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The forecast is prepared in accordance with [the General Principles of Socioeconomic Indicators Forecasting](#) of ACRA.

World trade tensions may escalate to economic downturn by late 2019

Russia 2023 Economic Outlook Update and Alternative Scenarios

- **The economic outlook update for 2019–2023 mainly includes the consequences of the growing protectionism in the world trade.** Mutual rise in customs duties between the U.S. and other countries is likely to lead to stagnation or economic downturn in some developed economies in 2019–2020. ACRA updates its macroeconomic forecast of October 2018, lowering the likelihood of new economic sanctions against Russia; we are also of the opinion that the risks in commodity markets may be materialized on both the supply side and the demand side.
- **World trade slowdown will hold back the growth in demand for goods customarily exported by Russia.** Chances are high that export volumes will temporarily decrease, which would become the main effect of the global economic growth slowdown on the Russian economy. If the financial regulatory framework turns out to be helpful in withstanding the decline in exports and avoiding a financial stress in the banking sector, the Russian economy may go through an unfavorable period with the growth rates of 0.4–0.9% in 2019. In the event of a more severe decline in external demand or inadequate regulatory measures, a recession may occur (down to minus 2.5–3%).
- **Key economic stabilization tools may survive the rainy days for Russia.** The current version of the fiscal rule is more resilient to volatile external conditions than the previous ones. The inflation targeting is flexible enough and allows for deviations in the inflation dynamics from the target inflation. To minimize the foreign currency deposit conversion risk, the Bank of Russia may increase the key rate temporarily, and the Ministry of Finance of Russia may suspend purchasing foreign currencies for some time.
- **In the next 10-20 years, the middle-income economies, including Russia, will have fewer opportunities to show catching-up growth.** The convergence with high-income economies in the areas like demographic dividend, urbanization and world trade involvement, is almost at its peak. The success in catching-up growth depends on the sufficiency of incentives for investments into fixed capital and the structure of such investments. Creating high-performance jobs is more important than constructing buildings and structures.

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Table 1. Base case scenario of macroeconomic forecast for 2019–2023 (for alternative scenarios, see *Appendix 1*)

Indicator	UoM	Actual			Estimate	Forecast			
		2016	2017	2018	2019	2020	2021	2022	2023
Key external environment indicators									
Urals oil price	USD/bbl	42.3	53.5	70.1	61	53	53	57	60
Global GDP ¹	% y-o-y	2.5	3.1	3.3	2.2	1.3	2.7	2.4	2.3
US GDP	% y-o-y	1.6	2.2	2.9	1.3	-0.7	1.9	1.5	1.5
China GDP	% y-o-y	6.7	6.9	6.6	5.5	4	4.5	4.2	4.0
EU GDP	% y-o-y	2.0	2.5	1.9	0.6	0.2	2	1.5	1.5
Production indicators									
GDP (current prices)	RUB bln	86 014	92 101	103 876	107 414	111 342	114 267	122 055	129 332
Real GDP growth rate	%, y-o-y	-0.2	1.5	2.3	0.9	0.8	1.8	1.5	1.5
Fixed investments	RUB bln	14 749	16 027	17 595	18 379	19 672	20 486	22 085	23 913
Fixed investments real growth rate ²	%, y-o-y	-0.2	4.8	4.3	0.9	2.9	2.0	2.9	2.8
Industrial output index ³	%, y-o-y	2.2	2.1	2.9	2.0	0.9	1.9	1.5	1.4
Retail turnover	RUB bln	28 241	29 746	31 579	33 836	34 516	35 423	37 837	40 093
Balance of payments indicators									
Export of goods	USD bln	282	353	443	401	358	381	406	421
Import of goods	USD bln	192	238	249	240	226	255	264	276
Annual average USD exchange rate	RUB/USD	67.2	58.3	62.7	67.1	73.8	67.3	69.2	70.2
Annual average EUR exchange rate	RUB/EUR	74.4	65.9	74.0	74.5	80.3	72.0	73.4	74.4
Labor market and income									
Average wage	RUB/month	36 709	39 167	43 445	45 483	48 190	50 678	53 602	56 641
Real disposable income	%, y-o-y	-5.8	-1.2	0.1	0.2	0.3	0.9	1.2	1.5
Population	mln	146.7	146.8	146.9	147.1	147.1	147.1	147.2	147.2
EAP ⁴	mln	76.6	76.3	76.2	76.8	77.3	77.9	78.5	79.1
Unemployment	% of EAP	5.5	5.2	4.8	4.7	4.9	4.8	4.6	4.6
Financial market prices and indicators									
Inflation (CPI ⁵)	%, Dec/Dec	5.4	2.5	4.3	4.5	4.7	3.0	3.9	3.8
Key interest rate (as at year-end)	%	10.0	7.75	7.75	7.25	7.25	6.75	6.5	6.0
5-year zero-coupon OFZ rate	%	8.3	7.2	8.5	7.9	7.4	6.8	6.7	6.4
Private deposit rate (> 1 year)	%	7.8	6.7	6.9	6.8	6.2	5.7	5.5	5.4
Non-financial sector bank lending rate (> 1 year)	%	12.5	8.6	9.9	9.6	9.9	8.8	8.3	7.8
Budget									
Federal budget balance	% of GDP	-3.4	-1.4	2.6	1.3	0.1	-0.3	0	0.2

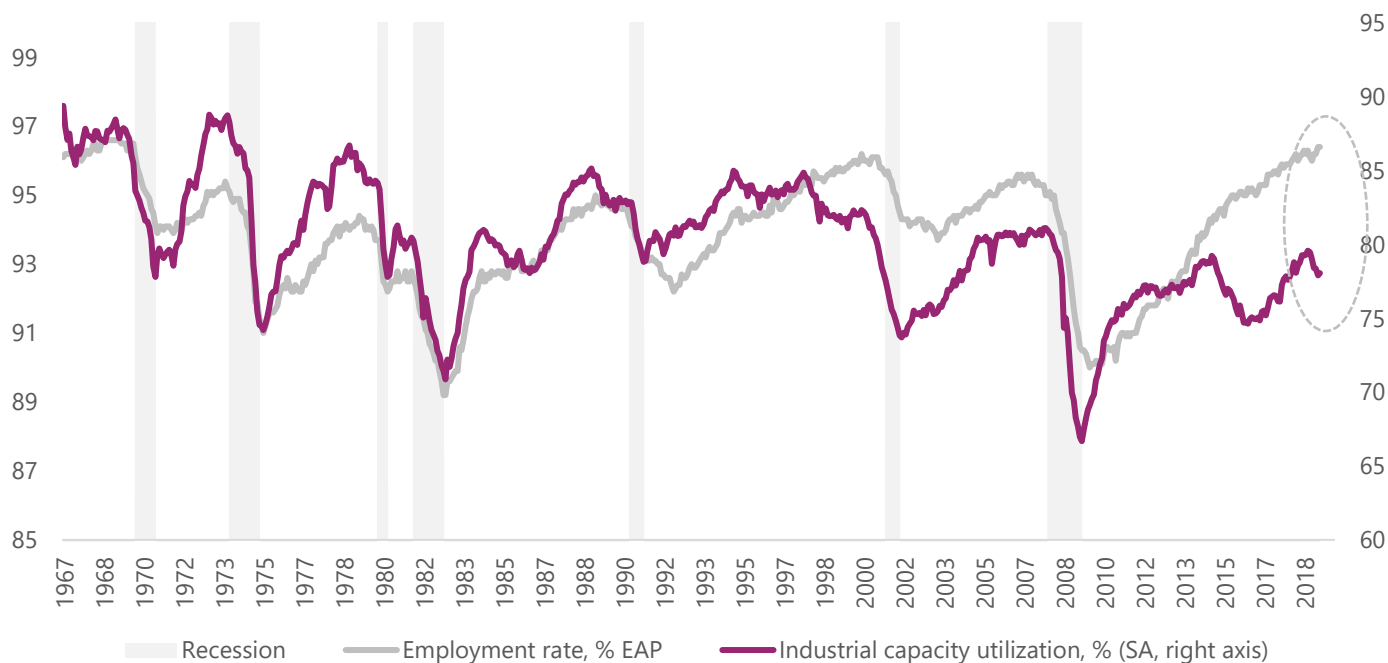
Source: ACRA

¹ Real growth rate according to the World Bank Methodology.² Physical volume growth index corrected by the investment deflator.³ Under the new methodology after adoption of the Russian Classification of Economic Activities 2.⁴ Economically Active Population.⁵ Consumer Price Index.

Worsening external economic conditions

Low probability of rapid resolution of the trade conflict between China and the U.S., as well as the threat of U.S. trade restrictions against Mexico and other countries, indicate that the negative cyclical trends that have been observed in the U.S. economy since the beginning of this year (see *Fig. 1*) may cause stagnation or recession in some developed economies in 2019–2020.

Figure 1. Labor force and industrial capacity utilization in the U.S. (up to May 2019)



Source: Federal Reserve Bank of St. Louis, ACRA calculations

The world trade growth will generally slow down, leading, among other things, to a decrease in the economic growth rates in some countries that are Russia's trading partners. More than 20% of Russia's exports fall to conflicting economies and countries at risk of protectionist measures in the near future. Although trade restrictions create opportunities to conquer markets by countries not directly involved in the trade conflict (Vietnam, Canada, Mexico), new restrictions will pull up import prices and push down the real end demand in the countries in conflict. This will restrain the growth in demand for goods customarily exported from Russia and the increase in prices for commodities (including in Europe). As a result, risks in the oil market will materialize not only on the supply side (new pipelines in the USA), but on the demand side as well.

In Russia, the negative effect of lower oil prices on the currency exchange rate is leveled by the stabilizing mechanism of the fiscal rule and the related currency interventions. However, the general growth of uncertainty and the shock of physical volumes of exports will affect the investment plans of companies from various industries, and the materialization of currency risk, albeit limited due to the above mentioned stabilizing mechanism, will hold back real disposable incomes and consumption volumes.

The macroeconomic scenarios were first formulated by ACRA in its research [Stressful scenarios are becoming more likely for the Russian economy](#) published on October 25, 2018

If the financial regulatory framework of Russia allows it to withstand a decline in exports (with limited materialization of the currency risk) and avoid a financial stress in the banking system, the Russian economy may go through an unfavorable period with a slight but positive growth rate of 0.4–0.9% in 2019–2020. With a more significant drop in the external demand or in the case of inadequate countercyclical policies, the recession may turn out to be deeper (up to minus 2.5–3%; the "Pessimistic + financial stress" scenario, see *Table 2*).

As of July 22, 2019, the external conditions match the scenario previously taken by ACRA as alternative. Under current conditions, this scenario for 2019–2023 is assumed as the base case scenario (see *Table 1* and *Appendix 1*), while the ex-base case scenario has become optimistic, correspondingly.

None of the scenarios includes a recession in China in 2019–2023, though the likely drop in the volume and potential of the Chinese exports poses a strong challenge for the economic policy of China. The Chinese government will need to take sound efforts to support the employment and internal demand. The economic growth in China will slow down to 4–4.5% before 2022. The expected Chinese demand for Russian products is unlikely to change thanks to the persisting coal to gas transition and the political support for the "Turn to the East" process by the both countries.

Table 2. Components of macroeconomic scenarios for Russia⁶

Event	Occurrence likelihood in 2019–2020	Negative effect for the Russian economy	Optimistic	Base case	Pessimistic + financial stress
A drop in demand for exports from Russia for over 2% due to trade wars	Medium -----> High	Strong	(+)	+	++
New U.S. sanctions against Russia (beyond debt oriented ones)	High -----> Medium	Weak	(+)	(+)	+
Offer shocks pushing commodity prices down	High	Medium	+	+	+
Endogenous recession in the U.S.	Medium -----> High	Strong		+	+
Debt crisis in China	Low	Medium			(+)
Budget crises in some EU countries	Medium	Weak			(+)

Source: ACRA

ACRA FSI is published at 17.00 each business day. [More details.](#)

In ACRA's view, the ACRA FSI reaching 2–2.5 pps may trigger the pessimistic scenario. The return to the optimistic scenario is possible only if the trade wars subside before autumn 2019.

⁶ + — mandatory scenario component; (+) — possible but not mandatory scenario component.

For middle-income economies, it may become harder to show catching-up growth in the next 10 years

In this research, the middle-income countries are those where the GDP per capita has been within 20–55% of the average figure demonstrated by five leading developed economies (according to Maddison Project Database, based on PPP) in 1973 or 2016. High-income countries are those where the GDP per capita exceeded 55% throughout that period.

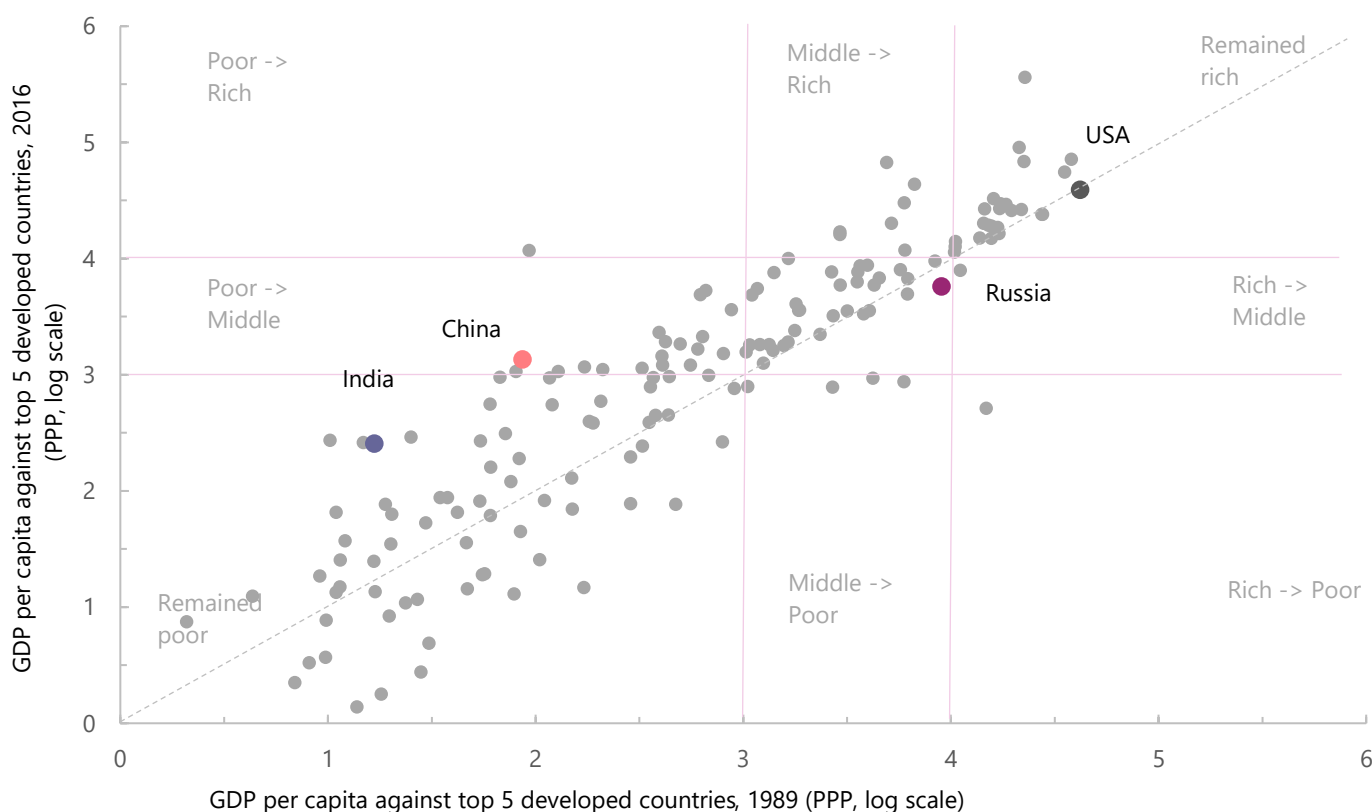
Hong Kong is a special administrative district of China that enjoys a high degree of autonomy, but does not have sovereignty over defense or foreign policy issues. In this research, it is considered as a separate country.

The Russian Government's plans to double, in the next five years, the GDP per capita growth rate from the current 1.5–2 pps to more than 3 pps per year look very ambitious. The main measures include encouraging investments in fixed assets and changing the priorities of budget expenditures. If this objective is achieved, Russia will join the group of middle-income countries approaching the leaders in terms of living standards. The key questions are whether this is possible in principle and, if so, whether the proposed measures are sufficient to overcome the "average income trap" (i.e. a slowdown in economic growth when reaching a certain level of income).

Economic research, which allows income comparisons across countries, questions the "rigidity of the trap." Over the past half-century, 42 out of 68 middle-income countries have moved significantly closer to the group of the so-called high-income countries. If the average growth rate of those 42 countries had been maintained, all of them would have reached the leaders within 100 years, and five of them have already join the group of leaders (Spain, Ireland, Korea, Singapore, Hong Kong).

The review of a shorter period (1989–2016) shows a more pronounced convergence: most countries have approached the five leaders in terms of GDP per capita, regardless several global crises of economic, financial and geopolitical nature (see Fig. 2). Apparently, convergence of countries in terms of income and productivity seems to be part of the current stage of progress.

Figure 2. Movement towards global leaders in terms of income and productivity is seen across country groups

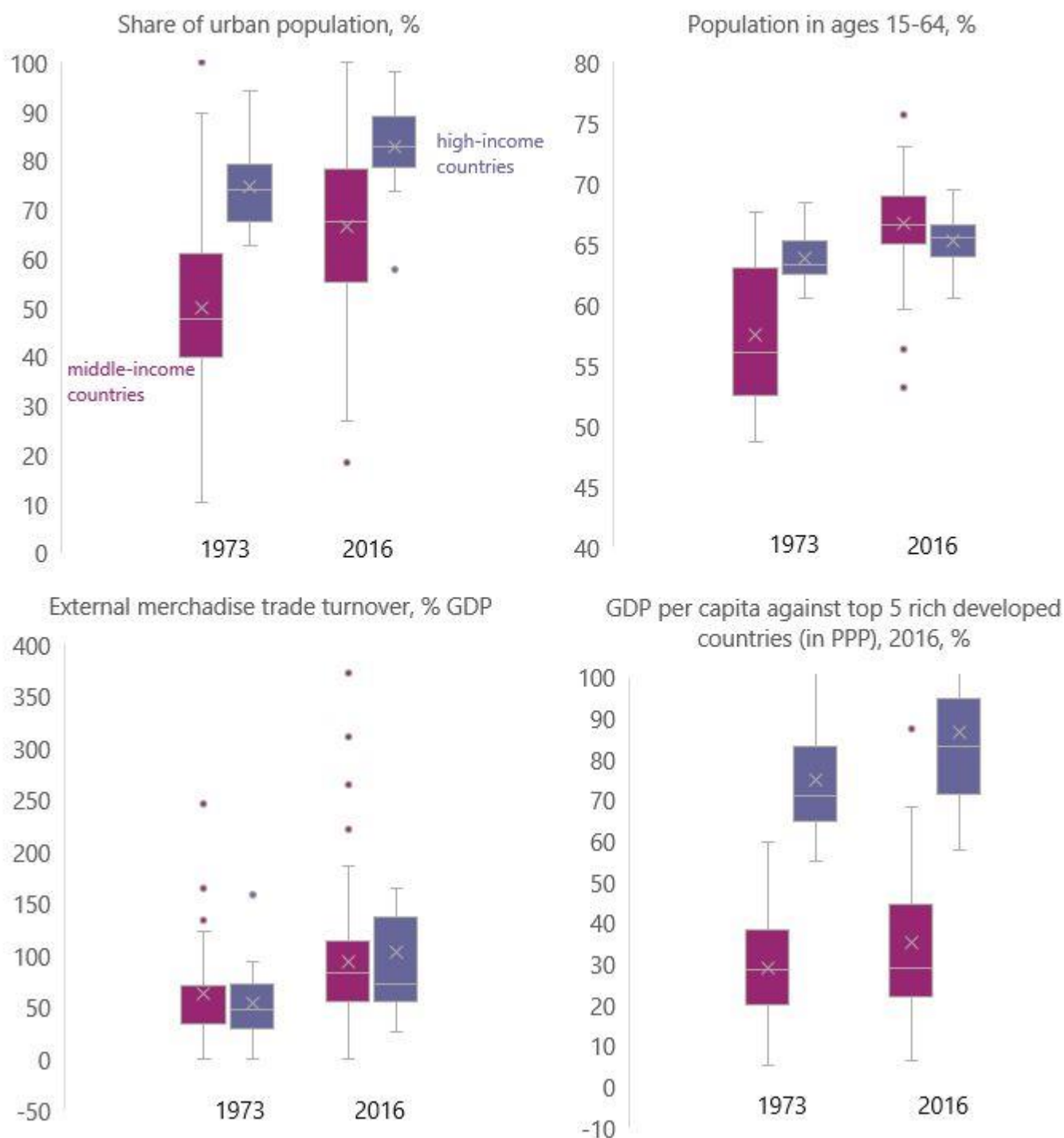


Source: Maddison Project Database, ACRA calculations

UPT factors are urbanization, population (demographic dividend), trade.

At the same time, there is evidence that the stage of general convergence may give way to a new stage, where the race for leaders may become much more difficult. The successful catching-up growth demonstrated by middle-income countries over the past 50 years may be linked to three structural processes: urbanization, growing share of working-age population, and inclusion in global value chains. Almost all middle-income countries that did not demonstrate the UPT dynamics stronger or comparable to leaders were not able to approach the group of leaders in terms of living standards. The opposite is also true (see *Table 3*).

Figure 3. Catching growth ability strongly correlates with UPT factors*



* Cross denotes an average value; line within a rectangle denotes a median value; rectangle denotes two medium quartiles in a distribution.

Source: The World Bank, national statistic agencies, ACRA calculations

Demographic dividend (sometimes referred to as first demographic dividend) is the opportunity for accelerated economic growth caused by the increasing share of the able-bodied population of a country.

Approached countries were those that, in 1973–2016, were catching-up with the leading countries in terms of GDP per capita (by PPP) fast enough to get up to the level of top 5 leading developed countries within 100 years or earlier.

The estimated catching-up growth potential based on the UPT factors broken down by country is shown in Appendix 2.

With regard to urbanization and demographic dividend, developed countries have already reached or are close to the theoretical ceiling and therefore they have very limited potential for further growth. This has made it relatively easy for developing countries to catch up with leaders, but the gap between them and developed countries has already narrowed significantly.

In terms of the third factor (trade), as globalization progressed, countries of all groups showed a relatively equal growth; those countries that did not expand their economic ties turned out to be outsiders. Today, against the backdrop of rising protectionist tendencies, it is becoming increasingly difficult to carve out a place in the global trade. Smaller countries, which tend to have less diversified trade patterns by product and direction, are more vulnerable to higher tariffs and other restrictions. Thus, at a time of tighter trade restrictions, those countries are most at risk of growth slowdown (although specific countries may benefit).

Table 3. In 1973–2016, as low as seven middle-income countries without outrunning growth in UPT factors⁷ approached the leaders

	Approached	Not approached	Total
Countries with outrunning growth in UPT factors	35	7	42
Countries without outrunning growth in UPT factors	7	19	26
Total	42	26	68

Source: ACRA calculations

The lack of catching-up growth in Russia is in line with the global trend of the last 45 years. For about past 30 years, the level of urbanization in Russia has been close to the average European level (75% in 2018); note that higher levels can be found rarely in countries with a comparable type of territory. In terms of demographics, Russia has also long since passed the stage of declining mortality along with a high birth rate. The chances for a rapid inclusion of Russia into global value chains were previously restricted by geopolitical reasons, or by Dutch disease in the 2000s; in the near future, such inclusion will be complicated by the general trend for protectionism in the world trade and by sanctions and counter-sanctions between Russia and Europe. In addition, countries with a large territory are naturally less open to foreign trade. The UPT factors have almost played their role in the catching-up growth for Russia, although the potential of most middle-income countries has not been exhausted.

⁷ Egypt, Jordan, Sri Lanka and Mongolia were low-income countries for the most part of the period under review and had additional incentives for catching-up growth. The economic boom in Panama was driven by the reconstruction of the Panama Canal (with which about 40 per cent of the country's GDP is associated) to allow larger vessels to pass through. It is likely that Uruguay is regarded as a country showing no catching-up growth in the UPT factors due to the extreme simplicity of the model (linearity in UPT factors). Turkmenistan is the only country for which we find it difficult to explain the outpacing dynamics.

Catching up never ends, perhaps

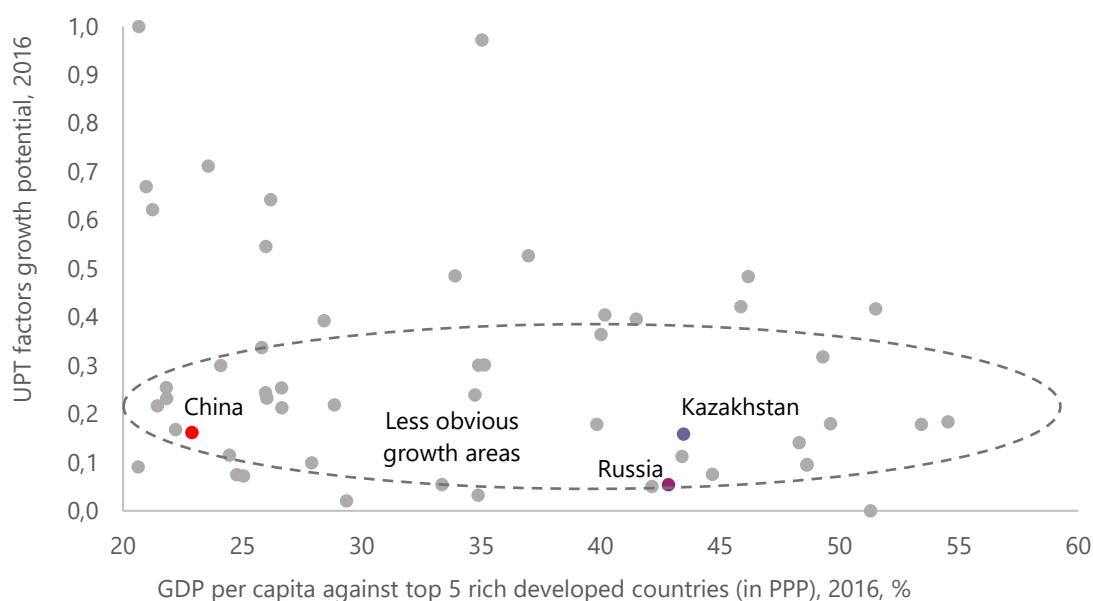
Social institution can refer to mechanisms of social order, which govern the behavior of a set of individuals within a given community (either historically developed or specially designed).

Technological frontier is a fast moving border between mastered and non-mastered technologies.

Institutional transplantation means borrowing institutions from a society by other society (generally, to share positive experience).

A country may reach the UPT factors level comparable with those of rich countries; however, it is not a guarantee that such country becomes a high-income country (see Fig. 4). There are more intricate productivity and well-being factors, including, among others, institutions, cultural specifics, quality of human capital (health, education), that matter. The problem is that the recipe for reducing the gap between rich countries and middle-income countries in the above factors is not particularly clear and may even be non-existent.

Figure 4. Middle-income countries comparable to rich countries in their UPT factors are not necessarily enter the high-income group



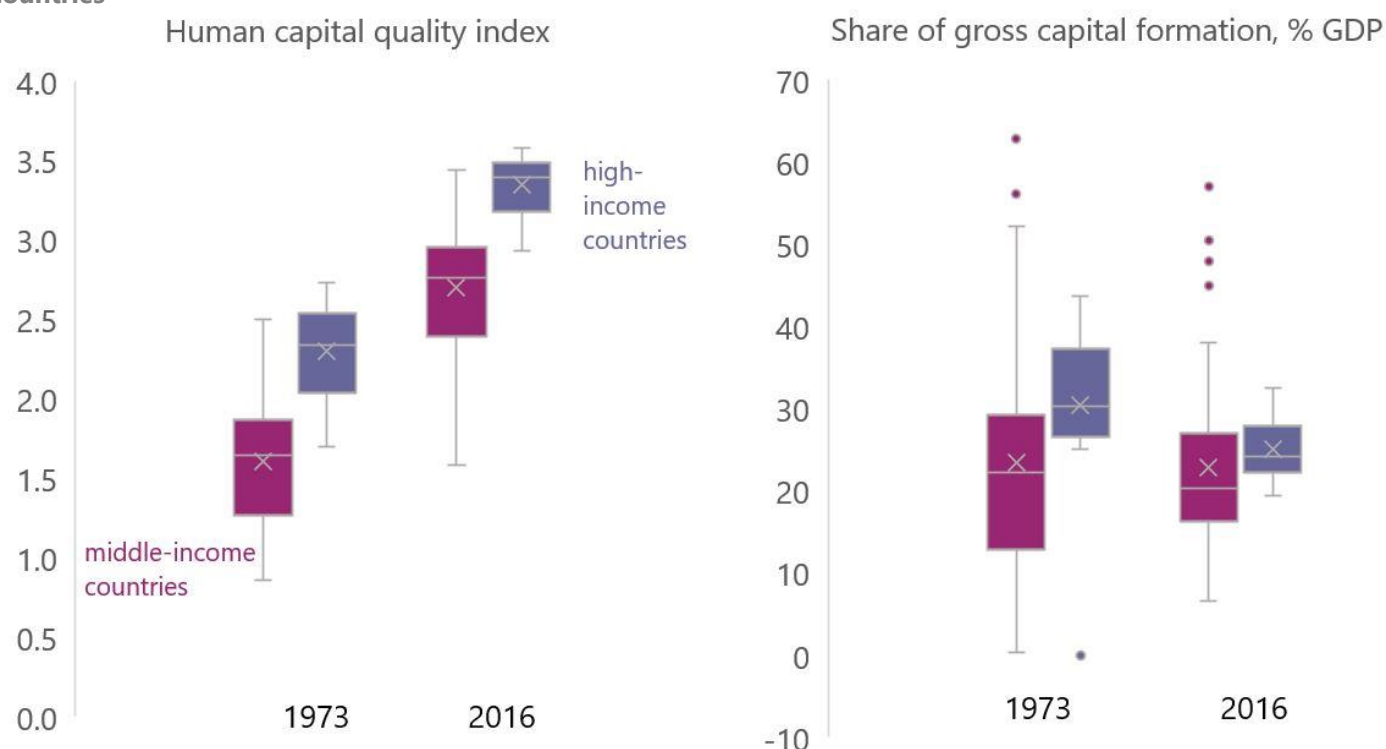
Source: ACRA calculations

Institutions and culture. From the technological viewpoint, as a country moves to the frontier, it needs institutions that are most suitable for importing and implementing existing technologies. As the country approaches the frontier, the need arises for institutions that are conducive for independent development of technologies.

The first problem with institutional transplantation is that there is no sustainable understanding of which institutions contribute to productivity and well-being in a given country.

The second problem is that institutions are deeply embedded in public life, and therefore their transformations tend to affect too many interests and often face rejection. This hinders a country's development and serves an indirect manifestation of the middle-income trap.

Figure 5. Human capital quality and investment share and structure differ in high-income and middle-income countries



Source: World Bank, UN, Penn World Tables, ACRA calculations

The human capital quality index is calculated by ACRA based on the mortality rates at different ages and the accumulated length of education in working age population.

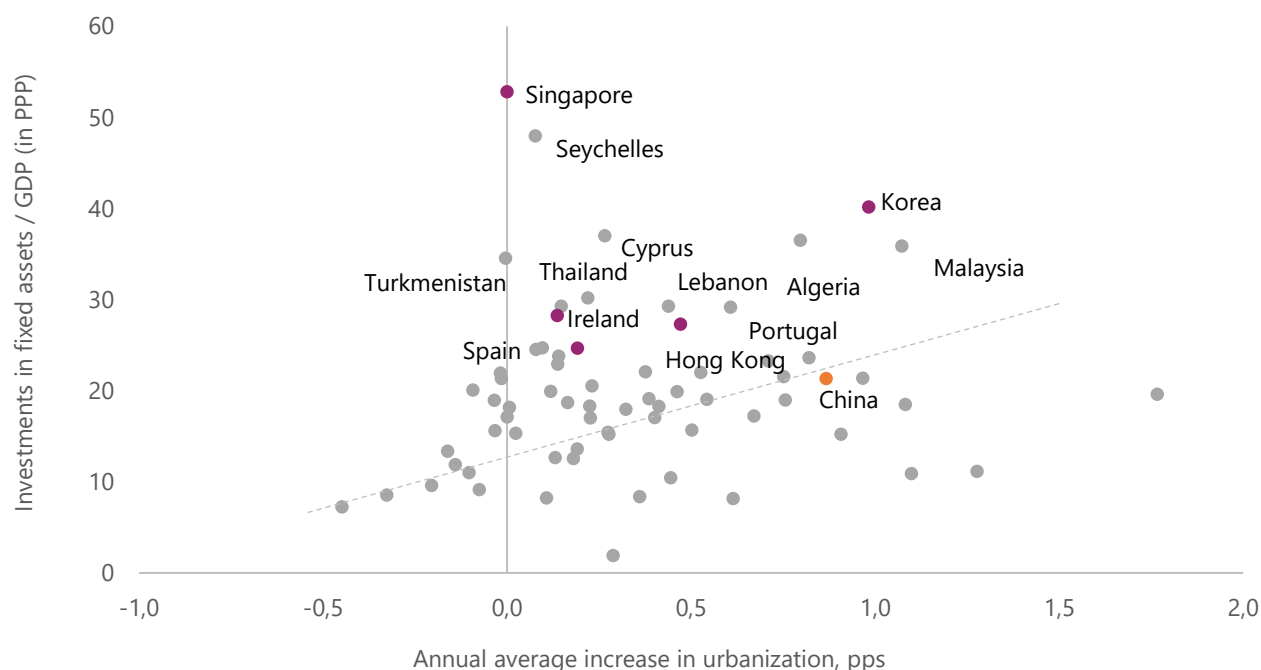
Human capital quality. Healthier and more educated people are more productive, and the societies they live in are richer. The reverse is also true: in a rich society, people tend to be healthy and educated because they have greater opportunities to invest in the human capital quality. The return on investment may be eventually decreasing but the rate of the decrease is relatively small even for developed economies. *Figure 5* shows that middle-income countries are very slowly approaching rich countries in terms of education and health (one more middle-income trap).

Success stories (applicable to Russia). The above mentioned five countries that have managed to enter the high-income category over the past 45 years (Spain, Ireland, Korea, Singapore, Hong Kong) have demonstrated a transition in the human capital quality. In all cases, it occurred after or during the growth of personal incomes and labor productivity. It is unlikely that the transition in the human capital quality has driven up incomes and productivity. Rather, the growth in productivity and incomes has enabled the population to increase spending on health and education, thereby improving the quality of human capital (fostering economic growth even more). From this point of view, relatively small changes in Russia's public (and the incentives for private) spending on education and health care that resulted from the new presidential May decrees can hardly be considered a major constraint for the catching-up growth⁸.

⁸ The expected health care expenditures of the Russian budget system for 2020 have decreased from 3.8% of GDP to 3.6% of GDP (a decrease in both relative and absolute terms, adjusted for inflation, according to the data provided in the "Main Directions of Budget, Tax and Customs Tariff Policy for 2019-2021"). In this case, the growth rate of health care expenditures will not exceed the real growth rate of the economy (both in the part covered by the disposable income of the population and in the part covered by the state).

The main feature common for all the countries that managed to catch up with the leaders is a long period of increased investments in fixed assets. The investments were high irrespective of the urbanization that took place in these countries (see *Fig. 6*): as a result, jobs were created in highly productive sectors.

Figure 6. In the period of catching-up growth (1985–2000), successful countries invested heavily in fixed assets⁹



Source: World Bank, Penn World Tables, ACRA calculations

If such a period is to be considered necessary for a country to achieve the level of productivity that the leading countries have (as evidenced by the experience of the last 45 years), then in this context, the Russian government's efforts to increase the potential rates of economic growth should be considered, first, from the viewpoint of sufficiency of incentives for investment in fixed assets (see *Table 4* for possible options for their assessment).

Based on the experience of catching-up countries, in order to approach the leaders, Russia may need to maintain average level of investments at 22–23% of GDP over a period of ten to fifteen years (as defined in p. 4 in *Table 4*) while having stable level of urbanization. The current level of investments at 17% of GDP is insufficient. In the same terms, 25% of GDP, as stated in the "Action Plan for Accelerating the Growth of Fixed Capital Investments..." prepared by the Ministry for Economic Development, correspond to approximately 21% (as initially defined in p. 3 of *Table 4*).

⁹ The trend line is based on the correlation of these two indicators, as estimated at the maximum available time range (1973–2017), and not only for the sub-sample shown on the graph. The share of investments is derived from the Penn World Tables data based on the series characterizing the GDP by PPP structure. In this graph, all countries with high levels of investment showed catching-up growth between 1985 and 2000.

It should be noted that the countries that have gone through the period of relatively high investments in fixed assets have not always caught up with the leaders. This is probably due to the structure of investments.¹⁰ For example, successful countries are characterized by a significant share of gross fixed capital formation related not to the construction of buildings and structures, but to machinery, equipment and intellectual products (about 50% and higher). For others, this ratio is 40% or less.

The latest available data on the structure of gross fixed capital formation in Russia contain a large unallocated item "Other types of fixed assets." This does not allow us to arrive at a sufficiently accurate conclusion about the structure of gross fixed capital formation in Russia, while the range of possible values of the share of investments not related to construction was 27-52% in 2017.

Table 4. Seven ways to assess the share of "investments" in the Russian GDP

Name	Source	2017	2018	Used in
1. Gross capital formation	Rosstat / SNA / GDP / Utilized GDP	24.1	22.7	
2. Gross fixed capital formation	Rosstat / SNA / GDP / Utilized GDP	22.3	21.4	World Bank, World Development Indicators (gross fixed capital formation)
3. Gross fixed capital formation (excluding valuables)	Rosstat / Effectiveness of Russian economy or SNA / Balance of assets and liabilities	21.5	20.7	Title of the "Action Plan for Accelerating the Growth of Fixed Capital Investments and for Increasing the Share of Such Investments up to 25% of GDP," MED's Outlook ("Share of investments in fixed capital, in GDP")
4. Fixed capital investments	Rosstat / Entrepreneurship / Investments	17.4	16.9	MED's Outlook ("Fixed Capital Investments, in GDP")
5. Share of gross capital formation at current PPPs (indicator csh_i)	Penn World Tables	15.3	-	Cross-country studies
6. Non-financial asset investments (large and medium enterprises)	Rosstat / Entrepreneurship / Investments	13.5	12.8	
7. Fixed capital investments (large and medium enterprises)	Rosstat / Entrepreneurship / Investments	13.3	12.7	Annex to "Action Plan for Accelerating the Growth of Fixed Capital Investments..." — "Targets..."

Source: ACRA

¹⁰ For example, see Madsen, J. B. (2002). The causality between investment and economic growth. *Economics Letters*, 74(2), 157-163.

Appendix 1. Key indicators of alternative scenarios for Russia

Optimistic

	Indicator	UoM	Actual			Estimate	Forecast	
			2016	2017	2018	2019	2020	2021
Key external environment indicators	Urals oil price	USD/bbl	42.3	53.5	70.1	65.0	66.1	65.3
	Global GDP	% y-o-y	2.5	3.1	3.3	2.6	2.4	2.2
	US GDP	% y-o-y	1.6	2.2	2.9	2.0	1.9	1.8
	China GDP	% y-o-y	6.7	6.9	6.6	5.6	4.9	4.4
	EU GDP	% y-o-y	2.0	2.5	1.9	1.9	1.6	1.6
Production indicators	GDP (current prices)	RUB bln	86 014	92 101	103 876	107 773	113 704	119 226
	Real GDP growth rate	%, y-o-y	-0.2	1.5	2.3	1.4	1.6	1.5
Balance of payments indicators	Export of goods	USD bln	282	353	443	424	430	428
	Import of goods	USD bln	192	238	249	252	265	271
	Annual average USD exchange rate	RUB/USD	67.2	58.3	62.7	64.1	64.3	66
	Annual average EUR exchange rate	RUB/EUR	74.4	65.9	74.0	72.4	70.7	72.6
Labor market and income	Real disposable income	%, y-o-y	-5.8	-1.2	0.1	0.5	1.8	1.7
	Unemployment	% of EAP	5.5	5.2	4.8	4.7	4.7	4.7
Financial market prices and indicators	Inflation (CPI)	% Dec./Dec.	5.4	2.5	4.3	4.2	3.9	3.8
	Key interest rate (as at year-end)	%	10.0	7.75	7.75	7.0	6.5	6.25
	5-year zero-coupon OFZ rate	%	8.3	7.2	8.5	7.4	6.8	6.5
Budget	Federal budget balance	% of GDP	-3.4	-1.4	2.6	1.9	1.4	1.0

Pessimistic + financial stress

	Indicator	UoM	Actual			Estimate	Forecast	
			2016	2017	2018	2019	2020	2021
Key external environment indicators	Urals oil price	USD/bbl	42.3	53.5	70.1	57.9	40.1	45
	Global GDP	% y-o-y	2.5	3.1	3.3	1.9	0.8	3.0
	US GDP	% y-o-y	1.6	2.2	2.9	0.3	-1.5	2.6
	China GDP	% y-o-y	6.7	6.9	6.6	5.2	3.9	4.5
	EU GDP	% y-o-y	2.0	2.5	1.9	0.8	-0.5	2.5
Production indicators	GDP (current prices)	RUB bln	86 014	92 101	103 876	106 944	104 833	108 854
	Real GDP growth rate	%, y-o-y	-0.2	1.5	2.3	0.6	-2.2	1.9
Balance of payments indicators	Export of goods	USD bln	282	353	443	390	316	351
	Import of goods	USD bln	192	238	249	232	198	237
	Annual average USD exchange rate	RUB/USD	67.2	58.3	62.7	68.4	79.5	68.9
	Annual average EUR exchange rate	RUB/EUR	74.4	65.9	74.0	76.6	87.5	75.8
Labor market and income	Real disposable income	%, y-o-y	-5.8	-1.2	0.1	-0.4	-4.1	0.9
	Unemployment	% of EAP	5.5	5.2	4.8	5.1	6.6	4.7
Financial market prices and indicators	Inflation (CPI)	% Dec./Dec.	5.4	2.5	4.3	4.9	5.6	4.0
	Key interest rate (as at year-end)	%	10.0	7.75	7.75	10	9.25	6.75
	5-year zero-coupon OFZ rate	%	8.3	7.2	8.5	8.6	9.4	7.0
Budget	Federal budget balance	% of GDP	-3.4	-1.4	2.6	1.4	-1.5	-1.2

Appendix 2. Catching-up growth potential of middle-income countries in terms of UPT factors (urbanization, population, trade)

Country	Growth potential for UPT factors	GDP per capita against top 5 rich developed countries (in PPP), %	Distance to frontier		
			Urbanization, %	Share of population aged 15–65, %	Foreign trade turnover in goods, % GDP
Sri Lanka	1.0	20.7	64.6	0.0	71.2
Mauritania	1.0	35.0	42.0	0.0	84.5
Lebanon	0.7	23.6	0.0	0.0	84.4
Albania	0.7	21.0	24.5	0.0	61.4
Dominican Republic	0.6	26.2	3.4	2.0	72.0
Egypt	0.6	21.2	40.2	4.1	41.2
Costa Rica	0.5	26.0	5.2	0.0	60.9
Uruguay	0.5	37.0	0.0	1.4	61.4
Montenegro	0.5	33.9	16.7	0.0	45.2
Seychelles	0.5	46.2	27.1	0.0	37.5
Greece	0.4	45.9	4.5	0.1	46.6
Portugal	0.4	51.5	18.8	0.6	35.2
Croatia	0.4	40.2	26.5	0.0	28.5
Turkmenistan	0.4	41.5	32.2	0.6	22.9
Azerbaijan	0.4	28.4	27.9	0.0	26.1
Panama	0.4	40.0	15.9	0.9	30.8
Macedonia	0.3	25.8	25.3	0.0	21.4
Cyprus	0.3	49.3	16.0	0.0	26.0
Romania	0.3	35.1	29.0	0.0	14.5
Turkey	0.3	34.9	8.8	0.0	29.2
Colombia	0.3	24.1	2.8	0.0	33.5
Namibia	0.3	21.8	34.9	6.0	0.0
Gabon	0.3	26.6	0.0	5.9	25.6
Iraq	0.2	26.0	12.8	9.2	12.5
Argentina	0.2	34.7	0.0	1.7	27.1
Serbia	0.2	26.0	27.1	0.0	7.7
Jordan	0.2	21.8	0.0	5.1	23.6
Iran	0.2	28.8	9.0	0.0	19.3
Peru	0.2	21.4	5.3	0.2	21.6
Thailand	0.2	26.6	34.4	0.0	0.0
Slovakia	0.2	49.6	29.1	0.0	0.0
Slovenia	0.2	53.4	28.9	0.0	0.0
Chile	0.2	39.8	0.0	0.0	21.1
South Africa	0.2	22.2	17.5	0.0	7.1
China	0.2	22.9	26.2	0.0	0.0
Kazakhstan	0.2	43.5	25.6	0.0	0.0
Poland	0.1	48.3	22.7	0.0	0.0
Latvia	0.1	43.4	14.9	0.3	2.1
Botswana	0.1	27.9	15.0	1.0	0.0
Lithuania	0.1	48.6	15.5	0.0	0.0
Estonia	0.1	48.6	14.3	0.9	0.0
Mongolia	0.1	20.6	14.6	0.0	0.0
Hungary	0.1	44.7	12.1	0.0	0.0
Algeria	0.1	24.8	11.4	0.6	0.0
Brazil	0.1	25.0	0.0	0.0	8.5
Russia	0.1	42.8	8.7	0.0	0.0
Bulgaria	0.1	33.4	8.6	0.1	0.0
Malaysia	0.0	42.1	8.0	0.0	0.0
Belarus	0.0	34.9	5.2	0.0	0.0
Mexico	0.0	29.4	3.3	0.0	0.0
Malta	0.0	51.3	0.0	0.0	0.0

Source: ACRA calculations

In this research, to calculate the urbanization growth potential and the share of the working population, ACRA used the difference between the median value of urbanization for a group of rich countries and its value for a country in question for 2016 (positive differences only).

The potentially achievable level of foreign trade turnover was calculated using the following formula:

$$\text{Potential foreign trade turnover in goods, \% GDP} = 320 - 18.1 * \ln(\text{country area, km}^2)$$

The potential foreign trade turnover growth of a country in question is the difference between the maximum possible trade turnover and the actual foreign trade turnover of such country for 2016 (positive differences only).

The UPT potential growth index was calculated using the following formula:

$$\begin{aligned} \text{UPT potential growth index} = & (0.4 * (\text{potential urbanization growth}) + 0.42 * \\ & (\text{potential growth in the share of population aged 15–64}) + 0.55 * \\ & (\text{potential foreign trade turnover growth}) / 65.3 \end{aligned}$$

Index components were selected so that the same index composed of the actual (not potential) increases in UPT factors would best explain the catching-up growth in the sample of middle-income countries for 1973–2016, and the index value would vary from 0 to 1. The explaining force of the index is illustrated in *Table 3* on *page 7*.

In ACRA's opinion, the potential UPT factors growth index can be interpreted as an opportunity to bring the standard of living in a country closer to that of developed countries. Since recent historical data show a correlation between the catching-up GDP growth in middle-income countries and the dynamics of UPT factors, catching-up growth can be determined by both of them (or cause them) in the short term as well. However, the growth in UPT factors is not the only driver for catching-up growth, but only the most affordable opportunity for catching-up growth in countries standing at a certain level of development.

Input data:

- 1) Approaches applied by statistical agencies to the definition of urban population vary considerably by country,¹¹ and their applicability to cross-country comparisons is limited. We use the estimated potential for growth in urbanization, assuming that it may be somewhat underestimated for countries in South-East Asia and probably Africa. Accordingly, the UPT growth potential index may be slightly overestimated for such countries. We believe that conclusions made based on growth rates of urbanization are more reliable.
- 2) We use the volume of foreign trade in goods as a proxy for the involvement of a country into the world trade as a whole (not only in goods), as the quality of statistical data on cross-border services is much lower.
- 3) The GDP per capita in PPP data used in this research are based on the *cgdppc* indicator of the Madison Project database, which is better suited to the cross-country comparisons of incomes, but may be not so good in reproducing the input data on the real GDP growth rate. 2016 is the most relevant year of the database used.

¹¹ For example, see L. Dijkstra et al, "Applying the degree of urbanization to the globe: a new harmonized definition reveals a different picture of global urbanization," Working papers of 16th Conference of IAOS.

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