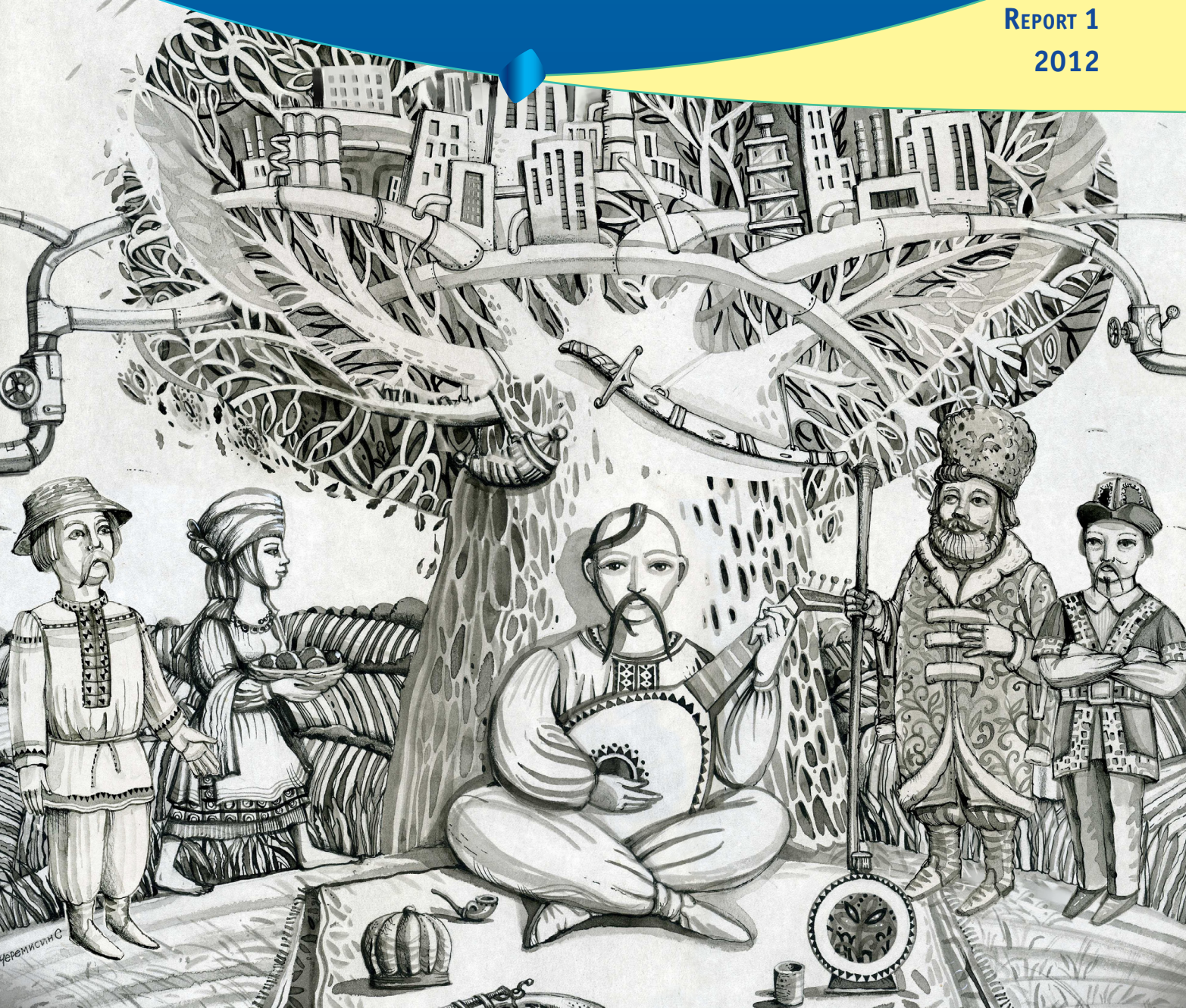


## UKRAINE AND THE CUSTOMS UNION

Comprehensive assessment of the macroeconomic effects of various forms of deep economic integration of Ukraine and the member states of the Customs Union and the Common Economic Space

REPORT 1  
2012



Comprehensive Assessment  
of the Macroeconomic Effects of Various  
Forms of Deep Economic Integration  
of Ukraine and the Member States  
of the Customs Union  
and the Common Economic Space



Centre for Integration Studies

Saint Petersburg

2012

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The authors of the report indicate that ongoing development of the largest economies within the post-Soviet area (Russia, Ukraine, Belarus, and Kazakhstan) is associated with structural change, whereas the potential for significant economic growth based on raw exports and outdated manufacturing industries is nearing exhaustion. For the first time in the last 20 years, the study formulates an inter-industry set of analytical-forecasting models for the region's four leading countries. The notable merit of the work lies in the fact that it applies a single methodology to its inter-industry analysis. Taking such an approach has allowed the authors to model common economic dynamics and structural changes, as well as to obtain sound assessments of possible integration scenarios throughout the post-Soviet area.

Keywords: Ukraine, Customs Union, post-Soviet integration

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# **Comprehensive assessment of the macroeconomic effects of various forms of deep economic integration of Ukraine and the member states of the Customs Union and the Common Economic Space**

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## **Introduction**

The collapse of the Soviet Union led to the severing of a multitude of economic ties, which exacerbated the crisis of the 1990s. Over recent years, the desire to recover from these losses and utilise surviving industrial and technological potential has driven integration processes throughout the post-Soviet area – this time, based on new, market-based principles. Reconstructive integration processes are poised to play an important role in this evolution. On the one hand, economic *reintegration* secures the obtainment of standard *synergistic effects* such as reduced transaction costs under bilateral and multilateral cooperation, improved terms of trade and investment exchange, gains from the transnational division of labour, the creation of new market opportunities, etc. On the other, the relative uniformity of the technological arena and the common linguistic and cultural environment allow the mechanisms of interaction between post-Soviet countries within the framework of integration processes to be greatly simplified.

In recent years, tangible prerequisites have emerged for the formation and rapid development of an economic union between the region's countries. In 2010, the Customs Union

## 1. Considered integration scenarios

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(CU) between Belarus, Kazakhstan and Russia began to operate. Entering into effect in 2012 are the 17 agreements that form the basis of the Common Economic Space (CES).

Issues concerning the creation of economic unions between nation-states are critical elements of long-term economic policy – policy that cannot be implemented without a comprehensive analysis of the consequences of the decisions under consideration. At the same time, there is a palpable lack of the type of work that would allow for the obtainment of qualitative assessments of the possible macroeconomic and sectoral effects of the expansion of integration processes throughout the post-Soviet area. In this connection, a research project was implemented to test and produce a numerical estimate for various hypotheses of the possible integration scenarios between CU countries and Ukraine.

The key research objective was to determine the status quo and outlook for the development of integrational ties between Ukraine, Russia and Russia's partners within the Customs Union; to develop methodological tools to assist in the selection of effective forms and thrusts for the development of integration processes; and to obtain sound, comprehensive assessments of the economic effects of the inclusion of Ukraine in the CES – both for Ukraine itself, as well as for Russia, Kazakhstan and Belarus.

Within the scope of the project, an assessment was formulated of the macroeconomic effect of such forms of intensive economic integration between Ukraine and CU countries as the creation of a free trade zone, Ukraine's ascension to the CU, technological convergence, and various sectoral agreements. Furthermore, the research produced a qualitatively-new data set for the macroeconomic effects of the CU and CES-3.

The research findings are intended for possible use by the executive bodies of the EEC; the government agencies of Belarus, Kazakhstan, Russia and Ukraine; and the expert community.

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### 1. Considered integration scenarios

The primary objective of this research is to assess the impact of integrational effects on the development of trade-and-economic relations throughout the post-Soviet area.

On the basis of a set of interindustry macroeconomic models for Russia, Kazakhstan, Belarus and Ukraine, a series of estimates was generated of the possible options for integration throughout the post-Soviet area. The following were considered the *basic* integration options:

- 1) *Preservation of the status quo (baseline scenario)*: Russia, Belarus and Kazakhstan form the Common Economic Space (CES) in 2012. That said, Ukraine refrains from ascending to the Customs Union, the Common Economic Space (CU and EES CES) and the CIS Free Trade Zone (CIS FTZ). This option is taken as the baseline scenario. The effects arising from integration-scenario change were contrasted against this baseline option;
- 2) *Ukraine ascends to the CIS FTZ at the current exemption level* (in essence, exemption from CU mechanisms is concentrated in three sectors: energy, agriculture and metallurgy) – second baseline scenario;
- 3) *Ukraine ascends to the European Union Free Trade Zone (EU FTZ) with the simultaneous application of CES-standard protective measures for foreign trade with Ukraine*, as mandated by the respective CIS FTZ mechanisms;
- 4) *Ukraine ascends to the CES in 2013, in the same format as Russia, Belarus and Kazakhstan*.

The proposed set of scenarios depicts the majority of possible alternatives for integration processes throughout the post-Soviet area, while the range of findings allows for an assessment of the trade effects arising in CES member states and Ukraine in cases where the format for integrative interaction undergoes change.

That said, the implementation of an incremental assessment of the different types of integrational effects necessitated the development of additional scenarios reflecting the various effects of the deeper integration of the national economies under consideration.

Bear in mind that this assessment of trade effects did not factor in the impact of the lifting/minimisation of non-tariff barriers, the effect of enhanced market efficiency generated by the harmonisation of antimonopoly policy and state-procurement policy, the effect of the introduction of the national treatment of labour migration, etc. In this connection, the findings obtained should be interpreted as *minimal or conservative assessments* of the possible effects of CES creation.

To obtain assessments of the impact of integration processes on technological-development level, cooperation ties, and the sectoral composition of the economy, our consideration of foreign-economic scenarios also included an investigation of the methods of technology-convergence within CES countries. For this purpose, a forecast was formulated for the convergence of primary-resource productivity level. This forecast was generated on the basis of global experience, which indicates that countries trailing in terms of production efficiency gradually close the gap with more developed countries over the course of integration (this tendency is more pronounced when the technological gaps between the countries involved are relatively small – as is the case with post-Soviet countries).

The following table presents an exhaustive list of the scenarios quantitatively-assessed in this work.

Thus, the estimate findings allow for the obtainment of an incremental assessment of the effects of integration throughout the post-Soviet area under a number of current scenarios that factor in trade (instant) effects as well as the convergence of technological-development level (long-term effects).

## 1. Considered integration scenarios

	Scenario	Impact	Objective
1	Baseline 0	Contains baseline inertial macroeconomic scenarios for Russia, Kazakhstan, Belarus, and Ukraine. Does not assume CES creation or the intensification of integration processes throughout the post-Soviet area.	Formation of the baseline characteristics of economic development for the countries under analysis. Creation of a basis for the analysis of CES effects on Russia, Kazakhstan and Belarus.
2	Baseline 1	Assumes creation of the CES of Russia, Kazakhstan, and Belarus in 2012, the lifting of all reciprocal-trade barriers, and technological convergence among the countries over the forecast period.	Formation of the effects of CES creation by three countries: Russia, Kazakhstan and Belarus.
3	CIS FTZ	Ukraine ascends to the CIS FTZ on the terms of the agreement signed 18.10.11 in St. Petersburg (incl. exemptions).	Assessment of the impact of the CIS FTZ, in its current form, on the economic development of the countries under analysis.
4	CIS FTZ + EU FTZ for Ukraine	Ukraine ascends to the European Union FTZ; CIS FTZ countries assume the foreign-trade protective measures envisaged by the agreement dated 18.10.11.	Assessment of the impact of EU FTZ creation on the Ukrainian economy under the simultaneous deterioration of trade-and-economic relations with CES countries.
5	CES + Ukraine	Ukraine ascends to the framework CES agreements.	Assessment of the impact of the full lifting of foreign-trade barriers between the countries, the expansion of cooperation ties, and technological convergence on the Ukrainian economy and CES economies.
6	CES + Ukraine (exchange rate unification)	Ukraine ascends to the framework CES agreements; the countries unify the currency system within the CES and implement a single currency policy.	Assessment of the impact of exchange rate unification, within the scope of integration-tie intensification, on the Ukrainian economy and CES countries.

**Table 1.** Considered integration scenarios

### 1.1 Effects of CES creation on Russia, Belarus and Kazakhstan<sup>1</sup>

The creation of a Common Economic Space among Russia, Kazakhstan and Belarus has a positive impact on the development of the countries involved. By virtue of the prevailing economic structure, the primary thrusts of foreign-trade ties, and economies of scale, the greatest effects are observed in Belarus.

Thus, by the end of the forecast period, exports to CES countries account for up to 35% of the cumulative volume of Belarusian GDP. By 2030, the GDP gain observed in this option over the non-integration option exceeds the baseline scenario by up to 15%. Consequently, the estimate findings indicate that over the long term, the success of integration

<sup>1</sup> Baseline scenarios for the economic development of Belarus, Ukraine and Kazakhstan presented in the appendix.



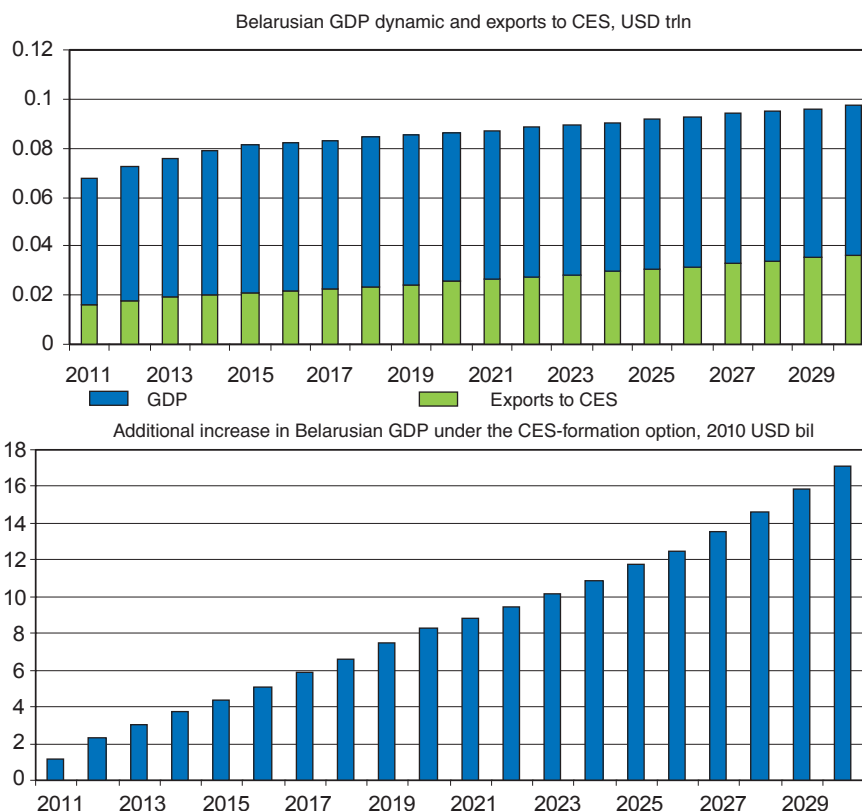


Figure 1. Effects of CES creation – Belarus

	2010	2015	2020	2025	2030
Agriculture	7.0	6.6	6.7	7.1	7.8
Mining industry	0.4	1.1	1.1	1.4	1.5
Food-processing industry (incl. beverages and tobacco)	7.9	8.0	8.1	8.7	8.2
Textiles and garment manufacturing (incl. leather manufacturing)	2.0	2.1	2.1	2.2	2.2
Forestry, timber and pulp-and-paper	2.6	2.6	2.7	2.9	3.2
Production of shale, petroleum products and nuclear materials	10.5	10.9	10.1	9.4	9.1
Chemical production	8.2	8.4	8.4	8.2	7.8
Production of other non-metal mineral products	2.5	2.5	2.5	2.5	2.4
Metallurgy	2.3	3.3	3.5	3.8	4.2
Machine-building	12.8	13.7	14.9	15.1	16.2
Electric power	4.2	3.7	3.7	3.4	3.4
Construction	8.5	7.9	7.6	7.5	6.9
Transportation and communications	10.4	10.0	9.9	9.6	9.6
Services	20.7	19.2	18.8	18.2	17.5

Table 2. Sectoral breakdown of Belarusian industry in constant prices (as a percentage of gross output, baseline option)

Source: INEF RAS estimates

## 1. Considered integration scenarios

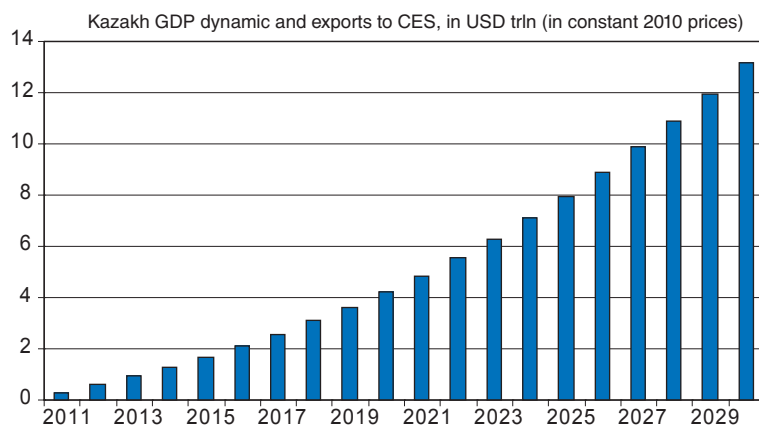
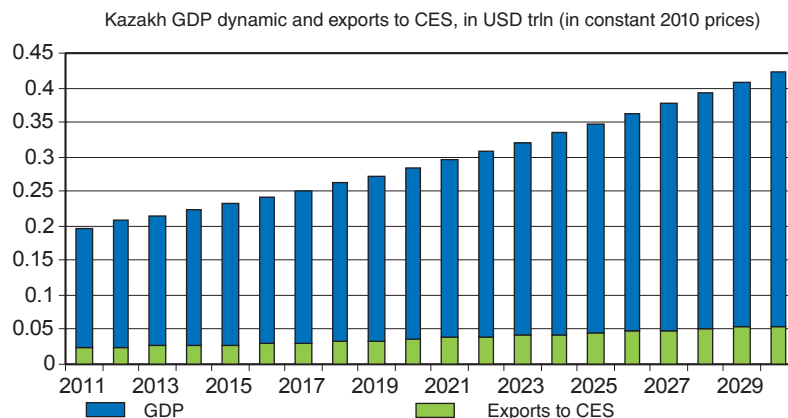


Figure 2. Effects of CES creation - Kazakhstan

	2010	2015	2020	2025	2030
Agriculture	3.7	3.3	3.0	2.7	2.4
Mining industry	28.1	26.6	25.1	23.9	22.6
Food-processing industry (incl. beverages and tobacco)	4.1	4.3	4.6	4.8	4.9
Textiles and garment manufacturing (incl. leather manufacturing)	0.4	0.4	0.5	0.5	0.6
Forestry, timber and pulp-and-paper	0.6	0.7	0.7	0.8	0.8
Production of shale, petroleum products and nuclear materials	2.5	1.9	1.5	1.2	1.0
Chemical production	1.3	1.3	1.4	1.5	1.6
Production of other non-metal mineral products	1.3	1.4	1.5	1.6	1.7
Metallurgy	7.7	6.8	6.1	5.5	5.0
Machine-building	2.8	3.0	4.2	6.0	7.2
Electric power	3.3	2.8	2.6	2.5	2.4
Construction	10.5	11.8	12.6	10.7	10.7
Transportation and communications	13.1	13.9	14.3	14.6	14.9
Services	20.6	21.8	21.9	23.7	24.3

Table 3. Sectoral breakdown of Kazakh industry in constant prices (as a percentage of gross output, baseline option)

Source: INEF RAS estimates

processes throughout the post-Soviet area will be of vital importance to the development of the Belarusian economy. The share of machine-building activities and food-processing in the country's industrial structure increases.

To a great extent, the Kazakh economy remains dependent on the dynamic of hydrocarbon production. This situation is largely associated with the fact that Kazakhstan continues to enjoy relatively-high potential for the expansion of oil-and-gas production. Though increasing, exports to CES countries remain at a relatively-low level compared to GDP. At the same time, owing to the convergence of technological-production level and a reduction in the energy- and materials-intensity of production, integrational processes allow for the obtainment of additional GDP volume, which, by the end of the forecast period, reaches 4% of GDP volume found under the baseline scenario.

The share of mining sectors and metallurgy in the Kazakh economy will undergo a gradual decline. Outpacing growth rates in the service sector, machine-building activities, transportation and communications will result in the growth of their respective shares in gross output volumes.

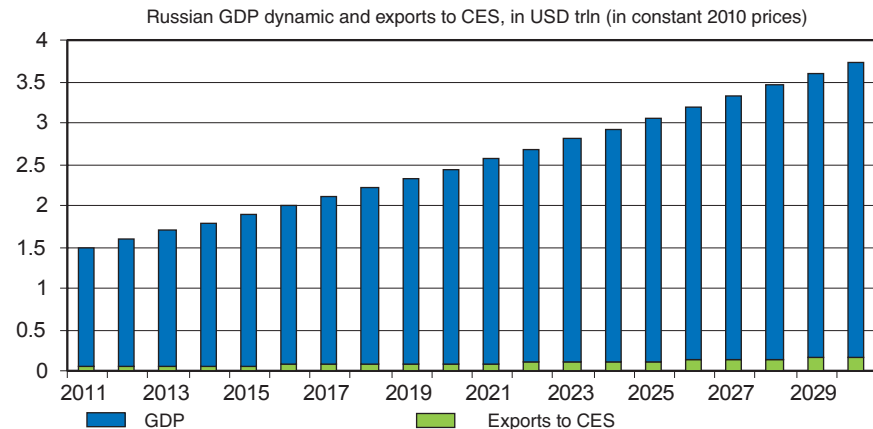
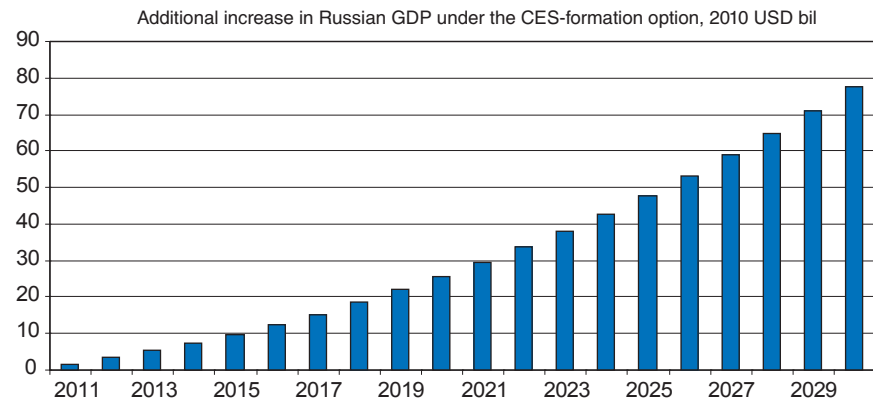


Figure 3. Effects of CES creation - Russia

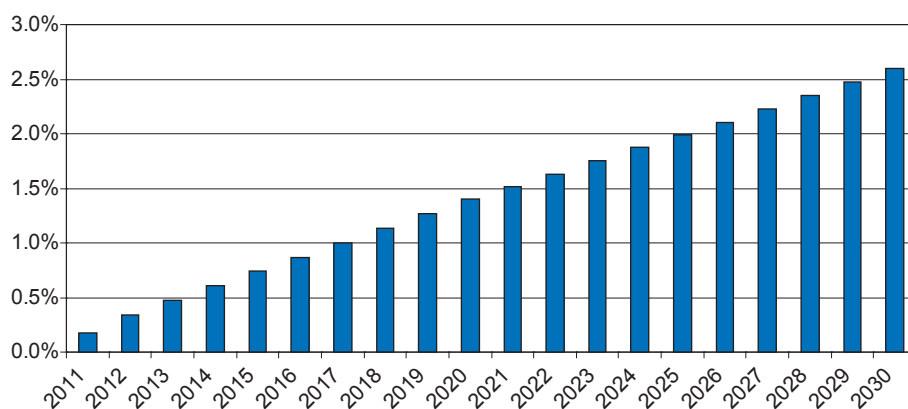


## 1. Considered integration scenarios

	2010	2015	2020	2025	2030
Agriculture	3.7	3.7	3.9	4.1	4.6
Mining industry	7.0	6.0	5.3	4.9	4.9
Food-processing industry (incl. beverages and tobacco)	6.4	6.7	7.1	7.2	7.6
Textiles and garment manufacturing (incl. leather manufacturing)	0.5	0.5	0.5	0.6	0.6
Forestry, timber and pulp-and-paper	1.5	1.7	1.8	1.9	2.1
Production of shale, petroleum products and nuclear materials	2.5	2.0	2.3	1.4	1.5
Chemical production	3.0	3.1	3.3	3.4	3.7
Production of other non-metal mineral products	1.1	1.2	1.2	1.3	1.4
Metallurgy	8.8	7.6	6.7	6.1	5.8
Machine-building	7.1	8.3	8.6	9.3	9.6
Electric power	8.2	7.0	6.1	5.7	4.9
Construction	5.7	6.5	6.5	6.6	5.6
Transportation and communications	8.0	8.4	8.7	9.0	9.3
Services	36.6	37.2	38.0	38.6	38.5

**Table 4.** Sectoral breakdown of Russian industry in constant prices (as a percentage of gross output, baseline option)

Because of economies of scale incommensurate with those of other CES countries, the results of integration processes throughout the post-Soviet area will not have a definitive impact on the dynamic of Russian GDP. Moreover, the gradual devaluation of the Belarusian ruble, against the backdrop of increasing energy-commodity prices, will have an additional negative impact on trade-and-economic relations within the CES (first and foremost, in terms of trade between Russia and Belarus).



**Figure 4.** Integrational effect of CES creation on Russia, Kazakhstan and Belarus (additional increase in the three countries' aggregate GDP over the baseline scenario, percent)

At the same time, the development of integrational ties will allow Russia to reap an additional annual gain of more than 2% of baseline GDP volume by the end of the forecast period.

The three countries' cumulative gain from CES formation over the non-integration scenario is presented in Figure 4. With respect to the aggregate GDP of CES countries, the difference between the various options exceeds 2.5% by 2030. In 2030, GDP gain over the baseline option totals USD 75 bil (in 2010 prices) for Russia, USD 13 bil for Kazakhstan, and USD 14 bil for Belarus. Over the period 2011–2030, the cumulative effect of the development of integrational ties is estimated at USD 632 bil (in 2010 prices) for Russia, USD 106.6 bil for Kazakhstan, and USD 170 bil for Belarus.

### 1.2 Baseline scenario for Ukraine

The baseline scenario for development of the Ukrainian economy assumes continuation of the key trends of economic development observed in recent years.

The main problem encountered by Ukraine under implementation of the baseline scenario lies in the fact that under increasing energy-commodity prices,<sup>2</sup> maintaining the necessary level of competitiveness only becomes possible under accelerated energy-intensity reduction. Radical energy-intensity reduction, in turn, requires major investments. Revenue losses against the backdrop of rising costs trigger the continuation of relatively low fixed-capital accumulation rates. Simultaneously, production growth is tempered by the gradual retirement of «old,» idle capital. Thus, the economy is confronted by an acute capital-restriction problem. Nevertheless, the remaining potential to achieve growth based on aging facilities enables the Ukrainian economy to post higher economic-growth rates than Belarus, which is experiencing tighter fixed-capital restrictions.

It should be noted that the lack of significant changes to the structure of the economy results in a slowdown in economic growth rates, given the impossibility of achieving accelerated output growth in the export sectors. The Ukrainian GDP dynamic obtained under the baseline scenario drops over the long-term from 4.4% in 2010–2015 to 3.6% in 2025–2030.

**Table 5.** Average annual rate of growth in Ukrainian GDP and the main elements of final demand (in constant prices, percent)

	2011–2015	2016–2020	2021–2025	2026–2030
Household consumption	6.1	5.0	4.3	3.6
Government consumption	2.7	2.4	2.0	1.7
Fixed-capital investments	11.0	8.5	7.2	5.1
Export	4.1	4.1	4.2	4.3
Import	8.4	7.0	5.7	4.3
GDP	4.4	3.8	3.9	3.6

Source: INEF RAS, IEF NASU estimates

<sup>2</sup> The «window of opportunity» associated with the extension to Ukraine of various energy-commodity price-concessions will unavoidably close following Russia's transition to the principle of equal return on natural-gas supplies to the domestic and foreign markets (in this scenario, taking place in 2015). De facto, this has already occurred with respect to oil and petroleum products. See Appendix «Significance of gas prices to the Ukrainian economy.»

## 1. Considered integration scenarios

	2010	2015	2020	2025	2030
<b>Oil, t bil</b>					
Production	4	5	5	5	5
Import	8	9	9	10	10
Import share in domestic consumption	64.7%	66.3%	65.5%	67.6%	67.9%
<b>Gas, BCM</b>					
Production	20	26	28	29	30
Import	37	37	38	39	43
Import share in domestic consumption	65.2%	59.2%	57.3%	57.4%	58.9%
<b>Coal and peat, t bil</b>					
Production	56	62	68	75	82
Import	12	15	18	20	21
Import share in domestic consumption	17.8%	19.3%	21.0%	21.4%	20.7%
<b>Electric power KWh bil</b>					
Production	193	220	245	264	276
Import	2	2	2	2	2
Import share in domestic consumption	1.1%	1.0%	0.9%	0.8%	0.8%

**Table 6.** Production and importation of energy resources in Ukraine (baseline scenario)

Source: INEF RAS, IEF NASU estimates

	2010	2015	2020	2025	2030
Agriculture	8.1	8.1	7.8	7.6	7.4
Mining industry	5.8	5.4	5.0	4.7	4.5
Food-processing industry (incl. beverages and tobacco)	9.5	9.9	10.1	10.2	10.2
Textiles and garment manufacturing (incl. leather manufacturing)	1.1	1.1	1.1	1.1	1.2
Forestry, timber and pulp-and-paper	1.6	1.7	1.8	1.8	1.9
Production of shale and petroleum products	4.2	2.8	1.7	1.0	0.5
Chemical production	4.4	4.5	4.7	4.8	5.0
Production of other non-metal mineral products	1.7	1.9	2.1	2.3	2.4
Metallurgy	9.2	8.7	8.5	8.3	8.2
Machine-building activities	5.9	6.5	6.9	7.3	7.6
Electric power	4.9	4.5	4.2	3.9	3.7
Construction	3.5	4.6	5.7	6.6	7.0
Trade and communications	9.0	9.1	9.2	9.2	9.4
Commerce	10.5	10.7	10.7	10.8	10.8
Services	20.6	20.6	20.5	20.4	20.3
Total	100	100	100	100	100

**Table 7.** Sectoral composition of the Ukrainian economy in constant prices (percentage of gross output)

Source: INEF RAS, IEF NASU estimates

Slower export-growth rates have a dramatic effect on the dynamic of the general economy, insofar as under the scenario in question, Ukraine ascends neither to the European Union Free Trade Zone nor to the Common Economic Space.

By 2030, the production of electric power grows by 30% to 276 bil kilowatt-hours. Gas imports increase slightly to 43 BCM – 116% of 2010 levels. This result is rendered possible via the substitution of gas by coal in Ukraine’s energy balance, a reduction in the energy-intensity of production, and domestic production growth to 30 BCM. Oil imports increase by 50% over 2010 levels to 23 million tonnes (Table 15). This increase in the dependence of the country’s economy on energy-commodity imports prompts growth in capital investments aimed at the modernisation of production facilities and a reduction in specific energy-intensity.

Traditional export industries continue to account for a high share of the sectoral composition of the Ukrainian economy. The baseline scenario is premised on rather high rates of agricultural-production growth (up to 4–5% annually), thereby allowing agriculture to account for approximately 7.4% of the Ukrainian economy’s gross output by the end of the forecast period. The shares represented by metallurgy and chemical production, respectively, remain high.

## 2. Qualitative findings of integration-scenario estimates

To assess the impact of inter-country trade on economic development, estimates were generated for a number of scenarios, differing in terms of the option they envision for Ukrainian integration with CES-founding countries.

Russia	2015	2020	2025	2030
Exports	0.01	0.01	0.01	0.01
Imports	0.00	0.00	0.00	0.01
GDP	0.00	0.00	0.00	0.00
Kazakhstan	2015	2020	2025	2030
Exports	0.00	0.00	0.01	0.01
Imports	0.00	0.00	0.02	0.02
GDP	0.00	0.00	0.00	0.00
Belarus	2015	2020	2025	2030
Exports	0.04	0.04	0.04	0.04
Imports	0.00	0.00	0.00	0.00
GDP	0.02	0.02	0.02	0.02
Ukraine	2015	2020	2025	2030
Exports	2.38	2.07	1.77	1.51
Imports	0.00	0.00	0.03	0.05
GDP	0.65	0.56	0.48	0.40

**Table 8.** Change in key economic indicators compared to the baseline option (scenario envisioning Ukraine’s ascension to the CIS FTZ, with exemptions, as a percentage of baseline-option volumetric indicators)

Source: INEF RAS estimates

## 2. Qualitative findings of integration-scenario estimates

Russia	2010	2015	2020	2025	2030
Exports	0.00	0.02	0.04	0.05	0.05
Imports	0.00	0.00	0.00	0.00	0.01
GDP	0.00	0.00	0.01	0.01	0.01
Kazakhstan	2010	2015	2020	2025	2030
Exports	0.00	0.02	0.03	0.04	0.05
Imports	0.00	0.03	0.02	0.04	0.03
GDP	0.00	0.00	0.00	0.01	0.01
Belarus	2010	2015	2020	2025	2030
Exports	0.00	0.05	0.04	0.04	0.04
Imports	0.00	0.00	0.06	0.06	0.06
GDP	0.00	0.02	0.02	0.02	0.02
Ukraine	2010	2015	2020	2025	2030
Exports	0.00	4.15	3.66	3.14	2.68
Imports	0.00	0.16	0.16	0.20	0.26
GDP	0.00	1.15	0.99	0.85	0.73

**Table 9.** Change in key economic indicators compared to the baseline option (scenario envisioning Ukraine's ascension to the CES, effects from improved trade terms with CES countries only, as a percentage of baseline-option volumetric indicators)

Source: INEF RAS estimates

Russia	2010	2015	2020	2025	2030
Exports	0.00	0.02	0.24	0.41	0.67
Imports	0.00	-0.25	-0.86	-1.48	-2.13
GDP	0.00	0.03	0.12	0.23	0.31
Kazakhstan	2010	2015	2020	2025	2030
Exports	0.00	0.03	0.14	0.42	0.63
Imports	0.00	-0.42	-1.38	-2.27	-3.11
GDP	0.00	0.00	0.03	0.11	0.16
Belarus	2010	2015	2020	2025	2030
Exports	0.00	-0.21	-0.67	-1.07	-1.45
Imports	0.00	0.62	2.25	3.89	6.45
GDP	0.00	-0.12	-0.46	-0.83	-0.92
Ukraine	2010	2015	2020	2025	2030
Exports	0.00	-2.83	-6.62	-8.99	-10.54
Imports	0.00	0.73	2.17	3.71	5.37
GDP	0.00	-0.75	-2.11	-3.07	-3.93

**Table 10.** Change in key economic indicators compared to the baseline option (scenario envisioning Ukraine's ascension to the CES under a unified currency system, as a percentage of baseline-option volumetric indicators)

Source: INEF RAS estimates



The first scenario envisions Ukraine joining the CIS Free Trade Zone (CIS FTZ) beginning in 2012, with exemptions (preservation of trade barriers with respect to agricultural products, the fuel-and-energy complex and metallurgy). According to estimate findings, such a course of events would leave the economic dynamic of Russia and Kazakhstan essentially unchanged, insofar as the bulk of trade volume between the two countries and Ukraine involves sectors whose trade-barrier levels remain virtually constant. Belarusian exports and gross domestic product experience slight growth. The most significant gain is observed in the production volumes of Ukraine, the GDP of which GDP volume under the baseline scenario by an average of 0.5%.

Thus, the unequivocal conclusion is that Ukraine's ascension to the CIS FTZ with exemptions across a number of key sectors is incapable of having a significant effect on trade-and-economic relations within the post-Soviet area. In essence, this option could be fairly regarded as preservation of the status quo with a slight «bump» for Ukraine because of the lifting of a small number of barriers to trade with CIS countries.

Under the scenario envisioning Ukraine's ascension to the Common Economic Space without any exemptions whatsoever, GDP gains for Russia and Kazakhstan would be more appreciable than under the scenario envisioning CIS FTZ creation. In this scenario, the GDP dynamic of Belarus remains essentially unchanged from the scenario envisioning Ukraine's partial ascension to the CES. For Ukraine itself, GDP impact increases over the previous scenario by a factor of approximately 1.5 because of price reductions, and, consequently, lower production costs and increased exports for metallurgical and agricultural products (Table 9).

The formation of a unified currency system — or leaving exchange rates among CES national currencies constant — could become yet another element of the Common Economic Space. On the one hand, this would minimise the currency risks of member states within the scope of reciprocal trade. On the other, it would render the obtainment of a bilateral-trade advantage through devaluation of the national currency impossible. This option results in a reduction in exports from Ukraine and Belarus and to an increase in their imports from other countries, that is, to a deterioration in their foreign-trade balance. For Russia and Kazakhstan, conversely, this leads to export-volume increases, reduced imports, and therefore to additional GDP growth (Table 10). At first glance, this finding would seem to indicate that currency integration is less advantageous to net-importers of energy resources. On the other hand, it is important to understand that under free exchange-rate scenarios, countries with significant export potential emerge as the clear losers. Under conditions of rising energy-commodity prices, they have no opportunity to weaken the exchange rates of their national currencies and thus lose their competitive edge in non-resource trade with CES countries. The key finding of this estimate is that exchange-rate harmonisation is needed to achieve increased integrational effects, insofar as it eliminates the negative economic effects of exchange-rate fluctuation. At the same time, mechanisms for the creation of a unified currency system necessitate the elaboration of measures to minimise the negative consequences of exchange-rate unification for CES countries.

As yet another scenario, the option was considered in which Ukraine, instead of joining the Common Economic Space, creates a Free Trade Zone with the European Union. This case assumes the reciprocal lifting of customs duties between Ukraine and EU countries.

## 2. Qualitative findings of integration-scenario estimates

Russia	2010	2015	2020	2025	2030
Exports	0.00	0.00	0.00	0.00	0.00
Imports	0.00	0.00	0.00	0.00	0.00
GDP	0.00	0.00	0.00	0.00	0.00
Kazakhstan	2010	2015	2020	2025	2030
Exports	0.00	0.00	0.00	0.00	0.00
Imports	0.00	-0.02	-0.01	-0.02	-0.01
GDP	0.00	0.00	0.00	0.00	0.00
Belarus	2010	2015	2020	2025	2030
Exports	0.00	0.00	0.00	0.00	0.00
Imports	0.00	0.00	-0.03	-0.03	-0.03
GDP	0.00	0.00	0.00	0.00	0.00
Ukraine	2010	2015	2020	2025	2030
Exports	0.00	-0.19	-0.08	0.09	0.27
Imports	0.00	4.22	4.03	3.83	3.54
GDP	0.00	-1.28	-1.22	-1.03	-0.94

**Table 11.** Change in key economic indicators compared to the baseline option (scenario envisioning Ukraine's ascension to the EU FTZ, as a percentage of baseline-option volumetric indicators)

Source: INEF RAS estimates

At the same time, CES countries establish customs duties for Ukraine at the levels in effect under trade with European countries. Ukrainian exports to EU countries grow by 10%, with imports from EU countries rising by 15%.

At the same time, trade turnover between CES countries and Ukraine drops by approximately 2.5%. Compared to the baseline scenario, this arrangement entails lower economic growth rates for Russia, Kazakhstan and Belarus, triggered by the decline in exports to Ukraine. The Ukrainian GDP dynamic is also lower than under the baseline scenario, because of a reduction in export volumes to CES countries and growth in imports from EU countries – growth that exceeds export gains to the EU (Table 11).

The main negative effects on the Ukrainian economy will occur because of:

- reduction in the net export of machine-building products;
- impossibility, because of industrial-capacity limitations, of achieving accelerated volume growth in the production and export of metallurgical, chemical and agricultural products;
- continuing dependence on the importation of energy commodities from CES countries, in a situation typified by the low elasticity of consumption volumes against price level; in other words, significant growth in the Ukrainian economy's expenditures on energy resources will be observed.

The formation of a Common Economic Space means not only the expansion of inter-country trade, but also increased industrial cooperation between the enterprises of the countries involved. Furthermore, the lifting of customs barriers encourages competition among

COMPREHENSIVE ASSESSMENT OF THE MACROECONOMIC EFFECTS OF VARIOUS FORMS OF DEEP ECONOMIC INTEGRATION OF UKRAINE AND THE MEMBER STATES OF THE CUSTOMS UNION AND THE COMMON ECONOMIC SPACE

**Table 12.** Change in key economic indicators compared to the baseline option (scenario envisioning Ukraine's ascension to the CES under technological convergence, as a percentage of baseline-option volumetric indicators)

Russia	2010	2015	2020	2025	2030
Exports	0.00	0.03	0.10	0.10	0.10
Imports	0.00	0.00	0.00	0.00	0.01
GDP	0.00	0.00	0.01	0.01	0.01
Kazakhstan	2010	2015	2020	2025	2030
Exports	0.00	0.03	0.05	0.07	0.08
Imports	0.00	0.03	0.02	0.04	0.03
GDP	0.00	0.00	0.01	0.01	0.01
Belarus	2010	2015	2020	2025	2030
Exports	0.00	0.15	0.34	0.39	0.41
Imports	0.00	0.00	0.06	0.06	0.06
GDP	0.00	0.06	0.15	0.18	0.20
Ukraine	2010	2015	2020	2025	2030
Exports	0.00	4.35	4.35	3.73	3.09
Imports	0.00	-2.19	-5.70	-5.41	-5.28
GDP	0.00	2.81	5.94	6.65	6.57

Source: INEF RAS estimates

**Table 13.** Change in key economic indicators compared to the baseline option (scenario envisioning Ukraine's ascension to the CES under currency-system unification and technological convergence, as a percentage of baseline-option volumetric indicators)

Russia	2010	2015	2020	2025	2030
Exports	0.00	0.03	0.18	0.98	1.45
Imports	0.00	-0.25	-0.86	-1.48	-2.11
GDP	0.00	0.02	0.11	0.29	0.41
Kazakhstan	2010	2015	2020	2025	2030
Exports	0.00	0.10	0.27	0.78	1.52
Imports	0.00	-0.37	-1.29	-2.14	-2.92
GDP	0.00	0.02	0.04	0.18	0.46
Belarus	2010	2015	2020	2025	2030
Exports	0.00	0.13	0.16	-0.08	-0.32
Imports	0.00	0.62	2.29	3.92	7.70
GDP	0.00	0.03	-0.14	-0.63	-0.74
Ukraine	2010	2015	2020	2025	2030
Exports	0.05	2.51	1.56	-1.35	-3.40
Imports	0.00	-1.49	-3.44	-1.26	0.79
GDP	-0.05	2.56	5.78	3.87	1.98

Source: INEF RAS estimates

## 2. Qualitative findings of integration-scenario estimates

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enterprises of post-Soviet countries that are roughly equivalent in terms of capacity and potential. All of this will stimulate technological convergence between the countries' economies, which, inter alia, will lead to an equalisation of energy- and materials-intensity indicators and the attainment of closer productivity values in terms of primary-resource utilisation. This scenario assumes that the energy- and materials-intensity of the Ukrainian economy will decline at faster rates, levelling off at the standard of the currently-more-advanced Russian economy. This results in a reduction in the consumption of energy resources, and therefore to a lower dependency on their import. Moreover, lower production costs expand opportunities to reduce prices for the purposes of stimulating demand and higher production volumes. This is the factor that is responsible for additional export growth.

In this scenario, the Ukrainian economy is observed to experience the greatest effects, insofar as the impact of technological convergence within the framework of the CES was already factored in under the baseline scenario envisioning the unification of Russia, Belarus and Kazakhstan.

Thus, it is important to understand whether the effects of the lifting of customs duties and enhanced industrial cooperation will offset the losses associated with the need to adhere to a unified currency system. The estimates generated for this scenario, which encompass all of the aforementioned factors, indicate that the Ukrainian economy preserves its gain, though reduced, over the results observed under the baseline scenario. GDP growth over the baseline scenario is also observed for Russia and Kazakhstan. For Belarus, the effects are negative. This is predicated on the fact that, firstly, Belarus undertakes the greatest devaluation of its national currency under the baseline scenario. Secondly, insofar as the baseline scenario assumes the formation of a CES comprised of Russia, Kazakhstan and Belarus, these countries already experience the effect of the technological convergence envisioned under this option. Given that, by 2030, the extent of the positive impact of these effects on Belarusian GDP totals approximately 6% of baseline-option GDP, it can safely be asserted that, over the long term, joining the Common Economic Space under currency-system unification yields a greater gain than that offered by the scenario envisioning the independent setting of exchange rates.

At the same time, the findings of these forecast estimates suggest the existence of integration risks associated with the formation of a single currency-and-finance system throughout the post-Soviet area (Table 13).

### 3. Sectoral consequences of integration

In view of the geographically-predetermined distribution of natural resources, construction of the scenario involving mutual trade in energy products must be based on the forecasted energy balances of the CES countries and Ukraine. That said, Kazakhstan and Russia will clearly remain net exporters, and Ukraine and Belarus – net importers.

By virtue of existing trade-and-economic relations, it appears that inertial effects will not be of particular significance to commodity trade. The distribution of product flow from these sectors under intra-CES and CES-third country trade will depend on demand-parameter change. It should be assumed that, over the foreseeable future, production capacities in the raw-material sectors will continue to significantly exceed the domestic requirements of post-Soviet countries. This circumstance is responsible for the ongoing export-orientation of such sectors as metallurgy, chemical production, and fuel-and-energy.

The more complex and pressing task consists of constructing scenarios for mutual trade in more processed goods (goods with a higher share of added value) – first and foremost, machine-building products.

Currently, 70–90% of all machine-building products are imported by CES countries and Ukraine from third countries. In 2010, Russia imported 92% of all of its machine-building products from third countries, Ukraine – 83%, Belarus – 75%, Kazakhstan – 72%.

The key driver of the high third-country share in equipment imports by CES countries and Ukraine is the lag in the level of technological development and production efficiency in the machine-building sectors.

In terms of GDP energy-intensity, Russia lags behind the countries of Europe. In 2010, Russia's energy expenditures per USD 1 of GDP (in constant 2005 prices recalculated to reflect PPP) were almost four-times higher than those of European OECD countries. Importantly, these are precisely the countries that constitute the main suppliers of machine-building products to CES countries and Ukraine.

Based on the forecasts of the US Department of Energy and INEF RAS for the primary-resource productivity of CES countries and Ukraine, an assessment of their lag in technological-development level behind European OECD countries can be made (Table 14).

**Table 14.** Assessment of the lag in economic-efficiency and science-and-technology development level behind OECD countries (Europe), fold

	2010	2020	2030
Russia	3.7	2.7	2.5
Kazakhstan	4.3	2.9	2.5
Belarus	4.9	3.2	2.5
Ukraine	5.4	3.0	2.5

Source: EIA, INEF RAS estimates

### 3. Sectoral consequences of integration

In assessing the possible development of trade in machine-building products, it can be fairly assumed that mutual trade in such goods between CES countries and Ukraine has the potential to replace imports from third countries to the extent by which the lag in science-and-technology development behind third countries is closed. That is, closing the science-and-technology development gap with third countries means that CES countries and Ukraine will be in a position to reduce the share of machine-building-product imports from these countries.

Pursuant to the estimates provided in Table 22, under a reduction in the technological-development lag of CES countries and Ukraine behind third countries, in Russia, the share of machine-building-product imports from CES countries and Ukraine in total machine-building imports grow from 8.3% in 2010 to 17.1% in 2030, in Kazakhstan – from 28.3% to 46.6%, in Belarus – from 24.7% to 39.1%, and in Ukraine from 16.9% to 26.4%.

Importer	Exporter	2010	2020	2030
Russia	from other countries	91.7	85.9	82.9
	from CES countries and Ukraine	8.3	14.1	17.1
	Kazakhstan	0.2	0.2	0.3
	Belarus	3.4	5.2	6.5
	Ukraine	4.8	8.7	10.3
Kazakhstan	from other countries	71.7	58.1	53.4
	from CES countries and Ukraine	28.3	41.9	46.6
	Belarus	1.6	2.5	3.2
	Ukraine	5.7	10.4	12.2
	Russia	20.9	29.0	31.2
Belarus	from other countries	75.3	64.2	60.9
	from CES countries and Ukraine	24.7	35.8	39.1
	Ukraine	3.6	6.4	7.6
	Russia	21.1	29.2	31.4
	Kazakhstan	0.1	0.1	0.1
Ukraine	from other countries	83.1	76.2	73.6
	from CES countries and Ukraine	16.9	23.8	26.4
	Kazakhstan	0.1	0.1	0.1
	Belarus	2.8	4.3	5.5
	Russia	14.0	19.4	20.8

**Table 15.** Estimate of the share of machine-building-product imports from CES countries and Ukraine in total machine-building imports, percent

Source: INEF RAS estimates

	2010	2020	2030
Machinery and equipment production			
Share in total Ukrainian output			
Share in Ukrainian exports	6.33	11.31	14.84
Share in Ukrainian exports to the CES	8.12	14.07	18.31
Share of Ukrainian imports in total sector-product imports (Russia)	3.78	4.97	6.55
Share of imports from Russia in total sector-product imports (Ukraine)	11.70	11.03	10.53
Shipbuilding			
Share in total Ukrainian output	0.35	0.48	0.61
Share in Ukrainian exports	0.89	1.23	1.51
Share in Ukrainian exports to the CES	0.44	0.89	1.25
Share of Ukrainian imports in total sector-product imports (Russia)	2.78	4.46	6.40
Share of imports from Russia in total sector-product imports (Ukraine)	0.71	0.46	0.32
Aircraft manufacturing and space technology			
Share in total Ukrainian output	0.27	0.71	1.10
Share in Ukrainian exports	0.70	2.50	3.80
Share in Ukrainian exports to the CES	2.58	4.69	6.27
Share of Ukrainian imports in total sector-product imports (Russia)	2.4	3.5	4.7
Share of imports from Russia in total sector-product imports (Ukraine)	4.15	3.91	3.74

**Table 16.** Assessment of integrational effects at the sectoral level,<sup>3</sup> percent

Source: INEF RAS estimates

With respect to trade with Ukraine, sectoral agreements reached within the scope of bilateral relations with Russia or during the process of the country's ascension to the CES can focus on those sectors demonstrating potential for the production of competitive products on post-Soviet markets. These sectors include: aircraft manufacturing, shipbuilding, power engineering and conventional-weapons production.

Note that the favourable trade-and-economic climate between Russia and Ukraine carries the potential for a significant intensification of interaction in the area of machine-building production development. For example, the supply of Ukrainian aircraft engines will remain vital to Russian helicopter manufacturers at least through 2017–2018. The available alternative – the construction of factories on Russian soil – entails high financial and technological risks.

With respect to aircraft manufacturing, the Antonov Design Centre has engineering potential and competencies that Russian manufacturers lack. Moreover, the massive aircraft production currently concentrated in Ukraine would be impossible without the utilisation of Russian parts and assembly sites.

<sup>3</sup> Structural indicators calculated in constant prices.

### 3. Sectoral consequences of integration

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Furthermore, a significant share of the defence and dual-purpose equipment currently in use in CES countries features Ukrainian-made parts. Its servicing will also support ongoing cooperation in the machine-building industry. Yet, maintaining and fostering these ties will only be possible on the basis of the creation of new types of hardware. The development of cooperation ties in aircraft manufacturing will promote growth in sectoral trade turnover. By 2030, the share of aviation equipment in the structure of Ukraine's net exports to the CES has the potential to climb to 7%.

Given the deficit in shipbuilding production capacities, as well as in dominant positions throughout the post-Soviet area in the development and manufacture of gas-turbine engines for navy, commercial, and passenger vessels, the outlook for shipbuilding cooperation is bright. By 2030, the share of shipbuilding-products in the structure of Ukrainian exports to CES countries will grow to 1.2%.

With respect to machinery and equipment production, Ukraine's main opportunities are associated with the utilisation of its potential to develop power engineering, as well as with the development and production of equipment involved in the recovery and transportation of natural resources, conventional weaponry, and military equipment. Additional opportunities for the development of machine-building activities may arise following the rollout of production streams geared towards the domestic markets of CES countries, based on the principle of industrial assembly and subsequent localisation. The most promising thrusts in this area involve the production of investment equipment, construction machinery and equipment, agricultural equipment, and rolling stock. The utilisation of existing machine-building potential, combined with the launch of industrial-assembly projects, is capable of increasing the share of machinery-and-equipment in total Ukrainian exports to CES countries to 20% by 2030.



#### **4. Key findings of the economic-development forecast for CES member states and Ukraine**

Comparison of the findings yielded by the estimates for the aforementioned scenarios indicates that the greatest growth in export and GDP volumes over the baseline scenario (in which Ukraine joins neither the EU Free Trade Zone nor the CES) is observed in the option envisioning Ukraine's ascension to the CES – including technological convergence but excluding the formation of a unified currency system.

High export-growth values are also observed under the scenario in which Ukraine forms a Free Trade Zone with the EU, although given the significant increase in imports and reduction in exports to CES countries entailed by this option, Ukrainian GDP dips slightly.

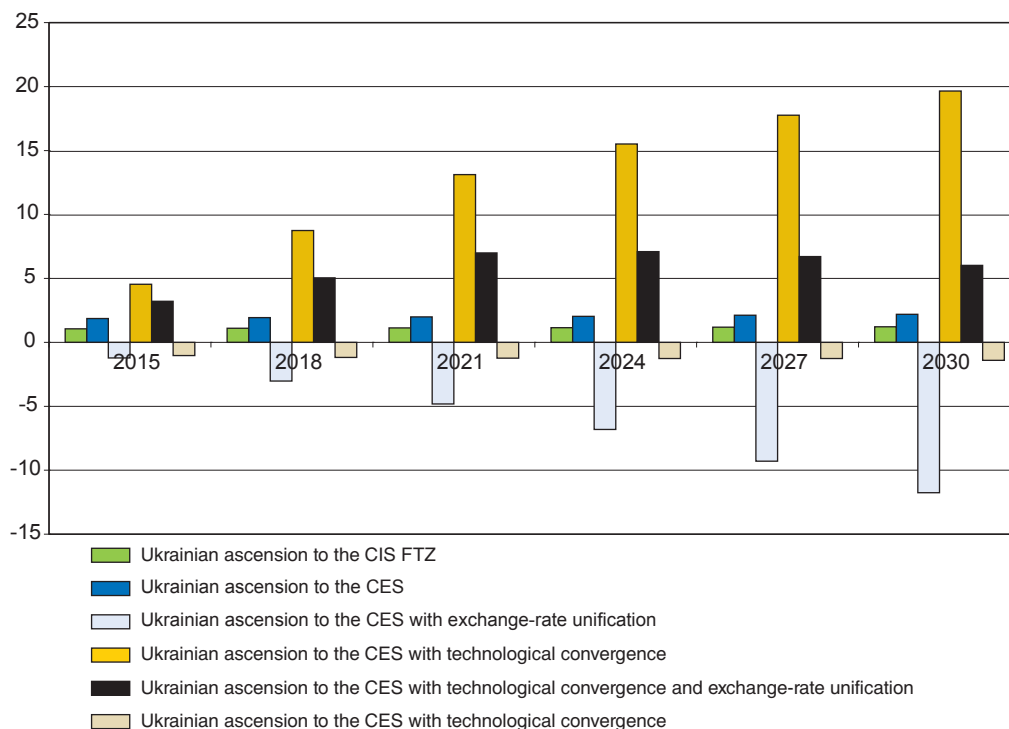
A significant increase in GDP volumes is characteristic under those scenarios featuring technological convergence. Export growth is observed under the scenario envisioning Ukrainian ascension to the CES, as well as under the scenario in which Ukraine joins the EU FTZ. The scenario envisioning fixed exchange rates among the respective national currencies entails significant negative effects for the Ukrainian economy because of a deterioration in the country's balance of payments. Essentially, this prompts the necessity of investing in improvements to economic efficiency – first and foremost, in reducing the energy-intensity of production. Alternately, a mechanism must be envisioned for the transfer of capital flows among CES countries to minimise distortions in the balance of trade and payments. At the same time, the scenarios considered in this analytical overview indicate that the main criteria for ensuring improved GDP dynamics under the selection of customs policy are expanding markets for the manufacturing industry and reducing expenditures on raw materials and energy commodities via the introduction of new technologies and a reduction in the share of customs payments in their overall costs. In this connection, Ukraine's ascension to the CES appears to be a more advantageous option than the scenario envisioning the formation of a Free Trade Zone with the EU, insofar as it affords Ukrainian industry more competitive advantages on the common market under contemplation. This makes it possible to secure the financial resources required for the necessary capital investments in modernisation, which, in turn, allows for the further expansion of trade volumes on the global market.

Over the period 2011–2030, the maximum cumulative positive effect of integration on the Ukrainian economy is estimated at USD 219 bil in 2010 prices.

In assessing the significance of integrational effects to the structural characteristics of the Ukrainian economy, it becomes evident that the scenario featuring the fullest utilisation of the integration opportunities offered by the CES allows for a marked diversification of the Ukrainian economy. The share of machine-building activities in aggregate gross-output volume reaches 7.7% by the end of the forecast period. The shares of metallurgy and agriculture dip slightly. Overall, the structure of the Ukrainian economy becomes more balanced.

Presented below are the aggregated results of the estimates of the impact of various scenarios for the ascension by Ukraine to the integration processes currently underway throughout the post-Soviet area on the economic development of Belarus, Kazakhstan and Russia.

#### 4. Key findings of the economic-development forecast for CES member states and Ukraine



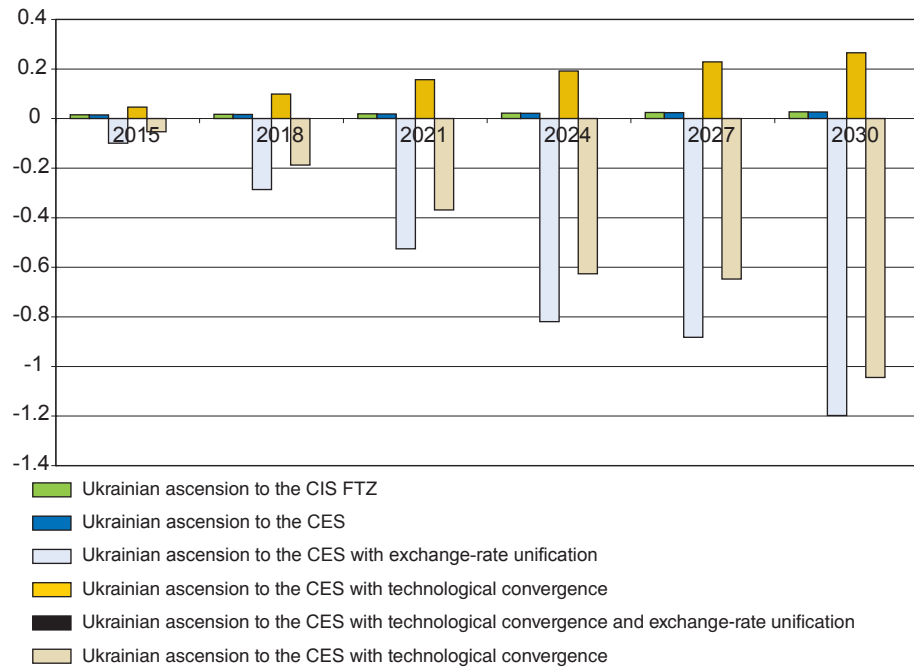
**Figure 5.** Changes to Ukrainian GDP under various integration scenarios (in USD bil, 2010 prices)

	2010	2015	2020	2025	2030
Agriculture	8.1	8.1	7.9	7.6	7.4
Mining industry	5.8	5.2	4.3	4.0	3.7
Food-processing industry (incl. beverages and tobacco)	9.5	10.0	10.4	10.4	10.5
Textiles and garment manufacturing (incl. leather manufacturing)	1.1	1.1	1.1	1.2	1.2
Forestry, timber and pulp-and-paper	1.6	1.7	1.8	1.9	1.9
Production of shale, petroleum products and nuclear materials	4.2	2.6	1.3	0.7	0.3
Chemical production	4.4	4.6	4.8	4.9	5.1
Production of other non-metal mineral products	1.7	1.9	2.2	2.3	2.4
Metallurgy	9.2	8.9	8.5	8.4	8.3
Machine-building	5.9	6.6	7.0	7.5	7.7
Electric power	4.9	4.3	3.9	3.5	3.1
Construction	3.5	4.6	5.8	6.7	7.1
Transportation and communications	9.0	9.1	9.3	9.4	9.5
Commerce	10.5	10.7	10.8	10.9	11.0
Services	20.6	20.6	20.8	20.7	20.6
Total	100.0	100.0	100.0	100.1	100.0

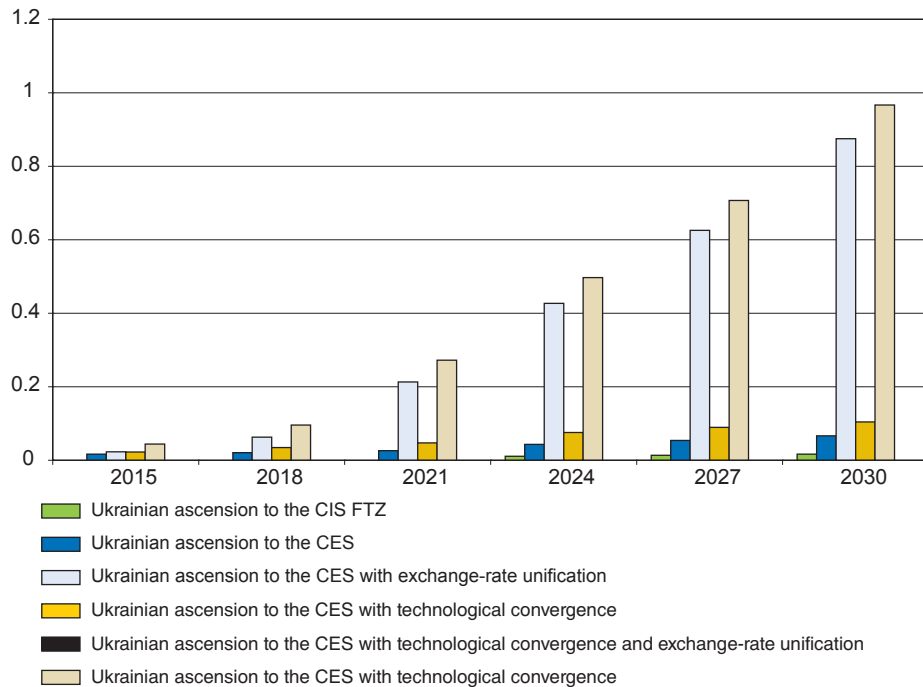
**Table 17.** Sectoral breakdown of the Ukrainian economy, in constant prices, percent (scenario of technological convergence)

Source: INEF RAS estimates

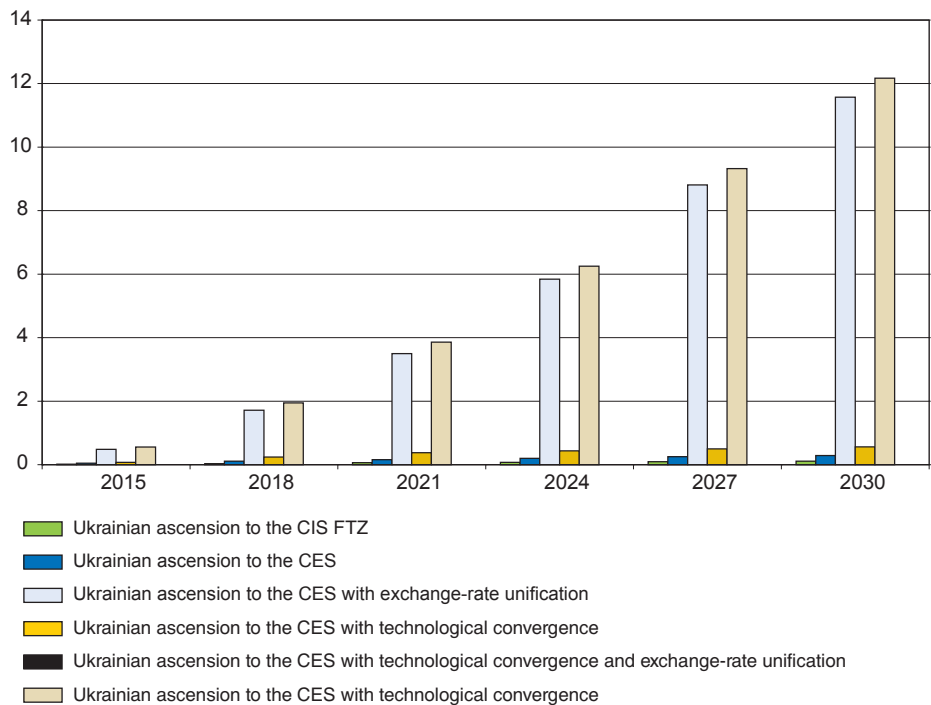
**Figure 6.** Change in Belarusian GDP under various scenarios for Ukrainian integration with the CES (in USD bil, 2010 prices)



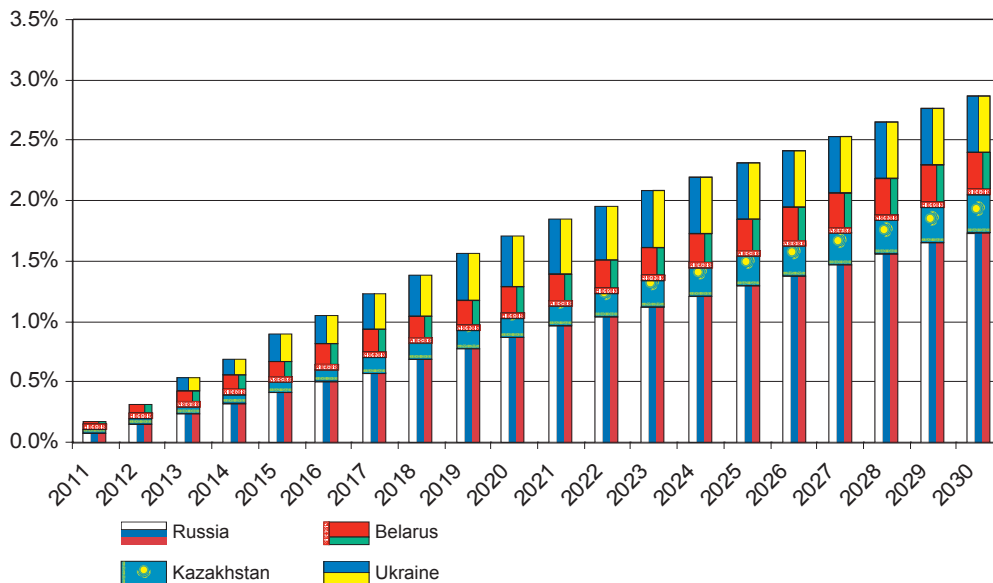
**Figure 7.** Change in Kazakh GDP under various scenarios for Ukrainian integration with the CES (in USD bil, 2010 prices)



#### 4. Key findings of the economic-development forecast for CES member states and Ukraine

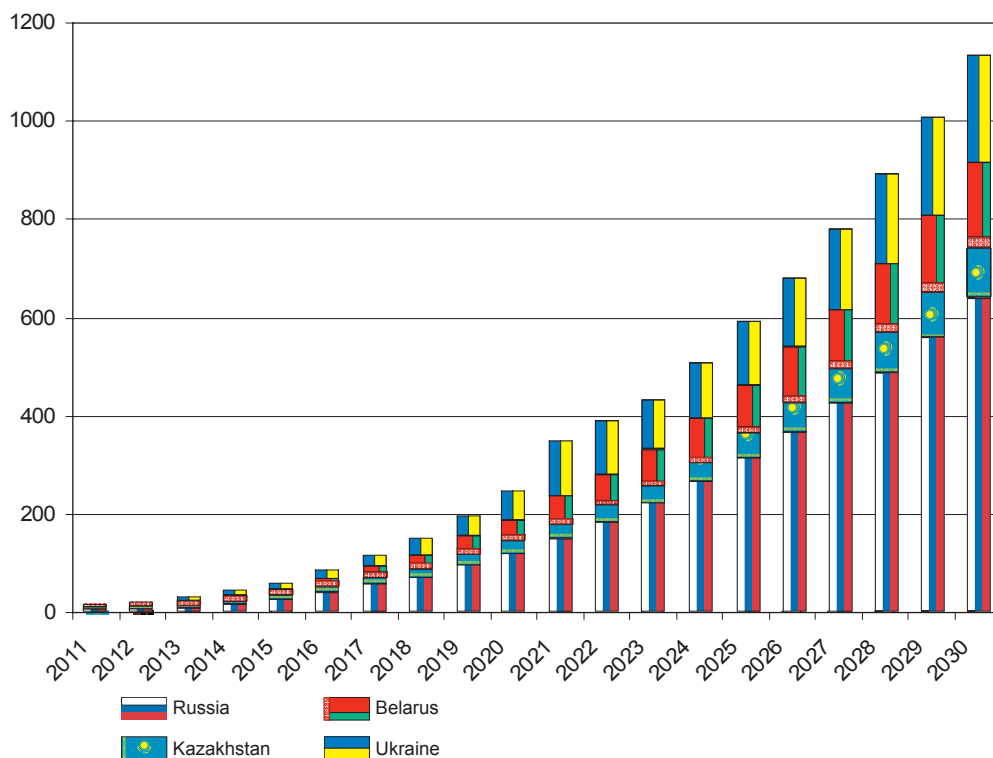


**Figure 8.** Change in Russian GDP under various scenarios for Ukrainian integration with the CES (in USD bil, 2010 prices)



**Figure 9.** Country contribution to the net integration effect of CES creation and Ukraine's ascension thereto (as a percentage of the four countries' aggregate GDP)

**Figure 10.** Gain in the four countries' aggregate GDP from CES creation and Ukraine's ascension thereto, accumulated result in USD bil (in 2010 prices)



Over the period 2011–2030, the ultimate effect of CES creation and Ukraine's subsequent ascension thereto can be assessed for the four countries at USD 1.1 trillion (in 2010 prices). By the end of the forecast period, the integration of CES countries would support a net gain in the four countries' aggregate GDP of up to 2.8% over the baseline option.

### Conclusions and recommendations

Based on the findings of our research, the following key conclusions can be drawn:

1. The intensification of integration within the CES of Russia, Kazakhstan and Belarus *through the fostering of trade ties, industrial cooperation, and the equalisation of technological-development level* results in a situation in which, by the end of the forecast period, *the countries' aggregate annual GDP is approximately 2.5% higher than their aggregate GDP in the absence of integration*. Over the period 2011–2030, the total accumulated effect of CES creation without the participation of Ukraine is estimated at USD 900 bil (in 2010 prices).
2. By virtue of the existing structure of the Belarusian economy and the main thrusts of its foreign economic ties, integration throughout the post-Soviet area is of vital importance to the country, insofar as Belarusian exports to CES countries are poised to reach up to 35% of national GDP in the future.
3. Ukraine's non-participation in the integration processes currently underway throughout the post-Soviet area leads to *continuation of the sectoral breakdown of its economy and, as a result, to a potential slowdown in its economic growth rate* because of the impossibility of achieving accelerated export-volume growth.
4. Ukraine's ascension to the CIS FTZ with the current exemptions has no appreciable impact on foreign trade volumes within the CIS, the growth rates of the Ukrainian economy, or on the country's economic structure. In essence, Ukraine's ascension to the CIS FTZ in this format can fairly be viewed as *preservation of the status quo with a slight «bump»* for the Ukrainian economy.
5. Ukraine's ascension to the EU FTZ means *deterioration of the terms of trade throughout the post-Soviet area*. CES countries have the opportunity to soften the blow of such a move by Ukraine by raising median customs tariffs. This will result in a reduction of exports to CES countries and an increase in import volumes from EU countries (only partially offset by a slight increase in export volumes to the EU). *Under this scenario, Ukraine stands to lose up to 1.5% of its baseline GDP volume*.
6. The greatest dynamic change to the structure of the Ukrainian economy in favour of sectors featuring the highest level of processing is achieved under the scenario envisioning the country's ascension to the CES and subsequent technological convergence among the countries. In this case, *the share of machine-building activities in Ukraine's gross output climbs from 6 to 9%*.
7. Ukraine's ascension to the CES means that, owing to trade effects, annual GDP volume will exceed GDP volume under the baseline scenario by 1% by the end of the forecast period. Under technological integration and the fostering of cooperation ties, *assessment of the economic effect could be boosted to 6–7% of total GDP volume by 2030*. Under this scenario, by the end of the forecast period, Ukraine's GDP value will be approximately 6–7% higher than Ukrainian GDP under the scenario excluding CES integration. The share of machine-building activities in Ukraine's GDP increases from 6 to 9%. Inter alia, the share of machinery and equipment in total Ukrainian production output reaches 6% by 2030, with its share in total Ukrainian exports to the CES climbing to 20%. In par-

ticular, the fostering of cooperation ties in aircraft manufacturing will encourage trade-turnover growth in the sector. Within the structure of aggregate Ukrainian exports to the CES, the share represented by aviation equipment will grow to 7% by 2030. By 2030, the share of shipbuilding products within the structure of Ukrainian exports to the CES will climb to 1.2%. Over the period 2012–2030, the total positive effect of this integration option on the Ukrainian economy is assessed at USD 219 bil in 2010 prices, (i.e. at an annual average of USD 12.2 bil).

8. One of the key challenges of integration involves the elaboration of a single currency-and-finance policy for CES countries. As indicated by the estimates presented herein, the continuation of an uncoordinated currency policy within CES countries could significantly dampen the positive effects of integrational ties. At the same time, exchange-rate harmonisation could create significant problems for CES countries dependent on the importation of energy commodities (particularly under conditions of rising prices); alternately, mechanisms must be envisioned for the transfer of capital flows among CES countries to minimise distortions in the balance of trade and payments. Provided the creation of such mechanisms, exchange-rate harmonisation is the most advantageous scenario for the continued intensification of integration throughout the post-Soviet area.
9. Over the period 2011–2030, the total accumulated effect on the four countries of CES creation and Ukraine's subsequent ascension thereto stands to reach USD 1.1 trillion (in 2010 prices). Broken down by country, the effect totals approximately 14% of Belarusian GDP, 6% of Ukrainian GDP, 3.5% of Kazakh GDP and 2% of Russian GDP. In per capita terms, Belarus, Ukraine and Kazakhstan emerge as the main beneficiaries of integration, with Russia becoming the leader in absolute terms.

## Appendix 1. Baseline economic scenarios

One of the main factors influencing the trade dynamic between the countries is the exchange-rate correlation between their national currencies. Our baseline scenario assumes that oil prices will continue to climb, leading to a strengthening of the national currencies of energy exporters – Russia and Kazakhstan. The national currencies of Ukraine and Belarus – countries dependent on the importation of energy resources – will weaken against the American dollar. The oil prices and exchange rates used under this scenario are presented in Table A1.

Within the scope of the scenario under consideration, it was assumed that the global economy would remain sluggish, with annual growth rates not exceeding 3.0–4.0%. No significant disruptions to the development dynamic of the global economy such as the 2008–2009 crisis were considered under the scenario forecast. At the same time, average global GDP rates were lowered somewhat from predicted and observed values, which assumed the occurrence of periods of instability and reduced economic-growth rates over the 2011–2030 interval. Relatively low growth rates for the global economy served to dampen increases in demand on the world market for the products produced by the countries under investigation, thereby prompting a slowdown in export growth rates over the long term.

Against this backdrop, modest price growth is expected to continue for primary energy commodities on the global markets. With respect to changes in domestic energy prices, the principle of export net-back is assumed to be applied to oil and petroleum products from the beginning of the forecast period and to natural gas – beginning in 2015. Thus, price formation in CES countries for the main types of energy commodities is determined by global prices, export duties in exporting countries, and transportation tariffs.

The chosen scenario for oil-price and exchange-rate change was formed based on a modelling procedure that takes into account the development dynamic of the global economy, inflation in the world's largest economies, parameters of the global production and reserves of oil, and key exchange-rate correlations.<sup>4</sup> Moreover, the utilisation of a scenario envisioning rising oil prices allows for an assessment of the effects associated with the fact that some CES countries are net exporters of energy commodities while others are net importers.

	2010	2011	2012	2015	2020	2025	2030
Growth rate of the global economy, percent annually	5.0	3.8	3.7	3.8	3.4	3.3	3.3
Urals oil price, \$/ barrel	78.2	103.0	110.0	118.7	150.3	172.9	191.7
Exchange rate of the Russian ruble to the US dollar <sup>5</sup>	30.4	30.5	30.2	29.3	27.9	26.5	25.2
Exchange rate of the Kazakh tenge to the US dollar	147.4	147.5	145.3	139.0	129.0	119.7	111.2
Exchange rate of the Ukrainian grivna to the US dollar	7.9	8.0	8.6	9.2	10.1	11.2	12.4
Exchange rate of the Belarusian ruble to the US dollar	2144	5000	8800	9261	10478	11855	13413

**Table A1.** Dynamic of oil prices and national-currency exchange rates (baseline option)

Source: INEF RAS, IEF NASU estimates

<sup>4</sup> The key provisions of the method for formulating scenario conditions is described in greater detail in the article authored by A. A. Shirov and M. S. Gusev «Developing Scenario Conditions as the Critical Stage in the Preparation of an Economic Forecast,» Forecasting Issues No. 1, 2011.

<sup>5</sup> All exchange-rate correlations given as annual averages.



The second important assumption on which the forecast was based involved the hypothesis of the existence of a tendency towards production-efficiency equalisation in countries implementing processes of intensive economic integration. This tendency is characterised by the gradual convergence of the level of efficiency with which primary resources are utilised – first and foremost, in terms of the indicators for the energy- and materials-intensity of production. This, in turn, leads to a reduction in the contribution of mining and raw material sectors to the economic growth rate under a simultaneous increase in the rate of fixed-capital accumulation, as well as to growth in capital investments and demand for investment-complex products.

Over the 2010–2030 forecast period, all of the countries under consideration experience a slowdown in the rate of economic growth (Russia, Kazakhstan, Belarus). Rising global oil prices stimulate higher rates of economic growth in energy-resource exporting countries – Russian and Kazakhstan. Belarus, whose energy costs rise at a constant rate, may encounter a slower pace of economic growth over the long term. The higher dependence of the Belarusian economy on energy resources and the trend towards bullish oil prices demand that Belarus undertake a dramatic ramping-up of investment activity. As a result, the country is expected to post the highest rate of fixed-capital accumulation.

Insofar as the primary production facilities of the countries under consideration are characterised by a high level of depreciation, securing their economies' stable growth will necessarily entail massive fixed-capital renewal. This, in turn, will require a rate of fixed-capital accumulation that outpaces the GDP dynamic. In other words, increasing accumulation rates are anticipated in all of the countries under consideration (Table A3).

Estimates for the baseline option of the forecast yielded the following characteristics for the economies of Russia, Kazakhstan and Belarus – reflecting the key indicators for their economic development over 2011–2030 – as presented in Tables A4-A9.

**Table A2.** Average annual GDP growth in constant 2010 prices<sup>6</sup>, percent (baseline option)

GDP growth rate in constant prices	2010–2015	2015–2020	2020–2025	2025–2030
Russia	4.9	5.0	4.6	4.3
Kazakhstan	5.1	4.9	4.6	4.6
Belarus	4.7	2.6	2.3	2.7
Ukraine	4.4	3.8	3.9	3.6

Source: INEF RAS estimates

**Table A3.** Accumulation rate dynamic, percent (baseline option)

Accumulation rate	2010	2015	2020	2025	2030
Russia	21	27	28	30	31
Kazakhstan	25	28	31	34	37
Belarus	33	32	35	36	36
Ukraine	19	20	24	29	32

<sup>6</sup> Here and in subsequent estimates, constant 2010 prices are used.

## Appendix 1. Baseline economic scenarios

	2011–2015	2016–2020	2021–2025	2026–2030
Household consumption	7.2	6.8	5.4	4.2
Government consumption	2.0	2.8	2.4	2.0
Fixed-capital investments	10.9	7.4	5.3	4.3
Exports	3.6	2.8	3.4	3.0
Imports	10.0	8.4	5.9	4.1
GDP	4.9	5.0	4.6	4.3

**Table A4.** Average annual growth rate of GDP and elements of final demand in the Russian Federation (in constant prices, baseline option)

Source: INEF RAS estimates

The average annual GDP growth rate of the Russian Federation drops from 4.9% in 2010–2015 to 4.3% in 2026–2030. This dynamic emerges as the consequence of the gradual saturation of public demand, expressed as the slowdown of household consumption. Stagnation in the production and export of energy resources is also anticipated. The overcoming of key obstacles to economic development beyond 2020, the conclusion of accelerated infrastructure-modernisation, and the completion of fixed-capital renewal programs will ease demands on fixed-capital-investment growth rates in the second half of the forecast period.

The most significant structural shifts in the economy are associated with a reduction in the share of gross output held by fuel-and-energy sectors. Against this backdrop, the share held by machine-building activities and construction increases.

	2010	2015	2020	2025	2030
<b>Oil, t bil</b>					
Production	494	511	530	535	530
Export	257	262	271	273	271
Export share in production	52.1%	51.2%	51.1%	51.0%	51.1%
<b>Gas, BCM</b>					
Production	671	757	833	862	881
Export	252	329	390	413	441
Export share in production	37.6%	43.4%	46.9%	48.0%	50.0%
<b>Coal, t bil</b>					
Production	313	345	379	412	440
Export	114	116	117	118	119
Export share in production	36.6%	33.5%	30.8%	28.6%	27.1%
<b>Electric power KWh bil</b>					
Production	917	1008	1126	1219	1278
Export	18	52	78	93	83
Export share in production	1.9%	5.1%	7.0%	7.6%	6.5%

**Table A5.** Production and export of energy resources in the Russian Federation (baseline option)

Source: INEF RAS estimates

Throughout the entire forecast period, Russia’s oil-production volumes stabilise at a level above 500 million tonnes (Table A5). This is predicated on the exhaustion of reserves at existing deposits and the need to shift to the development of less-accessible deposits located in Eastern Siberia and the continental shelf. Growth in specific capital-intensity and appreciation of the operating costs entailed in deteriorating production conditions drive a reduction in the commissioning volume of new facilities.

At the same time, reduced specific petroleum-product costs, the modernisation of oil-refining facilities, and tax incentives will allow current oil-export volumes to be maintained. By 2030, natural-gas production will grow by 31% to 881 billion cubic metres, with coal production growing by 40% to 440 million tonnes. The energy balance will experience a substitution of more natural gas by coal and an increase in the share held by atomic energy. The production of electric power will grow to 1278 billion kilowatt-hours – a 39% increase over 2010 levels.

Over the forecast period, the average annual GDP growth rate of Kazakhstan stands at approximately 4.8% and remains stable throughout, despite a relative decline in the pace of household consumption. This is predicated on the continuing development of the country’s raw-materials complex, as well as on the gradual process of import substitution through the development of domestic production. The growth rate of fixed-capital investments also continues to be relatively high, standing at approximately 6.5%. Exports dip slightly because of their orientation towards major sales markets – primarily China and Russia (Table A6). The expansion of key energy-resource production will also lend additional support to the development of the Kazakh economy (Table A7).

By 2030, oil production volumes in Kazakhstan will grow to 128 million tonnes, representing 178% of 2010 levels. In 2030, natural gas production will total 126 billion cubic metres a 3.3-fold increase over 2010. Coal production volumes will grow to 132 million tonnes by 2030, with the production of electric power increasing by 31% to 108 billion kilowatt-hours.

Belarus’ GDP growth rate will begin to experience a significant slowdown over the mid-term (from 4.7% to 2.6%). One of the reasons for the trend is the impossibility of securing further output build-up based on outmoded production facilities, as well as the declining competitiveness of Belarusian industry against the backdrop of rising prices for key cost items. The slower growth rate of economic activity will also have an effect on the pace of household consumption, which will drop from 4.2% to 2.9% (Table A8).

**Table A6.** Growth rate of GDP and the basic elements of final demand in Kazakhstan, percent (in constant prices, baseline option)

	2011–2015	2016–2020	2021–2025	2026–2030
Household consumption	6.5	8.2	6.7	5.3
Government consumption	6.2	4.5	4.2	3.9
Fixed-capital investments	9.2	7.5	6.4	6.6
Exports	4.6	4.3	3.9	3.7
Imports	8.4	8.3	6.4	5.3
GDP	5.1	4.9	4.6	4.6

Source: INEF RAS estimates

## Appendix 1. Baseline economic scenarios

	2010	2015	2020	2025	2030
<b>Oil, t bil</b>					
Production	72	85	100	114	128
Export	56	69	84	98	112
Export share in production	77.2%	81.3%	84.1%	85.8%	87.6%
<b>Gas, BCM</b>					
Production	37	50	67	92	126
Export	6	18	34	54	83
Export share in production	16.0%	36.6%	50.5%	58.9%	65.5%
<b>Coal, t bil</b>					
Production	103	106	116	125	132
Export	31	31	31	31	31
Export share in production	30.1%	29.2%	26.8%	24.8%	23.6%
<b>Electric power KWh bil</b>					
Production	82	84	94	102	108
Export	7	9	16	22	24
Export share in production	9.2%	11.3%	17.4%	21.6%	22.6%

**Table A7.** Production and export of energy resources in Kazakhstan (baseline option)

Source: INEF RAS estimates

	2011–2015	2016–2020	2021–2025	2026–2030
Household consumption	4.2	4.4	3.6	2.9
Government consumption	1.6	1.3	1.0	0.7
Fixed-capital investments	4.2	4.2	3.4	2.4
Exports	5.5	3.9	3.1	2.6
Imports	4.1	5.2	4.0	2.2
GDP	4.7	2.6	2.3	2.7

**Table A8.** Growth rate of GDP and the basic elements of final demand in Belarus (in constant prices, baseline option)

Source: INEF RAS estimates

The production of electric power will grow slightly to 50 billion kilowatt-hours. This is predicated on the fact that the modernisation of industrial facilities, aimed at reducing the electricity- and energy-intensity of production, must become one of the primary objectives of the country's economic policy. By virtue of the Belarusian economy's high

	2010	2015	2020	2025	2030
<b>Oil, t bil</b>					
Production	1	1	2	2	2
Import	19	24	25	25	24
Import share in domestic consumption	93.7%	94.9%	95.2%	95.4%	95.5%
<b>Gas, BCM</b>					
Production	0	0	0	0	0
Import	21	22	24	24	25
Import share	99.0%	99.1%	99.0%	98.9%	98.9%
<b>Coal and peat, t bil</b>					
Production	2	2	2	2	2
Import	0	0	0	0	0
Import share in domestic consumption	4.2%	10.9%	16.2%	15.8%	15.8%
<b>Electric power KWh bil</b>					
Production	43	47	50	50	50
Import	6	6	6	6	6
Import share in domestic consumption	13.0%	12.9%	13.5%	13.5%	13.8%

**Table A9.** Production and import of energy resources in Belarus (baseline option)

Source: INEF RAS estimates

level of dependence on imported energy resources, failure to tackle the issue of energy efficiency leaves any improvement to economic competitiveness out of the question. Productivity growth in the utilisation of primary resources will allow growth in the importation of energy commodities to be contained – primarily those of natural gas (13% growth in 2011–2030, Table A9).

### Appendix 2. Significance of gas prices to the Ukrainian economy

Gas prices remain one of the most vexing issues in Russo-Ukrainian bilateral relations. In view of the country's existing cost structure, energy prices stand to have a significant impact on the competitiveness of the Ukrainian economy's largest sectors. In this connection, it is important to understand the extent to which the gas factor influences both the state of Ukraine's balance of trade and the country's most critical macroeconomic characteristics: price and production dynamic.

Concerning the impact on Ukraine's balance of trade, arriving at a quantitative assessment thereof is relatively simple. In 2011, exports of natural gas from Russia to Ukraine total approximately 40.13 BCM. In 2011, the average annual price of the natural gas supplied from Russia to Ukraine stands at USD 309.4/mi k, with the total cost of Russian gas exports to Ukraine equalling USD 12.42 bil.

In 2011, the export-import of Ukrainian goods could total USD 70.9 bil and USD 86.7 bil respectively, with Ukrainian GDP for the year estimated at USD 162.85 bil.

If, in 2011, the price of the natural gas exported from Russia to Ukraine were reduced to USD 180/mi k, the total cost of Ukrainian imports of Russian natural gas, in 2011 terms, would fall to USD 7.72 bil.

Ukraine's trade deficit would contract from USD 15.8 bil to USD 8.1 bil, or by USD 7.7 bil – equivalent to 2.9% of Ukrainian GDP in 2011. Note that given Ukraine's existing foreign-trade structure, the country's trade deficit would assume a virtually unitary elasticity to gas-price increases.

As far as the macroeconomic effects of a reduction in gas prices on the Ukrainian economy is concerned, under the current price structure, such a development would have an unequivocally positive impact on the expenses incurred by the largest sectors of the Ukrainian economy.

Cost reductions afford manufacturers certain opportunities to lower sales prices while maintaining established rates of return, which, in turn, facilitate the ratcheting-up of consumer demand and, therefore, production volumes. Moreover, the lowering of final consumer gas expenditures frees up more funds for other expense items (inter alia, funds directed towards investment purposes). Reduced gas prices allow manufacturers to lower sales prices while maintaining their current rate of return. It must be stipulated, however, that such a price reduction is highly unlikely to occur: in the real economy, it would be transformed into revenue growth for business, government and domestic households – into the expansion of opportunities on the foreign markets. In other words, manufacturers' competitiveness would experience significant gains, particularly in such sectors as metallurgy, the chemical industry and electric power. A quantitative assessment of the scale of such effects can be reached via the use of inter-industry macroeconomic tools.

Taken together, the lowering of production costs and manufacturer prices, in turn, leads to production-volume growth. Gross-output volume increase will be determined, on the one hand, by demand growth, and on the other, by the volume of floating capital the respective sectors have at their disposal. The relationship between floating-capital volume and new values for specific production costs will determine gross-output growth over the short term.

COMPREHENSIVE ASSESSMENT OF THE MACROECONOMIC EFFECTS OF VARIOUS FORMS OF DEEP ECONOMIC INTEGRATION OF UKRAINE AND THE MEMBER STATES OF THE CUSTOMS UNION AND THE COMMON ECONOMIC SPACE

Agriculture	-0.7%
Food-processing industry (incl. beverages and tobacco)	-0.7%
Textiles and garment manufacturing (incl. leather manufacturing)	-0.6%
Forestry, timber and pulp-and-paper	-0.9%
Chemical production	-3.3%
Production of other non-metal mineral products	-1.7%
Metallurgy	-1.8%
Machine-building	-1.2%
Electric power	-1.6%
Construction	-1.1%
Transportation and communications	-0.9%
Commerce	-0.3%
Services	-0.3%

**Table A10.** Possible price change in the Ukrainian economy, by sector, under a 10% reduction in gas prices

Source: INEF RAS estimates

Agriculture	0.10%
Mining industry	0.25%
Food-processing industry (incl. beverages and tobacco)	0.12%
Textiles and garment manufacturing (incl. leather manufacturing)	0.09%
Forestry, timber and pulp-and-paper	0.09%
Chemical production	2.40%
Production of other non-metal mineral products	0.90%
Metallurgy	0.50%
Machine-building	0.39%
Electric power	1.09%
Construction	0.03%
Transportation and communications	0.47%
Commerce	0.04%
Services	0.04%

**Table A11.** Possible direct effects of gross-output volume change, by sector of the Ukrainian economy, under a 10% reduction in gas prices (direct effects)

Source: INEF RAS estimates

## Appendix 2. Significance of gas prices to the Ukrainian economy

Agriculture	0.14%
Mining industry	0.46%
Food-processing industry (incl. beverages and tobacco)	0.15%
Textiles and garment manufacturing (incl. leather manufacturing)	0.15%
Forestry, timber and pulp-and-paper	0.16%
Chemical production	2.48%
Production of other non-metal mineral products	1.02%
Metallurgy	0.64%
Machine-building	0.44%
Electric power	1.22%
Construction	0.06%
Transportation and communications	0.57%
Commerce	0.05%
Services	0.12%
Total	0.45%

**Table A12.** Possible effects of gross-output volume change, by sector of the Ukrainian economy, under a 10% reduction in gas prices (provided the respective reduction in electric-power prices)

Source: INEF RAS estimates

In general, production volume across the Ukrainian economy stands to grow by 0.4%. Additional gains to Ukrainian GDP could reach 1%, predicated on the effects of production-volume increases and improvements to the country's balance of payments.

Also note that a reduction in gas prices could lead to lower electricity prices, which, in turn, represents a significant element in the country's production-cost structure. According to the estimates presented in Table A10, electricity prices could, in this case, drop by 1.6%. This would lend added impulse to an increase in production volumes. The values of the ultimate gains in gross-output volumes are presented in Table A12.

In this case, net growth in production volumes across the economy totals 0.45%, while GDP growth stands at 1.2%.



## EDB Centre for Integration Studies

The regional economic integration processes, boosted by the establishment of the Customs Union (CU) and the Common Economic Space (CES) of Belarus, Kazakhstan and Russia, are in need of robust analytical support. The EDB Centre for Integration Studies was founded in 2011 with this very purpose in mind. The Centre has been assigned with organising research, preparing reports, and formulating recommendations for the governments of the EDB member states on the subject of regional economic integration.

Priority research areas include:

- economic integration, including assessment of the economic effects of the CU and CES as well as issues related to the harmonisation of applicable legislation and corporate integration;
- measures aiming at the establishment of the Eurasian Economic Union;
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## EDB Centre for Integration Studies Reports: Forthcoming in 2012

### **Report # 2**

#### **Studies of Regional Integration in the CIS and in Central Asia: A Literature Survey**

This work by Alexander Libman represents a high-quality and detailed critical review of the research literature on post-soviet integration that has been published in the last 20 years. Being affiliated with research institutions in Frankfurt am Maine, Moscow and Shanghai, the author of the review is a reputed and active researcher of post-soviet integration. He tries to look at the subject from both the outside and the inside, which is especially important in the context of the work. The author analyzed the major trends of research of the regional integration processes in the post-Soviet region and Central Asia that have been carried out by both the Russian and international academic communities.

*Available in Russian and English.*

### **Report # 3**

#### **Assessment of the economic, institutional and legal impact of labour migration agreements within the framework of the Common Economic Space**

The report presents an analysis of two agreements that enter into force on January 1, 2012 within the framework of the CES shared by Russia, Belarus and Kazakhstan: "Agreements on the Legal Status of Migrant Workers and Their Family Members" and the "Agreements on Cooperation to Counteract Illegal Labour Migration from Third Countries." These documents are evaluated from the standpoint of legal novations, impact on the existing contractual and legal framework surrounding the issue of labour migration, and the furtherance of effective protection for the rights and social guarantees of migrant workers. The report contains an analysis of the economic effect of the adopted agreements and their impact on the intensity of labour-migration processes, on the labour market and labour productivity, on economic development in the region, and on the strengthening of regional economic ties. The report focuses particular attention on an assessment of the effects of agreement adoption on migratory flows from Central Asia.

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