, when poverty was estimated at 17 percent using the lower-middle income.

FIGURE 1 Georgia / Real GDP growth and contributions to real GDP growth



Sources: Geostat and World Bank staff estimates.

FIGURE 2 Georgia / Actual and projected poverty rates and real GDP per capita



Sources: World Bank. Notes: see Table 2.

Outlook

Georgia's growth outlook over the medium term is positive. The more benign external environment should facilitate the development of private sector-led export sectors, encourage FDI, and support consumption from still robust remittances. A steady implementation of the reform program will result in a further acceleration of growth over the medium term to 5 percent by 2020, particularly by enhancing productivity. Inflation is envisaged to remain well contained, converging to the NBG's target of 3 percent by year-end 2018, while the current account deficit would narrow to below 9 percent of GDP by 2020.

Considerable consolidation of administrative spending, streamlining of subsidies and a more efficient social safety net will help to achieve medium-term fiscal consolidation while providing space for capital spending. Current spending is projected to decline from 24.5 percent of GDP in 2017 to 23 percent in 2020, primarily by containing the wage bill and administrative expenses—which rose steadily and steeply for at least 4 years—and better targeting of subsidies and social assistance programs. The fiscal deficit of the general government will be gradually reduced to 3.0 percent of GDP by 2020 keeping public debt stable. Still, fiscal slippages, or accumulation of new liabilities or materialization of contingent liabilities may compromise the expected consolidation and result in higher debt burden.

Continuous expansion of the economy in upcoming years should lead to more employment opportunities and further poverty reduction. Employment opportunities outside agriculture in rural areas (in particular) will play a critical role in leading to significant reductions in lagging regions. Pensions and social assistance are expected to play a much smaller role for poverty reduction in upcoming years, in contrast to the 2010-2015 period, given the more limited fiscal space.

Risks and challenges

Georgia's quasi-fiscal risks emanating from the contingent liabilities of the State-Owned Enterprises (SOEs) are substantial and a source of vulnerability. The Fiscal Risks Annex to the 2018 Budget Law suggests that the liabilities of the 76 high and medium risk SOEs are around 20 percent of GDP. Additional risks stem from contingent liabilities generated by the government's Power Purchasing Agreements (PPAs). At the end-2017 there were 72 signed PPAs, in which the state issues guarantees to purchase excess electricity from operators on a seasonal basis. While the fiscal risks of PPAs exist, the needs for additional power capacity are also evident from the consumption growth trend. The Government is committed to review carefully its decisions going forward, ensuring compliance of new PPAs with the draft Law on Public Private Partnerships that is expected to be approved and enacted in 2018.

As a very open economy, Georgia is vulnerable to regional developments given its historically high current account deficit, and the risks of export demand and remittances shock. The downside risks to the baseline scenario are associated with further tightening of US monetary policy and Lari depreciation; deterioration in the external environment (including due to a weaker EU outlook) and regional geopolitical tensions.

Rural poverty and high poverty rates in lagging regions also remain a challenge. Providing employment opportunities and raising agricultural productivity will be critical to address them.

TABLE 2 **Georgia** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	2.9	2.8	5.0	4.5	4.8	5.0
Private Consumption	0.1	-0.3	4.2	5.0	4.0	3.0
Government Consumption	22.1	2.8	1.3	0.8	0.0	2.8
Gross Fixed Capital Investment	11.7	8.8	-2.4	14.5	16.1	11.1
Exports, Goods and Services	6.0	-0.7	21.0	9.0	4.0	5.0
Imports, Goods and Services	10.4	-0.2	10.0	10.0	6.0	5.0
Real GDP growth, at constant factor prices	3.2	2.6	5.0	4.5	4.9	5.1
Agriculture	1.5	0.0	2.0	2.5	3.0	3.0
Industry	4.1	5.5	4.0	5.0	4.8	4.8
Services	3.1	2.1	5.6	4.5	5.1	5.3
Inflation (Consumer Price Index)	4.0	2.1	6.5	3.0	3.0	3.0
Current Account Balance (% of GDP)	-11.9	-12.8	-8.7	-9.4	-9.1	-8.9
Financial and Capital Account (% of GDP)	11.9	12.8	8.7	9.4	9.1	9.9
Net Foreign Direct Investment (% of GDP)	9.0	9.8	10.5	8.9	8.9	9.0
Fiscal Balance (% of GDP)	-3.8	-3.9	-3.8	-3.7	-3.3	-3.0
Debt (% of GDP)	41.4	38.2	36.0	36.8	37.7	38.8
Primary Balance (% of GDP)	-2.8	-2.7	-3.1	-2.9	-2.5	-2.2
International poverty rate ($1.9 in 2011 PPP)[a,b]	4.0	4.2	3.7	3.4	3.0	2.7
Lower middle-income poverty rate ($3.2 in 2011 PPP)[a,b]	16.7	17.1	15.5	14.0	12.7	11.1
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	46.7	45.5	42.6	40.2	37.6	34.9

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on ECAPOV harmonization, using 2016-HIS. Actual data: 2015, 2016. Nowcast: 2017. Forecast are from 2018 to 2020.
(b) Projection using neutral distribution (2016) with pass-through = 0.87 based on GDP per capita in constant LCU.

KAZAKHSTAN

Table 1	2017
Population, million	18.0
GDP, current US$ billion	158.2
GDP per capita, current US$	8792
Lower middle-income poverty rate ($3.2)[a]	0.4
Upper middle-income poverty rate ($5.5)[a]	7.8
Gini coefficient[a]	26.9
School enrollment, primary (% gross)[b]	110.6
Life expectancy at birth, years[b]	72.0

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2015), 2011 PPPs.
(b) Most recent WDI value (2015).

More favorable terms of trade and increased oil production supported the economic recovery and an improvement in poverty indicators in Kazakhstan in 2017. Over the medium term, the real GDP growth rate is expected to hover around 3 percent, as the oil sector's contribution to economic growth declines relative to 2017 (when a structural shift in oil output occurred). Risks to the outlook include a potential weakening of the external environment, a worsening of problems in the banking sector, and a missed opportunity to deepen structural reforms.

Recent developments

Following two years of weak growth, Kazakhstan's economy recovered in 2017. Real GDP growth accelerated to 4 percent in 2017, up from 1.1 percent in 2016. Oil production, which rose by 10.5 percent year on year in 2017, was the primary driver of this improvement. The increase in oil output was observed in the oil fields that were not covered by the OPEC-led cuts in 2017. Together with more favorable terms of trade, it generated positive spillover effects to the manufacturing and services sectors. While the agriculture sector contributed modestly to overall growth in 2017, growth of the construction sector slowed, largely reflecting the completion of oil transportation projects.

On the demand side, growth was driven by an improvement of net exports, highlighting oil sector expansion and the recovery of global oil prices.

The current account deficit narrowed substantially in 2017, to 3 percent of GDP (from 6.5 percent in 2016), buoyed by more favorable terms of trade. The improvement in the current account balance helped the tenge to strengthen by about 10 percent in real terms against the U.S. dollar in 2017. On the financing side, FDI inflows and foreign borrowing by state-owned enterprises were offset by short-term capital outflows. The central bank reported an increase of assets held by residents abroad. As a result, gross international reserves of the central bank and the government (in the oil fund) declined by nearly US$5 billion (3 percent of GDP).

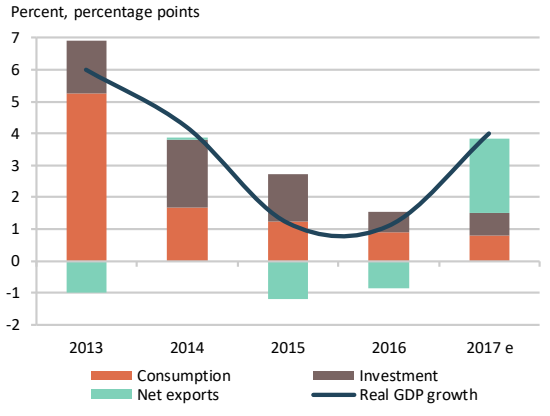
The government continued to consolidate its core fiscal accounts, but the overall fiscal deficit widened to 7 percent of GDP in 2017 as a result of the banking sector bailout. The government recapitalized the Problem Loans Fund with an injection of US$6.5 billion (about 4 percent of GDP) in 2017 to support the recovery of banks' balance sheets; the central bank provided another US$2 billion to support ailing banks.

The central bank continued to implement its inflation targeting policy. As the impact of the 2015 currency depreciation eased, consumer price inflation halved from an average of 14.6 percent in 2016 to 7.4 percent in 2017. With inflation easing, the central bank cut its policy interest rate three times in 2017 and two times in early 2018. The latest rate cut, in March 2018, lowered the policy rate to 9.5 percent.

The poverty rate (using the $5.5/day international poverty line) rose from 5.6 percent in 2013 to a peak of 7.9 percent in 2016; it is estimated to have fallen to 6.9 percent in 2017. The incidence of poverty increased in all regions of Kazakhstan between 2014 and 2015, the last year for which data are available. Poverty rates in the most vulnerable southern regions more than doubled during this period, jumping from 5.2 percent to 13.9 percent in Kyzylorda oblast and from 5 percent to 12.5 percent in Jambyl oblast.

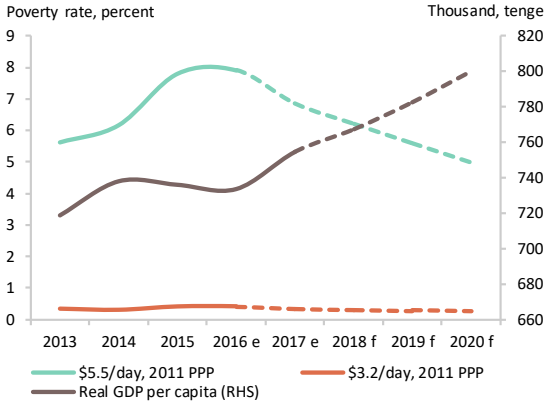
Despite the economic recovery and improved consumer confidence, household income remained under pressure in 2017, as the labor market struggled to recover. Real wages and salaries declined by 2.1

FIGURE 1 Kazakhstan / Real GDP growth and contributions to real GDP growth



Sources: Statistical Office of Kazakhstan; World Bank staff estimates.

FIGURE 2 Kazakhstan / Actual and projected poverty rates and real GDP per capita



Sources: World Bank staff estimates.

percent year on year. Although wages rose by 2.5 percent year on year in Astana, the capital—and by 1.6 percent and 1.9 percent in Pavlodar and Kostanay oblasts, respectively—these gains were more than offset by falling real wages in the rest of the country. The official unemployment rate remained unchanged in 2017 at 4.9 percent.

Outlook

As oil output growth stabilizes from 2018 onward, real GDP growth is expected to moderate to an average annual rate of 3 percent through 2020. Growth in the non-tradable services sector will be supported by stronger domestic demand as real incomes of households are expected to start recovering. Moreover, the planned additional investment in oil output expansion projects will drive an increase in construction activity.

Assuming that there are no external shocks and that the authorities continue their inflation targeting regime, consumer price inflation will stabilize at between 4.3 -5.3 percent in the medium term.

As oil prices are projected to stabilize around US$60 per barrel in 2018-20, the current account balance and fiscal oil revenue are also expected to level off. The fiscal position will improve gradually in the wake of fiscal consolidation efforts. The government is planning to cut the non-oil fiscal deficit from over 13 percent of GDP in 2017 to 7 percent by 2020.

As the economy continues to grow, labor income—the primary driver of poverty reduction in Kazakhstan—is forecast to return to positive real growth. As a result, the poverty rate is projected to decline to 5 percent by 2020.

The successful implementation of structural reforms will be required to deliver more sustainable and inclusive economic growth. The ongoing structural and institutional reforms (including those under the 100 Concrete Steps program and the Strategic Plan for Development of Kazakhstan to 2025, as adopted in early 2018) should aim to reduce the role of the state in the economy and facilitate the development of a vibrant, modern and innovative tradable non-oil sector. In this context, efforts to restructure and privatize state-owned enterprises would be expected to focus on improving the efficiency of public administration, reducing fiscal risks, and open contestable spaces for the private sector to act. Prudent fiscal and monetary policies would support economic and price stability and encourage investment in the non-oil economy. Higher incomes will also have positive spillover effects on poverty reduction.

Risks and challenges

Both external and domestic factors present risks to Kazakhstan's medium-term economic outlook. The economy's vulnerability to external shocks remains the main challenge to achieving stable and sustainable development. External demand from China and the Russian Federation, Kazakhstan's main trading partners, as well as global oil demand and prices will remain the key external factors impacting Kazakhstan's economic performance. Domestic factors include the pace of implementation of structural and institutional reforms, especially in anticipation of a political transition over the medium term. A potential escalation of problems in the banking sector is also a concern. To mitigate these risks and facilitate a sizeable expansion of the tradable non-oil sector's role in the economy, the government must demonstrate significant improvements to the rule of law, the investment climate, and the quality of human capital.

TABLE 2 **Kazakhstan** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	1.2	1.1	4.0	2.8	3.0	3.2
Private Consumption	1.8	1.2	1.5	1.7	2.0	2.2
Government Consumption	2.4	2.4	-2.5	-3.4	1.7	1.5
Gross Fixed Capital Investment	4.2	3.0	6.2	7.6	4.5	4.6
Exports, Goods and Services	-4.1	-4.4	1.5	1.7	1.9	3.1
Imports, Goods and Services	-0.1	-2.2	-6.0	1.0	2.1	2.5
Real GDP growth, at constant factor prices	1.9	1.2	3.9	2.8	3.0	3.2
Agriculture	3.5	5.4	2.9	3.0	3.0	3.0
Industry	-0.4	1.1	6.1	2.1	2.3	3.1
Services	3.2	0.9	2.7	3.2	3.4	3.3
Inflation (Consumer Price Index)	6.6	14.6	7.4	5.3	4.3	4.5
Current Account Balance (% of GDP)	-2.8	-6.5	-3.0	-0.6	-0.5	-0.3
Financial and Capital Account (% of GDP)	5.2	6.9	6.1	2.6	1.8	1.7
Net Foreign Direct Investment (% of GDP)	1.7	10.5	6.0	5.2	4.6	4.2
Fiscal Balance (% of GDP)	-7.9	-6.4	-7.0	-2.6	-2.4	-2.0
Debt (% of GDP)	21.9	19.6	20.7	20.9	22.4	24.6
Primary Balance (% of GDP)	-7.1	-5.3	-6.1	-1.8	-1.5	-1.2
Lower middle-income poverty rate ($3.2 in 2011 PPP)[a,b]	0.4	0.4	0.3	0.3	0.3	0.3
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	7.8	7.9	6.9	6.2	5.6	5.0

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on ECAPOV harmonization, using 2015-HBS. Actual data: 2015. Nowcast: 2016 - 2017. Forecast are from 2018 to 2020.
(b) Projection using neutral distribution (2015) with pass-through = 0.87 based on GDP per capita in constant LCU.

KOSOVO

Table 1	2017
Population, million	18
GDP, current US$ billion	7.1
GDP per capita, current US$	3902
School enrollment, primary (% gross)[a]	n.a.
Life expectancy at birth, years[a]	713

Source: WDI, Macro Poverty Outlook, and official data.
Notes:

(a) Most recent WDI value (2015).

The economy grew at 4.4 percent in 2017, up from 4.1 in 2016. The acceleration was due to a pickup in investment and a recovery in exports. Stronger growth fostered job creation in 2017, supporting poverty reduction; but labor force participation remains low. The outlook is positive, with 4.8 percent annual growth projected between 2018-2020, driven by investment and consumption. Risks to the outlook include the ability to execute the public investment program, metal price dynamics and the fragile political situation.

Recent developments

Growth reached 4.4 percent in 2017, up from 4.1 percent in 2016. The upturn is driven by rise in investment, and recovery in exports. Higher private investment was driven by FDI inflows, thanks to higher growth in Europe, low interest rates, and a better business environment as Kosovo improved its rank from 60 to 40 in Doing Business. Investment contributed 3pp to economic growth, with public investment increasing by 5 percent y-o-y. The recovery in goods exports was led by a rebound in commodity prices with a broad-based increase in volumes of goods exports, albeit from a low base, and a surge in the export of services. Net exports contributed a 1.1pp while the contribution of consumption was only 0.4pp. In terms of economic sectors, construction, trade, financial and transport were the main engine of growth in 2017 with a contribution of 2.6 pp. Agriculture remained stagnant, whereas industry contributed 0.7pp.

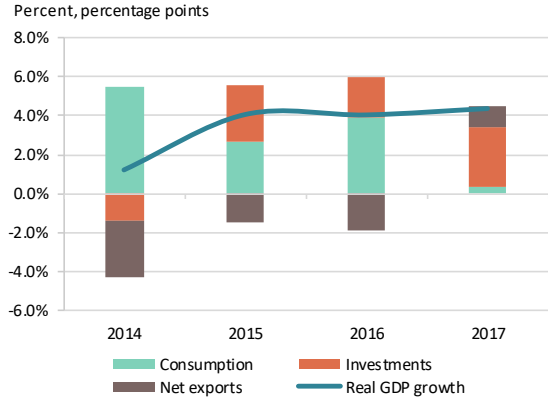
Consumer price inflation was 1.5 percent in 2017 y-o-y, up from 0.3 percent in 2016, as prices for fuel, food, tobacco, alcohol, and other household items increased adding to the cost of living.

Higher revenues (up 5.3 percent y-o-y) and under-execution of public investments narrowed the fiscal deficit to 1.4 percent of GDP in 2017, lower than the earlier projected 2 percent of GDP. Indirect tax revenues grew by 6.1 percent (VAT by 8.1 percent), while non-tax revenues grew by 5.6 percent y-o-y. Direct tax revenues added only 2.5 percent growth, due to a decline in CIT collections by 7 percent. Spending increased by 5.7 percent, due to a 11.9 percent increase in social transfers and 5.4 percent increase in capital spending. Higher actual costs than planned costs for spending on veterans benefits exceeded plans due to the delay in the implementation of the cap on the scheme. In addition, goods and services spending rose by 10.7 percent due to early elections and creation of two additional ministries. Public and publicly guaranteed debt remains on a rising trajectory, reaching 15.8 percent of GDP at end-2017.

The current account deficit (CAD) improved to 5.1 percent of GDP in 2017, from 8.2 percent in 2016, thanks to better external conditions and increase in export volumes. Exports of goods jumped up by 23.1 percent y-o-y in 2017 due to higher growth of the trading partners, and higher global prices of base metals. Exports of services grew by 17.7 percent in 2017, mainly due to higher travel expenditures by the diaspora.

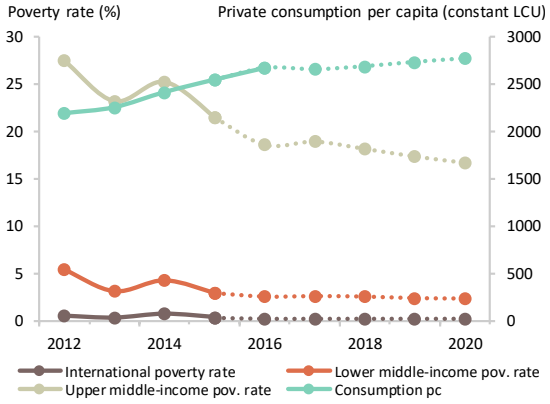
Higher growth continued to foster job creation in 2017. Employment grew by 1.2pp y-o-y in the third quarter of 2017, however, as labor force participation expanded further, unemployment increased by 2.7 pp. Despite the recent improvements, employment is still low at 29.7 percent on average as a share of total population. The share of self-employed and unpaid family workers, i.e. those in vulnerable employment and measures job quality, remains high at 23 percent; the youth unemployment rate slightly increased reaching 53.3 percent in Q3 2017. The duration of unemployment is worrying with over 70 percent of the unemployed seeking a job for over a year.

FIGURE 1 **Kosovo** / Real GDP growth and contributions to real GDP growth



Sources: Statistics Agency of Kosovo and WB Staff.

FIGURE 2 **Kosovo** / Actual and projected poverty rates and real private consumption per capita



Sources: World Bank. Notes: see Table 2.

Outlook

Economic growth is projected at 4.8 percent in 2018-2020, propelled by higher capital spending. Growth in public investment is expected to be driven by several projects under preparation, including the railway project and regional roads financed by IFIs. Private investment is expected to increase reflecting improvements in the business environment, and increase in credit due to the partial credit guarantee fund for SMEs established in 2017. Higher wages and social spending, growth in remittances and credit to households are expected to promote household consumption adding an additional 2.3 pp to growth. Exports are likely to benefit from robust growth in Europe and higher base metal prices. However, net exports are projected to subtract 0.9 pp from growth in 2018 because of higher imports linked to public investment projects.

The CAD is expected to reach 6 percent of GDP in 2018. Increased demand for investment goods is expected to widen the CAD in 2018, despite higher exports projected. Net FDI and remittances, are expected to finance larger shares of the CAD as growth in Europe firms up and larger implementation of the Stabilization and Association Agreement.

Poverty, measured at the lower middle-income poverty line (US$ 3.2/day, 2011 PPP), is expected to decline slightly to 2.55 in 2018, from 2.6 percent in 2017 driven by stronger growth. High unemployment and inactivity rates remain the key impediments to sustainable poverty reduction.

Risks and challenges

Kosovo's outlook is positive, but the risks are tilted to the downside. Lower than projected absorption of public investment, lower base metal prices and slower growth in Europe and other trading partners pose risks to the outlook.

Perceived fragility of the government, with only 61 out of 120 votes in the parliament, can slow down the implementation of public projects through the investment clause. In addition, the delay in fiscal reforms such as the implementation of the cap on the war veteran's benefits, further increases in untargeted categorical social benefits, and unfunded early retirement schemes increase fiscal pressures.

Reform priorities should include shifting sources of growth towards tradable sectors and increasing productivity to address high unemployment, low participation rates, and poverty.

TABLE 2 **Kosovo** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	4.1	4.1	4.4	4.8	4.8	4.8
Private Consumption	4.3	5.7	0.3	2.0	2.5	2.2
Government Consumption	-6.5	-6.3	1.0	4.5	1.5	3.3
Gross Fixed Capital Investment	12.1	7.3	11.3	12.1	11.8	10.5
Exports, Goods and Services	1.9	7.5	15.6	8.3	7.9	7.7
Imports, Goods and Services	3.8	7.0	5.1	5.9	5.9	5.3
Real GDP growth, at constant factor prices	3.0	2.4	4.5	3.6	5.1	5.0
Agriculture	-4.1	3.1	3.7	6.6	8.4	6.2
Industry	5.9	1.8	3.8	-0.5	5.8	4.5
Services	3.0	2.6	5.1	5.4	3.9	4.9
Inflation (Consumer Price Index)	-0.5	0.3	1.5	1.7	1.7	1.7
Current Account Balance (% of GDP)	-8.6	-8.2	-5.1	-6.0	-7.0	-7.5
Fiscal Balance (% of GDP)	-1.8	-1.3	-1.4	-2.2	-3.0	-3.3
Debt (% of GDP)	12.7	14.1	15.8	16.6	18.6	20.9
Primary Balance (% of GDP)	-1.5	-1.0	-1.1	-1.9	-2.6	-2.9

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.

KYRGYZ REPUBLIC

Table 1	2017
Population, million	6.2
GDP, current US$ billion	7.2
GDP per capita, current US$	1160
International poverty rate ($1.9)[a]	1.4
Lower middle-income poverty rate ($3.2)[a]	19.1
Upper middle-income poverty rate ($5.5)[a]	67.1
Gini coefficient[a]	26.8
School enrollment, primary (% gross)[b]	107.4
Life expectancy at birth, years[b]	70.7

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2016), 2011 PPPs.
(b) Most recent WDI value (2015).

In 2017, growth was stronger than expected, supported by external tailwinds, the expansionary macroeconomic policy stance, which buoyed domestic demand, and a better-than-expected (albeit weakening) performance in the gold sector. Going forward, growth is projected to decline slightly in 2018, before picking-up to 5% over the medium term, allowing for continued moderate declines in the poverty rate.

Recent developments

The Kyrgyz economy has recovered from the external shocks of 2014-15 as growth accelerated to 4.5% in 2017, from 3.8% a year earlier. Growth was driven by the non-gold industry (22%) while it decelerated in other main sectors: gold, construction, agriculture and services. On the demand side, growth was supported by public investment, net exports and private consumption fueled by a steady rebound in remittances inflows.

An expansionary fiscal stance was maintained, even as external tailwinds strengthened. The estimated overall fiscal deficit was 5% of GDP in 2017, down from 6.6% in 2016 and lower than the budgeted deficit of 7.5%, but still above the levels of previous years. Both tax and non-tax revenues increased as a share of GDP. In addition, the budget received rising grant support from international donors. At the same time, expenditures increased, driven largely by capital outlays. Substantial overruns in current spending in the first part of the year were partially mitigated by expenditure restraint in the last quarter of 2017. The deficit was mainly financed by foreign borrowing, which increased total public debt to 63.2% of GDP from 61.4% in 2016.

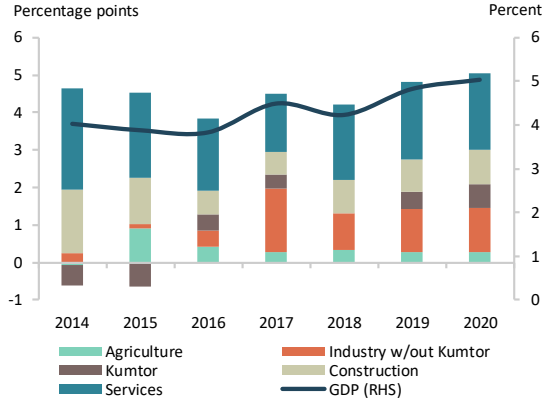
The current account deficit is estimated to have narrowed to 9.4% of GDP in 2017 from 12.1% a year before, as exports picked-up (+14.5% in US dollar terms) and remittances continued to grow (by 24.2% in US dollar terms). The export performance was driven mainly by non-gold exports, which benefited from the recovery in regional demand as well as improved compliance by Kyrgyz producers with Eurasian Economic Union (EEU) quality standards. Imports are estimated to have risen by 12% (in US dollar terms), a slower increase than might have been envisaged given the improvement in remittances and high levels of public investment. The current account deficit was financed by FDI and government borrowing. International reserves increased slightly to US$2.1 billion, covering about 4 months of imports.

The stronger balance of payments (and corresponding foreign exchange liquidity in the economy) led to a further appreciation of the Kyrgyz som by 0.6% in 2017 (8.8% in 2016). In real effective terms, however, the som depreciated by 0.5%, largely reflecting relative inflation dynamics with key trading partners.

Inflation rose slightly in 2017 reaching 3.7%, given buoyant domestic demand. With inflation still below the National Bank (NBKR) target of 5-7%, monetary policy remained accommodative. Economic activity was supported by a recovery in credit to the economy (14% growth), following a decline early in the year.

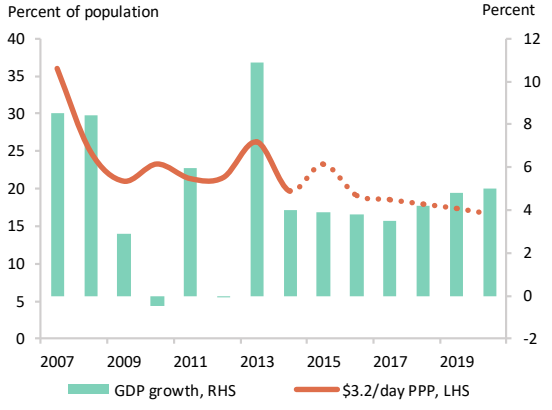
The poverty rate (measured at below US$3.2 per day, 2011 PPP terms) is estimated to have fallen to 19% in 2016. Low consumer price growth and higher remittance inflows supported household consumption. At the same time, moderate growth in services and agriculture, where about 50% of the bottom 40 are employed, constrained real labor income growth for the poor.

FIGURE 1 **Kyrgyz Republic** / Real GDP growth and contributions to real GDP growth



Sources: Kyrgyz authorities and WB staff calculations.

FIGURE 2 **Kyrgyz Republic** / Actual and projected poverty rates and real GDP growth per capita



Sources: Kyrgyz authorities and WB staff calculations.

Outlook

Real GDP growth is projected to decelerate slightly to 4.2% in 2018 -as industrial output growth moderates- and then pick up to reach 5% by 2020. This scenario assumes that recovery takes hold in Russia and Kazakhstan, benefiting the Kyrgyz economy via the traditional remittance and trade channels. An additional boost is expected to come from exports, thanks to a number of developments, which include: (i) enhanced access to the EEU market; and (ii) improved bilateral relations with Uzbekistan, which should lead to higher trade between the two countries. These effects should mitigate the anticipated moderation of public expenditure.

Inflation is envisaged to remain in line with the NBKR target, assuming no significant global food price increases and relative exchange rate stability.

While remittance inflows are expected to grow further, the current account deficit is projected to remain elevated at around 10% of GDP, reflecting structural features of the economy and continued high, albeit gradually moderating, levels of public investment.

The fiscal deficit is projected to decline to 2.9% of GDP by 2020. This will be achieved through measures to increase tax revenues and curtail current spending, while capital expenditures would remain robust at about 7.6% of GDP on average (although falling to 6.1% in 2020 as externally financed projects decline). Over 2018-20, tax revenues should increase as a share of GDP, with measures to: (i) expand the tax base by encouraging businesses to formalize, (ii) improve the administration of taxes, (iii) reduce tax exemptions, and (iv) increase some tax rates. Over the same period, expenses are targeted to decline by over 5 percentage points (from 38.7% in 2018) as a result of efforts to (i) streamline non-priority purchases of goods and services, (ii) reduce the wage bill as a share of GDP, and (iii) strengthen public procurement.

Modest increases in growth in agriculture and construction, and a solid performance of remittances, are likely to support rural poverty reduction. Social transfers will continue to play an important role in driving poverty reduction in both urban and rural areas. A scheduled increase in pensions should also benefit poor households given that pensions represent close to 15% of income among the poor. The poverty rate is projected to decline to 18.5% in 2018 and 16.7% in 2020.

Risks and challenges

The outlook is subject to downside risks. Growth will continue to be highly dependent on exogenous regional developments. Specifically, a slowdown in Russia and Kazakhstan could affect negatively the baseline scenario via remittances and trade. Adverse exchange rate developments could heighten competition in the domestic and EEU markets.

A core challenge continues to be to accelerate the process of convergence of local production to EEU standards. This would help Kyrgyz producers to boost exports of agricultural and textile products in the short and medium run.

Another challenge will be to bring fiscal policy back to a sustainable path, while continuing to provide adequate support to the economy. Several policy decisions taken in the run-up to the Presidential elections in October 2017 are expected to add structural pressure on spending, including a universal extension of the previously income-targeted benefit for low income families with children, which will complicate the task of fiscal consolidation.

TABLE 2 **Kyrgyz Republic** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	3.9	3.8	4.5	4.2	4.8	5.0
Private Consumption	-0.9	1.8	1.9	2.8	3.6	4.0
Government Consumption	0.9	2.7	0.6	0.6	0.7	0.5
Gross Fixed Capital Investment	3.9	3.7	4.0	4.9	5.7	6.0
Exports, Goods and Services	-5.6	2.2	5.6	8.4	8.5	8.9
Imports, Goods and Services	-13.2	-4.0	0.0	2.7	3.3	4.4
Real GDP growth, at constant factor prices	3.9	3.8	4.5	4.2	4.8	5.0
Agriculture	6.2	3.0	2.2	2.7	2.2	2.2
Industry	2.9	5.9	10.3	6.8	8.9	9.8
Services	2.6	3.7	4.2	4.3	5.2	5.1
Inflation (Consumer Price Index)	6.5	0.4	3.6	4.0	4.0	4.0
Current Account Balance (% of GDP)	-15.8	-12.1	-9.4	-11.0	-10.7	-9.8
Financial and Capital Account (% of GDP)	17.4	9.7	7.2	11.0	10.7	9.8
Net Foreign Direct Investment (% of GDP)	15.1	8.1	6.9	7.0	7.0	6.5
Fiscal Balance (% of GDP)	-3.0	-6.6	-5.0	-4.1	-4.4	-2.9
Debt (% of GDP)	67.3	61.4	63.2	63.5	63.7	63.4
Primary Balance (% of GDP)	-2.0	-5.6	-4.1	-2.5	-3.3	-2.2
International poverty rate ($1.9 in 2011 PPP)[a,b]	2.5	1.4	1.0	0.8	0.5	0.4
Lower middle-income poverty rate ($3.2 in 2011 PPP)[a,b]	23.2	19.1	18.5	18.0	17.4	16.7
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	69.9	67.1	66.1	65.1	63.9	62.6

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on ECAPOV harmonization, using 2009-KIHS, 2015-KIHS, and 2016-KIHS. Actual data: 2015, 2016. Nowcast: 2017. Forecast are from 2018 to 2020.
(b) Projection using average elasticity (2009-2015) with pass-through = 0.7 based on GDP per capita in constant LCU.

MACEDONIA

Table 1	2017
Population, million	2.1
GDP, current US$ billion	11.3
GDP per capita, current US$	5440
International poverty rate ($1.9)[a]	5.3
Lower middle-income poverty rate ($3.2)[a]	9.8
Upper middle-income poverty rate ($5.5)[a]	23.2
Gini coefficient[a]	35.6
School enrollment, primary (% gross)[b]	93.2
Life expectancy at birth, years[b]	75.5

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2015), 2011 PPPs.
(b) Most recent WDI value (2015).

As investment contracted after a prolonged political crisis, economic growth slowed to zero percent in 2017. Growth is projected to rise to 2.3 percent in 2018, driven by consumption and recovering investment. Despite the slowdown, labor market improved thanks to public subsidies; but employment and labor force participation rates remain low compared to the EU. The fiscal deficit remained unchanged in 2017, with higher spending offsetting improved tax collection. Poverty continued to decline in 2017, propelled by job creation.

Recent developments

The political turmoil of 2015-2017 slowed real GDP growth in 2017 from 2.9 percent in 2016 to zero percent in 2017, driven by a fall in investments. The inauguration of the new government in June 2017 resolved the stalemate as evidenced by the companies' improved expectations on future production. Investment fell by 4.5 percent y-o-y in 2017, but it started recovering by year-end with recovering investor confidence. Private consumption was the only contributor to growth in 2017, supported by higher employment and wages. Net-exports contributed negatively to growth (-0.7 pp). Solid exports growth was propelled by the recovery in the Euro area but was not enough to compensate for rising imports for energy, FDI-related imports, and iron and steel. At the sector level, construction and manufacturing stalled in 2017, with construction falling by almost 14 percent y-o-y in real terms as both private and public construction activities stalled. Mining, wholesale and retail trade and agriculture were the only sectors that contributed positively to growth, supported by rising metal prices, growth in disposable income and a favorable harvest season, respectively.

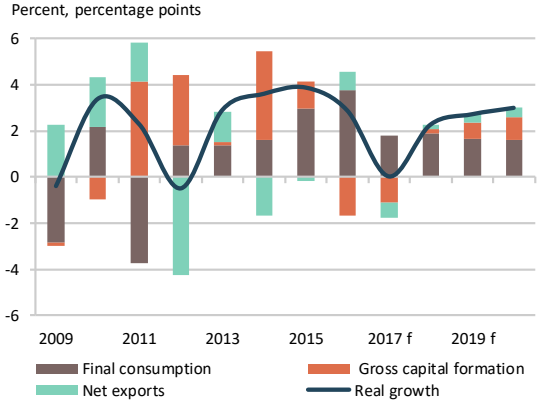
Inflation remained low in 2017 at 1.4 percent, although it increased from a 2016 deflation, driven by rising prices of food and beverages, energy (including oil), clothing and footwear and communications.

Despite slower growth, there were improvements in the labor market. Employment grew by 2.4 percent y-o-y in 2017, helped in part by employment subsidies in the first part of the year, through which almost third of the net new jobs were created. The employment rate has been constantly improving, but remains low at 44 percent, meaning that more than half of the working age population is either unemployed or outside of the labor force. Most of the jobs created were in wholesale and retail trade, accommodation and food services and manufacturing—the latter sectors with links to the FDI-economy, which benefit from tax exemptions and other government support. As a result, the unemployment rate fell to a historical low, at 22.4 percent in 2017, close to 80 percent of which is long-term.

Poverty is estimated to have continued declining in 2017. Poverty (at US$5.5/day at 2011 PPP) is projected to have fallen to 21 percent in 2017, continuing a decreasing trend present since 2009. Employment growth and increases in salaries, especially in the labor-intensive sectors, are expected to have driven most of the poverty reduction in 2017. Pensions, which played a role in the 2009-2014 decrease, are unlikely to have played a relevant role in recent poverty dynamics.

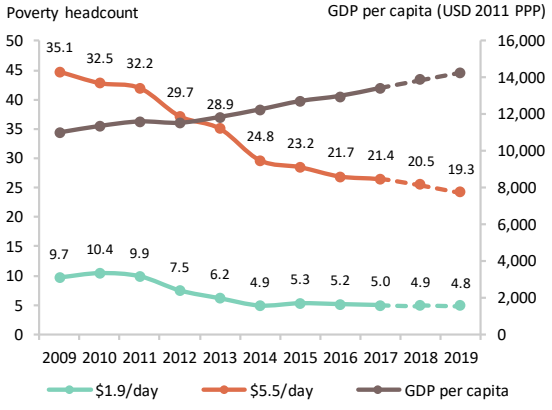
Revenue gains in 2017 were offset by increases in spending, resulting in unchanged fiscal deficit—at 2.7 percent of GDP. Revenues increased on the back of solid VAT and collection of the social security contributions, while expenditures increased due to higher spending for health, pensions, and subsidies. Capital spending once again remained underexecuted reflecting a slowdown in project

FIGURE 1 Macedonia / Real GDP growth and contributions to real GDP growth



Sources: FYR Macedonia State Statistics Office and World Bank staff calculations.

FIGURE 2 Macedonia / Annual and projected poverty rates and real GDP per capita



Sources: WDI and own calculations based on SILC 2010-2015.

implementation. Public and publicly guaranteed debt declined to 47.5 percent in 2017, from 48.4 percent in 2016, but due to a drawdown on accumulated deposits to reduce new borrowing.

Credit growth increased in 2017. Household credit grew by 9.2 percent, while corporate lending remained subdued throughout 2017 (2.6 percent). The loan-to-deposit ratio stood at 88 percent, which should allow banks to expand lending activities. Non-performing loans (NPLs) stood at 6.3 percent, similar to 6.4 percent at end-2016, but corporate NPLs increased slightly to 9.9 percent.

The current account deficit narrowed to 1.1 percent of GDP in 2017. Solid export performance of FDIs, iron and steel, furniture and tobacco helped to reduce the goods and services deficit to 13.9 percent of GDP (from 15 percent in 2016). Net private transfer inflows increased slightly to 15.8 percent of GDP, while primary income deficit widened further to 4.2 percent of GDP as foreign investors kept repatriating profits amidst the political turmoil. Foreign direct investments declined in 2017 to only 2.3 percent of GDP, compared to 3.2 percent in 2016. At end-2017, foreign reserves stood at 4.4 months of imports and were further replenished in January 2018 as the Government issued a 7-year EUR 500 million Eurobond at 2.75 percent which fully covers government borrowing requirements for 2018.

Outlook

The economic outlook is positive, with growth expected to average 2.7 percent during 2018-2020. Construction activity is expected to recover, as the construction of two highways is resumed. The manufacturing sector is also expected to recover, a process that began in late 2017, propelled by improved foreign demand from the EU. Private consumption is projected to rise supported by higher employment and as the new authorities indicated rise in social transfers.

Poverty is likely to continue its downward trend in 2018-2020 with improved economic outlook. Public investment in infrastructure should sustain employment creation. Increases in social transfers should also translate into further poverty reductions, if properly designed and means-tested.

Fiscal deficit is planned to remain unchanged in 2018 leading to rise in public debt to 50 percent of GDP.

Risks and challenges

With the political crisis now resolved, the main risk comes from fiscal vulnerabilities and low potential growth. A low revenue to GDP ratio, a growing deficit in the pension system, higher interest payments, and accumulated arrears are risks to fiscal sustainability. Discussions about raising untargeted social transfers compound the sustainability concerns.

Credible fiscal consolidation program focused on strengthening efficiency of public spending and broadening of the tax base would help to stabilize public debt, rebuild fiscal buffers against future shocks and increase investor confidence.

Ensuring the backward linkages of the FDIs, unlocking potentials in the energy, tourism and agriculture sectors, as well as reducing the overregulation in professional and infrastructure network services could help increasing the potential growth.

TABLE 2 **Macedonia** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	3.9	2.9	0.0	2.3	2.7	3.0
Private Consumption	4.4	3.1	2.9	2.2	1.9	1.9
Government Consumption	3.9	1.9	-1.5	2.1	1.5	1.5
Gross Fixed Capital Investment	2.1	-3.9	-4.5	0.9	3.3	4.7
Exports, Goods and Services	8.5	8.1	9.2	5.4	6.3	6.3
Imports, Goods and Services	9.9	11.6	7.3	3.6	4.2	4.2
Real GDP growth, at constant factor prices	5.0	3.7	-0.8	4.1	2.6	2.9
Agriculture	1.9	2.8	4.1	0.9	1.2	1.2
Industry	6.2	6.1	-7.8	16.4	5.1	5.1
Services	4.9	2.7	1.7	-0.5	1.6	2.1
Inflation (Consumer Price Index)	-0.3	-0.2	1.4	1.6	2.0	2.0
Current Account Balance (% of GDP)	-1.9	-2.8	-1.1	-2.5	-2.5	-2.6
Financial and Capital Account (% of GDP)	1.8	2.6	1.0	6.7	2.2	2.4
Net Foreign Direct Investment (% of GDP)	2.3	3.3	2.2	2.6	2.9	3.1
Fiscal Balance (% of GDP)	-3.6	-2.7	-2.7	-2.7	-2.5	-2.3
Debt (% of GDP)	38.1	39.6	39.3	43.3	44.4	45.5
Primary Balance (% of GDP)	-2.4	-1.5	-1.4	-1.2	-0.9	-0.5
International poverty rate ($1.9 in 2011 PPP)[a,b]	5.3	5.2	5.0	5.0	4.8	4.8
Lower middle-income poverty rate ($3.2 in 2011 PPP)[a,b]	9.8	9.7	9.6	9.3	9.2	9.2
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	23.2	21.9	21.0	20.6	20.5	20.2

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on SILC harmonization, using 2015-SILC grouped data (survey year). Actual data: 2015. Nowcast: 2016 - 2017. Forecast are from 2018 to 2020.
(b) Projection using neutral distribution (2015) with pass-through = 0.7 based on Private consumption per capita in constant LCU.

MOLDOVA

Table 1	2017
Population, million	3.5
GDP, current US$ billion	8.2
GDP per capita, current US$	2307
International poverty rate ($1.9)[a]	0.2
Lower middle-income poverty rate ($3.2)[a]	1.3
Upper middle-income poverty rate ($5.5)[a]	16.5
Gini coefficient[a]	26.3
School enrollment, primary (% gross)[b]	92.4
Life expectancy at birth, years[b]	71.4

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2016), 2011 PPPs.
(b) Most recent WDI value (2015).

In 2017, Moldova registered robust growth supported by favorable conditions in agriculture and strong private consumption. Higher wages and the recovery of remittances brought poverty rate down. Growth momentum is expected to be preserved during 2018 and 2019 supported by growing consumption and investments, particularly public. While Moldova rebuilt its macroeconomic buffers, major policy challenges related to upcoming elections, governance, particularly in the financial sector, to the efficiency of public spending, and to revenue mobilization remain.

Recent developments

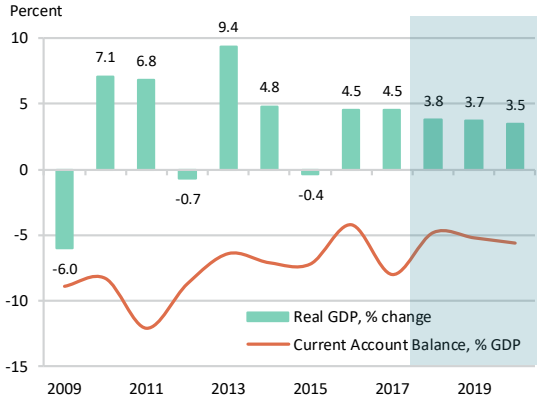
Growth reached 4.5 percent in 2017 on account of strong consumption led by the ongoing recovery in remittances and increases in real wages. A double-digit increase in public investments stimulated gross fixed capital formation (+5.1 percent). Despite robust exports supported by the good harvest of the past two years, imports increased rapidly resulting in a negative contribution of net exports to growth (-2.7 percentage points). On the production side, growth has been mainly driven by the retail and wholesale trade (+1.3 percentage points), followed by growth in agriculture (+1 percentage points) and industry (+0.4 percentage points).

After a sharp deceleration in 2016, the inflation rate averaged 6.6 percent in 2017, just above the target corridor of 5 percent +/- 1.5 percent. Increases in regulated prices, unfavorable climatic conditions in Spring which affected seasonal agricultural outputs, and stronger internal demand accelerated the inflation rate, which has been out of the target corridor since April 2017. To stimulate credit activity and absorb the existing liquidity after the banking crisis, throughout 2017, the NBM gradually reduced the base interest rate (from 9 percent to 6.5 percent), while increasing the reserve requirement ratio to a record high of 40 percent. Strong foreign inflows pushed the appreciation of the Moldovan Leu, tempering the cost-push inflation pressures. By end-January 2018, the inflation rate registered 6.5 percent y/y.

The increasing real wages and a recovering flow of remittances, as well as the favorable 2016 harvest have been associated with a downward trend in the poverty headcount, which, measured at the international moderate poverty threshold of US$ 5.5/day in 2011 PPP, decreased to 16.3 percent in 2015 from 18.4 in 2014, and continued decreasing in 2016. The unemployment rate fell form 4.9 percent in 2015 to 4.2 percent in 2016, the decline being particularly pronounced in rural areas (0.9 percentage points), where the incidence of poverty is higher. Salaries increased by a further 5.2 percent in real terms in 2017, supporting household welfare.

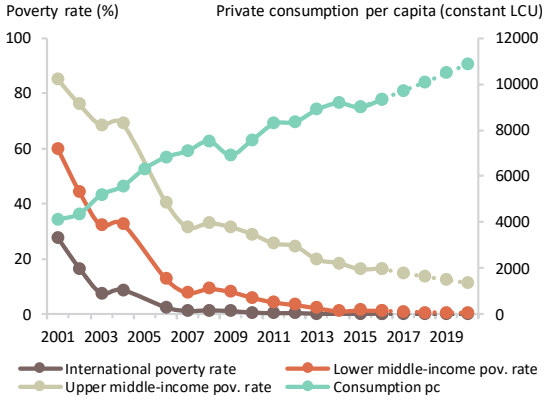
The external position remains stable, despite a recent increase in current account deficit. In the first nine months of 2017, exports increased in nominal terms by 25.2 percent, remittances increased by 12.1 percent, while net direct investments increased 1.2 percentage points of GDP compared to end-2016, on account of reinvested profits, reaching 2.5 percent of GDP. Yet, supported by a stronger Leu and imports of electricity, imports increased (+22.5 percent y/y), determining the widening of the current account deficit by 3.4 percentage points y/y reaching 9.2 percent of GDP. The current account deficit continues to be financed predominantly through external debt. As of end-September 2017, total external debt grew by 8.1 percent totaling 83 percent of GDP. Against this background, by end-January 2018 foreign reserves reached an all-time record of 2.9 billion USD, covering more than 5 months of imports.

FIGURE 1 Moldova / Actual and projected GDP growth and current account balance



Sources: National authorities and World Bank estimates.

FIGURE 2 Moldova / Actual and projected poverty rates and real private consumption per capita



Sources: World Bank. Notes: see Table 2.

Following two years of tight fiscal policies, a lower than expected deficit was registered in 2017, as fiscal revenues outpaced the double-digit increase in expenditures. Following the under execution in 2016, public spending increased 12.5 percent y/y. Supported by a strong increase in fiscal revenues and better compliance, public revenues increased 16.2 percent y/y. Buoyant foreign trade was also reflected in strong collections of VAT (+15.8 percent, y/y) and excises (+30.9 percent, y/y). As a result, the fiscal deficit was 2.2 percentage points higher, totaling -0.8 percent of GDP.

Outlook

Growth is expected to be robust and reach 3.8% in 2018 and 3.7% in 2019 but remain below the historical averages (of 4.6%). In the medium-term the recovery in remittances together with private wage growth will sustain private consumption, which will remain a key driver of growth. Import growth will outpace export growth, leading to a negative contribution of net trade to GDP growth. With parliamentary elections in November 2018, after a prolonged contraction, the Government plans to increase public investments, with a focus on the road sector. Still, structural weaknesses will contain growth at around 3.5 percent. As consumption and imports strengthen, the current account deficit is expected to gradually increase, but to remain below its historical average thanks to revitalization of foreign inflows. The inflation rate is expected to reach the lower bound of the target corridor in 2018 due to base effects and lower regulated prices and to gradually increasing to the target of 5 percent in medium term. In the baseline scenario, fiscal deficits are projected to remain under control. Due to mandated indexation and valorization of pensions, wage increases and additional public capital investments, expenditures will increase reaching about 3 percent of GDP in 2018.
The factors underlying a favorable growth forecast similarly suggest a further decline in the poverty headcount during the projection period, following the trend from recent years. Increases in real wages and remittances, as well as a good harvest year should support household welfare, inclusively in rural areas, where the incidence of poverty remains higher. The rate of wage increases according to latest data from Q3 of 2017 suggests that on an annual basis wages in agriculture increased faster than in the economy overall. The poverty headcount, measured at the international moderate poverty threshold of $5.5/day is projected to decline from 16.3 percent in 2015 to 12.7 percent in 2018 and 11.7 percent in 2019.

Risks and challenges

After two years of good climatic conditions, extreme weather may affect agricultural output with consequences for overall growth. The banking sector has stabilized, yet it is important to continue reforms and strengthen the transparency in the sector. Moreover, the increased demand (+30 percent in the first half of 2017) observed for the unregulated and poorly monitored non-banking financial intermediation sector raises concerns. Weaker growth of key trade partners and potential changes in international trade and migration relations could undermine exports and remittance flows. While the authorities have made efforts to reduce macroeconomic risks, faster growth is necessary to converge with EU countries. For this to happen, Moldova needs deep transformational reforms that will create new and better jobs in the private sector and consequently will create space for public investment needs.

TABLE 2 **Moldova** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	-0.4	4.5	4.5	3.8	3.7	3.5
Private Consumption	-2.3	4.0	4.9	3.8	3.6	3.5
Government Consumption	0.2	-0.1	0.2	0.7	-0.1	0.2
Gross Fixed Capital Investment	-3.3	-2.1	5.2	6.1	5.3	5.8
Exports, Goods and Services	2.9	8.7	12.7	2.2	3.9	5.1
Imports, Goods and Services	-4.7	5.2	11.4	2.9	4.1	5.3
Real GDP growth, at constant factor prices	-0.3	5.3	4.0	2.4	3.1	3.1
Agriculture	-13.4	18.0	7.9	1.1	2.3	3.5
Industry	3.5	2.6	3.0	3.8	4.6	5.4
Services	3.8	1.8	2.7	2.5	2.9	2.2
Inflation (Consumer Price Index)	9.7	6.4	6.6	3.5	4.5	5.0
Current Account Balance (% of GDP)	-7.2	-4.2	-8.0	-4.8	-5.2	-5.6
Financial and Capital Account (% of GDP)	8.0	2.9	4.7	4.2	4.7	5.1
Net Foreign Direct Investment (% of GDP)	3.5	1.3	2.6	2.7	3.3	3.4
Fiscal Balance (% of GDP)	-2.2	-1.8	-0.8	-3.0	-2.5	-2.2
Debt (% of GDP)	46.4	43.8	38.9	39.2	38.7	38.1
Primary Balance (% of GDP)	-1.5	-0.7	0.3	-2.1	-1.6	-1.3
International poverty rate ($1.9 in 2011 PPP)[a,b]	0.0	0.2	0.1	0.1	0.1	0.1
Lower middle-income poverty rate ($3.2 in 2011 PPP)[a,b]	1.4	1.3	0.9	0.6	0.4	0.3
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	16.3	16.5	15.0	13.6	12.3	11.2

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on ECAPOV harmonization, using 2011-HBS and 2016-HBS. Actual data: 2015, 2016. Nowcast: 2017. Forecast are from 2018 to 2020.
(b) Projection using annualized elasticity (2011-2016) with pass-through = 0.87 based on private consumption per capita in constant LCU.

MONTENEGRO

Table 1	2017
Population, million	0.6
GDP, current US$ billion	4.7
GDP per capita, current US$	7528
Upper middle-income poverty rate ($5.5)[a]	4.8
Gini coefficient[a]	31.9
School enrollment, primary (% gross)[b]	94.3
Life expectancy at birth, years[b]	76.9

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2014), 2011 PPPs.
(b) Most recent WDI value (2015).

Economic growth accelerated in 2017 due to surge in investment led by the highway construction and a historically strong tourism season. Employment increased continuing four years of growth. However, unemployment remains high amid high informality and increased labor imports. Labor force participation increased slightly led by male activation. While fiscal consolidation efforts are underway, led by tax changes, high deficit and public debt require continued efforts. The improved credit rating outlook is providing easier access to capital market.

Recent developments

The economy grew by 4.3 percent in 2017. Investment made the strongest contribution to growth at 5 percentage points (pp), as the construction of the Bar-Boljare highway and residential construction accelerated. Consumption also grew, contributing an additional 3.7 percentage points, supported by employment and wage growth. Net exports continued to contribute negatively to growth, but in 2017 subtracted less from growth due to a record tourism season and a pickup in goods exports from the metal industry, driven by improved EU demand. Due to high import content, the growth impact of the higher investment for highway construction is subdued.

Credit growth increased by close to 12 percent in 2017, as household lending surged, amid subdued corporate lending. NPLs declined to 7 percent of total loans, supported by relaxed voluntary financial restructuring rules. Current account deficit further widened to 18.9 percent of GDP in 2017 on the back of rising construction-related imports and despite rise in exports of metals, mineral ore sales, and tourism. Net FDI inflows increased to 11.2 percent of GDP, financing two-thirds of the CAD. Still, after a decline in 2016 to 160 percent, external debt increased again in 2017 to an estimated 162 percent of GDP and remains the highest in the region.

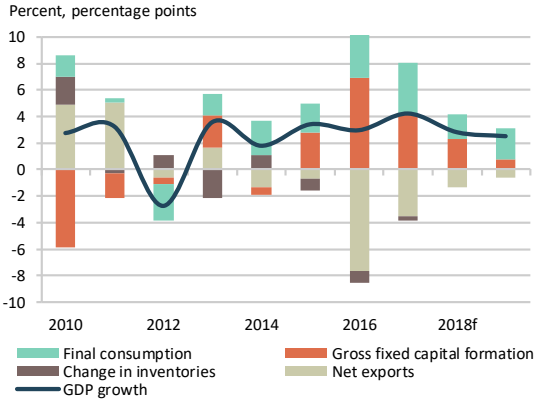
Robust growth led to employment rise by 2.5 percent in 2017; however, it slowed down in the last quarter by 0.2 percentage points--first such decline since late 2013, due to agriculture, mining industry, retail and real estate. While the registered unemployment rate increased to above 22 percent in 2017, given the large informality (one out of three jobs), the survey-based unemployment rate shows a decline by over 1 pp, to 16.1 percent by September 2017 (a four-quarter average). Survey-based employment rate grew by one percentage point to 45.9 percent along with the activity rate, albeit at a slower pace.

Poverty is estimated to have declined in the past few years as economic growth picked up and social transfers surged. In 2017, however, it was difficult to achieve significant poverty reduction given the withdrawal of the mothers' benefit in the second half of the year. Additionally, led by public sector wage dynamics, real gross wages declined by 0.4 percent in 2017. Poverty (measured as consumption below the standardized middle-income-country poverty line of $5.5/day in 2011 PPP terms) declined from 8.7 percent in 2012 to an estimated 4.4 percent in 2017.

Inflation picked up in 2017 to 2.4 percent on the back of rise in excises on tobacco, alcohol and sugary drinks, and spillovers from international oil and food price. Due to the increase in the VAT rate from 19 to 21 percent, and excises on tobacco and alcohol, inflation increased by 2.6 percent yoy in January 2018.

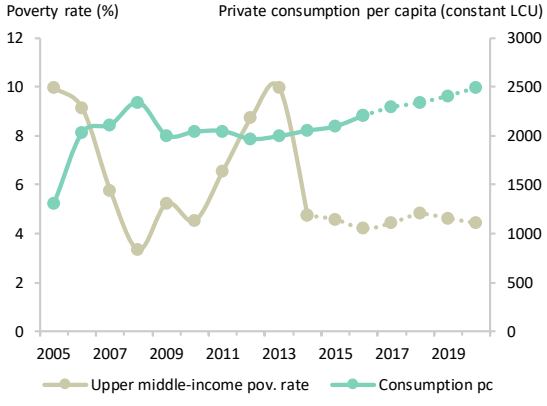
Government launched an ambitious fiscal consolidation program in 2017 reducing the deficit by one percentage point of GDP in 2017 compared to a no-reform scenario. By December, tax revenues increased by over 9 percent y-o-y led by

FIGURE 1 Montenegro / Real GDP growth and contributions to real GDP growth



Sources: MONSTAT, World Bank.

FIGURE 2 Montenegro / Actual and projected poverty rates and real private consumption per capita



Sources: World Bank (see notes to Table 2).

improved collection of VAT and excises. Spending increased by close to 12 percent on the back of tripled capital budget. On the other hand, wage reduction and abolishment of the mothers' benefit from the second half of 2017 helped decelerate growth of the wage bill and social transfers. Consequently, general government deficit increased from 3.1 percent in 2016 to an estimated 5.2 percent of GDP in 2017. Public debt including guarantees increased to 74 percent of GDP by end-2017. After the initial fiscal consolidation efforts, outlook on the credit rating of B+ improved to stable. This has allowed easier access to capital market for a regular refinancing of liabilities coming due in 2018 and 2019-2021.

Outlook

The economy is expected to grow by an average of 2.5 percent annually in 2018-20 on the back of public investments and personal consumption. While growth of investment will slow down as the highway construction gets to its closure, its contribution to growth will remain strong in 2018. Current imbalances are likely to stay high given the import dependence of the current growth pattern.

Inflation is projected at 2.5 percent in the period 2018-19, as the VAT rate rise adds to the current inflation growth in 2018. Fiscal deficit is projected to be brought down to 3.2 percent in 2018, and slowly reaching surplus by 2020.

With the potential poverty impact of fiscal consolidation measures, in 2018 poverty is expected to slightly increase as mothers' benefits phase out. Poverty is likely to resume its decline in 2019-20 to an estimated 4.4 percent by 2020, subject to improvements in private sector employment and earnings.

Risks and challenges

The positive economic outlook faces high, but moderating risks. As the highway construction is completed in 2019, growth will slow unless productivity gains and new private sector investments realize. Large fiscal deficit and growing public debt call for the decisive implementation of the recently adopted fiscal consolidation program. The fiscal framework that aims to have a balanced budget by 2019, from over 5 percent deficit in 2017, will require credible spending consolidation in wage bill, social transfers, and operational costs to put public deficit and debt on a sustainable trajectory.

External imbalances are still high, adding to an already high external vulnerability. Enhancing policy predictability and accelerating the pace of structural reforms, would be needed for their moderation.

Reducing unemployment, especially for youth and mitigating short-term poverty and social impacts of fiscal consolidation and facilitating access to employment need to be an important part of the policy agenda.

TABLE 2 **Montenegro** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	3.4	2.9	4.3	2.8	2.5	2.1
Private Consumption	2.2	5.4	4.2	2.1	3.3	3.6
Government Consumption	1.9	0.8	1.3	-3.6	-1.9	1.9
Gross Fixed Capital Investment	11.9	27.5	15.8	9.0	1.7	-3.2
Exports, Goods and Services	5.7	6.2	4.1	4.3	5.5	6.1
Imports, Goods and Services	4.4	15.0	8.2	4.0	3.5	3.3
Real GDP growth, at constant factor prices	3.8	2.9	4.3	2.8	2.5	2.1
Agriculture	2.1	3.9	5.1	2.1	2.1	2.1
Industry	3.3	25.8	-2.2	3.0	3.2	3.5
Services	4.8	-20.6	14.6	2.8	1.7	0.2
Inflation (Consumer Price Index)	1.5	-0.3	2.4	3.1	2.1	1.6
Current Account Balance (% of GDP)	-13.2	-18.1	-18.9	-18.5	-17.9	-17.3
Financial and Capital Account (% of GDP)	9.3	12.4	15.5	15.2	14.8	14.3
Net Foreign Direct Investment (% of GDP)	16.9	9.4	11.4	11.3	10.9	9.3
Fiscal Balance (% of GDP)	-7.3	-3.1	-5.4	-3.1	-0.6	2.2
Debt (% of GDP)	66.2	64.4	66.3	70.5	68.1	63.3
Primary Balance (% of GDP)	-4.9	-1.0	-3.0	-0.8	1.8	4.6
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	4.6	4.2	4.4	4.8	4.6	4.4

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on ECAPOV harmonization, using 2009-HBS and 2014-HBS. Actual data: 2014. Nowcast: 2015 - 2017. Forecast are from 2018 to 2020.
(b) Projection using point-to-point elasticity (2009-2014) with pass-through = 0.4 based on private consumption per capita in constant LCU, with estimated impact of fiscal consolidation.

POLAND

Table 1	2017
Population, million	37.9
GDP, current US$ billion	504.7
GDP per capita, current US$	13306
International poverty rate ($1.9)[a]	0.4
Lower middle-income poverty rate ($3.2)[a]	0.8
Upper middle-income poverty rate ($5.5)[a]	2.6
Gini coefficient[a]	318
Life expectancy at birth, years[b]	78.2

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2015), 2011 PPPs.
(b) Most recent WDI value (2015).

Real GDP growth picked up to 4.6 percent in 2017, driven primarily by private consumption. A recovery in investment in the end of 2017 promises continued growth. The main risks to medium term growth relate to labor shortages and lower allocation of EU funds for Poland. Poverty will continue to decline in line with growing disposable incomes. Although the general deficit is at a record low, structural weakening is possible. Fiscal adjustment may constitute a challenge as Poland prepares for elections.

Recent developments

Booming domestic demand boosted real GDP growth to 4.6 percent in 2017, from 2.9 percent in 2016. Powered by an extremely strong labor market and social spending (mainly for the Family 500+ program), private consumption grew by 4.8 percent, adding 2.8 percentage points to GDP growth.

The biggest positive development in 2017 was a 5.4 percent expansion in gross fixed investment. This was a remarkable recovery from a 7.9 percent drop in 2016 caused by a cyclical fall in EU-funded projects, reduced FDI inflow, and elevated political risk. The rebound in investment resulted from the resumption of EU funding and removal of a source of instability in the banking sector related to the conversion of foreign-currency-denominated mortgages to local currency.

The renewed investment helped to boost import demand in the second half of the year. Hence, despite heavy demand for Poland's exports from outside of the euro zone, net exports contributed just 0.1 percentage points to overall GDP growth.

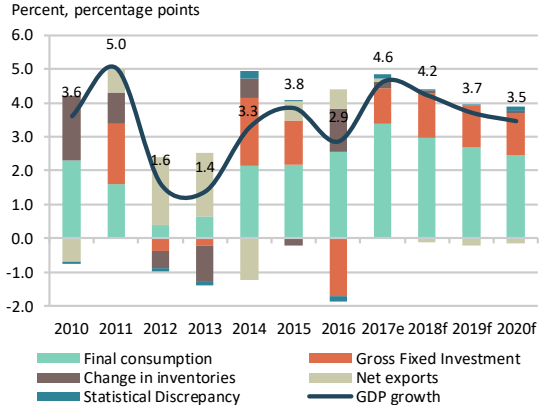
Labor market conditions have tightened further. The ratio of vacancies to unemployment has shot past 10 percent; in four years the number of low-skilled unemployed has been cut in half and now accounts for just 30 percent of unemployment; and, for the first time since the transition, long-term unemployment dipped below 500,000. Employment rates continued to rise and labor shortages have started to affect business activity.

After two years of persistent deflation, consumer prices rose an average of 2 percent in 2017, mainly because of higher global commodity prices, food inflation and firmer domestic demand. At 2.1 percent year on year in December 2017, inflation is still below the National Bank of Poland (NBP) medium-term target of 2.5 percent. Demand-side price pressures are modest so far, with core inflation just 0.9 percent year on year in December. Real monetary conditions eased considerably in 2017, despite nominal appreciation of the zloty. Since March 2015 the NBP Monetary Policy Council has kept its benchmark policy rate unchanged at 1.5 percent. The zloty continued to be somewhat volatile in 2017 but strengthened overall against the euro and the US dollar.

It is estimated that poverty and shared prosperity indicators continued to improve in 2017 in light of surging private consumption supported by a tight labor market and government social programs. Poverty is expected to have declined from 2.7 percent in 2015 to 1.3 percent in 2017 using the $5.50/day 2011 PPP poverty line.

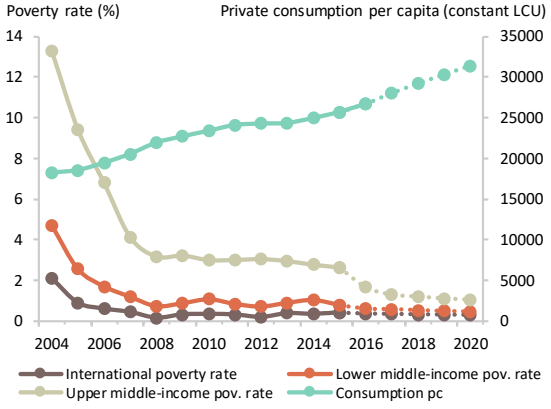
More efficient tax collection helped the government to realize its ambitious 2017 spending plans while running the tightest budget execution on record. This was possible because more was collected in taxes, mostly from indirect taxes (due to robust private consumption and improved tax compliance) but also from one-off non-tax revenues, such as higher NBP profits. In 2016 the general government deficit narrowed to

FIGURE 1 Poland / Real GDP growth and contributions to real GDP growth



Sources: MFMod, World Bank.

FIGURE 2 Poland / Actual and projected poverty rates and real private consumption per capita



Sources: World Bank (see notes to Table 2).

a 1.6 percent of GDP, a record low, after hitting 2.5 percent in 2016.
Despite the zloty appreciating against the euro and heightened domestic demand, the strong performance of exports managed in 2017 to lift the current account to a surplus of 0.1 percent of GDP.

Outlook

In light of the positive investment results in 2017 and improved growth prospects in the EU, the previous projection of real GDP growth for Poland has been revised upward by 0.2 percentage points: again, driven by both private consumption and investment; economic growth may reach 4.2 percent in 2018 and 3.7 percent in 2019. Household spending will benefit from growth in the real wage bill of more than 8 percent in 2018-19, plus higher state spending on pensions and social benefits. Rising real incomes are expected to lead to further declines in poverty. The $5.50/ day 2011 PPP poverty rate is projected to decline to 1.2 percent in 2018 and further to 1.0 percent by 2020.
Public spending is likely to be strong, supported by EU funds and the political cycle leading up to the elections. High corporate profitability and EU funds should support private investment. Exports and industrial production are likely to benefit from stronger European demand in 2018-19, but imports may outpace both.
The general government deficit is set to widen again in 2018 to about 2 percent of GDP—but still safely below the 3 percent EU threshold. Spending is expected to rise due to higher government consumption, local pre-elections investment, and the decision to roll back the planned increases of the retirement age. The revenue side will also contribute to the increasing budget gap: non-tax revenues could be lower this year due to less NBP profit, and the change in retirement age will depress social contributions from the cohort eligible for earlier retirement. Public debt will stabilize around 51 percent of GDP in 2018-19, but the structural budget deficit will widen.
The current-account is likely to come back to a small deficit in 2018 as robust household consumption, higher investment, and a firming in global commodity markets push up the volume and cost of imports. Nonetheless, the current-account deficit will remain modest in 2018-20 at less than 0.5 percent of GDP.

Risks and challenges

There are three main clouds on Poland's economic horizon: (i) Structural weakening in public finance; (ii) a shortage of labor; and (iii) EU sanctions against Poland for not respecting EU democratic values. First, the government's spending plans, with increases in social benefits and public investment, and the reduction in the statutory retirement age, could erode the structure of public finances. Strengthening the fiscal position might be difficult given local, presidential, and parliamentary elections all coming up within 18 months. Second, the shortage of labor may soon weigh heavily on GDP growth, and would be exacerbated by retirement of a greater part of the workforce. Too few workers could negatively affect production capacities and investment. This would heighten pressure on the government to encourage immigration, which could come primarily from Ukraine. Third, the government's failure to address rule of law issues and a vote by the European Parliament in late 2017 to initiate Article 7 proceedings against Poland may lead the EU to impose sanctions, possibly lowering the EU fund allocation for 2021–27.

TABLE 2 Poland / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	3.8	2.9	4.6	4.2	3.7	3.5
Private Consumption	3.0	3.9	4.8	4.0	3.7	3.3
Government Consumption	2.4	1.7	3.1	3.7	3.0	3.2
Gross Fixed Capital Investment	6.1	-7.9	5.4	6.7	6.4	6.1
Exports, Goods and Services	7.7	8.8	7.1	6.2	5.2	5.4
Imports, Goods and Services	6.6	7.9	7.3	6.7	5.9	5.9
Real GDP growth, at constant factor prices	3.7	2.8	4.2	4.3	3.7	3.5
Agriculture	-8.5	2.8	1.8	2.2	2.2	2.2
Industry	3.8	3.6	4.5	4.1	4.1	4.1
Services	4.1	2.6	4.2	4.4	3.7	3.3
Inflation (Consumer Price Index)	-1.0	-0.6	2.0	2.3	2.5	2.5
Current Account Balance (% of GDP)	-0.5	-0.3	0.1	-0.3	-0.3	-0.1
Financial and Capital Account (% of GDP)	2.2	5.4	2.9	2.4	1.9	1.8
Net Foreign Direct Investment (% of GDP)	1.9	1.1	1.0	1.5	1.6	1.5
Fiscal Balance (% of GDP)	-2.6	-2.5	-1.6	-2.1	-2.6	-2.9
Debt (% of GDP)	51.1	54.1	53.1	51.7	51.0	50.7
Primary Balance (% of GDP)	-0.9	-0.8	0.2	-0.3	-0.8	-1.1
International poverty rate ($1.9 in 2011 PPP)[a,b]	0.4	0.4	0.3	0.3	0.3	0.3
Lower middle-income poverty rate ($3.2 in 2011 PPP)[a,b]	0.8	0.6	0.6	0.5	0.5	0.5
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	2.6	1.7	1.3	1.2	1.1	1.0

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on EU-SILC harmonization, using 2004-EU-SILC and 2015-EU-SILC. Actual data: 2015. Nowcast: 2016 - 2017. Forecast are from 2018 to 2020.
(b) Projection using point-to-point elasticity (2004-2015) with pass-through = 1based on private consumption per capita in constant LCU.

ROMANIA

Table 1	2017
Population, million	19.6
GDP, current US$ billion	206.9
GDP per capita, current US$	10563
Upper middle-income poverty rate ($5.5)[a]	25.6
Gini coefficient[a]	35.9
School enrollment, primary (% gross)[b]	89.8
Life expectancy at birth, years[b]	75.0

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2015), 2011 PPPs.
(b) Most recent WDI value (2014).

Private consumption propelled growth to 7 percent in 2017. Growth was supported by an expansionary fiscal policy, that coincided with an increase in exports to a resurgent EU. Improvements in the labor market contributed to poverty reduction. Growth will remain solid in 2018, but medium-term risks to the outlook have increased. Pressures on the budget deficit, arising from an increase in recurrent spending, will continue in 2018. To improve the quality of growth, renewed attention should be given to public investment.

Recent developments

Private consumption (+8.8 percent) was the main driver of growth in 2017, fueled by tax cuts; hikes in minimum and public-sector wages; and increases in pensions that boosted disposable incomes. With a 5.4 percent increase, investment also showed signs of recovery. Exports grew strongly (+9.5 percent), but were outpaced by imports (+11.1 percent). On the production side, ICT (+10.9 percent) and industry (+8 percent) were the main drivers of growth, with agriculture (+18.3 percent) performing better than expected, facilitated by good weather conditions.

Fiscal policy was pro-cyclical in 2017. Increases in public wages and pensions led to a 22 percent hike in the compensation of employees and a 15.5 percent increase in current spending, outpacing fiscal revenue growth (+12.5 percent). The deficit, however, remained below 3 percent of GDP because of the decline in public investment (-9.5 percent), including low utilization of the EU funds.

The expansionary fiscal policy led to an overheating of the economy, contributing also to inflation to 4.7 percent in February 2018 – above the upper limit of the National Bank of Romania (NBR) band. In response, the NBR board increased the policy rate by 25 ppts (to 2.25 percent) in two consecutive meetings in early 2018. This came amid robust private sector credit growth (up 5.6 percent as of December 2017) and concerns over the fiscal stance. The current account deficit deteriorated to 3.4 percent of GDP at end-2017 reflecting the strong imports growth.

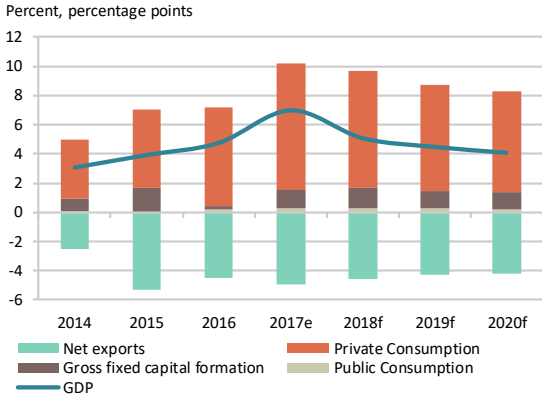
The labor market benefited from the economic growth, with unemployment falling to 4.6 percent as of December 2017 – a 25-year low – and real wages increasing by 8.1 percent. Nonetheless, the low employment rate of 65.3 in Q3 2017, down 0.2 percentage points from the previous quarter, reflects persistent structural rigidities in the labor market.

In line with economic growth, a boost in private consumption and labor market improvements, the poverty rate corresponding to upper middle-income countries (using the $5.50/day 2011 PPP poverty line) is estimated to have declined from 26.1 percent in 2015 to 23.6 percent in 2017, continuing its downward path since the peak of the crisis in 2011 (31.7 percent). High poverty incidence continues to be associated with reliance on agriculture and in rural/marginalized areas. Employment gains in sectors that employ a large share of low-skilled people have helped improve the incomes of the bottom 40 and prevented a further increase in the Gini index in 2015.

Outlook

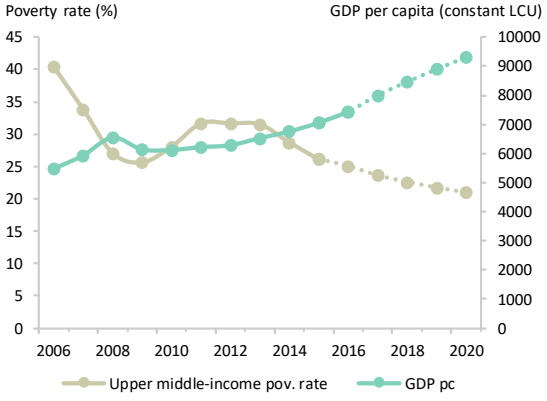
The economy is projected to continue to grow above potential in 2018. GDP will likely expand by around 5.1 percent in 2018, driven by the fiscal stimulus and aided by a resurgent EU. Continued growth in consumption is expected to widen the current account deficit to 4.3

FIGURE 1 Romania / Real GDP growth and contributions to real GDP growth



Sources: World Bank, Romanian National Statistical Institute.

FIGURE 2 Romania / Actual and projected poverty rates and real GDP per capita



Sources: World Bank. Notes: see Table 2.

percent in 2018. Inflation is set to peak at around 5 percent in mid-2018 reflecting the excess domestic demand and the fading out of the base effect of the tax cuts. The NBR anticipates a gradual subsequent decline in inflation towards 3.5 percent at the end of 2018, due to a slowdown in private consumption dynamics as no further fiscal boost to households' real disposable income is envisioned.

The fiscal measures passed in 2017 have put pressure on the consolidated budget deficit. In the absence of corrective measures, the fiscal deficit is projected to reach 3.3 percent of GDP in 2018, which would place Romania on a trajectory to re-entering the Excessive Deficit Procedure of the EU. However, the government has stated that, like in 2017, it would be ready to promote adjustment measures should the deficit threaten the 3 percent ceiling. The widening of the fiscal deficit would push public debt to 46.8 percent of GDP at end-2020, from 44.5 percent in 2017. Despite this, public debt remains one of the lowest in the EU.

Strong private consumption aided by the expansionary fiscal policy and continued growth in real wages, partly supported by minimum wage increases, should boost real incomes and lead to further declines in poverty incidence. Moreover, the planned introduction of the Minimum Social Inclusion Income program (MSII) is expected to improve targeting and increase the level of benefits for the most vulnerable. The $5.50/day 2011 PPP poverty rate is projected to decline to 22.6 percent in 2018, 21.7 percent in 2019, and 20.9 percent in 2020.

Risks and challenges

Accumulating fiscal pressures and excess domestic demand limit the space for policy-makers to maneuver in 2018 and beyond. The current account deficit is on the rise, and inflationary pressures persist. These developments leave the Romanian economy vulnerable to exogenous shocks. The authorities may need to take corrective measures to keep the deficit below 3 percent of GDP in 2018 through good quality fiscal adjustment. Externally, a likely tapering of the quantitative easing in the Eurozone and higher global interest rates may lead to a repositioning in investor sentiment towards the emerging economies and to higher refinancing costs, further reinforcing fiscal pressures. On the upside, a better-than-projected economic performance of the Eurozone will act as a driver of growth in the broader EU area, including Romania.

Renewed efforts are needed to improve labor participation and generate broad-based employment, as unemployment remains high among youth and the low-skilled, and to ensure that all Romanians obtain access to high quality public services. Gradually, the focus of the fiscal policy should be rebalanced away from boosting consumption towards mobilizing investment, including from the EU funds, to support a sustainable EU convergence path and social inclusion. Reforms in public administration and SOEs, increased regulatory predictability, as well as policies to address the large social and spatial discrepancies should be on the agenda of priorities of the government.

TABLE 2 **Romania** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	3.9	4.8	7.0	5.1	4.5	4.1
Private Consumption	5.7	7.1	8.8	8.1	7.2	6.6
Government Consumption	-0.8	4.8	6.2	5.9	5.4	5.1
Gross Fixed Capital Investment	7.2	0.8	5.4	6.2	5.1	4.8
Exports, Goods and Services	5.3	7.6	9.5	8.3	7.1	7.0
Imports, Goods and Services	9.4	9.7	11.1	9.7	8.4	8.1
Real GDP growth, at constant factor prices	3.6	4.6	7.0	5.1	4.5	4.1
Agriculture	-11.1	-0.8	18.3	3.0	2.1	2.0
Industry	6.1	0.4	8.0	6.1	5.2	4.6
Services	4.3	8.1	5.0	4.8	4.4	4.1
Inflation (Consumer Price Index)	-0.6	-1.5	1.3	3.7	3.2	3.0
Current Account Balance (% of GDP)	-1.2	-2.6	-3.4	-4.3	-4.7	-4.9
Financial and Capital Account (% of GDP)	1.4	2.7	3.5	4.4	4.8	5.0
Net Foreign Direct Investment (% of GDP)	1.8	1.8	2.5	3.1	3.0	3.0
Fiscal Balance (% of GDP)	-1.5	-2.7	-2.9	-3.3	-3.0	-3.0
Debt (% of GDP)	39.4	44.5	44.5	45.6	46.3	46.8
Primary Balance (% of GDP)	-0.1	-1.3	-1.5	-1.9	-1.5	-1.4
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b,c]	26.1	25.0	23.6	22.6	21.7	20.9

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on EU-SILC harmonization, using 2007-EU-SILC, 2012-EU-SILC, and 2015-EU-SILC.
(b) Projection using annualized elasticity (2007-2012) with pass-through = 0.7 based on GDP per capita in constant LCU.
(c) Actual data: 2015. Nowcast: 2016 - 2017. Forecast are from 2018 to 2020.

RUSSIAN FEDERATION

Table 1	2017
GDP, current US$ billion	1578.6
GDP per capita, current US$	10771
International poverty rate ($1.9)[a]	0.0
Lower middle-income poverty rate ($3.2)[a]	0.3
Upper middle-income poverty rate ($5.5)[a]	2.7
Gini coefficient[a]	37.7
School enrollment, primary (% gross)[b]	100.5
Life expectancy at birth, years[b]	70.9

WDI, MPO, Rosstat, and Bank of Russia.
Notes:
(a) Most recent value (2015), 2011 PPPs.
(b) Most recent WDI value (2015).

Russia's economy has emerged from recession to recovery, supported by deepening macro-economic stability, firming energy prices and global recovery. Growth is projected to settle between 1.7 and 1.8 percent in 2018 — 2020. However, many households remain close to the poverty line, and many individuals lack formal jobs. Priority policy objectives include limiting the role of the state in the economy, increasing investment, and promoting fair competition, as well as measures to improve investments in human capital.

Recent developments

In 2017, Russia's economy emerged from recession to recovery, with the GDP expanding by 1.5 percent year-on-year. Deepening macro-economic stability, firming energy prices and a recovering global economy contributed to the return to growth. Non-tradable sectors, primarily transportation, retail and wholesale trade, contributed 1.4 percentage points (pp) of the 1.5 percent total. Mineral-resource extraction increased by 1.4 percent, year-on-year, as oil production flattened after Russia joined the OPEC+ agreement. Growth in manufacturing was subdued, partly due to lower public spending on defense.

Domestic demand was the main engine of growth. Both household and investment demand expanded. Private consumption, supported by growing real wages and pensions and by a revival of credit to households, contributed 1.8 pp to growth. Fixed-capital investment in mineral resource extraction, transportation, and in the financial sector, mainly supported investment growth. However, growth in manufacturing was not followed by fixed capital investment growth. While robust external demand supported the country's exports, a major increase in imports resulted in a negative contribution of net exports to GDP growth.

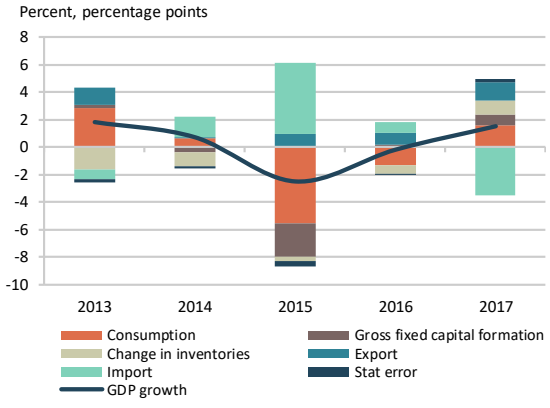
The Central Bank of Russia (CBR) continued to clean up the banking sector: 16 banks had their licenses revoked due to non-compliance with regulations, and another systemically important private bank (Promsvyazbank, 1.6 percent share by assets) was bailed out by CBR. That made it the third bank to be rescued under a new resolution mechanism. As a result, the share of state-controlled banks in the combined assets of the Russian banking system has increased to 66.2 percent, most of them under CBR ownership (45 percent of assets). This may affect the level playing-field and pose a conflict of interest between the CBR's regulatory and ownership functions.

In 2017, credit grew both in retail and corporate segments (13.3 percent and 3.8 percent, year-on-year, respectively). The share of non-performing loans remained stable—but high—at 10 percent as of January 1, 2018, and the overall banking sector capital adequacy ratio was also stable at 12.1 percent. However, compared to other emerging markets, both figures point to underlying vulnerabilities in Russia. As of January 1, 2018, profitability in the banking sector declined to 2016 levels, with the return on assets and equity at 1 percent and 8.3 percent, respectively.

The CBR continued its gradual approach to monetary easing aimed at anchoring inflation expectations. A combination of a stronger ruble and a bumper harvest, and relatively tight monetary and fiscal policy, helped reach record-low inflation levels. In 2017, consumer inflation reached 3.7 percent (year-on-year, 12-month average), down from 7.1 percent in 2016.

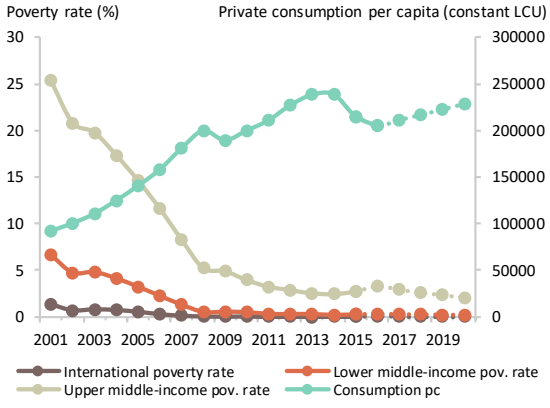
In 2017, the current account surplus reached US$40.2 billion, strengthened by an improved trade balance, and was mirrored by higher net capital outflows,

FIGURE 1 Russian Federation/ Real GDP growth and contributions to real GDP growth



Sources: Russia Statistical Authorities and World Bank staff Calculations.

FIGURE 2 Russian Federation / Actual and projected poverty rates and real private consumption per capita



Sources: World Bank (see notes to Table 2).

mainly from the banking sector, which continued its external-debt repayments. International reserves increased by US$15.4 billion mainly on the back of currency purchases conducted by the CBR on behalf of Ministry of Finance.

The general government fiscal stance improved in 2017, aided by higher oil prices, a recovering economy, an improved tax administration, and lower expenditures. The general government primary budget deficit narrowed from 2.8 percent of GDP in 2016 to 0.6 percent of GDP in 2017. Russia's new fiscal rule, expected to reduce the influence of external volatility on the budget and the real exchange rate, comes into effect in 2019 and will require fiscal consolidation in 2018-20. Combined with the move towards inflation-targeting, it underscores the Russian authorities' commitment to enhance macro-stability.

Unemployment declined further in 2017 to a current 5.2 percent, while real wages and pensions increased on the back of low inflation. Wage growth was highest in the tradable sector and above the rate of inflation in the non-tradable and public sectors. However, growth in real disposable incomes remained negative, driven by a decline in income from other sources, including some not directly registered by statistics.

The poverty rate under the national definition (population share with income per capita below subsistence minimum level of 9,828 rubles per month in 2016) increased marginally from 13.3 percent in 2015 to 13.4 percent in 2016. The international moderate poverty rate (population share with per capita consumption below 5.5 USD/day in 2011 PPP) increased from 2.7 percent in 2015 to an estimated 3.3 percent in 2016, before decreasing to an estimated 2.9 percent in 2017, as wages and pensions increased. The extreme poverty rate remained marginal, below one percent.

Outlook

Amid the recovered oil prices, macro stabilization and improved business and consumer confidence, we expect Russia's economy to keep growing. With the expected price of oil remaining robust at US$58, 59 and 60/bbl in 2018, 2019, and 2020 respectively, our growth estimates stand at 1.7 percent in 2018, 1.8 percent in 2019 and 1.8 percent in 2020.

The moderate poverty rate is expected to fall in 2018 and further through 2019. As public spending is constrained, labor income will become the most important driver of income growth for the bottom 40 percent. Wage growth and pension indexation at the inflation level, will support disposable incomes and contribute to a gradual decline in the poverty rate. However, many households remain close to the poverty line, and many individuals lack formal jobs.

Risks and challenges

External downside risks stem from a significant drop in oil prices, a sudden tightening of global financial conditions and an expansion of sanctions.

The performance of the banking sector is expected to remain stable. However, the bailout of three large private banks points to the continuing fragility in the sector, and the quality of capital and assets, and related -party lending will likely remain a concern.

Weak productivity growth and a shrinking labor force will constrain GDP growth. Priority policy objectives include limiting the role of the state in the economy, increasing investment, and promoting fair competition. Also, measures to improve the quality of and access to health and education services will be needed to promote longer and more productive working lives.

TABLE 2 Russian Federation / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	-2.5	-0.2	1.5	1.7	1.8	1.8
Private Consumption	-9.4	-2.8	3.4	3.1	2.5	2.5
Government Consumption	-3.1	0.9	-0.9	-0.6	-0.5	0.0
Gross Fixed Capital Investment	-11.2	0.8	3.6	2.7	2.7	2.7
Exports, Goods and Services	3.7	3.2	5.4	2.0	3.0	3.0
Imports, Goods and Services	-25.1	-3.6	17.0	7.0	4.0	4.0
Real GDP growth, at constant factor prices	-1.9	0.0	1.6	1.7	1.8	1.8
Agriculture	2.5	2.9	1.2	1.7	1.7	1.7
Industry	-2.4	0.4	0.6	1.1	1.6	1.6
Services	-2.0	-0.5	2.2	2.0	1.9	1.9
Inflation (Consumer Price Index)	15.5	7.1	3.7	3.2	4.0	4.0
Current Account Balance (% of GDP)	5.0	2.0	2.5	2.9	2.8	2.7
Financial and Capital Account (% of GDP)	-5.2	-1.6	-2.8	-2.9	-2.8	-2.7
Net Foreign Direct Investment (% of GDP)	-1.1	0.8	-0.4	-0.5	-0.5	-0.5
Fiscal Balance (% of GDP)[a]	-3.4	-3.5	-1.6	-0.3	0.7	0.7
Debt (% of GDP)	15.9	15.7	15.1	15.6	16.1	16.3
Primary Balance (% of GDP)[a]	-2.6	-2.6	-0.7	0.6	1.6	1.6
International poverty rate ($1.9 in 2011 PPP)[b,c]	0.0	0.0	0.0	0.0	0.0	0.0
Lower middle-income poverty rate ($3.2 in 2011 PPP)[b,c]	0.3	0.3	0.3	0.3	0.2	0.2
Upper middle-income poverty rate ($5.5 in 2011 PPP)[b,c]	2.7	3.3	2.9	2.6	2.4	2.1

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Fiscal and Primary Balance refer to general government balances.
(b) Calculations based on ECAPOV harmonization, using 2015-HBS. Actual data: 2015. Nowcast: 2016 - 2017. Forecast are from 2018 to 2020.
(c) Projection using neutral distribution (2015) with pass-through = 1 based on private consumption per capita in constant LCU.

SERBIA

Table 1	2017
Population, million	7.0
GDP, current US$ billion	41.2
GDP per capita, current US$	5860
International poverty rate ($1.9)[a]	5.6
Lower middle-income poverty rate ($3.2)[a]	11.1
Upper middle-income poverty rate ($5.5)[a]	23.6
Gini coefficient[a]	39.7
School enrollment, primary (% gross)[b]	101.3
Life expectancy at birth, years[b]	75.5

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2015), 2011PPPs.
(b) Most recent WDI value (2015).

Despite a slowdown in economic growth (GDP growth, now estimated at 1.9 percent y/y in 2017), labor market performance improved and unemployment reached 13.5 percent. The state of public finances improved significantly and Serbia showed a budget surplus in 2017. Poverty is estimated to have declined from 23.8 percent in 2014 to 23.1 percent in 2016. Over the medium-term, growth is expected to reach 3-4 percent, although risks remain, especially from policy reversals related to previous fiscal stability program.

Recent developments

External, one-off factors, such as the disruption of energy production in early 2017 and a drought which affected agriculture, coupled with the slow implementation of the government's investment program, led to slower than previously-projected growth in 2017. Based on preliminary assessments from the national authorities, the economy grew by 1.9 percent y/y, compared to previously projected 2.3 percent. Widening external deficit, increase in imports and recovery in consumption are driving a shift from positive to negative contribution of net-exports to growth.

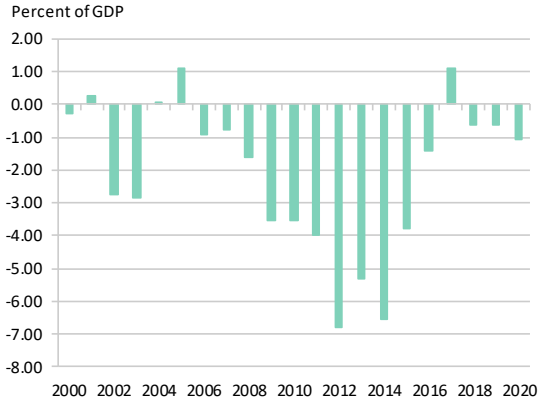
Looking at sectors of the economy, both services and industry performed well in 2017, growing by 2.2 and 3.9 percent (in real terms), respectively. Construction sector started to recover as well (growing at 1.8 percent y/y) on the back of recent improvements in issuing construction permits and lower financing costs as interest rates fell in 2017. On the other hand, agriculture sector output is estimated to have fallen by 9.5 percent (in real terms), compared to 2016, due to the drought.

Growth in industry and services contributed to steady labor market performance in 2017, which improved over 2016. The activity rate increased to 54 percent in 2017 (annual average) while the employment rate stood at 46.7 percent (compare to 45.2 percent in 2016), even with unemployment edging up only slightly in the fourth quarter of 2017, to reach 14.7 percent. Average salaries increased by 3.9 percent in nominal terms in 2017 compared to the year before, mainly driven by growth of wages in the private sector (increase of 4.5 percent). The average pension was 2.4 percent higher than in 2016.

Since employment and labor income play a strong role in influencing welfare of the poor and vulnerable, poverty (living on income under $5.5/day in 2011PPP terms, the standardized middle-income-country poverty line) is estimated to have declined from 23.8 percent in 2014, to 23.1 percent in 2016, to 22.4 percent in 2017. The increase of salaries and public sector pensions helped household budgets to recover some of the losses from previous fiscal consolidation measures. The energy bill discount program for vulnerable populations was expanded in 2017 to mitigate the impact of increases in electricity tariffs, as part of fiscal reforms. However, a decline in agriculture output in 2017 is likely to have adverse impacts on rural poverty and slow the pace of poverty reduction overall. Also, food prices increased (up by 4.1 percent through December) more than the average CPI, in particular over the summer months, and likely affecting the poor disproportionately. Overall inflation reached 3 percent by year-end.

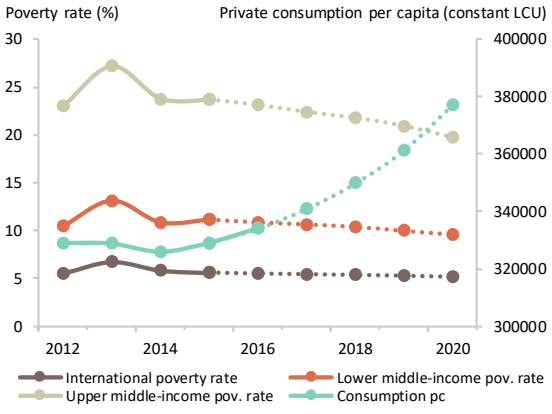
A good budget performance continued throughout 2017 and Serbia ended up with a surplus of 1.2 percent of GDP in 2017. As a result of lower financing needs, public debt declined to around 62.5 percent of GDP year end, compared to 74 percent at the end of 2016. Part of the reason for improved budget performance lies in under-execution of the capital budget

FIGURE 1 **Serbia** / General government balance (% of GDP)



Sources: WB Staff calculations based on the Ministry of Finance and the Statistical office data.

FIGURE 2 **Serbia** / Actual and projected poverty rates and real private consumption per capita



Sources: World Bank. Notes see Table 2.

(down -9.5 percent in 2017, in nominal terms), which however had a negative impact on growth.

The current account deficit (CAD) almost doubled (in euro terms) in 2017 (an increase of 94 percent, y/y). This resulted in widening trade deficit, as import increased significantly (14.2 percent, y/y, or around EUR 2 billion), because of a higher import of energy and consumer goods. The growing external deficit continued to be financed by FDI, which increased by 37.5 percent in euro terms. FDI covers 135 percent of CAD. Foreign currency reserves dropped by 243 million euros in 2017.

The dinar strengthened by 4 percent against the euro in 2017, while foreign currency reserves decreased by about EUR 245 million through December. The banking sector remains stable and loans to the private sector increased by 3.6 percent by end-December (y/y), but mainly due to increase in lending to households (up 7.8 percent, y/y). NPLs declined to 11.1 percent through November, due to more active role of banks in selling and writing off NPLs. Still, NPLs represent a significant problem for state-owned banks.

Outlook

In 2018 as well as over the medium term, growth is expected to pick up, thus helping with labor market recovery and poverty reduction. Growth is expected to be driven by increased investment, stimulated by reforms to improve the business climate, and the recovery of consumption (as the fiscal consolidation program gradually expires and private sector wages continue to grow). Growth is expected to be around 3-4 percent over the medium term.

With economic growth and improvements in the labor market, poverty is expected to continue its gradual decline. Poverty, measured as income below the standardized $5.5/day 2011PPP line is estimated to continue declining to around 21 percent by 2019. As part of the government's fiscal consolidation program, another nominal electricity tariff increase in 2018 will be considered, though smaller than previous increases. The recently expanded energy bill discount program can help protect vulnerable customers, but implementation challenges related to processing of applications remain.

Risks and challenges

As witnessed over the last couple of years, Serbian economy is highly vulnerable to climate change related events (droughts, severe winters, floods, etc.). These external shocks might reoccur at any moment in the future thus endangering growth projections. Also, such events often hurt more the poor who predominantly live in areas less protected from climate-related weather events and who depend more on income earned in agriculture. In addition, faster growth requires further effort toward implementation of structural reforms: in secondary and tertiary education; health financing; privatization of remaining state stakes in SOEs and financial institutions. Also, special attention needs to be paid to expanding external imbalances. Any delay with implantation of these reforms can have a major impact on growth outlook. In addition, the potential distributional impacts of these important structural reforms may present continued challenges to faster poverty reduction in the short run.

TABLE 2 **Serbia** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	0.8	2.8	1.9	3.0	3.5	4.0
Private Consumption	0.5	1.0	1.7	2.2	2.9	4.0
Government Consumption	-1.5	2.3	4.0	3.6	-0.4	11.8
Gross Fixed Capital Investment	5.6	5.1	3.7	5.6	7.7	2.9
Exports, Goods and Services	10.2	12.0	8.1	6.5	7.5	7.5
Imports, Goods and Services	9.3	9.0	7.0	5.9	6.4	7.3
Real GDP growth, at constant factor prices	0.7	3.2	1.4	3.0	3.5	4.0
Agriculture	-7.7	8.1	-9.9	5.0	3.0	3.0
Industry	3.0	2.4	4.5	4.0	5.0	5.0
Services	1.1	2.8	1.7	2.3	2.9	3.7
Inflation (Consumer Price Index)	1.4	1.1	3.0	3.3	3.5	3.5
Current Account Balance (% of GDP)	-4.7	-3.1	-5.7	-4.7	-4.4	-4.6
Financial and Capital Account (% of GDP)	3.9	1.5	4.6	3.1	2.8	2.7
Net Foreign Direct Investment (% of GDP)	3.7	3.7	4.7	4.3	4.3	4.1
Fiscal Balance (% of GDP)	-3.6	-1.3	1.2	-0.6	-0.7	-1.2
Debt (% of GDP)	76.0	73.2	62.4	60.0	57.5	55.5
Primary Balance (% of GDP)	-0.4	2.2	3.9	2.2	2.2	1.3
International poverty rate ($1.9 in 2011 PPP)[a,b]	5.6	5.5	5.4	5.3	5.3	5.1
Lower middle-income poverty rate ($3.2 in 2011 PPP)[a,b]	11.1	10.8	10.6	10.4	10.0	9.6
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	23.6	23.1	22.4	21.7	20.9	19.7

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on EU-SILC harmonization, using 2015-EU-SILC. Actual data: 2015. Nowcast: 2016 - 2017. Forecast are from 2018 to 2020.
(b) Projection using neutral distribution (2015) with pass-through = 0.87 based on private consumption per capita in constant LCU.

TAJIKISTAN

Table 1	2017
Population, million	8.8
GDP, current US$ billion	7.2
GDP per capita, current US$	812
Poverty rate (LCU 187.7/month)[a]	29.7
Gini coefficient[a]	28.0
School enrollment, primary (% gross)[b]	98.2
Life expectancy at birth, years[b]	71.0

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) 2017.
(b) Most recent WDI value (2015).

Tajikistan's economy sustained high growth in 2017 supported by an improved external environment, reflected in net exports and the recovering remittances. The positive outlook for the Russian economy, the improving regional environment, and construction of Rogun hydropower plant (HPP) support strong growth projections. However, the slow pace of reforms, heightened vulnerabilities, and the pending decisions in the banking and SOE sectors present downside risks. Poverty reduction prospects remain positive as remittances continue to recover and growth is sustained.

Recent development

Real GDP growth accelerated to 7.1 percent in 2017 from 6.9 percent a year ago. The economy was largely fueled by private consumption, supported by remittances—which expanded by about 16 percent through nine months of 2017, y-o-y—and by net exports, boosted by metallic minerals. Investments have also fostered growth, despite a deceleration in gross fixed capital formation, reflected both more muted FDI as well as a base effect from past increases. On the supply side, growth was supported by both tradable and non-tradable sectors with the highest contribution by industry followed by agriculture and services.

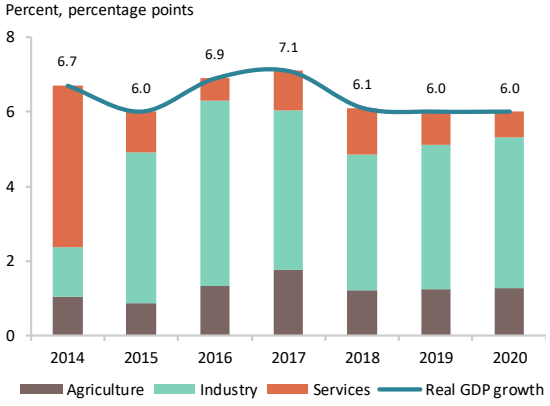
Annual consumer price inflation accelerated to 6.7 percent, slightly above last year's 6 percent, yet within the National Bank's target of 7±2 percent. Inflationary pressures stemmed from the depreciation of the national currency (about 11 percent during the year) which pushed up prices of imported goods along with factors, such as a supply-side shock on some food staples and increases in utility tariffs. As inflationary pressures and expectations moderated, the National Bank lowered the policy rate to 14.75 percent in the beginning of 2018.

Preliminary fiscal outcomes for 2017 suggest that the government adhered to the approved medium-term Fiscal Strategy 2017-20. The overall fiscal deficit was reduced to 2.6 percent of GDP in 2017 from 3.9 percent in the previous year (excluding 6.1 percent of GDP related to the financial sector bailout). The authorities spent 13.6 percent of GDP in investment, while keeping current spending below 18 percent of GDP. The fiscal contraction was attained through cuts of non-priority outlays, delays in implementation of further banking sector bailouts and contained the overall fiscal stance. Construction of the Rogun HPP was on full track, facilitated by proceeds from the Eurobond issuance in late 2017. The latter increased the level of public debt to above 50 percent of GDP, exacerbating the country's debt-related risks.

The external position continued to improve on the back of the recovering remittances, net export growth and more generally improved terms of trade. During the first three quarters of 2017, the current account balance turned positive to 1.5 percent of GDP compared to a 4 percent deficit in the same period of 2016. Exports grew by over 23 percent bolstered by higher production of metallic minerals, while imports declined by 3 percent in the first nine months of 2017, y-o-y. Foreign direct investments contracted to 2.1 percent of GDP through January-September 2017 (a historical low), compared to 2.9 percent of GDP in the corresponding period of 2016.

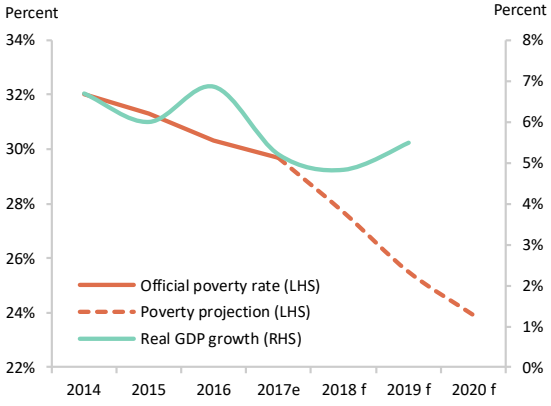
The financial sector remains partially insolvent despite some reduction of non-performing loans from 47 percent in 2016 to 35.8 percent by end 2017. The two largest problem banks have downsized significantly and now account for about 20 percent of the banking sector. While boosting efforts for asset sales, rehabilitation plans have been submitted to the government's review. The needed, long-pending legislative amendments, which aimed at enhancing the financial sector

FIGURE 1 Tajikistan / Real GDP growth and contributions to real GDP growth



Sources: TajStat, World Bank staff estimates.

FIGURE 2 Tajikistan / Official poverty rate and real GDP growth, actual and projected, 2014-20



Source: World Bank staff estimates.

regulation and oversight, are still under review by the government.

Despite strong growth, poverty fell only slightly from 30.3 percent in 2016 to 29.7 percent by September 2017 with extreme poverty stagnant at 14.1 percent of population. Income from employment and remittances remain the primary drivers of poverty reduction. Lower remittances slowed the pace of poverty reduction in 2014 – H1 2016, but began recovering in H2 of 2016, and rebounded throughout 2017. Poverty was relatively stagnant in urban areas during 2015-16 (hovering at around 24 percent) but became more dynamic in 2017 by declining to 22 percent. During the same period rural poverty fell from 36.1 percent in 2014 to 33.1 percent in 2017. Food expenditure accounts for about 75 percent of total consumption for poor households. The Listening-to-Tajikistan survey identified a noticeable decline in the share of households that have reduced food consumption to pay for other basic needs – from about 45 percent to about 27 percent between November 2016 to November 2017.

Outlook

Tajikistan's outlook for the short- to medium term remains positive and is explained by the improved external environment, including prices projected for major export commodities, and deepening relationship with neighbors, particularly Uzbekistan. Despite the weak banking sector, growth is expected to be around 6 percent supported by growing remittances, construction of large infrastructure projects and electricity sales. Inflation is forecasted to remain in single digits assuming the central bank's move to the inflation targeting framework improves inflation monitoring.

Over the medium term the fiscal stance is expected to remain prudent, in line with the deficit ceiling set by the Government's medium-term fiscal strategy. The fiscal deficit is projected at around 3 percent of GDP, primarily reflecting investments into infrastructure projects and higher debt service obligations. The baseline scenario does not assume additional budget support for the banking sector resolution; any needed bailout would expand the augmented deficit concomitantly.

The external balance is expected to deteriorate, while remaining below 3 percent of GDP affected by second-round effects of the remittance-driven consumption recovery and investment-related imports, particularly for the construction of the Rogun HPP. International reserves, which rose to 5.6 months of imports by the end of September 2017, are expected to decline in line as the construction of the Rogun HPP unwind into imports.

Poverty is projected to fall to about 24 percent by 2020. Strong growth and recovering remittances and expansion of the Targeted Social Assistance (TSA) program nationally are expected to push down poverty over the medium term.

Risks and challenges

Risks are tilted to the downside subject to external and domestic factors. External uncertainties may negatively affect remittance inflows. Domestic vulnerabilities include the adequate resolution of problem banks, growing contingent liabilities in public enterprises, and a very slow pace of structural reforms, particularly to enhance the business climate. The country's deteriorated debt trend and growing debt service obligations pose macro-fiscal challenges and limit the fiscal space for much needed social spending. Any potential banking sector bailout and/or second-round of Eurobonds issuance will substantially threaten the country's fragile macroeconomic stability.

TABLE 2 **Tajikistan** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	6.0	6.9	7.1	6.1	6.0	6.0
Private Consumption	-15.0	6.4	3.3	3.4	3.5	3.5
Government Consumption	3.3	3.9	-5.9	6.8	7.7	8.5
Gross Fixed Capital Investment	24.4	20.3	2.4	3.6	3.8	3.9
Exports, Goods and Services	0.0	0.0	10.4	8.5	8.2	8.1
Imports, Goods and Services	0.0	0.0	5.0	5.2	5.4	5.5
Real GDP growth, at constant factor prices	5.4	6.6	7.1	6.1	6.0	6.0
Agriculture	3.2	5.2	6.8	5.1	5.2	5.3
Industry	15.7	18.1	14.0	11.0	11.1	11.2
Services	1.6	1.0	2.8	3.3	2.5	2.1
Inflation (Consumer Price Index)	5.8	5.9	7.3	8.5	7.0	7.0
Current Account Balance (% of GDP)	-6.0	-3.8	-1.0	-2.4	-2.5	-2.6
Financial and Capital Account (% of GDP)	7.4	8.1	4.5	2.4	2.5	2.6
Net Foreign Direct Investment (% of GDP)	5.3	4.9	3.1	3.3	3.3	3.3
Fiscal Balance (% of GDP)	-1.9	-9.7	-2.6	-3.0	-3.1	-3.3
Debt (% of GDP)	35.0	43.2	50.4	51.2	51.7	52.2
Primary Balance (% of GDP)	-1.3	-9.2	-1.1	-1.2	-1.2	-1.3
National poverty rate [a,b]	31.3	30.3	29.7	27.7	25.5	23.9

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on 2017 HBS. Actual data: 2015, 2016, 2017. Forecast is from 2018 to 2020.
(b) Projection using neutral distribution (2017) with pass-through = (0.7) based on GDP per capita constant PPP.

TURKEY

Table 1	2017
Population, million[a]	80.3
GDP, current US$ billion	850.7
GDP per capita, current US$	10592
International poverty rate ($1.9)[b]	0.2
Upper middle-income poverty rate ($5.5)[b]	9.9
Gini coefficient[b]	41.9
School enrollment, primary (% gross)[c]	102.5
Life expectancy at birth, years[c]	75.4

Source: Turkstat and World Bank staff calculation.
Notes:
(a) Mid-year official data.
(b) Most recent value (2016), 2011 PPPs.
(c) Most recent WDI value (2015).

Turkey's strong recovery in 2017 (at 7.4 percent) came at a cost of widening macroeconomic imbalances. Growth in 2018, however, is projected to moderate closer to potential, at 4.7 percent. Poverty is forecast to decrease, although at a slower pace than previous years. Expansionary policies will likely in place to stimulate demand, especially ahead of the upcoming elections. Key risks include inflation and tightening of global financial conditions—all of which could constrain access to external finance, raise cost of external debt, and weaken the external balance.

Recent developments

Turkey experienced a strong recovery in 2017 with growth at 7.4 percent growth, stimulated by fiscal measures and a Credit Guarantee Fund for SME financing. Consumption accounted for over two thirds of growth in this period, and investment starting to pick up. EU recovery helped accelerate exports.

Strong demand has come at a cost of growing macroeconomic imbalances. Consumer price inflation averaged 11 percent in 2017. The current account deficit widened from 3.8 percent of GDP in 2016 to 5.5 percent in 2017 amid rising energy prices, high gold demand and imports stimulated by strong growth. A recovery in net portfolio flows helped finance half of the current account deficit while FDI inflows declined. Growth and import demand accelerated revenue collection, keeping the fiscal deficit at 1.9 percent of GDP in 2017.

The Central Bank raised the effective policy rate from 8.3 to 12.75 percent in 2017 due to price and exchange rate pressures. Despite this, inflationary expectations remain high. Growth in money stock (M3) moderated slightly but remained high at 16 percent in 2017 in line with strong demand, driven by a 20 percent expansion in private sector credit. The Central Bank also introduced stricter regulations on forex debt for corporates to mitigate risks of high forex exposure.

Poverty in Turkey continued to decline. The population with per capita expenditure below the poverty line ($5.5 a day in 2011 PPP) fell from 23.1 percent to a low of 9.9 percent in the 10 years up to 2016. It is estimated to have declined to 9.1 percent in 2017. The more recent progress was helped by the availability of more jobs, coupled with a 30 percent increase in minimum wage in 2016.

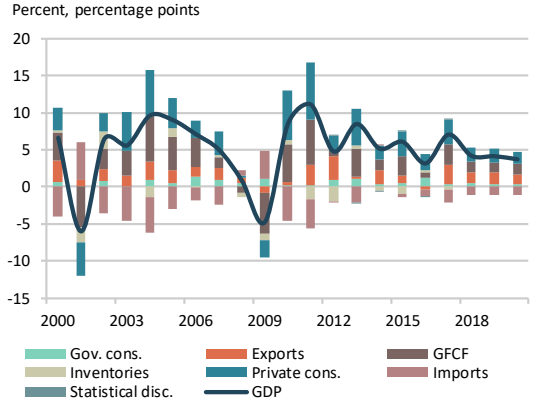
Strong growth stimulated the labor market in 2017. Unemployment rate decreased by 2.3 percentage points from 12.7 percent in December 2016 to 10.4 percent in December 2017. Employment increased by 1.6 million persons in the same period, mainly driven by services (55 percent), industry (19.5 percent) and agriculture (18.3 percent). Labor force participation rate for females rose to 33.5 percent, a 1.3 percentage point annual inter-annual increase. Meanwhile, the jobless rate among the youth fell by 4.8 percentage points to 19.2 percent.

Outlook

For 2018, economic growth is projected at 4.7 percent, gradually converging to a potential rate of around 4.5-5 percent. Recent surveys point to a moderation in consumer demand, weighed down by rising costs and declining real wages. Rapid credit expansion has increased credit risk and raised lending rates, pointing to a slowdown in credit growth in 2018.

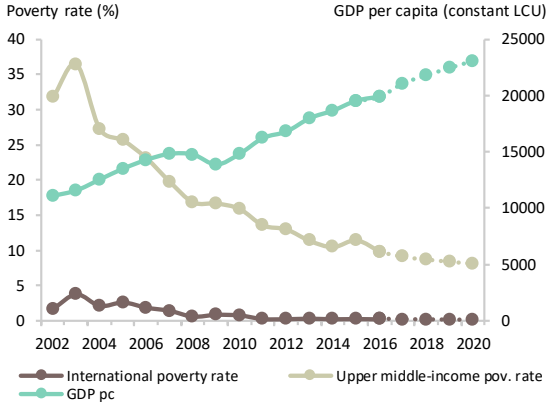
Nevertheless, expansionary policies will likely in place to stimulate demand to maintain growth especially ahead of the elections. The 2018 Budget approved in December 2018 was supplemented by fiscal stimulus measures proposed in

FIGURE 1 Turkey / Real GDP growth and contributions to real GDP growth



Sources: Turkstat and World Bank staff calculations.

FIGURE 2 Turkey / Actual and projected poverty rates and real GDP per capita



Sources: World Bank. Notes: see Table 2.

February 2018 to accelerate investment and employment. The latter could potentially raise the budget deficit target further. In addition, despite banking sector pressures, the Credit Guarantee Fund has been extended by a further TL 55 billion for 2018.

Given the above, inflation is expected to remain at just above 10 percent in 2018. Core inflation, which remained elevated, hit double digits in the last months, and could push headline inflation further. The current account deficit is projected to remain high at 5.6 percent of GDP. Despite continued export growth driven by continued recovery in the EU, the import bill is likely to remain large, not least due to rising commodity prices.

Poverty is forecast to decrease at a slower pace. It is estimated to decline further to 8.8 percent in 2018 (from 9.1 percent in 2017). Poverty could decline more rapidly if the recently introduced Attraction Centers Program (ACP) proves effective in boosting employment in the poorest regions. The program covers 23 provinces in eastern and southeastern Anatolian regions where poverty rates are 3-4 times higher than in the western regions. It aims to create new jobs and investments in less developed provinces and reduce high and persistent regional inequality.

Risks and challenges

External vulnerability for Turkey remains high. The US monetary policy tightening in 2018 could increase the pace and volume of capital outflows. This increases interest and exchange rate risks for Turkey's external debt. The private sector is particularly affected as it accounts for 70 percent of external debt. Although most of the debt is of long-term maturity, a weaker Lira and costlier external financing might adversely impact corporates' balance sheets.

This raises macro-financial risks. Capital adequacy and NPL ratios hover around 16 percent and 3 percent respectively, although total troubled assets are estimated to be higher. Exchange rate and interest rate risks, together with a slowing economy, all coming on the heels of rapid credit expansion, point to a potential deterioration in banking sector asset quality.

The US announcement on steel and aluminum tariffs will affect Turkey – the sixth largest seller of steel to the US. The direct impact on the trade balance will likely be limited, given the overall level of trade with the US.

The current macroeconomic environment and projected external conditions will require monetary and fiscal discipline. Sound macroeconomic policies need to be accompanied by deeper structural reforms to ensure a more sustainable economic growth trajectory over the medium term. Steady progress in advancing structural reforms will be key to restoring investor confidence, mitigating vulnerabilities, enhancing productivity and supporting growth.

On the poverty and inequality front, the impact of the employment subsidies targeted to disadvantaged populations, and the investment incentives focused on lagging regions, remains uncertain, both in the short term and in the long run. In addition, uptake from private employers may not reach significant levels, and low-income candidates may lack skills for jobs that become available. Considering these constraints, the impact of these policies warrants close monitoring.

TABLE 2 **Turkey** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	6.1	3.2	7.4	4.7	4.4	4.0
Private Consumption	5.4	3.7	6.1	4.0	3.8	3.6
Government Consumption	3.9	9.5	5.0	5.0	5.3	4.6
Gross Fixed Capital Investment	9.3	2.2	7.3	5.3	4.7	4.0
Exports, Goods and Services	4.3	-1.9	12.0	6.7	5.5	5.0
Imports, Goods and Services	1.7	3.7	10.3	6.0	5.2	4.6
Real GDP growth, at constant factor prices	5.7	3.1	7.8	4.7	4.4	4.0
Agriculture	9.4	-2.6	4.7	1.9	1.9	1.9
Industry	5.0	4.6	9.1	4.0	3.8	3.6
Services	5.6	3.2	7.5	5.4	5.0	4.4
Inflation (Consumer Price Index)	7.7	7.8	11.1	10.4	9.0	8.2
Current Account Balance (% of GDP)	-3.7	-3.8	-5.5	-5.7	-5.6	-5.5
Financial and Capital Account (% of GDP)	2.6	2.6	5.5	5.7	5.6	5.5
Net Foreign Direct Investment (% of GDP)	1.5	1.2	1.0	1.1	1.2	1.2
Fiscal Balance (% of GDP)	-0.1	-1.3	-1.9	-2.1	-2.1	-1.7
Debt (% of GDP)	27.6	28.3	28.3	28.4	28.4	28.0
Primary Balance (% of GDP)	2.2	0.7	0.0	0.0	0.0	0.6
International poverty rate ($1.9 in 2011 PPP)[a,b]	0.3	0.2	0.2	0.2	0.2	0.2
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	11.5	9.9	9.1	8.8	8.4	8.2

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on ECAPOV harmonization, using 2008-HICES and 2016-HICES. Actual data: 2015, 2016. Nowcast: 2017. Forecast are from 2018 to 2020.
(b) Projection using point-to-point elasticity (2008-2016) with pass-through = 1based on GDP per capita in constant LCU.

TURKMENISTAN

Table 1	2017
Population, million[a]	5.7
GDP, current US$ billion[b]	42.4
GDP per capita, current US$[b]	7355
School enrollment, primary (% gross)[c]	89.4
Life expectancy at birth, years [d]	67.6

Sources: UNPD, Macro Poverty Outlook, and WDI.
Notes:
(a) UNPD staff estimates (2016).
(b) World Bank staff estimates (2017).
(c) Most recent WDI value (2014).
(d) Most recent WDI value (2015).

Turkmenistan's real GDP growth rate rose by 6.5 percent year-on-year in 2017, mainly supported by a recovery in hydrocarbon prices. The external and fiscal accounts improved according to official data, but inflation surged to double-digits, hinting at a possible buildup of imbalances. The rise of inflation and the gradual removal of welfare subsidies for utilities has negatively impacted the purchasing power of households. The country's growth outlook remains positive, but risks are tilted downwards, given the needed structural reforms aimed at boosting private-sector development.

Recent developments

The official real GDP growth rate accelerated slightly—from 6.2 percent in 2016 to an estimated 6.5 percent in 2017. Growth was largely supported by more favorable terms of trade, primarily reflecting a recovery in global gas prices, which rose by 24 percent year-on-year. China remains the largest purchaser of Turkmen gas, while a price dispute with Iran over gas supplies remains unresolved and has affected export revenues. In early 2018, Iran announced readiness to file a case with the International Court of Arbitration.

The domestic retail trade sector grew at an annual rate of 19 percent in 2017, as an expansion of credit and government transfers supported consumption growth; the transport and communications sector grew by 11 percent year-on-year, and the service sector grew at an annual rate of 9 percent. However, gross fixed investments fell sharply (by almost 9 percent year-on-year), as flows of both domestic and foreign direct investments fell, dampening growth in the construction sector. Moreover, agriculture output increased by a mere 5 percent, just below GDP growth, suggesting less growth dividends for a large share of the population employed in the agricultural sector.

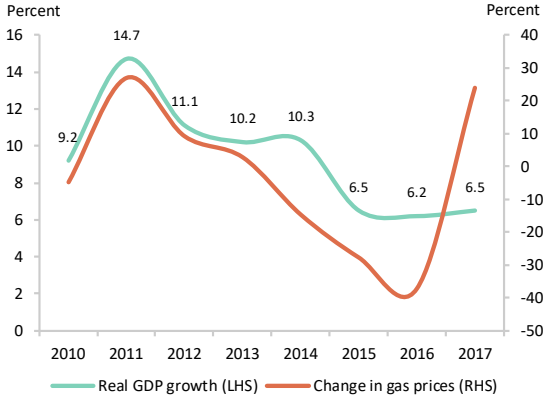
Consumer price inflation hiked from 6.2 percent in the end of 2016 to 10.4 percent by the end of 2017. Inflation was driven by the high pressure on the foreign exchange (FX) markets, which pushed up the prices of imported goods, as well as an upward adjustment of the highly subsidized fuel prices, including for utilities, and a 10 percent rise in public-sector salaries, pensions, and other government payments.

The current account deficit remained high in 2017, although with some improvement due to a recovery in global hydrocarbon prices and a substantial contraction in imports. After falling in 2015-16, export revenues grew by 3.6 percent year-on-year in 2017; still not sufficient to close the external gap. In contrast, imports continued to decline, falling by 23 percent in 2017. The sharp drop in imports was due to tighter trade regulations and significant pressures on the FX markets as the authorities avoided tapping on their buffers, restricting liquidity in the FX markets.

The monetary authorities continued to strengthen oversight and control of FX operations, and adopted restrictions that limited foreign currency withdrawals from cash, bank cards, and cross-border transactions in 2017. The drying up of FX liquidity in the domestic markets suggests that a correction of the official exchange rate (currently pegged at 3.5 manat per US dollar) may need to be considered, along with other macroeconomic and structural reforms to reduce the external imbalances.

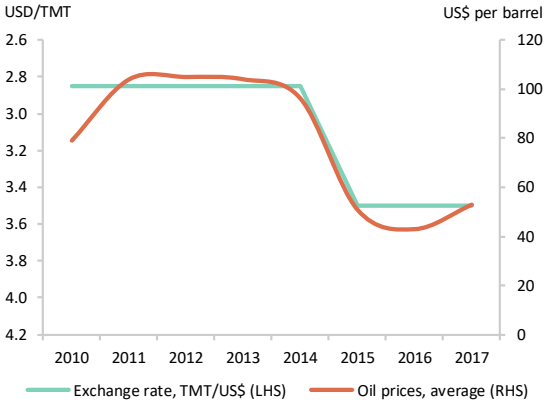
The Turkmen authorities continued their fiscal consolidation efforts and balanced the state budget in 2017, compared to the 1.3 percent deficit in 2016. Compared to government plans, revenue collection over -performed by 1.8 percent in 2017, while expenditures underperformed by 3.6 percent, primarily due to cuts in capital spending and a gradual elimination of welfare subsidies since the last quarter of

FIGURE 1 **Turkmenistan** / Real GDP growth and gas prices



Source: State Statistics Committee of Turkmenistan.

FIGURE 2 **Turkmenistan** / Exchange rate and oil prices



Source: Central Bank of Turkmenistan.

2017. Reportedly, civil servant wages, pensions, and other core social transfers were protected. It should be noted that the state budget does not represent the full fiscal picture as an important share of public spending is executed via extra-budgetary funds, including through directed lending.

Turkmenistan does not release official statistics on household welfare, and little is known about most recent labor market developments. However, the gradual removal of subsidies for utilities and rising inflation is likely to have affected the real purchasing power and living standards of households.

Outlook

The baseline scenario assumes a continuation of fiscal consolidation, some moderation in the buildup of external imbalances, and (sustainable) external debt accumulation to help finance the still sizeable (but narrowing) current account deficit. This baseline, however, is not without downside risks.

Turkmenistan's outlook will remain highly dependent on hydrocarbon prices and the growth performance of its major trading partner, China. Over the medium term, the real GDP growth rate is projected to remain below 7 percent, assuming favorable tailwinds (including via the terms of trade) but slow progress on implementing the national strategy's structural reforms aimed at promoting non-traditional (non-hydrocarbon) exports. Inflation would remain high while gradually returning to single digits, assuming further fiscal and monetary tightening.

The positive outlook on gas prices and the robust external demand from China would help strengthen the external position. The current-account deficit would narrow from its peak level in 2016, largely on the back of the restrain on merchandise imports due to FX constraints. Over the medium term, the reduction on imports would also follow in case the construction of the Turkmenistan—Afghanistan—Pakistan—India (TAPI) gas pipeline project is delayed. More generally, however, a sharp reduction of imports driven by FX restrictions could impinge on domestic price dynamics, and/or curtail the government's ability to proceed with ongoing investment projects, harming the growth prospects.

Risks and challenges

There are both external and domestic threats that raise country's risk profile. External risks include weaker-than-expected growth in trading partners, particularly in China, and an unexpected drop in energy prices, which may exacerbate external and domestic imbalances.

Domestic risks include a low quality and rapid credit expansion that may potentially undermine the performance of the financial sector, lower-than-expected returns on state-funded projects, and the stalling of structural reforms aimed at diversifying the economy through private-sector development.

An opening of the economy, an improvement in the business regulatory environment, an acceleration in the corporatization and privatization of state-owned enterprises, and more investments in human capital will be vital to boost private-sector development and achieve the goals of the medium- and long-term national development strategies.

Limited access to economic opportunities, and lack of economic diversification remain a major obstacle to inclusive growth, especially for households outside the capital city Ashgabat. Households in rural areas are more vulnerable to economic downturns and the rising inflation, due to factors that include their limited access to jobs beyond the agricultural sector. Economic diversification (beyond the gas and agricultural sectors) with further private sector growth would create more economic opportunities for households, including those in rural areas and secondary cities.

TABLE 2 Turkmenistan / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2014	2015	2016	2017 e	2018 f
Real GDP growth, at constant market prices	10.3	6.5	6.2	6.5	6.3
Inflation: consumer price index, end of period	4.4	6.0	6.2	10.4	6.2
Current account balance (% of GDP)	-6.4	-14.1	-21.0	-11.6	-11.5
of which: Exports of hydrocarbons (% of GDP)	42.0	29.9	16.6	14.7	14.4
Financial and capital account (% of GDP)	7.0	5.2	9.8	6.8	7.7
of which: Net foreign direct investment (% of GDP)	8.8	8.6	6.1	4.5	3.6
Fiscal balance (% of GDP)	0.9	-0.7	-1.3	-0.2	0.5
Public debt (% of GDP)	18.0	19.4	23.9	24.3	27.6

Sources: World Bank, International Monetary Fund.
Notes: e = estimate; f = forecast.

UKRAINE

Table 1	2017
Population, million	44.8
GDP, current US$ billion	112.9
GDP per capita, current US$	2522
International poverty rate ($1.9)[a]	0.1
Lower middle-income poverty rate ($3.2)[a]	0.5
Upper middle-income poverty rate ($5.5)[a]	6.4
Gini coefficient[a]	25.0
Life expectancy at birth, years[b]	71.2

Source: WDI, Macro Poverty Outlook, and official data.
Notes:
(a) Most recent value (2016), 2011 PPPs.
(b) Most recent WDI value (2015).

Economic growth in 2017 remained modest at 2.5 percent for a second year in a row, which is inadequate to reduce elevated compared to pre-crisis levels. Foreign investment and credit to the private sector is anemic. Macroeconomic vulnerabilities going forward come from significant financing needs, fiscal pressures from higher public-sector wages and social benefits. Completing the pending reforms in advance of elections in 2019 will be critical to mobilize adequate international financing, maintain macroeconomic stability, and bolster investment.

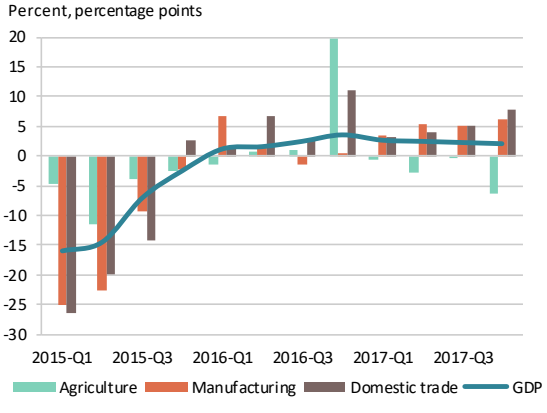
Recent developments

Growth remains weak due to key pending reforms needed to strengthen investors' confidence. GDP grew by 2.5 percent in 2017 (and 2.3 percent in 2016) which is a weak recovery since it follows a cumulative 16 percent contraction in 2014-2015. Key sectors exhibiting relative strength such as manufacturing and domestic trade grew over 5 percent in 2017, while construction grew by almost 27 percent. In contrast, mining and electricity generation contracted due to the trade blockade with Donbas. The growth of fixed investment has slowed in the second half of the year, while FDI remained weak at 2.1 percent of GDP in 2017, compared to 5 percent on average before the crises. Investor confidence has been affected by the slow pace in adopting key reforms and delays in completing reviews of the IMF program given macroeconomic vulnerabilities and uncertainty surrounding the 2019 elections. CPI reached 13.7 percent at the end of 2017, that is significantly higher than the NBU target of 8+/-2 percent, due to growth of public sector wages and pensions. As a result, NBU raised its key policy rate to 17 percent in March 2018 from 12.5 percent in April 2017. This has increased the cost of funds for local currency borrowing for both the government and the private sector.

Poverty remains above pre-crisis levels, but has registered small decline I in 2017 due to the modest economic recovery and wage growth. The unemployment rate remained steady in the third quarter of 2017 at 9.4 percent, compared to 9.2 the previous year. Real wages grew significantly by 19 percent in 2017 in part due to higher public-sector wages. This, together with real growth of pensions, led to further decline in poverty (consumption per capita below 5.5 USD/day in 2011 PPP) to 5.7 percent in 2017 from 6.4 percent in 2016 and 7.8 percent in 2015. Estimates of poverty by the National Statistical Service using an absolute poverty line comparable over time show much higher incidence levels, but a similar modest decline to 51.1 percent in 2016 from 51.9 percent in 2015.

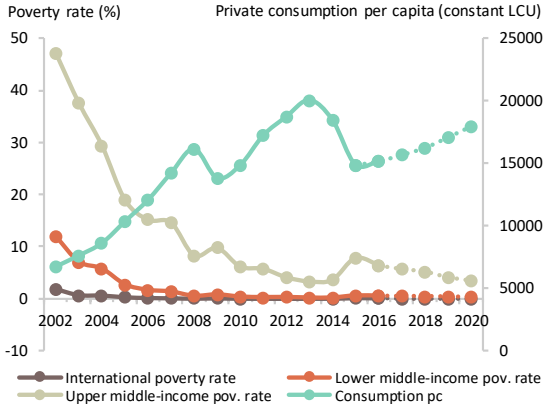
The fiscal deficit was within target in 2017 but spending growth, inflation, and the current account deficit remain high. The fiscal deficit remained flat and on target at 2.4 percent of GDP in 2017. However, expenditures were up by 11.7 percent in real terms and reached 42.6 percent of GDP due to the increase in the minimum wage (resulting in higher wages for teachers, doctors, and civil servants), as well as higher spending on social programs. This was balanced by strong revenue growth in 2017, driven by payroll tax (20 percent in real terms, due to the hike in wages), VAT (17 percent, due to higher proceeds from imports) and personal income tax (16 percent). Public and publicly guaranteed debt level remained high at 70.4 percent of GDP in 2017. The boost in wages and social expenditures triggered inflationary and current account pressures in 2017. The current account deficit was at 3.5 percent of GDP in 2017. FDI remains weak and covered 60 percent of the CAD, with the remainder financed by public and

FIGURE 1 Ukraine / Real GDP growth and contributions to real GDP growth



Sources: State Statistic Service of Ukraine.

FIGURE 2 Ukraine / Actual and projected poverty rates and real private consumption per capita



Sources: World Bank. Notes: see Table 2.

private borrowings. International reserves grew to $18.8 billion or an equivalent of 3.4 month of imports.

Outlook

Bolstering economic growth and addressing macroeconomic vulnerabilities will require progress on the unfinished structural reform agenda. Progress on the reform agenda and staying on track with the IMF program would not only boost potential growth, but also provide an important signal to strengthen investor confidence. This would help stimulate a sustained recovery in fixed investment, financed by local sources and FDI, and boost growth to 4.0 percent by 2019. With agriculture and commodities expected to remain relatively flat in 2018, the acceleration in growth is expected to come from manufacturing, construction, and services. Meeting the fiscal deficit target of 2.5 percent of GDP will require better targeting of social programs, rationalizing public sector staffing, and implementation of the recently adopted education and health reform laws in a manner that leads to optimizing the school and hospital network. Under an alternative scenario where reforms do not progress and the IMF reviews are not completed, growth is likely to remain at 2 percent, or potentially fall further if political and social stability deteriorates around the 2019 elections.

The moderate poverty rate (under 5.5 USD/day) is expected to decline further in 2018 but remain elevated through 2019. As public spending is constrained, labor income will become the most important driver of increasing incomes for the bottom 40 percent. Some rebound in the real sector, including wage growth in the private sector will support disposable incomes and help the poverty rate to gradually decline. However, the magnitude of this reduction will depend on the growth prospects, especially in the sectors were most of the poor/vulnerable are employed (trade, manufacturing, agriculture, construction).

Risks and challenges

Elections scheduled in 2019 pose major risks in adopting further reforms needed to mobilize international financing, address fiscal and financial sector imbalances, and promote stronger economic growth.

Macroeconomic vulnerabilities come total fiscal financing needs of $18 billion in 2018 and 2019 that will require mobilizing about $8 billion in external financing. Additional fiscal pressures come from the rising public-sector wage bill and significant spending on social programs, which will prove challenging to consolidate through the 2019 elections.

Financial sector weaknesses from high nonperforming loans at 55% of total loans, weak corporate governance of the dominant state-owned banks, and weak financial position of the Deposit Guaranty Fund not only stand in the way of stimulating investment and growth, but also pose significant fiscal risks.

With real household incomes still below pre-crisis levels, continued weak economic growth of 2 percent going into the 2019 elections could undermine overall political and social support for the broad reform effort launched since 2014.

External risks related to possible decline in commodity prices and higher inflation in advanced economies that may result in higher external trade deficit and cost of financing respectively.

TABLE 2 Ukraine / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	-9.8	2.3	2.5	3.5	4.0	4.0
Private Consumption	-19.7	1.8	7.8	5.4	4.1	3.8
Government Consumption	-0.4	0.0	3.3	4.5	3.2	1.6
Gross Fixed Capital Investment	-9.2	20.1	18.2	14.9	9.0	9.2
Exports, Goods and Services	-13.2	-1.6	3.5	8.0	6.4	5.9
Imports, Goods and Services	-17.9	8.4	12.2	14.0	7.2	5.8
Real GDP growth, at constant factor prices	-8.8	2.4	2.5	3.5	4.0	4.0
Agriculture	-4.4	6.0	-2.5	0.5	2.0	2.5
Industry	-15.1	3.3	2.5	5.0	4.5	4.0
Services	-7.3	1.4	3.4	3.6	3.6	4.2
Inflation (Consumer Price Index)	48.7	13.9	13.7	9.9	6.5	6.3
Current Account Balance (% of GDP)	-0.2	-3.7	-3.5	-3.7	-3.3	-3.3
Financial and Capital Account (% of GDP)	-0.2	3.4	3.3	3.7	3.3	3.4
Net Foreign Direct Investment (% of GDP)	0.2	0.2	2.1	2.3	2.3	2.5
Fiscal Balance (% of GDP)	-1.2	-2.3	-2.3	-2.5	-2.7	-2.4
Debt (% of GDP)	79.7	81.2	72.3	75.1	73.5	68.4
Primary Balance (% of GDP)	3.0	2.0	1.4	1.5	1.7	1.6
International poverty rate ($1.9 in 2011 PPP)[a,b]	0.1	0.1	..	..	..	..
Lower middle-income poverty rate ($3.2 in 2011 PPP)[a,b]	0.5	0.5	0.4	0.4	0.4	0.3
Upper middle-income poverty rate ($5.5 in 2011 PPP)[a,b]	7.8	6.4	5.7	5.2	4.0	3.4

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.
(a) Calculations based on ECAPOV harmonization, using 2016-HLCS. Actual data: 2015, 2016. Nowcast: 2017. Forecast are from 2018 to 2020.
(b) Projection using neutral distribution (2016) with pass-through = 1 based on private consumption per capita in constant LCU.

UZBEKISTAN

Table 1	2017
Population, million	32.0
GDP, current US$ billion	412
GDP per capita, current US$	1290
School enrollment, primary (% gross)[a]	102.1
Life expectancy at birth, years[a]	71.1

Source: WDI, Macro Poverty Outlook, and official data.
Notes:

(a) Most recent WDI value (2015).

Uzbekistan's real growth slowed in 2017, led by a deceleration in domestic demand, including investment as the key growth driver. The medium-term outlook is favorable, thanks to the government's ambitious reform program (e.g., a liberalized exchange rate regime, an enhanced policy framework and business climate), and the improved external tailwinds. Going forward, ensuring a sound reform implementation—including by tackling the remaining risks—will be key to sustaining inclusive and robust growth and secure job creation.

Recent developments

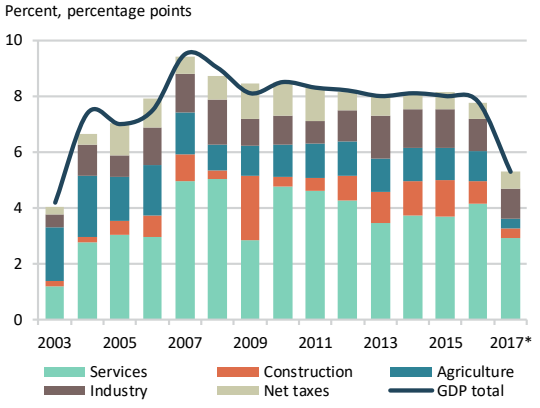
GDP growth slowed to 5.3 percent in 2017 (from 7.8 percent in 2016), led by the deceleration in domestic demand. Total investment moderated relative to previous years, while remaining the main growth engine for the economy. This was possible thanks to the public investment program, which supported a range of sectors (transport, utilities, oil and gas explorations, and housing) as well as public enterprises and private investment activity. On the other hand, private consumption declined slightly in real terms due to the pickup in CPI inflation, and despite a recovery in remittance inflows (which rose by 27 percent y/y in dollar terms in the first 9 months of 2017, together with the strengthening of economic activity in Russia).

The average nominal monetary income of the population grew by 12.3 percent in 2017, supported by an increase in minimum salaries and pensions by 15 percent in December 2017 (vis-à-vis an average inflation of 12.5 percent in 2017, in line with the IMF's methodology). Higher food inflation negatively affected mostly urban consumers, particularly among the bottom 40 percent households for whom food accounts for 61 percent of total consumption.

Uzbekistan mitigated the impact of export price declines in 2014-16 via increased export volumes. This trend continued in the first half of 2017—albeit at a decelerating rate as capacity diminished. Imports also grew, however, on the back of lower import prices and the very significant reduction in import tariffs implemented in September, which resulted in an expanded demand for imported goods. The trade balance was in surplus in 2017 (compared to a deficit in 2016) thanks to the higher commodity prices in the second half of 2017, and the recovery of food and manufacturing exports as the demand of Uzbekistan's trading partners firmed up. Overall, the current account surplus strengthened further in 2017 compared to 2016, owing not only to the stronger trade balance, but the recovery remittances.

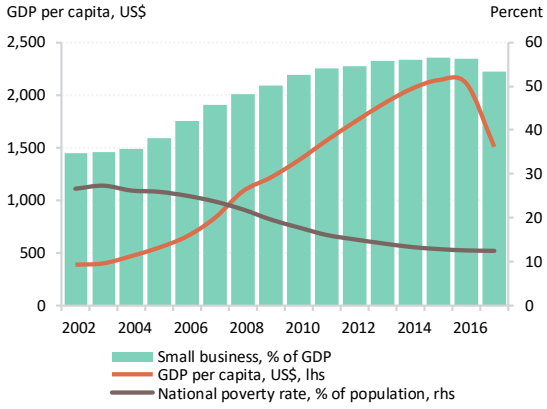
On September 5, 2017, the Central Bank of Uzbekistan (CBU) liberalized the exchange rate; the official rate depreciated from 4,210 UZS to 8,100 UZS per dollar, as it converged with the curb rate; the CBU has pursued a managed floating of the currency thereafter. The authorities also abolished the mandatory sales of a portion of firms' export revenues to the CBU at the official exchange rate ("surrender requirements"), widening the participation of the private sector in the foreign exchange market. In preparation of the exchange rate liberalization, the CBU raised the policy rate from 9 to 14 percent in June 2017, curtailing the strong credit expansion that took place earlier in the year, and helping stabilize the banking-loans-to-GDP ratio at 43.1 percent in 2017 (compared to 26.6 in 2016). Official figures suggest that non-performing loans (NPLs) were at 0.79 percent in Q2 2017 and 1.2 percent at the end of 2017 as per CBU estimates; Moody's assessed NPLs at 2.0-2.5 percent in August 2017; these could be

FIGURE 1 Uzbekistan / Real GDP growth and contributions to real GDP growth



Source: Uzbekistan official statistics.

FIGURE 2 Uzbekistan / Poverty, GDP per capita, and small business development



Source: Poverty line is national data based on minimum food consumption at 2,100 calories per person per day and it excludes non-food items.
Note: Due to the lack of data access, the Bank cannot validate the official figures.

higher after the exchange rate unification given the currency exposures of key borrowers, particularly public enterprises.

During 2017 the government sustained a robust (but softer) public investment program, while cutting back on current spending to meet its state budget targets. The authorities reduced direct taxes on firms and citizens while increasing property and resource taxes in an effort to achieve revenue neutrality while supporting economic activity. The government launched a privatization program and sold 542 state objects in 2017 with budget receipts of 0.3 percent of total budget revenue. The government also drew from its significant fiscal buffers (at the Uzbek Fund for Reconstruction and Development, UFRD, a reserve fund) to cover the debts of largest bank and industry public enterprises (particularly in the energy sector) that were affected by the depreciation of the official exchange rate. As a result, the augmented budget (including the state and UFRD activity) incurred a larger deficit of -3.3 percent of GDP in 2017, relative to a -0.6 percent of GDP a year earlier.

The official poverty rate declined slightly from 12.5 percent in 2016 to an estimated 12.4 percent in 2017. Still robust economic growth, small business development, and social safety net programs have driven poverty reduction in the past. Income distribution has become more equitable over time and the official Gini coefficient fell from 0.39 in 2001 to 0.29 in 2013. However, the official unemployment rate was 5.8 percent in 2017, higher than 5.2 percent in 2016.

Outlook

Robust growth is expected to continue at about 5 percent in 2018-19, but job creation may take longer to pick up, as investments may not return quickly to pre-2017 levels. Fiscal activity (including through UFRD lending) and bank credit are projected to become less expansionary than in the past to help reign on inflation, which is expected to remain elevated as liberalized prices continue to adjust. Budget spending would be geared towards mitigating the impact of the exchange rate adjustment on the vulnerable population, as well as supporting critical public enterprises to gradually converge towards greater sustainability and cost-recovery, and sustaining the public investment program. Monetary policy is expected to be tighter than in previous years, also aiming at containing inflation from trending up.

The current account surplus would narrow as imports continue to rise in the face of trade liberalization, even as exports (both commodities and manufactures) maintain a positive growth, and remittances remain solid. Real GDP growth is projected to accelerate slowly to 5.5 percent by 2020 as the private business climate improves on the back of the reform process, supporting an acceleration of private investment, including FDI.

While data limitations do not allow for poverty projections, we expect that increased income growth and the sustained robust net remittances in 2018 will allow some progress in poverty reduction over the near term.

Risks and challenges

Uzbekistan economy' upside and downside risks are broadly balanced. On the upside, there are benign prospects for commodity prices, and accelerated private investment (including as FDI) thanks to the authorities' bold reform agenda. On the downside, a slower recovery in the Russia's economy, potential delays in other structural reforms and higher inflation could undermine growth and job prospects.

TABLE 2 **Uzbekistan** / Macro poverty outlook indicators (annual percent change unless indicated otherwise)

	2015	2016	2017 e	2018 f	2019 f	2020 f
Real GDP growth, at constant market prices	7.9	7.8	5.3	5.0	5.1	5.5
Private Consumption	1.1	1.0	-0.3	1.2	1.2	2.2
Government Consumption	7.2	-12.8	-8.3	-7.6	-4.3	-1.1
Gross Fixed Capital Investment	9.5	9.5	7.1	6.9	7.0	7.5
Exports, Goods and Services	5.6	11.6	13.9	18.5	17.4	16.0
Imports, Goods and Services	-2.1	-3.6	7.1	16.4	16.9	17.2
Real GDP growth, at constant factor prices	7.8	7.9	5.3	5.0	5.1	5.5
Agriculture	6.8	6.6	2.0	3.6	3.7	4.4
Industry	8.5	6.9	4.8	3.7	3.8	4.1
Services	8.0	9.0	7.1	6.1	6.2	6.5
Inflation (Private Consumption Deflator)	8.5	8.0	12.5	19.5	12.9	9.1
Current Account Balance (% of GDP)	0.7	0.7	3.7	0.4	-1.0	-1.4
Fiscal Balance (% of GDP)	-1.3	-0.6	-3.3	-1.3	-1.2	-0.2
Debt (% of GDP)	9.2	10.5	24.5	22.3	20.8	21.2
Primary Balance (% of GDP)	-1.2	-0.5	-3.2	-0.8	-0.7	0.5

Source: World Bank, Poverty & Equity and Macroeconomics, Trade & Investment Global Practices.
Notes: e = estimate, f = forecast.

WORLD BANK **ECA ECONOMIC UPDATE** MAY 2018

Cryptocurrencies and Blockchain

With growth in Europe and Central Asia likely at its peak, this report addresses two questions. How well is the region prepared for an expected slowdown? How well has the economic upswing been used to adjust to the digital revolution? The report specifically focuses on cryptocurrency and blockchain activities in the region.

ISBN (electronic): 978-1-4648-1299-6

1818 H Street NW, Washington, DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

WORLD BANK GROUP