

APRIL 2017

Research Report 417

From Fiscal Austerity towards Growth-Enhancing Fiscal Policy in Ukraine

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The authors are grateful to Amat Adarov and Vasily Astrov for helpful comments on an earlier draft and to Ivan Bogdan, Olga Shpenyuk and Dmitriy Konovalenko for supplying information essential for this study.

Abstract

The study analyses the dynamics and the structure of Ukraine's public finances. It assesses the medium-term impact of fiscal austerity 2014-2016, examines fiscal sustainability and estimates further fiscal adjustment efforts. It evaluates the economic and social implications of current fiscal policies especially on education, health and other social indicators. It examines the benefits and costs of the medium-term budget for 2017-2019 with an emphasis on evolving challenges and puts forward policy recommendations aimed at a successful implementation of growth-enhancing economic reforms.

Keywords: Ukraine, fiscal policy, impact on growth, human capital, health, poverty and inequality, fiscal multipliers, sustainability of fiscal policy measures, Ukraine's economic reforms

JEL classification: E62, E60, E65, H12, H30, H50, H62, H63, H68, P52

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Executive summary

The goal of this study is to analyse the dynamics and the structure of Ukraine's public finances; to assess fiscal sustainability and evaluate the desired fiscal adjustment efforts; to reveal and estimate the economic and social implications of current fiscal policies; to examine the benefits and costs of the medium term budget for 2017–2019 with an emphasis on evolving challenges; and to draw policy recommendations aimed at a successful implementation of economic reforms and progressive human capital development.

The dramatic economic downturn over the past years, severe liquidity constraints on the government together with IMF-imposed financial restrictions, as well as the policy-makers' weak perception of the full range of fiscal policy functions and high tolerance of Ukraine's population to economic difficulties prompted a radical fiscal adjustment in Ukraine. Our calculations reveal a dramatically high cyclically-adjusted primary surplus of 6.2% of GDP in 2015 and 4% in 2016 that put Ukraine into a top position by the rank of primary balances in the world. To estimate the economic implications of fiscal policy, we computed the cyclically-adjusted primary balances and fiscal impulses. The above indicators allowed estimating the size of the fiscal multiplier, following a 'bucket approach' by Batini et al (2014). The 1st-year fiscal multiplier in Ukraine is estimated to be 0.4 and medium-term multiplier 1.3. On the basis of fiscal multipliers, we calculated the effect of fiscal adjustment on output. On this account, Ukraine's real GDP is estimated to have contracted by 1% in 2014, 2.9% in 2015, 2.8% in 2016, 1.6% in 2017 and by 0.6% in 2018. Thus, the radical fiscal adjustment of 2014–2015 has contributed to significant GDP declines in 2014–2016 and its effect will remain pronounced over the period 2017–2018, which will have caused a real GDP fall by 8.9% in the medium run. At present, the fiscal loosening of 2016–2017 is mitigating the contraction effects of fiscal adjustments in 2014–2015. Nevertheless, the combined effect of discretionary fiscal policy of 2014–2016 is predicted to be negative: real GDP is estimated to shrink by 6.1% altogether in the course of 2014–2019.

At present the multi-faceted social and economic implications of rapidly changing fiscal policy do not attract sufficient attention either of Ukraine's political elite or of multilateral donors. Overemphasis on macro-financial stabilisation and the resulting contraction of government expenditure have resulted in a drag on economic activity, caused an impoverishment of vast segments of population, undermined the quality of human capital. All of these will have long-lasting effects on productivity and growth and may even endanger the necessary public support for reforms.

The magnitude of fiscal consolidation was significant in Ukraine and took the shape of both revenue-enhancing and expenditure-reducing measures. On the expenditure side, the government focused its efforts on spending cuts related to human capital development, social support of vulnerable segments of the population and subsidies to enterprises. Under real GDP contraction, the budget expenditure ratio to GDP rose by 1.5 p.p. in the period spanning 2014–2016. On the other hand, the budget revenue ratio increased by 3.7 p.p. through 2014–2015 and declined by 0.3 p.p. in 2016. Starting from 2016, an almost twofold reduction in the social tax rate has contributed to fiscal loosening, while the collections of personal income tax, VAT, excise and real estate taxes have risen constantly over the last several

years. In 2016 real budget revenues constituted 91.9% of those in 2013, which means an 8.1% decline. The most considerable declines were recorded across corporate profits tax (-43%) and own revenues of budgetary institutions (-33%). In 2016 budget expenditures in real terms experienced a 14.1% fall as compared to 2013. As outlays on debt service increased by 50.5% and defence expenditure by 108.6% over the period, several sectors suffered from huge expenditure cuts: environmental protection (-41.9%), healthcare (-36.3%), culture, arts and sports (-35.9%), education (-36.2%), and state administration (-30.6%).

The consolidated budget balance, adjusted for road loans, stood at -3.9% of GDP in 2014, -0.7% in 2015 and -2.1% in 2016. In order to determine whether further fiscal adjustment will be required after 2017 and whether Ukraine's public finances may be considered sustainable, we estimated a medium-term fiscal gap for Ukraine (sustainability indicator S1) over the period 2018–2025 in the framework of the government inter-temporal budget constraint. The decomposition of the S1 indicator reveals that the cyclically-adjusted primary balance projected for 2017 should be more than sufficient to stabilise general government debt at the level of 2017. However, due to convergence to the debt target of 60% of GDP, the fiscal gap is getting a positive value and implies the need for notable fiscal consolidation efforts. In annual terms, after 2017 a small fiscal adjustment is required to restore debt sustainability, and annual expenditure-led or revenue-enhancing measures have to approach 0.3% of GDP. However, this scenario is sensitive to the assumptions of resuming economic growth, a moderate inflation rate and stabilisation of the real exchange rate.

Outside the conventional budget, the government issued bonds (OVDP) at a face value of 7.8% of GDP in 2014, 3.8% in 2015 and 5.6% in 2016 in exchange for securities of Naftogas, banks, the Deposit Guarantee Fund and other state companies. This situation raises serious equity concerns: while millions of Ukrainians suffer from an increasing tax burden, declining social benefits and real wage cuts, big state-owned companies and banks are abundantly supplied with government funding that is spent without appropriate control and fuels widespread corruption schemes. Government bail-out transactions are carried out in a non-transparent way, lack legislative authorisation and proper accountability. From the point of view of equity, efficiency and debt sustainability considerations, the fiscal adjustment programme should extend its coverage beyond the conventional budget and comprise all public funds, including those related to the recapitalisation of state-owned companies and banks.

International experience suggests that fiscal consolidation may be effective and sustained over the long run only if perceived as equitable and indispensable for future development. Dramatically low indicators of the Ukrainian population's confidence in the national government and the low perception of the quality of public services (in particular, healthcare services) call for a fiscal consolidation which is more responsive to social problems. The World Bank estimates the 'extreme poverty rate' in Ukraine to have risen from 3.3% in 2014 to 5.8% in 2015, while the 'moderate poverty rate' increased from 15.2% to 22.2%, respectively. Within the official statistics the effect of growing poverty is captured by the indicator of the share of food-related spending in the total monetary spending of households, which increased from 52.6% in 2013 to 55.5% in 2016. In 2014–2015 the ratio of the income of the 20% richest categories of the population to the 20% poorest ones rose from 3.1 to 3.5; this may to some extent be interpreted as an effect of fiscal consolidation. Elevated poverty and high income dispersion reduce the quality of life of poor households; they also bring about a lower life expectancy and a higher mortality rate.

According to our calculations, real wages in the main branches of the general government decreased significantly and started lagging behind the average real wage in the whole economy. For instance, in January–November 2016 the real wage in education dropped to only 70.4% of its level in 2013, in healthcare to 74.0%, in research and development to 76.4%, and in culture to 67.1%. As fiscal consolidation widened the wage rate differentials between the EU and Ukraine, it acted as a push factor for labour emigration out of Ukraine. In line with recent empirical investigation, labour emigration out of Ukraine is expected to exacerbate negative social implications such as deteriorating health of labour migrants; reduction in births and evolving social orphanage in affected families; family disruptions in the case of separate lives; and violations of labour and human rights of those migrants employed in the shadow economy.

A drastic cut of budgetary financing of the education sector without urgently needed structural reforms will probably deteriorate the quality of Ukrainian education and affect labour productivity in long run. Ukraine's education sector financing in 2016 as a per cent of GDP (after adjustment for special fund collections) is comparable to the world's average and developing countries' average. In contrast, public financing of the healthcare sector (2.9% of GDP) is extremely low by international comparison (5.9% of GDP world's average) and the existing structural deficiencies are challenging. Under such conditions, the government has undertaken across-the-board cuts of budgetary financing in the healthcare (relating to almost all sub-sectors) throughout 2014–2016. Spending cuts on polyclinics and ambulance stations, on sanitary and prevention institutions as well as almost zero budget appropriations for medical equipment purchases and repairs cause a decline in the quality of, and access to, medical care of vast segments of the population. Moreover, scarce budgetary financing and lack of structural reforms in the healthcare sector will probably worsen the life expectancy of Ukrainian people and push a further increase in their mortality rate.

Under severe fiscal austerity the government has failed to articulate a strategic vision of the reforms in the key branches of human capital development (except for healthcare); no priority programmes have been specified, no sequence of actions and performance indicators have been defined. Fiscal austerity measures undermine the sustainability of the respective sectors; they contribute to the decline in the living standards of vast segments of the population and to the degradation of human capital in Ukraine.

An important component of budget expenditures that may alleviate the impact of fiscal consolidation on economic growth is public investment. Public investments, financed out of the state and local budgets in Ukraine, proved to be extremely low in relative terms; they amounted to only 1.3% of GDP in 2014, 2.4% in 2015 and 3% in 2016. Compared with other transition countries, in 2014 general government investments stood at 5.3% of GDP in the Czech Republic, 7.3% in Hungary, 4.9% in Latvia and Lithuania, 5.1% in Poland, 4.1% in Slovak and 7.3% in Slovenia. The quality of government management with regard to public investment remains low in Ukraine. It still faces challenges in developing, executing and managing public investments, as well as channelling more public funds towards investments, since fixed capital stocks in the public sector are ageing, of mediocre quality and the country's needs for modern infrastructure are tremendous.

Some of the acute fiscal problems originating in 2014–2016 are tracked in the budget for 2017 and the indicative budgets for 2018–2019. Among them are:

- a) further expenditure cuts on healthcare: from 4% of GDP in 2013 and 3.6% in 2015 to 3.1% (including user charges) in 2017 and 3% in 2018–2019;
- b) declining expenditures on education from 5.7% of GDP (including user charges) in 2015 and 5.4% in 2016 to 5.2% in 2018–2019 versus 6.9% of GDP in 2013;
- c) only a slight cut of the tremendous budget transfers to the Pension Fund: from 5.9% of GDP in 2016 to 5.7% in 2017;
- d) growing expenditures on the state administration: from 1.6% of GDP in 2015 to 2% in 2017 and 1.7–1.8% in subsequent years;
- e) the probability of vertical fiscal imbalances among the individual levels of government driven by reassignments of expenditure obligations and limited reallocations of revenue sources.

In view of the quite significant contribution of the fiscal adjustment to the overall GDP decline and the low tolerance of Ukraine's population concerning a further elevation of poverty and deterioration of public services, the pace of fiscal adjustment has to be moderated. We argue that a gradual fiscal consolidation spanning over several years, embodied in smooth time paths for the cyclically-adjusted primary balance (to be increased every year by 0.3% of GDP), as well as choosing the right mix of fiscal instruments, may reduce the adverse effects of the consolidation on economic growth and social equity. Fiscal policy should take into account the growth effect of various fiscal measures across time horizons, as well as their durability, and any further consolidation measures should avoid undermining the recovery of the economy.

Thus, the future fiscal consolidation path has to rely on instruments that have a neutral or favourable impact on long-term economic growth. Available empirical research and our analysis suggest that Ukraine's government should go ahead with the following fiscal instruments:

- › a further cut of direct *subsidies* to enterprises and elimination of tax exemptions;
- › limiting *government bail-outs* of the state companies and banks until public debt converges to a benchmark level of 60% of GDP.
- › a rise in *royalties* and *excise taxes* with noticeable effects on rich categories of the population and energy consumption;
- › rationalisation of *expenditures on goods and services*, elimination of corruption schemes and improving public procurements;
- › consolidation of numerous *social benefits* programmes, extending the scope of means testing for the majority of government programmes, establishing an electronic system of the beneficiaries of state assistance;

- › design and implementation of a comprehensive *pension reform* that should equalise in the medium-term Pension Fund revenues and expenditures; in the short run a small rise in the retirement age for both men and women is advisable, as well as the elimination of privileged pensions.

On the other hand, we recommend reversing spending cuts on education and healthcare and focusing efforts on efficiency improvements in these sectors. Since public financing of the *healthcare system* in Ukraine is low by international standards and out-of-pocket payments are pervasive, an increase in targeted budgetary appropriations for healthcare programmes, combined with the implementation of radical structural reforms, are essential for better health outcomes. The most challenging tasks of the healthcare system reform are strengthening primary and emergency care, rationalising hospitals (in-patient services), transforming the model of healthcare financing from input-based towards output-based and backing all these measures by sufficient budgetary financing (including capital investments into the sector). As to the *education sector*, in view of the current structural deficiencies, a reallocation of public funds within the education sector in favour of primary and secondary education is advisable. Apart from that, overstaffing seems to be an acute problem in the whole education sector; therefore, the government must elaborate employment regulations for both secondary and higher educational institutions and decrease the lion's share of funds being allocated for staff remuneration. Central and local governments should allocate the budgetary saving achieved through efficiency improvements towards investments into physical infrastructure, software, information resources, etc. for both secondary schools and higher educational institutions, as well as towards building new schools in growing big cities.

Introduction

After the 'revolution of dignity' at the beginning of 2014, the government employed fiscal policy primarily as a macro-financial stabilisation tool. Accumulated public debt proved to be unsustainable after an unprecedented exchange rate devaluation and the country's having been cut off from access to the international capital markets. The government resorted to IMF financing ('stand-by' and EFF programmes were launched in 2014 and 2015) and concluded a debt restructuring deal with private creditors. Meanwhile, Ukraine experienced a dramatic economic downturn associated with the destruction of the production facilities in the East, declining commodity prices on the world markets, the closure of the Russian market for Ukrainian exports and loss of confidence in Ukraine linked to the armed conflict.

In such circumstances, Ukraine's government was under strong pressure to consolidate public finances and to reduce the expanding budget deficit. The IMF-supported programme projects the general government and Naftogas deficit to shrink from 10.1% of GDP in 2014 to 7.3% in 2015, to 3.9% in 2016, further to 2.6% of GDP in 2018 and to 2.2% in 2020. Meanwhile, the general government deficit is to increase from 1.2% of GDP in 2015 to 3.7% in 2016 and thereafter to take a downward trend: 3.1% of GDP in 2017, 2.6% in 2018, 2.4% in 2019 and 2.2% in 2020.

The numerous financial restrictions imposed on Ukraine's government and its weak perception of the full range of fiscal policy functions prompted a radical fiscal adjustment in Ukraine. The actual consolidated budget balance, recalculated in line with GFSM¹ standards, amounted to -3.9% of GDP in 2014, -0.7% of GDP in 2015 and -2.1% of GDP in 2016. Fiscal tightening has brought about an impoverishment of vast segments of the population, deterioration of the quality of public services in key sectors of the general government and contraction of real output. Our calculations reveal a dramatically high cyclically-adjusted primary balance (CAPB) of the consolidated budget that stood at +6.2% of GDP in 2015 and +4% of GDP in 2016. With such magnitude of CAPB, Ukraine has occupied a top position among the countries reporting to the 'Fiscal Monitor' of the IMF. By comparison, in 2015 the average CAPB approached 1.6% of GDP in emerging markets and middle-income economies, -0.9% in advanced countries and +1.1% of GDP in the eurozone countries.

As a result of the fiscal tightening, fiscal impulse measure proved to be significant in 2014 and extremely large in 2015: -2.5% and -4.3% of GDP, respectively. This means that fiscal policy in Ukraine was highly pro-cyclical in 2014–2015 and, according to our estimates, fiscal consolidation will result in a real GDP contraction of roughly 9% over the medium term. So far, the radical fiscal adjustment has contributed to a real GDP decline of 6.7% in 2014–2016 and its effect will be pronounced over the next years as well. In 2016 discretionary fiscal policy affected aggregate demand positively, and fiscal impulse had a magnitude of +2.1% of GDP.

In the international context, even the IMF (2016a) recognises that the speed of fiscal adjustment should be consistent with the economic environment so as not to undermine the recovery, and the composition

¹ The IMF's *Government Finance Statistics Manual*.

of the fiscal consolidation package should be calibrated to reduce the short-term drag on economic activity. Regarding the social dimension, fiscal consolidation strategies which are socially painful and perceived as inequitable have a high probability of being reversed. In democratic societies fiscal consolidations may be sustained over the medium-term only if supported by the general public.

At present the multi-faceted social and economic implications of rapidly changing fiscal policy do not draw sufficient attention on the part of Ukraine's political elite and multilateral donors. Excessive emphasis on the macro-financial stabilisation role of fiscal policy has produced a drag on economic activity and undermined the quality of human capital in Ukraine that will have long-lasting effects on productivity and growth.

In view of the above, the goal of this study is to analyse the evolution and the structure of Ukraine's public finances, to reveal the main factors driving the dynamics of revenue and expenditure, to assess the economic and social implications of fiscal policy in Ukraine starting from 2014, to evaluate Ukraine's fiscal consolidation package from the point of view of its compatibility with economic growth and social equity targets, as well as to examine the gains and drawbacks of the medium-term budgetary framework and budget-2017. Last but not least, on the basis of qualitative conclusions and quantitative estimates derived, we draw policy recommendations targeted at the successful implementation of economic reforms, progressive human capital development and the restoration of Ukraine's fiscal sustainability over the medium and long run (by 2025).

1. Structure and evolution of Ukraine's public finances

1.1. MAIN TRENDS AND DRIVERS OF PUBLIC REVENUE AND EXPENDITURE DYNAMICS

Revenues of the consolidated budget as a ratio to GDP had a moderate upward trend through 2013-2015 and levelled off in 2016; they stood at 29.1% of GDP in 2013 and 32.5% in 2016. Several key factors contributed to the rise in main categories of budget revenues in relative terms:

- › The government extended the tax base for **personal income tax** on passive incomes (interests and dividends), introduced a 'war' tax with a rate of 1.5% of gross income in 2014, increased the single tax for small businesses and raised the standard rate of personal income tax from 15% to 18% in 2016 (the upper rate of 20% has been abolished). Driven by the changes in taxation rules and a small growth in real wages in 2016, personal income tax collections increased from 4.7% of GDP in 2013–2014 to 5% in 2015 and 5.8% of GDP in 2016.
- › The government eliminated tax exemptions on **value-added tax (VAT)** for medicines and medical equipment supplies, as well as for natural gas transit and sales of agricultural products. Since 2016 agricultural producers are obliged to pay, on average, 75% of their tax obligations on VAT; since 2017 they are supposed to pay 100% of the VAT amounts due. Moreover, a Single State Register of VAT invoices has been established by the fiscal authority that radically improved VAT efficiency and narrowed the 'loopholes' in the VAT base. As a result of these measures, VAT receipts increased from 8.4% of GDP in 2013 to 9% in 2015 and to 9.8% in 2016.
- › Since 2014 the government has increased **excise tax** rates for tobacco, alcohol and fuel several times. Besides, trucks, buses and electricity have been subject to taxation and the tax rate for transport vehicles has been raised. In view of these changes, excise tax revenues increased from 2.4% of GDP in 2013 to 2.9% in 2014, 3.2% of GDP in 2015 and 3.8% in 2016.
- › In 2014–2015 the government dramatically increased **royalties on oil and natural gas** which yielded an increase in revenues from 0.8% of GDP in 2013 to 1.1% in 2014 and 1.7% in 2015. In 2016 revenues from this source decreased by 0.2% of GDP on account of the oil/gas price decline on the international markets and a small revision of the tax rates.
- › **Import tariff** revenues have been volatile and ranged from 0.8% to 2% of GDP, attributable to the temporary imposition of an import tax (5% and 10% respectively of the value of imported goods) in the course of 2014–2015, cutting tariffs for goods imported from the EU and a radical decline of import volumes after an unprecedented hryvna devaluation.

On the other hand, some economic factors and regulatory changes put a downward pressure on budget revenues. In particular, **corporate profit tax** revenues declined from 3.6% of GDP in 2013 to 2.5% in

2014 and 2% in 2015; in 2016 tax collections started to recover and crept up to 2.5% of GDP. The downward trend was due to loss-making businesses and increased tax evasion during the economic recession (in Ukraine's reality the corporate profit tax is most vulnerable to evasion). The effect of the unification of the accounting rules for management and taxation purposes is still unclear.

Table 1 / Consolidated budget of Ukraine in 2013–2016, % of GDP

	2013	2014	2015	2016*
Revenues	29.1	28.7	32.8	32.5
Personal income tax	4.7	4.7	5.0	5.8
Corporate profit tax	3.6	2.5	2.0	2.5
VAT (net)	8.4	8.8	9.0	9.8
- VAT refunded	-3.5	-3.2	-3.4	-3.9
- VAT on imported goods and services	6.3	6.8	7.0	7.5
Excise tax on domestically produced goods	1.8	1.8	2.0	2.3
Excise tax on imported goods	0.6	1.1	1.2	1.5
Import customs duties	0.9	0.8	2.0	0.8
Royalties on land	0.8	0.8	0.7	1.0
Royalties on oil and gas	0.8	1.1	1.7	1.5
National Bank of Ukraine profit transfers	1.9	1.4	3.1	1.6
Own revenues of budgetary institutions	2.5	2.0	2.1	2.0
Other categories of revenues	3.1	3.8	4.0	3.8
Expenditures	33.2	33.0	34.2	34.7
<i>of which road loans repayment</i>	0.4	0.6	0.8	0.2
State administration	1.9	1.7	1.6	1.6
Debt service	2.2	3.1	4.3	4.0
Defence	1.0	1.7	2.6	2.5
Public order, security and judiciary	2.6	2.8	2.8	3.0
Economic activity	3.3	2.7	2.8	2.7
- agriculture	0.5	0.4	0.3	0.2
- coal industry	1.0	0.6	0.1	0.1
- road maintenance	1.1	1.1	1.4	1.0
Environmental protection	0.4	0.2	0.3	0.3
Housing and communal services	0.5	1.1	0.8	0.7
Healthcare	4.0	3.6	3.6	3.1
Culture, arts and sports	0.9	0.9	0.8	0.7
Education	6.9	6.3	5.7	5.4
Social security and welfare	9.5	8.7	8.9	10.7
<u>Budget categories by economic classification</u>				
<i>Wage bills in budget institutions</i>	6.8	6.0	5.2	5.4
<i>Wage bills for military services</i>	1.4	1.6	1.8	2.3
<i>Capital expenditures</i>	1.9	1.3	2.4	3.0
Expenditures adjusted for road loans**	32.8	32.3	33.4	34.5
Net credits extended by the government	0.0	0.3	0.2	0.1
Overall budget balance (Ministry of Finance data)	-4.2	-4.5	-1.6	-2.3
Overall budget balance adjusted for road loans**	-3.8	-3.9	-0.7	-2.1

* The nominal GDP of 2016 is estimated by the author at UAH 2410.6 billion on the basis of available official data for 11 months.

** Foreign loans repayments by the State Agency for Automobile Roads are excluded from the officially reported budget expenditures and budget deficit.

Source: Author's calculations on the basis of State Treasury of Ukraine and State Statistics Service data.

The consolidated budget revenue makes up roughly three quarters of the general government revenue. Social insurance contributions to the Pension Fund, the Insurance Fund against Unemployment and the Social Insurance Fund explain the difference between the consolidated budget revenue and the general government revenue. Table 2 indicates that over the past three years general government revenues fluctuated marginally and exhibited no clear trend; they amounted to 41.2% of GDP in 2013, 40.2% in 2014 and 42% in 2015. At first glance, taking account of the country's per capita income, the size of the general government sector in Ukraine may be considered as being excessive.

However, in the international context Ukraine is distinguished by an extremely large shadow economy: the Ministry for Economic Development and Trade estimates the share of the shadow economy in the officially reported GDP at 43% and 40%, respectively, in 2014 and 2015. If we calculate the ratio of the general government revenue to total GDP (including the shadow output), we arrive at 30% in 2015, instead of 42%. People employed in the shadow economy make use of public services as does any other category of the population, but a major part of their output is not accounted for in GDP. Therefore, the issue of adequacy of the general government sector in Ukraine or the desirability of its contraction is ambiguous.

Table 2 / Ukraine's general government revenue and expenditure in 2013–2015, % of GDP

	2013	2014	2015
Revenue	41.2	40.2	42.0
- revenue to budgets	22.6	23.0	25.0
- social insurance contributions	12.7	11.6	9.6
- other revenue	5.8	5.6	7.4
Current expenditure	43.9	43.0	40.8
- wage bills	11.0	10.2	9.4
- debt service	2.4	3.3	4.5
- social expenses	21.7	20.1	18.0
- other expenses	8.8	9.4	8.9
Net capital expenditure (including capital transfers)	1.8	1.1	1.8
Net lending/borrowing	-4.5	-3.9	-0.6
Overall balance	-4.7	-3.7	-0.7

Source: Calculations by I. Bogdan and D. Konovalenko based on official data (unpublished study).

Current expenditures of the general government experienced a downward trend and declined by 3.1 p.p. of GDP over the period 2014–2015. In 2015 current expenditures stood at 40.8% of the officially reported GDP. The main components of the current expenditure proved to be social expenses (18% of GDP) and wage bills (9.4%) while net capital expenditures are extremely low in Ukraine (1.8% of GDP). Net lending/borrowing and overall balance indicators of the general government do not differ much from the consolidated budget balances (adjusted for road loans) (see Table 1). Thus, net lending/borrowing of the general government amounted to -4.5% of GDP in 2013, -3.9% in 2014 and -0.6% in 2015.

Consolidated budget expenditures measured in per cent of GDP stagnated in 2014 (at 33% of GDP), rocketed in 2015 (to 34.2%) and crept up in 2016 (to 34.7% of GDP). However, Ukraine's reporting and accounting standards do not comply with the IMF's GFSM-2001 and GFSM-2014 (Government Financial Statistics Manual).² If, in line with these standards, road loan repayments were shifted 'below the line',

² The major discrepancy between Ukrainian accounting standards and GFSM-2014 is linked to the inclusion of some loan redemptions of general government agencies into the expenditure category, for instance, of the State Agency for

adjusted consolidated budget expenditures would be smaller and would record a minor increase in per cent of GDP over the period 2013–2015, i.e. from 32.8% to 33.4%, and would peak up to 34.5% of GDP in 2016 (see Table 1).

Affected by high inflation and inadequate indexation, **wage bills in budgetary institutions** plummeted from 6.8% of GDP in 2013 to 6% of GDP in 2014 and 5.2% of GDP in 2015. Lack of a binding indexation mechanism allowed the government to pursue fiscal austerity objectives by deflating wages in the general government entities (see the chapter on social impacts below). Due to this fact consolidated budget expenditures as % of GDP went down across the main categories. In 2016 wage bills in budgetary institutions grew somewhat and reached a level of 5.4% of GDP. Wage bills for military staff and police recorded a clear upward trend through 2014-2016.

Expenditures on **state administration** dropped from 1.9% of GDP in 2013 down to 1.6% of GDP in 2015 and stabilised at this level in 2016. Partially driven by administrative reform and associated redundancies of civil servants (approximately by 20,000), expenditure of this type experienced a moderate decline. However, implementation of the main provisions of the new Law 'On State Service' is expected to require additional budgetary financing.

The government cut down expenditure on **economic activity** by 0.6% of GDP in 2014 and maintained it on the constant level through 2014–2016, that stems from a drastic reduction of subsidies for the coal industry (from 1% to 0.1% of GDP) and a two-fold reduction of subsidies for agriculture (from 0.5% to 0.2% of GDP).

Debt service spending increased from 2.2% of GDP in 2013 to 4.3% of GDP in 2015 and hovered at 4% of GDP in 2016. This shift is attributable to the elevated debt burden following the hryvna devaluation, of the added foreign official financing, as well as the rise in market interest rates induced by the economic recession, financial instability and foreign debt restructuring. Although since 2014 official creditors have extended new loans to the Ukrainian government at concessional interest rates, cost of external debt service for the government, expressed in hryvnas, increased dramatically.

Defence expenditure increased by 1.5% of GDP and expenditure for **police, safety and justice** by 0.4% of GDP over 2014–2016. Measured in levels, expenditure for defence, police, safety and justice approached to 5.4-5.5% of GDP. Under the pressure of Russian military aggression, the government raised substantially both material supplies and wage bills in those branches.

The **healthcare** sector experienced a dramatic decline in budgetary financing: expenditures fell by 0.4% of GDP in 2014, stagnated in 2015 and decreased again in 2016, by 0.5% of GDP. The central government reduced the transfers from the central budget to local authorities for the maintenance of medical institutions and required them to reduce hospitals beds by 25%; it also reduced the radiation

Automobile Roads. If such amounts were deducted from Ukraine's budget expenditures and put into the right category of debt redemption 'below the line' as a deficit financing item (as requested by GFSM), the total amount of consolidated budget expenditures in Ukraine would contract. In the framework of the standard budget classification the imaginary 'line' separates budget items which give rise to a budget deficit and those items that cover (or finance) the accumulated deficit. Thus, budget revenues, expenditures and net credits issued by the government are regarded as budget aggregates 'above the line' and as budget deficit financing items 'below the line'.

pollution areas (which required additional budget financing), that generated significant savings. Expenditures on **education** recorded a clear downward trend: they declined by 0.6% of GDP in 2014, by 0.6% of GDP again in 2015 and by 0.3% in 2016. Measures undertaken by the government in the education sector due to fiscal austerity will be considered in more detail in Chapter IV.

Budget expenditures on **social security and welfare** dropped by 0.8% of GDP in 2014, remained fairly constant in 2015 and rose considerably in 2016, from 8.9% to 10.7% of GDP. Inflation deflated the real value of social benefits and the government also strengthened the control over the recipients of social benefits (means testing has been introduced across several programmes). However, budget transfers to the Pension Fund and 'housing-communal' subsidies (to offset the increase in energy tariffs for poor households) went up dramatically. Budget transfers to the Pension Fund shoot up from UAH 94.8 billion in 2015 to UAH 142.6 billion or 5.9% of GDP in 2016.

In this regard a serious concern stands out: *the dramatic reduction of the social contribution rate (from 40.6%, on average, to 22%) and the expanding deficit of the Pension Fund are not tackled by the reforms in the pension system.* Our calculations and alternative empirical investigations (Serebrynskyi, 2016) suggest that private business seems at least partially to allocate funds derived from the social tax rate cut towards higher wages of officially employed staff. However, a 'de-shadowisation' effect (i.e. moving shadow wages into the observed or 'white' economy) is evident only in two types of economic activity. Across the main types of activity in 2016 real wage growth rates exceeded the hypothetical 15.2% rate³ in the sectors of construction, information and telecommunications. If the real wage growth rate is close to 15.2%, we can assume that employers redistribute the funds saved after social tax reduction towards a proportional wage increase. If the growth rate of real wages is above 15.2%, there is a strong argument to believe that a de-shadowisation effect is in place, i.e. employers draw funds from their shadow business and direct them towards official wage payments.

All the above implies the persistence of contribution gaps to the Pension Fund and other social insurance funds if the behaviour of economic agents does not change.

Table 3 / Real and nominal wage growth after the cut of the social security tax rate

	Nominal wage in November 2016	Nominal wage in November 2015	% of nominal wage growth in Nov- 2016/ Nov-2015	% of real wage growth in Nov-2016/ Nov-2015
Total for the economy	5406	4498	20.2	7.1
Agriculture	4432	3563	24.4	10.9
Industry	6206	5029	23.4	10.0
Construction	5048	3864	30.6	16.5
Trade and repair of transport vehicles	6073	4929	23.2	9.8
Transport	6114	5007	22.1	8.9
Information and telecommunications	10225	7656	33.6	19.1
Finance and insurance	10384	9012	15.2	2.7
Research and technical activity	8094	7052	14.8	2.3
Art, sports, entertainment and recreation	4742	4628	2.5	-8.7

Source: Author's calculations on the basis of State Statistics Service data.

³ At a hypothetical 15.2% rate of wage growth, an employer's total labour costs (wages + social funds contributions) are equal before and after the reduction of the social contribution rate from 40.6% to 22% of the wage fund.

The consolidated **budget balance**, adjusted for road loans, stood at -3.9% of GDP in 2014, -0.7% in 2015 and -2.1% of GDP in 2016. In 2015-2016 the moderate budget deficits generated quite a high (by international comparison) cyclically-adjusted primary balances (see below). The looser fiscal policy in 2016 seems to be explained by the temporary suspension of the IMF programme and by the resignation of Yatsenyuk government.

Table 4 reveals revenues and expenditures of the consolidated budget in real terms. In 2016 real budget revenues constituted only 91.9% of those in 2013 – a decline of 8.1%. The most considerable real declines were recorded across the following revenue sources:

- › Corporate profit tax – 43%;
- › Import customs duties – 21.8%;
- › NBU profit transfers – 29.9%;
- › Own revenues of budgetary institutions – 33%.

Meanwhile, the collection of the excise tax on imports and royalties on oil and gas performed quite well: revenues from these sources rose by 104.5% and 61.7%, respectively.

In 2016 budget expenditures in real terms experienced a 14.1% drop as compared to 2013, i.e. they amounted to only 85.9% of total expenditures in 2013. The last column of Table 4 (decline in real terms 2016/2013) indicates the huge reallocations of public funds across the categories of expenditure over the 2014–2016 period. As the average magnitude of the fall in real expenditure was 14.1%, outlays on debt service increased by 50.5% and defence expenditure by 108.6% in real terms. The most significant spending cuts occurred in the following sectors:

- › environmental protection (-41.9%);
- › economic activity (-32.2%);
- › healthcare (-36.3%);
- › culture, arts and sports (-35.9%);
- › education (-36.2%);
- › state administration (-30.6%).

These statistics indicate a ***painful adjustment process in the general government sector that, unfortunately, was not sufficiently accompanied by structural reforms in the affected areas and was implemented predominantly in the form of imposing severe financial constraints.*** In 2016 the government combined fiscal restrictions with a bold loosening of labour taxation: the single social contribution rate was halved from 40.6% to 22% which undermined the sustainability of the pension system and imposed an additional burden on the state budget.

Table 4 / Evolution of real revenues and expenditures of the consolidated budget

(indexes in %, 2013 = 100)

	2013	2014	2015	2016	2016 minus 2013
Revenues	100	89.0	91.3	91.9	-8.1
Personal income tax	100	90.0	85.9	100.0	0.0
Corporate profit tax	100	63.2	44.1	57.0	-43.0
VAT (net)	100	93.6	86.3	95.5	-4.5
- VAT refunded	100	81.2	79.4	91.9	-8.1
- VAT on imports	100	96.1	89.2	97.8	-2.2
Excise tax on domestically produced goods	100	88.0	86.8	103.5	3.5
Excise tax on imported goods	100	164.0	169.3	204.5	104.5
Import customs duties	100	80.5	186.0	78.2	-21.8
Royalties on land	100	81.7	71.7	94.8	-5.2
Royalties on oil and gas	100	123.7	179.2	161.7	61.7
NBU profit transfers	100	69.6	135.4	70.1	-29.9
Own revenues of budgetary institutions	100	72.3	68.2	67.0	-33.0
Other categories of revenues	100	112.5	105.1	101.7	1.7
Expenditures	100	89.3	83.3	85.9	-14.1
State administration	100	83.1	68.5	69.4	-30.6
Debt service	100	128.5	161.0	150.5	50.5
Defence	100	159.9	217.8	208.6	108.6
Public order, security, judiciary	100	98.5	86.5	95.1	-4.9
Economic activity	100	74.1	68.7	67.8	-32.2
- agriculture	100	66.2	49.1	39.0	-61.0
- coal industry	100	52.4	7.4	7.0	-93.0
- road maintenance	100	91.7	108.1	79.4	-20.6
Environmental protection	100	54.0	60.9	58.1	-41.9
Housing and communal services	100	199.7	126.4	118.5	18.5
Healthcare	100	80.2	71.5	63.7	-36.3
Culture, arts and sports	100	87.7	73.3	64.1	-35.9
Education	100	82.0	67.1	63.8	-36.2
Social security and welfare	100	82.2	75.3	92.6	-7.4
<u>Budget categories by economic classification</u>					
<i>Wage bills in budget institutions</i>	100	78.9	61.5	64.6	-35.4
<i>Wage bills for military services</i>	100	108.4	106.4	136.3	36.3
<i>Capital expenditures</i>	100	59.4	98.7	129.2	29.2
Expenditures, adjusted for road loans *	100	88.7	82.3	86.4	-13.6

* Foreign loans repayments by the State Agency for Automobile Roads are excluded from the officially reported budget expenditures and budget deficit.

Source: Author's calculations on the basis of State Treasury of Ukraine and State Statistics Service data; GDP deflator of 2016 is estimated by author at 19.2%

1.2. GOVERNMENT BAIL-OUTS AS A CHANNEL FOR PUBLIC FUNDS LEAKAGE

Fiscal aggregates in Ukraine, including the budget deficit, are accounted on a cash basis and conceal the broad channel of public funds leakage that stems from government **bail-out transactions**. From the outset of the global financial crisis the Ukrainian government issued bonds for the recapitalisation of banks, the national oil and gas company Naftogas and Ukragroleasing (managing leasing programmes in agriculture) in huge amounts; this contributed to the growth of public debt by UAH 100 billion over the period 2008–2012. In most cases banks, Naftogas and other entities transferred to the government their

own 'junk' securities in exchange for highly liquid government bonds, which in most cases were immediately monetised through the National Bank. In 2014 the government bail-out transactions intensified rapidly as a result of the loss-making activity of Naftogas and capitalisation needs of the Deposit Guarantee Fund. Table 5 reports the data on bail-out transactions in nominal terms and in per cent of GDP over 2013–2016.

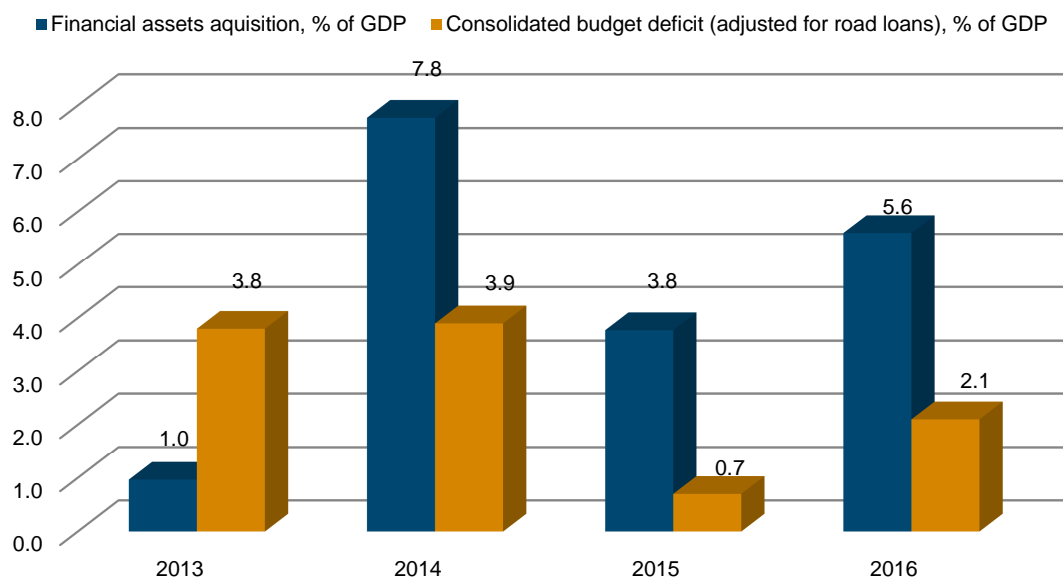
Table 5 / Financial asset acquisition by the central government in exchange for government bond issuance in 2013–2016

	2013	2014	2015	2016
Financial asset acquisition, billion UAH	14,7	123,3	75,0	129,2
Financial asset acquisition, % of GDP	1,0	7,8	3,8	5,6

Source: Author's calculations on the basis of State Treasury, National Bank and State Statistics Service data.

Figure 1 depicts the government bail-out transactions over the period 2013–2016 in comparisons with the annual cash deficit of the consolidated budget, adjusted for road loans.

Figure 1 / Financial asset acquisition by the government versus consolidated budget deficit



Source: Author's representation on the basis of State Treasury, National Bank and State Statistics Service data.

Thus, the government issued bonds (OVDP) at a face value of 1% of GDP in 2013, 7.8% in 2014, 3.8% in 2015 and 5.6% of GDP in 2016 in exchange for securities of Naftogas, banks, the Deposit Guarantee Fund and other state companies. Those amounts were twice as high as the reported budget deficit in 2014 and five times as high as the budget deficit in 2015. In 2016 the volume of OVDP issuance amounted to 5.6% of GDP versus 2.1% of budget deficit. This situation raises serious equity concerns: while millions of Ukrainians suffer from an increasing tax burden and declining social benefits and real wages, big state-owned companies and banks are being abundantly supplied with government funding that is spent without appropriate control and fuels corruption schemes. Government bail-out transactions

are carried out in a non-transparent way, lack legislative authorisation and proper accountability. Moreover, the scope of these transactions may endanger debt sustainability in the medium run.

Summing up, from the point of view of equity, efficiency and fiscal sustainability considerations, the fiscal adjustment programme should extend its coverage beyond the conventional budget and comprise all public funds, including those related to the recapitalisation of state-owned companies and banks.

1.3. FISCAL DECENTRALISATION AND ITS PROBLEMATIC AREAS

Decentralisation and strengthening local government entities have been declared a priority of public policy since 2014. The Verkhovna Rada (the Parliament) and the Cabinet of Ministers approved several dozens of laws and resolutions devoted to local governance reform and the transformation of intergovernmental fiscal relations. Among them are: 'Concept for Reforming Local Self-Governance and the Territorial Organisation of Power in Ukraine', 'On the Pillars of State Regional Policy', 'On Voluntary Unification of Territorial Communities', 'On Amending the Budget Code of Ukraine', 'On the Approval of the State Strategy for Regional Development over the period by 2020' and many others.

As a result of the decentralisation policy, revenues of local and regional budgets (including intergovernmental transfers) rose from 14.6% of GDP in 2014 to 15.2% in 2016. Expenditures of lower-level budgets increased to a lesser extent, from 14.2% of GDP in 2014 to 14.5% in 2016. The volume of central government transfers remained quite significant (8.7% of GDP in 2015 and 8.1% in 2016) and also recorded an upward trend over 2013-2015 (see Table 6).

Table 6 / Selected indicators for local and regional budgets, % of GDP

	2013	2014	2015	2016
Revenues without intergovernmental transfers	6.9	6.4	6.1	7.1
Revenues with intergovernmental transfers	14.5	14.6	14.8	15.2
Expenditures without intergovernmental transfers	14.3	14.1	13.9	14.4
Expenditures with intergovernmental transfers	14.4	14.2	14.1	14.5
Gross transfers from the central budget	7.6	8.2	8.7	8.1

Source: Author's calculations on the basis of State Treasury of Ukraine and State Statistics Service data.

The share of local and regional budget revenues in the consolidated budget rose moderately in 2016 (46.8% versus 45.2% in 2015), but was lower than in the period of 2013-2014 (Table 7). The share of local and regional budget expenditures in the consolidated budget increased marginally in 2016 (by 0.7% as compared to 2015), but proved to be smaller than in 2013 and 2014.

Table 7 / Selected indicators for local and regional budgets, % of consolidated budgets

	2013	2014	2015	2016
Revenues without intergovernmental transfers	23.8	22.2	18.5	21.8
Revenues with intergovernmental transfers	49.9	50.8	45.2	46.8
Expenditures without intergovernmental transfers	43.1	42.7	40.7	41.4
Expenditures with intergovernmental transfers	43.5	43.1	41.2	41.9
Gross transfers from the central budget	22.9	25.0	25.6	23.4

Source: Author's calculations on the basis of State Treasury of Ukraine data.

The decentralisation of public functions and fiscal flows was a welcome policy step by the government that will presumably promote proximity of the place of public services provision to the place of residence of their consumers. At present the most challenging issues for the central government are a clear and well-justified division of functions among local, regional and central levels as well as endowing lower levels with the responsibilities for fulfilling those functions. For decades local budgets in Ukraine have served as 'cashier offices' for payments decided by the central government; the share of own revenues (which were decided and collected by the local authorities independently of the central government) has not exceeded 10% in the structure of local budgets' revenues. Burdened with delegated responsibilities, local governments have only a limited degree of freedom and are able to allocate only a minor share of their revenues to the economic and social development of their jurisdictions. This passivity of local governments and their rigidity in responding to public challenges are reflected in the local budget surpluses recorded in fiscal accounts in 2015–2016.

Further steps forward include the reassignment of social benefits to the central level, since income distributional issues and assistance to vulnerable categories of the population are traditionally a domain of the central government. As to education and healthcare services (which are currently treated as delegated responsibilities of the local governments and funded out of central budget transfers), their basic volume of provision has to be guaranteed by the central government and covered by appropriate transfers or shared taxes. However, the responsibilities of local governments are to be extended towards the development of new facilities in healthcare and education, as well as towards providing the local population with services of higher quality or provisions in excess of a minimum established by the centre.

Moreover, revenue sources assigned to local and regional budgets have to be sufficient for the fulfilment of the delegated functions, and tax sharing schemes have to be established on a permanent basis. In this vein, personal income tax as the most significant revenue source for local and regional budgets should be assigned to them entirely and on a permanent basis.⁴ As will be discussed in Chapter V of this study, since 2017 there is a real danger of inconsistencies between new expenditure obligations of local governments and revenue sources assigned to the local budgets. Therefore, some reallocation of countrywide taxes in favour of local authorities and an extension of their taxing power are still advisable.

The presented evidence suggests that the ***magnitude of fiscal consolidation up to 2016 has been quite significant in Ukraine and took the shape of both revenue-enhancing and expenditure-reducing measures. The rise in expenditure on debt service, defence, public investments, housing subsidies and Pension Fund transfers was more than offset by cuts in expenditures on human capital development, social support of population and subsidies to enterprises.*** The ratio of budget expenditures to GDP remained fairly constant over 2013-2014, went up moderately in 2015 (when real GDP declined by 9.9%) and increased slightly in 2016, i.e. 0.5 p.p. of GDP. By comparison, the ratio of budget revenues to GDP increased by 3.7 p.p. through 2014–2015 and declined by 0.3 p.p. in 2016. ***Since 2016, revenue-enhancing policy has been replaced by a notable decline of labour taxation and a considerable reallocation of tax obligations.*** There has been a dramatic cut in the social contribution rate starting from 2016, while VAT, excise and real estate tax collections have risen constantly over the past years.

⁴ At present all local entities transfer to the central budget 25% of the collected personal income tax; the city of Kyiv transfers 60% of tax collections.

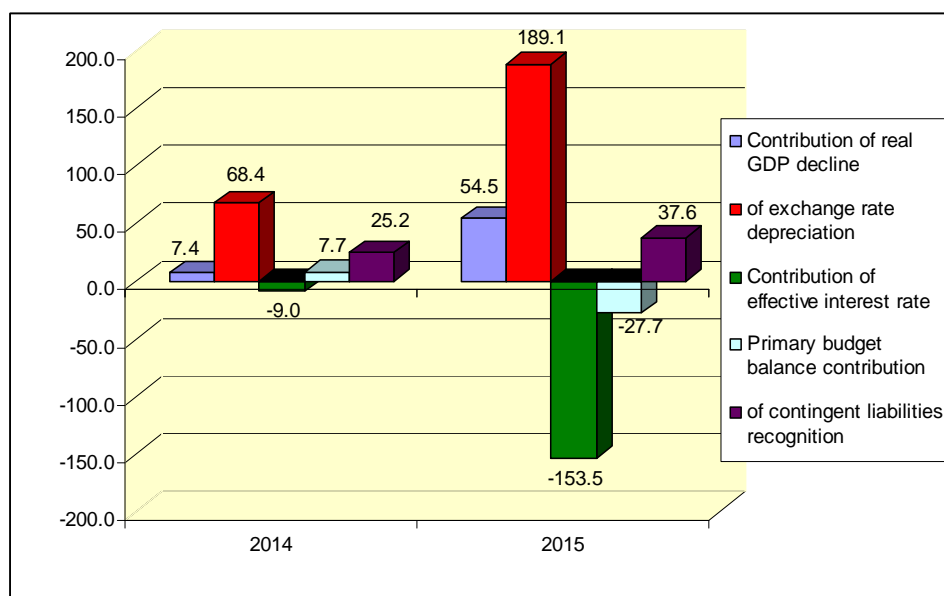
2. Estimating the required fiscal adjustment over 2018–2025 to restore public debt sustainability in Ukraine

2.1. MAIN TRENDS AND CONTRIBUTORS TO PUBLIC DEBT DYNAMICS

Ukraine's public debt increased sharply in the course of the global financial crisis, from 12.3% of GDP at the end of 2007 to 39.9% at the end of 2010. The moderate budget deficits in 2011–2012 (1.8% and 3.6% of GDP, respectively) contributed to debt stabilisation. However, since 2014 the public debt of Ukraine has started to rise strongly again as a result of the economic downturn, sharp devaluations of the national currency and contingent liabilities recognition. In 2014 the ratio of public debt to GDP increased by 31 p.p. and in 2015 by 10.1 p.p.

Figure 2 / Components of public debt growth in 2014 and 2015 as a % of total

(total debt growth = 100)



Source: Author's calculations on the basis of State Treasury of Ukraine, National bank and State Statistics Service data.

Figure 2 decomposes the total rise in the public debt ratio into the contributions of real GDP decline, exchange rate depreciation, effective interest rate on public debt, primary budget balance and assumption of contingent liabilities. As expected, the most significant contributor to the growth of public debt in 2014 and 2015 proved to be the exchange rate depreciation; it explains 68.4% and 189.1%, respectively, of total debt growth. A share of 25.2% and 37.6%, respectively, of the total debt increase in 2014 and 2015 was attributable to the recognition of contingent liabilities by the government. In 2015

the real interest rate on public debt had a negative value of about 30%; this factor alone would have brought about a reduction of public debt if all other factors had stayed the same. In 2014 the contribution of the effective interest rate was also negative, -9%. Effects of the real GDP on the debt dynamics were noticeable too. In 2015 54.5% of total debt increase was explained by the real GDP decline, in 2014 the respective figure stood at 7.4%. Contributions of the primary budget balance varied from +7.7% in 2014 to -27.7% in 2015.

In March 2015 the Ukrainian government started negotiations on public debt restructuring with private investors in foreign bonds issued by sovereign and state-owned companies. The restructuring deal was agreed in November and provided for a 20% haircut at face value, a rescheduling of the remaining principal from 2015–2023 towards 2019–2027 and a subsequent rise in the annual interest charges from 7.22% on average to 7.75%. The amount covered by the restructuring deal was USD 18 billion in terms of the par value of eligible bonds; the par value of the newly issued bonds amounted to USD 14.4 billion.

In addition, according to the restructuring agreement, GDP warrants have been issued by Ukraine's government which will be valid starting from 2021 whenever real GDP growth rates in Ukraine are higher than 3%. This provision is effective until 2040 with some constraints imposed in favour of sovereign borrower. In particular, Ukraine is not obliged to redeem GDP warrants unless its annual GDP approaches USD 125.4 billion. In the period 2021–2025 annual payments on GDP warrants may not exceed 1% of GDP. The core feature of the GDP warrants is their being tied to the real GDP growth rate. As soon as Ukraine's real GDP grows faster than 3% in annual terms, government obligations on GDP warrants come into force and two years later creditors are supposed to receive their instalments. Amounts of payments due are calculated in the following way:

- › creditors receive 15% of the nominal GDP in excess of nominal GDP generated by 3% real growth; this provision is valid in the case of 3-4% real GDP growth rates;
- › creditors receive 40% of the nominal GDP in excess of nominal GDP generated by 4% real growth; this provision is valid in the case of real GDP growth rates are higher than 4%.

Our analysis suggests that Ukrainian GDP warrants are vaguely similar to the Argentinian warrants issued as part of the 2005 restructuring agreement. Argentinian warrants were also tied to real GDP growth rates in excess of 3%, however, the share of nominal GDP growth that is appropriated by creditors above the 3% threshold is much lower. In the Argentinian case the creditors' share of the pie was fixed at 5%, while in the Ukrainian case at 15% and 40%, conditional on 3% or 4% growth rates.

International experience suggests that the size of discount to a face value (20%) negotiated by Ukraine's government with the creditors is not sufficient. Before negotiations started, the discount to the face value of Ukrainian sovereign bonds at the secondary market had amounted to 35–40%; naturally the size of the haircut had to comply with these figures. Other countries' experiences justify that concessions on the part of the creditors' side are possible and not exceptional. For instance, in the course of the 1998–2010 period, Russia agreed a 50.8% haircut in 1998; Dominican Republic 54% in 2003; Cote d'Ivoire 55.2% in 2009; Seychelles 56.2% in 2009; Moldova 56.3% in 2002; Ecuador 67.7% in 2009; Serbia 70.9% in 2000; and Argentina a 76.8% haircut in 2001 (IMF, 2012).

At the end of 2016 central government debt amounted to 80.1% of GDP. Foreign currency debt dominates the debt structure and makes public finances highly vulnerable to the shocks associated with exchange rate movements and foreign capital flows. All this evidence suggests that the government of Ukraine faced serious debt sustainability challenges and significant fiscal adjustment was inevitable. However, the pace and the magnitude of the fiscal adjustment undertaken in Ukraine raise serious concerns about their economic and social implications.

2.2. ESTIMATING THE MEDIUM-TERM FISCAL GAP FOR UKRAINE

The Ministry of Finance of Ukraine projects that direct and guaranteed debt of the central government will stand at 88.8% of GDP at the end of 2017. If we complement this amount by local debts and guarantees, general government debt will be as high as 90.2% of GDP. This debt volume is obviously not sustainable in view of Ukraine's just having undergone public debt restructuring, having no access to the international capital market and receiving official financing from the IMF, the World Bank, the EU and other bilateral donors. Officially reported and predicted budget deficits through 2015–2017 are not high, while inflation in combination with a moderate average interest rate on debt might erode the debt value. However, the public debt ratio is likely to grow further in 2017 as the National Bank of Ukraine receives IMF loans and the government continues to commit large-scale bail-out transactions (see Table 5).

In what follows, we try to estimate the medium-term fiscal gap for Ukraine –the fiscal adjustment efforts required in the period 2018–2025 in order to achieve a sustainable debt-to-GDP ratio. In the EU's practice the equivalent indicator is called the medium-term sustainability indicator, or S1, which shows the upfront fiscal adjustment required in terms of a steady improvement in the structural primary balance to be introduced over a specified period of time and then sustained to bring the debt ratio back to 60% of GDP, as required by the Maastricht Treaty. In Ukraine the Budget Code also quantifies the upper threshold for public debt at 60% of GDP.

The sustainability indicators are derived from the government inter-temporal budget constraint, which requires that in long run the current public debt and the discounted value of future public expenditure are covered by the discounted value of future public revenues. The sustainability indicator quantifies the fiscal gap that must be closed to ensure the sustainability of the public finances. The larger the value of the indicator, the greater the necessary adjustment to the primary budget balance in order to ensure sustainability.

The starting level of debt enters the definition of the sustainability indicator through the initial budgetary position, as it determines the size of interest payments on government debt that must be covered. The size of the required adjustment also depends directly on the debt requirement set at the end of the time period (60% of GDP). If the starting level of gross public debt surpasses 60% of GDP, the required adjustment will increase the size of the indicator due to the additional fiscal efforts related to debt reduction over a specified period of time.

The equation for computing the medium-term sustainability indicator S1 with regard to Ukraine's public finances is shown below.⁵ Equation (1) contains the following abbreviations:

D_{t_0} – gross debt of the general government at the end of t_0 (2017) as a percentage of GDP. For the computation of S1 we used the debt ratio projected by the Ministry of Finance on 31.12.2017 and adjusted it for a slightly stronger hryvna devaluation and the debt of local authorities;

D_{t_2} – gross debt of the general government at the end of t_2 (2025), which is the benchmark or threshold debt level by the end of the fiscal adjustment period, as a percentage of GDP;

α_{t_0, t_2} – compounding multiplier, which is calculated as $(1+r_{t_0+1}) \cdot (1+r_{t_0+2}) \cdot (1+r_{t_0+3}) \cdot \dots \cdot (1+r_{t_2})$, where r_t is the approximate difference between the average nominal effective interest rate on public debt and the nominal GDP growth rate; $r_t = (1+R_t) / (1+G_t) - 1$;

R_t denotes the average nominal effective interest rate on public debt in period t , and G_t denotes the nominal GDP growth rate in period t ;

the R_t for the period 2017–2019 was calculated as the ratio of projected interest payments out of the consolidated budget to the general government debt level as at the beginning of the relevant year. The R_t for the period 2020–2025 was calculated as the weighted averages of nominal interest rates on the domestic and foreign debt of Ukraine, accounting for the hryvna's devaluation rates that affected the effective rate of the foreign debt service;

PB_{t_0} is the cyclically-adjusted primary balance of the general government in 2017 as a percentage of GDP. The overall budget balance projected by the Ministry of Finance has been reduced by predicted interest payments and adjusted for the cyclical components;

c – annual fiscal adjustment, calculated as the medium-term fiscal gap divided by the number of years for implementing the fiscal adjustment;

t_{0+1} – starting year of the fiscal adjustment, in our case t_{0+1} is 2018;

t_0 – year preceding the fiscal adjustment, or the year 2017;

t_1 – last year of the fiscal adjustment, in our case t_1 is 2025.

The medium-term sustainability indicator S1 has three constituent parts: (i) the required fiscal adjustment given the initial budgetary position (IBP), which is the gap between the projected structural primary balance in 2017 and the debt-stabilising structural primary balance; (ii) the additional adjustment due to the cost of delay or a prolonged period of fiscal adjustment; (iii) the adjustment necessary to reach the debt target of 60% of GDP by the end of 2025.

Component A of the sustainability indicator corresponds to the gap between the initial cyclically-adjusted primary balance and the debt-stabilising primary balance to ensure sustainability. This component is often referred to as the required adjustment to the initial budgetary position. For the sustainability indicator, the assumed gradual improvement in the primary balance implies a higher required adjustment compared to the one that would occur immediately. This part of the required additional adjustment is labelled as the 'cost of delay' and is captured by Component B. Meanwhile, the size of the required additional adjustment also depends directly on the 2025 debt target (the 60% of GDP reference value).

⁵ An equivalent formula (that also includes an ageing component) is used by the European Commission to evaluate the fiscal sustainability of the EU member countries.

Since Ukraine's gross public debt is above 60% of GDP, the required fiscal adjustment to reach the debt target by 2025 contributes to increasing the value of the sustainability indicator.

$$S_1 = \frac{D_{t_0} \cdot (\alpha_{i_0:t_2} - 1)}{\sum_{i=t_0+1}^{t_2} (\alpha_{i:t_2})} - PB_{t_0} + c \frac{\sum_{i=t_0+1}^{t_1} ((t_1 - i) \alpha_{i:t_2})}{\sum_{i=t_0+1}^{t_2} (\alpha_{i:t_2})} + \frac{D_{t_0} - D_{t_2}}{\sum_{i=t_0+1}^{t_2} (\alpha_{i:t_2})} \quad (1)$$

$$= \frac{D_{17} \cdot [(1+r_{18})(1+r_{19})(1+r_{20}) \dots (1+r_{25}) - 1]}{(1+r_{19})(1+r_{20}) \dots (1+r_{25}) + (1+r_{20})(1+r_{21}) \dots (1+r_{25}) + \dots + (1+r_{25})} - PB_{17} +$$

Comp A

$$+ \frac{c \cdot [(1+r_{19})(1+r_{20})(1+r_{21}) \dots (1+r_{25}) * 7 + (1+r_{20})(1+r_{21}) \dots (1+r_{25}) * 6 \dots + (1+r_{25})]}{(1+r_{19})(1+r_{20}) \dots (1+r_{25}) + (1+r_{20})(1+r_{21}) \dots (1+r_{25}) + \dots + (1+r_{25})} +$$

Comp B

$$+ \frac{D_{17} - D_{25}}{(1+r_{19})(1+r_{20}) \dots (1+r_{25}) + (1+r_{20})(1+r_{21}) \dots (1+r_{25}) + \dots + (1+r_{25})}$$

Comp C

The medium-term sustainability indicator S1 has three constituent parts: (i) the required fiscal adjustment given the initial budgetary position (IBP), which is the gap between the projected structural primary balance in 2017 and the debt-stabilising structural primary balance; (ii) the additional adjustment due to the cost of delay or a prolonged period of fiscal adjustment; (iii) the adjustment necessary to reach the debt target of 60% of GDP by the end of 2025.

Component A of the sustainability indicator corresponds to the gap between the initial cyclically-adjusted primary balance and the debt-stabilising primary balance to ensure sustainability. This component is often referred to as the required adjustment to the initial budgetary position. For the sustainability indicator, the assumed gradual improvement in the primary balance implies a higher required adjustment compared to the one that would occur immediately. This part of the required additional adjustment is labelled as the 'cost of delay' and is captured by Component B. Meanwhile, the size of the required additional adjustment also depends directly on the 2025 debt target (the 60% of GDP reference value). Since Ukraine's gross public debt is above 60% of GDP, the required fiscal adjustment to reach the debt target by 2025 contributes to increasing the value of the sustainability indicator.

For forecasting nominal GDP growth, we used the official forecasts for the 2017–2019 period approved by the Cabinet of Ministers of Ukraine. Starting from 2020 we assumed declining inflation rates and moderate growth rates, resulting in nominal GDP growth rates of 8–9% annually (see Table 8).

Starting from 2020, the nominal effective interest rate on public debt (R_t) was computed as the weighted average of the nominal interest rate on domestic and foreign debt of Ukraine, accounting for the hryvna devaluation rates,

$$1 + R_t = (1 - a) * (1 + R_t^d) + a * (1 + e) * (1 + R_t^f) \quad (2)$$

R_t^d – nominal interest rate on domestic public debt;

R_t^f – nominal interest rate on foreign public debt;

a – share of debt denominated in foreign currencies in the total value of public debt;

e – hryvna devaluation rate relative to the previous year.

Table 8 / Data used for computing the sustainability indicator S1 for Ukraine (baseline scenario)

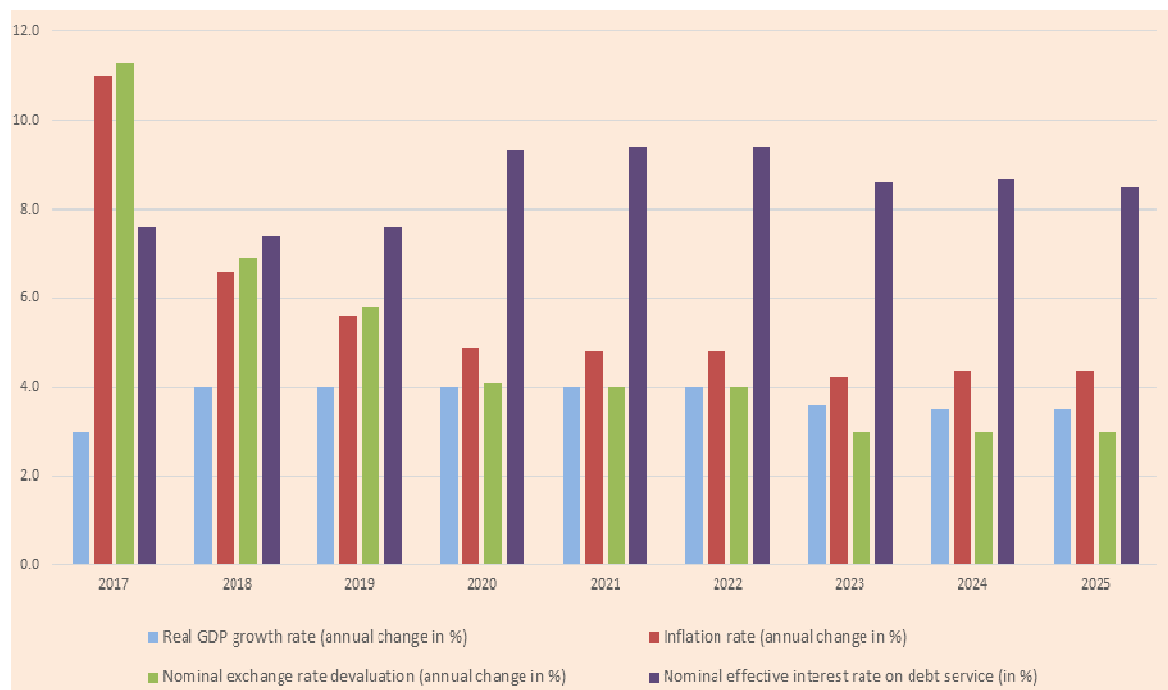
Data or assumptions	Symbol	2017	2018	2019	2020	2021	2022	2023	2024	2025
Gross general government debt (% of GDP)	D_{t0}	90.2	*	*	*	*	*	*	*	*
Share of debt denominated in foreign currency (%)	a	0.66	0.65	0.64	0.63	0.62	0.60	0.60	0.57	0.57
Nominal GDP growth rate (annual change in %)	G_t	14.3	10.9	9.8	9.1	9.0	9.0	8.0	8.0	8.0
Nominal exchange rate devaluation rate (annual change in %)	e	11.3	6.9	5.8	4.1	4.0	4.0	3.0	3.0	3.0
Nominal effective interest rate of debt service	R_t	7.6	7.4	7.6	9.3	9.4	9.4	8.6	8.7	8.5
Nominal interest rate on domestic public debt (%)	R_t^d	*	*	*	11.0	11.0	10.5	10.0	9.5	9.0
Nominal interest rate on foreign public debt	R_t^f	*	*	*	4.0	4.2	4.5	4.5	5.0	5.0
Ratio of effective interest rate index to nominal GDP growth index	$\frac{(1+R_t)}{(1+G_t)}$	0.942	0.968	0.980	1.002	1.003	1.004	1.005	1.007	1.005
Cyclically-adjusted primary balance (% of GDP) in a pre-adjustment period	PB_{t0}	2.7	*	*	*	*	*	*	*	*
Targeted debt level at the end of 2025 (% of GDP)	D_{t1}	*	*	*	*	*	*	*	*	60.0

Source: Author's calculation.

While estimating the medium-term fiscal gap for Ukraine, we incorporated a downward trend for the nominal interest rate on domestic public debt which should be driven mainly by the declining inflation rate and gradual restoration of debt sustainability. We also assumed a slightly growing interest rate on foreign debt that might be explained by consequent repayment of IFIs' concessional loans and a rising share of loans from the international capital markets in the structure of external debt.

The main assumptions and input data for the calculation of the medium-term fiscal gap of Ukraine are indicated in Table 8; a visual representation is shown in Figure 3.

Figure 3 / Macroeconomic and financial assumptions for estimating the fiscal gap (baseline scenario)



Source: Author's forecasts.

For computing the medium-term fiscal gap of Ukraine, we applied equation (1) and used the assumptions listed in Table 8. The gap between the initial cyclically-adjusted primary balance and the debt-stabilising primary balance proved to be negative and equal to -3.04% of GDP (Component A). The additional adjustment due to the cost of delay or a prolonged period of fiscal adjustment (Component B) stands at 1.2% of GDP. The fiscal adjustment necessary to reach the targeted debt level of 60% of GDP by the end of 2025 (Component C) has a magnitude of 4.3% of GDP. The sum of the three components yields the sustainability indicator SI for the public finances of Ukraine, which amounts to 2.4% of GDP.

Table 9 / Estimated components and value of the medium-term fiscal gap S1 for 2018–2025

Indicators	Baseline scenario	Higher debt scenario
Targeted debt level at the end of 2025, in% of GDP	60	68.6
Number of years of gradual fiscal adjustment	8	-
Component A of S1 (% of GDP), initial budgetary position	-3.0	-3.0
Component B of S1 (% of GDP), cost of prolonged adjustment	1.2	0.2
Component C of S1 (% of GDP), additional adjustment to reduce the debt level	4.3	3.0
Medium-term fiscal gap S1-(A+B+C) (% of GDP)	2.4	0.2
Annual fiscal adjustment $c-(A+B+C)/8$	0.3	0.0

Source: Author's calculations.

Next, we incorporate into our analysis a higher debt scenario. This scenario presumes the public debt level to be reduced to 68.6% of GDP, instead of 60% within the baseline scenario. Here we again use the macroeconomic and financial assumptions listed in Table 8. Calculations on the basis of equation (1)

reveal almost zero fiscal adjustment needs in Ukraine over the 2018–2025 period for the smaller debt reduction target (see Table 9). In particular, for the higher debt scenario the initial budgetary position component equals -3.0, the cost of prolonged adjustment stands at 0.20 and the additional adjustment for debt convergence towards 68.6% of GDP amounts to 3.0. In conclusion, we derived a 0.2% of GDP medium-term fiscal gap for the higher debt scenario that implies close to zero fiscal adjustment in the course of 2018–2025.

Table 10 / Debt and debt-related indicators of Ukraine according to IMF forecast

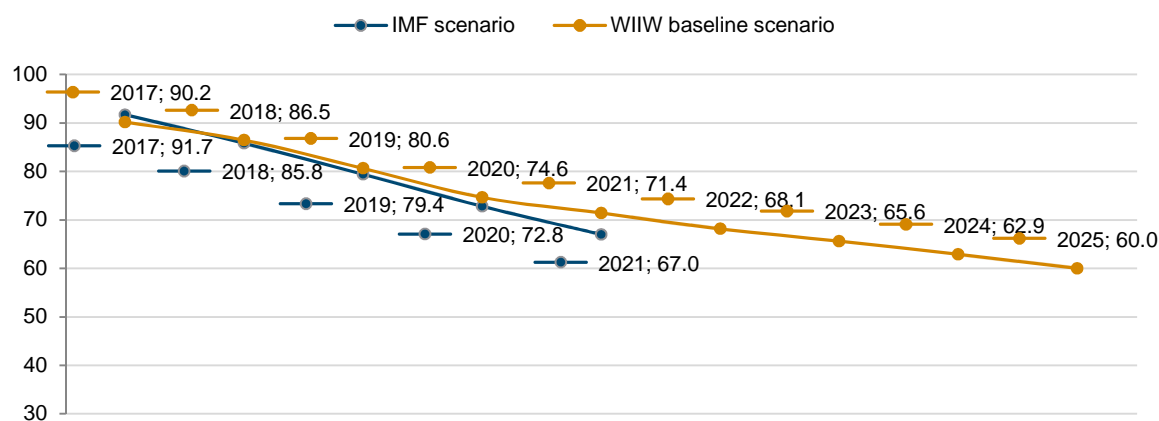
Indicators	2016	2017	2018	2019	2020	2021
Public and publicly guaranteed debt, in% of GDP (at the end of the respective year)	90.2	91.7	85.8	79.4	72.8	67.0
Annual change in public and publicly guaranteed debt, in p.p. of GDP	10.1	1.5	-5.8	-6.4	-6.6	-5.8
Primary budget balance, in % of GDP	0.9	1.2	1.7	1.6	1.7	1.7

Source: Compiled by the author on the basis of IMF (2016c).

The IMF-supported programme for Ukraine includes a debt sustainability analysis (DSA), which assumes improvements in the cyclically-adjusted primary balances of the general government by 0.2% of GDP annually over the period 2018–2020. According to the IMF's DSA, even modest fiscal tightening under positive macroeconomic assumptions will put general government debt on a sustainable path and the debt ratio will shrink steadily, from 91.7% of GDP in 2017 to 85.8% in 2018, to 79.4% in 2019 and to 72.8% of GDP in 2020. Given the framework of the IMF's DSA, starting from 2017 the primary budget balance would be flat (1.6–1.7% of GDP); nevertheless, public and publicly guaranteed debt will decline by 5.8–6.4 p.p. of GDP annually (see Table 10).

However, the IMF's baseline scenario seems to be over-optimistic; the real situation will require more significant fiscal adjustment efforts. A comparison of the IMF scenario and the wiiw baseline scenario (which relies on a continuation of fiscal adjustment at a pace of 0.3% of GDP annually) is presented in Figure 4.

Figure 4 / Forecast debt dynamics by IMF and wiiw, in % of GDP



Thus, our baseline scenario yields an **estimated medium-term fiscal gap of 2.4% of GDP for debt convergence to 60% of the GDP level. According to EU standards, a sustainability indicator of that value implies a medium degree of risk attributable to the public finances of Ukraine.** Since gradual fiscal adjustment is assumed to proceed over eight years, we divide the obtained value of S1 by 8 and derive an annual size of fiscal adjustment (c) that amount to 0.3% of GDP. According to our alternative scenario, zero fiscal adjustment will be needed in the course of 2018–2025 if public debt is allowed to be higher and approaches 68.6% of the GDP level at the end of 2025.

However, important are the macroeconomic assumptions about steady economic growth, moderate inflation rates and lack of currency crises, as well as the policy assumption about a termination of the bail-out transactions by Ukraine's government starting from 2018.⁶ If the last assumption is violated and the government proceeds with liquidity support for SOEs and banks, Ukraine's public debt will grow by the respective amounts and more significant fiscal adjustment efforts will be needed. Likewise, less optimistic assumptions about the future macroeconomic environment, i.e. lower growth or economic crisis, exchange rate volatility and any type of financial crisis, new contingent liabilities and so on would require a more dramatic fiscal adjustment in Ukraine.

Summing up, the decomposition of the S1 indicator within the baseline scenario (Table 9) shows that the **cyclically-adjusted primary balance projected for 2017 should be more than sufficient to stabilise general government debt at its current level.** However, due to the gradual adjustment of the primary balance, the so-called 'cost of delay' subcomponent turns the adjustment of the initial budgetary position into positive. **The additional adjustment prompted by the debt target of 60% of GDP, reflected in the current Budget Code of Ukraine, is positive and requires notable fiscal consolidation efforts. In sum, taking into account the derived value of the sustainability indicator S1 (2.4% of GDP) and the period of gradual fiscal adjustment (eight years), annual expenditure-led or revenue-enhancing measures have to approach 0.3% of GDP in the course of 2018–2025. Fiscal adjustment of this magnitude will bring general government debt to a sustainable level of 60% of GDP and make a fiscal or debt crisis in Ukraine less likely.**

⁶ Zero transactions of this type are also envisioned by the IMF-supported programme for Ukraine.

3. Assessing the impact of fiscal policy on economic growth

3.1. UKRAINE'S FISCAL ADJUSTMENT IN THE INTERNATIONAL CONTEXT AND ITS MEASUREMENT

One of the key concepts for the analysis of fiscal policy is the cyclically-adjusted balance (CAB), which is used primarily to separate the contribution of discretionary fiscal policy to a given change in the headline deficit from the effect of the economic environment. The CAB concept is the backbone of the EU framework of fiscal surveillance, both in its preventive and corrective arms. Thus, the CAB is an indicator revealing the underlying government fiscal position when cyclical components are eliminated from the revenue and expenditure aggregates.

We computed the CAB of Ukraine's consolidated budget over the period 2013–2016, assuming an elasticity of revenues with regard to GDP of 1.1 and an elasticity of expenditures with regard to GDP of 0. Potential GDP figures for Ukraine were taken from Bogdan, Yara and Konovalenko (2016), who followed the approach of Knotek (2007) and estimated Ukraine's potential GDP on the basis of Okun's Law as $Y_p = Y_r / (1 - K^* (U_{act} - U_{nat}))$, where K is Okun's coefficient (2.5), U_{act} is the actual unemployment rate in the respective year and U_{nat} is the natural unemployment rate (6%).⁷

The main budget aggregates used for the calculation of the cyclically adjusted balance and Ukraine's potential GDP estimates of the above authors⁸ are presented in Table 11.

The calculations reveal a moderate cyclically-adjusted primary balance (CAPB) in 2014, equivalent to 1.9% of GDP, and dramatically high CAPB of +6.2% of GDP in 2015. According to our preliminary estimates, CAPB was getting smaller, although quite significant (+4% of GDP) in 2016. Calculations suggest, that ***the fiscal impulse measure*** (the difference between the CAPBs of the previous and the current year) ***proved to be negative and considerable over 2014-2015 and positive one in 2016: -2.5% of GDP in 2014, -4.3% in 2015 and +2.1% of GDP in 2016***. Thus, in 2016, as opposed to the previous years, the government softened its restrictive fiscal policy and stimulated aggregate demand. ***The CAPB has declined actually in 2016 and it is expected to decline further in 2017: from 4% to 2.7% of GDP***; the fiscal impulse is to be positive this year with a magnitude of 1.3% of GDP.

⁷ With the concept of potential output, Okun sought to identify how much an economy would produce 'under conditions of full employment'; by 'full employment' Okun considered an unemployment level low enough to produce as much as possible without generating too much inflationary pressure. The natural unemployment rate for Ukraine of 6% has been estimated by O. Vasilyev (2012).

⁸ The estimates of the output gap and potential GDP by Bogdan, Yara and Konovalenko (2016) seem to be quite conservative and rely on a significant – by international comparisons – natural unemployment rate. The application of alternative methods for estimating potential output would probably yield higher figures for the output gap and cyclically-adjusted budget revenues and, accordingly, a larger cyclically-adjusted primary balance.

Table 11 / Cyclically adjusted primary balance and fiscal impulse of the consolidated budget of Ukraine over 2013–2016

	2013	2014	2015	2016
Conventional budget balance (<i>adjusted for road loans</i>), % of GDP	-3.8	-3.9	-0.7	-2.1
Potential GDP, billion UAH	1510.5	1730.6	2147	2569.9
Cyclically adjusted budget revenues, billion UAH	457.9	501.7	713	839.8
Cyclically adjusted primary budget expenditures, billion UAH	473.2	478.7	596.8	741.3
Cyclically adjusted balance (CAB), % of potential GDP	-2.8	-1	2.1	0.3
Cyclically-adjusted primary balance (CAPB), % of potential GDP	-0.6	1.9	6.2	4.0
Fiscal impulse as the change in CAPB over 1 year, % of potential GDP		-2.5	-4.3	2.1

Source: Author's calculations on the basis of State Treasury of Ukraine and IMF data.

The IMF's debt sustainability analysis (DSA) framework suggests that an assessment of the realism of fiscal projections should consider both adjustments in the primary budget balance and its level. This is explained by the fact that a high level of the primary budget surplus and a radical cut of the budget deficit may appear to be socially painful and will bring about social unrest. Areas of concern arise when:

- 1) fiscal consolidation needs (fiscal impulses) are larger than 3% of GDP in terms of the adjustment of the CAPB;
- 2) the projected three-year average CAPB level is above 3.5% of GDP.

If a country's fiscal situation is in the above ranges, this should raise a warning flag as large adjustments in the primary balance may be both economically and politically unfeasible (IMF, 2015b).

In the case of Ukraine, both of the IMF's 'warning' thresholds were exceeded in 2015: the annual CAPB level 1.8 times and the CAPB annual change 1.4 times.

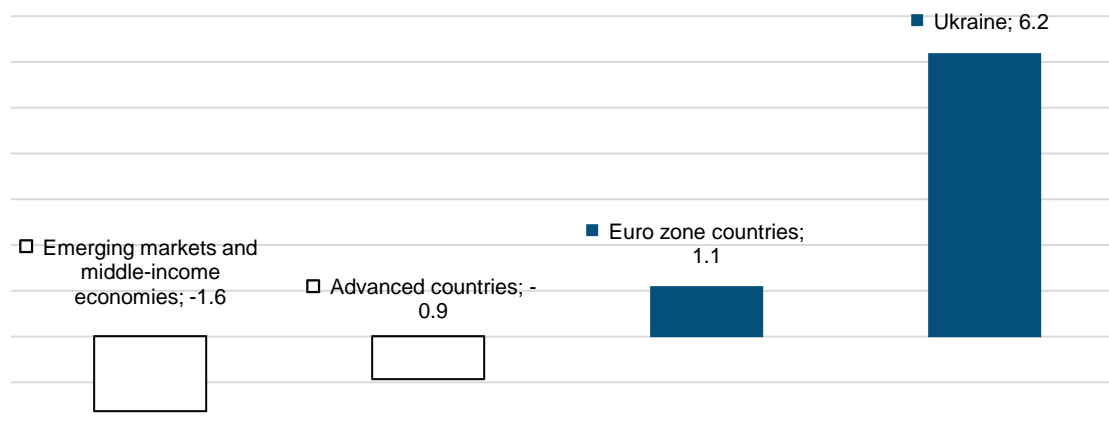
Table 12 / Comparison of general government cyclically-adjusted balances across groups of countries and Ukraine (2015), % of potential GDP

	Cyclically-adjusted balances	Cyclically-adjusted primary balances
<i>Average for emerging markets and middle-income economies</i>	-3.6	-1.6
<i>Average for advanced countries</i>	-2.4	-0.9
<i>Average for eurozone countries</i>	-1.0	1.1
Ukraine (2015)	2.1	6.2

Source: Fiscal Monitor of the IMF (April 2016), author's calculations on Ukraine.

In Ukraine the CAPB stood at 6.2% of potential GDP in 2015. With this high value, Ukraine has occupied the top position among the countries covered by the 'Fiscal Monitor' of the IMF, in the neighbourhood of Hong Kong (3.5%) and the Dominican Republic (3.3%). As for other transition countries, the CAPB stood at -0.1% of GDP in Croatia, -1.1% in Poland, 0% in Romania and -2% in Russia. In emerging market and middle-income economies the average value of the CAPB amounted to -1.6% of GDP in 2015, in advanced countries to -0.9% and in the eurozone countries to +1.1% of GDP (see Table 12 and Figure 5).

Figure 5 / Cyclically-adjusted primary balances in Ukraine versus different country groups, % of GDP



Source: Author's representation on the basis of IMF's data and own calculations for Ukraine.

Both expenditure cuts and revenue increases contributed to a conventional deficit reduction from 3.9% of GDP in 2014 to 0.7% in 2015. In view of the high debt level and being cut off from the international capital markets, Ukraine was not able to conduct a countercyclical and expansionary fiscal policy that would have cushioned the economic downturn in 2014–2015. However, the highly restrictive fiscal policy stance was not reasonable from an economic point of view; it seems to be explained by a lack of qualitative fiscal institutions, the implementation of the IMF-supported programme, the unfavourable government debt structure and liquidity constraints, and the high tolerance of Ukraine's population to economic difficulties under the pressure of Russian military aggression.

In 2016 a fiscal stance changed and the consolidated budget deficit increased from 0.7% to 2.1% of GDP, as fiscal impulse measure turned to positive value. These changes were attributable, largely, to the social contribution rate reduction and expanding deficit of the Pension fund that was covered by Central budget transfers. In such a way, a **discretionary fiscal policy in 2016 stimulated aggregate demand and contributed to economic recovery, on the one hand. On the other hand, this policy entailed growing disproportions in Ukraine's public finance and had a negative impact on efficiency.**

3.2. ESTIMATION OF THE ECONOMIC COSTS OF FISCAL CONSOLIDATION

Fiscal adjustments in many cases impose economic costs, which are captured by the notion of a fiscal multiplier. Fiscal multipliers are typically defined as the change in output following an exogenous and temporary change in the fiscal deficits relative to their respective baselines. Thus, the fiscal multiplier measures the effect of one unit change in spending or one unit change in tax revenue on the level of GDP. Two concepts of fiscal multipliers are commonly used, i.e. the short-term multiplier and medium-term multiplier.

There are many ways to calculate fiscal multipliers, with the individual approaches often associated with certain theoretical frameworks. The most advanced techniques and models are (i) structural

econometric, (ii) vector autoregressions (VARs), and (iii) simulation results from dynamic stochastic general equilibrium (DSGE) models.

BOX 1 / EMPIRICAL STUDIES ON THE SIZE OF FISCAL MULTIPLIERS

Baunsgaard et al. (2012) review a total of 37 studies including both model-based (DSGE) and VAR approaches. In those studies government spending multipliers range between 0 and 2.1, with a mean of 0.8 during the first year after fiscal measures have been taken. Government revenue multipliers range from 1.5 to 1.4, with a mean of 0.3.

A review of the existing literature suggests that negative short-term effects of fiscal consolidation are largest for advanced economies, significant for emerging markets, and small for less developed economies. Estevão and Samake (2013), Ilzetzki et al. (2013) and Kraay (2012) show that multipliers in emerging market economies and low-income countries are small, which is explained by difficulties in tax collection and expenditure inefficiencies which restrain the impact of fiscal policy on output.

Empirical research by Estevão and Samake (2013) shows that the size of the fiscal multiplier depends crucially on the business cycle stance, the composition of fiscal adjustment measures, their persistence (short- versus long-run horizon), the degree of the country's financial integration and on the extent to which monetary policy accommodates fiscal tightening. Fiscal consolidation is found to be more contractive if pursued during a recession as compared to economic expansion.

Batini et al. (2014) also argue that multipliers are higher in a recession than in an expansion. One reason could be that the supply constraint is asymmetric: while in an upturn the impact of fiscal policy is limited by the inelastic pool of resources (and eventually nullified when the economy reaches maximum productive and full employment capacity), this constraint does not exist when there is a slack in the economy, and the additional resources provided or extracted by the government have a more direct effect on output.

Auerbach and Gorodnichenko (2012) as well as Fazzari et al. (2012) use VARs which allow the parameters to vary over expansions and contractions. In particular, Auerbach and Gorodnichenko use a smooth transition threshold where the threshold is selected a priori, while Fazzari et al. estimate a discrete threshold. The common finding of these studies is that fiscal multipliers are substantially larger during economic recessions.

Sin (IMF, 2016b) extends the liquidity-constrained model proposed by Del Negro et al. (2011) into a small-open-economy framework and applies it to study the government spending multiplier in a small open economy where financial frictions are present at both country and international levels. He reveals that, when access to international capital markets is free, the multiplier in a five-year crisis is the same as that in normal times, at 0.9. However, when there are more frictions in international capital flows, the fiscal multiplier becomes much larger in a liquidity crisis than in normal times; in some cases the value of the multiplier increases from 1.58 in normal times to 1.91 in a five-year liquidity crisis.

Source: Compiled by author based on an extensive literature review.

Mitra and Poghosyan (2015) were the first researchers to estimate the fiscal multipliers for Ukraine. By applying a structural vector auto regression model, they show that Ukraine's near-term fiscal multipliers are well below 1. Specifically, the impact revenue and spending multipliers are -0.3 and 0.4,

respectively. However, over the medium term, the revenue multiplier becomes insignificant while the spending multiplier strengthens to 1.4, with about the same impact from capital and current spending. The empirical study of Mitra and Poghosyan (2015) was based on quarterly data for the period from 2001:Q1 to 2013:Q4 (before the current economic crisis hit) and did not distinguish between periods of economic upturn and downturn with regard to the fiscal multiplier.

To compute the magnitude of fiscal multipliers in Ukraine, we used the 'bucket approach' developed by Batini, Eyraud and Weber (2014). They propose to bunch countries into groups (or 'buckets') that are likely to have similar multiplier values based on their macroeconomic and structural characteristics, the phase of the business cycle and the monetary policy conduct. The core hypothesis of the 'bucket approach' is that similar factors affect the multipliers in emerging market and low-income economies where empirical and model-based estimates are not widely available and often of poor quality. The authors do not account for the composition of the fiscal package, as recent papers show that spending multipliers are not necessarily higher than revenue multipliers.

Batini, Eyraud and Weber (2014) identify two types of determinants of the size of fiscal multipliers: (i) structural country characteristics which influence the economy's response to fiscal shocks in 'normal times;' and (ii) cyclical/temporary factors (such as policy-related phenomena) that make multipliers deviate from 'normal' levels. Structural country characteristics include:

- › *trade openness* –countries with a lower propensity to import tend to have higher fiscal multipliers because the demand leakage through imports is less pronounced;
- › the size of *automatic stabilisers* –larger stabilisers reduce fiscal multipliers since the automatic response of social transfers and taxes offsets part of the initial fiscal shock, thus diminishing its effect on output;
- › *the exchange rate regime* –countries with flexible exchange rates, as a rule, have smaller multipliers because exchange rate movements can partially offset the impact of discretionary fiscal policy on the economy;
- › *the debt level*– countries with a large debt burden generally have lower multipliers as fiscal consolidation is likely to have positive credibility and confidence effects on demand and risk premia;
- › *public expenditure management and revenue administration*– multipliers are expected to be smaller with weak tax collection and expenditure inefficiencies which limit the impact of fiscal policy on GDP.

Considering the different structural and macroeconomic characteristics, we assigned Ukraine's economy with a score '0' for trade openness, '1' for labour market rigidities, '1' for small automatic stabilisers, '0' for fixed or quasi-fixed exchange rate regime, '0' for low/safe public debt level, and '0' for effective public expenditure management and revenue administration. The total score of Ukraine of '2' is judged as being far below the upper ceiling of 6. In view of this, Ukraine was included into the group of countries with low fiscal multipliers. For this group of countries, according to Batini et al. (2014), the first-year multiplier ranges from 0.1 to 0.3 and this range is to be applied only in normal times.

Next, we adjusted the ranges of the fiscal multiplier for the business cycle and the monetary policy stance, incorporating the fact that fiscal adjustments undertaken in a downturn of the business cycle or when the monetary policy is not accommodative have a more powerful impact on output. Batini et al. (2014) suggest that if the economy is at the lowest point of the cycle, both the lower and the upper bound of the fiscal multiplier's range are to be increased by 60%. If monetary policy is at the effective lower bound and is fully constrained, both bounds of the multiplier range are to be raised by 10–30%.

After the above-mentioned adjustments for Ukraine, the first-year fiscal multiplier is estimated to range from 0.2 to 0.6. The average value of this interval is regarded to be a first-year fiscal multiplier that is 0.4.

Moving on to the calculation of the medium-term fiscal multiplier, we again used the approach of Batini et al. (2014), who argue that the output effect of an exogenous fiscal shock vanishes within five years, and this effect does not decline in a linear way but usually has an inverted U-shape, with the maximum impact occurring in the second year. Mineshima et al. (2014) revealed that the second-year multiplier is on average 10–30% higher than in the first year. We assumed a 4-year period of persistence of fiscal multipliers in Ukraine and incorporated the hypothesis assuming the fiscal multiplier in the second year to be 20% higher than in the first year with a dampened effect for the next two years. While calculating Ukraine's medium-term fiscal multiplier we also accounted for the effect of credit constraints. Since 2013 sovereign and corporate borrowers of Ukraine are cut off from access to the international capital markets and domestic banks' loans to the economy have shrunk from 59.8% of GDP at the end of 2013 to 43.8% as of October 2016.

Thus, on the basis of the above assumptions and estimates, we derived the following values:

- › First-year multiplier: 0.40
- › Second-year multiplier: 0.48
- › Third-year multiplier: 0.29
- › Fourth-year multiplier: 0.14
- › Overall medium-term multiplier: 1.31

Table 13 / Medium-term effects of discretionary fiscal policy in 2014–2016,

% of changes in real GDP

	GDP decline driven by fiscal adjustment in 2014 (2.5% of GDP)	GDP decline driven by fiscal adjustment in 2015 (4.3% of GDP)	Total GDP decline driven by fiscal adjustments in 2014-2015	GDP decline driven by fiscal expansion-2016 (2.1% of GDP)	Total GDP decline driven by discretionary fiscal policy in 2014-2016
2014	1	-	1	-	1
2015	1.2	1.7	2.9	-	2.9
2016	0.7	2.1	2.8	-0.8	2.0
2017	0.4	1.2	1.6	-1.0	0.6
2018	-	0.6	0.6	-0.6	0.0
2019	-	-	-	-0.3	-0.3
Total 2014-2019	3.3	5.6	8.9	-2.8	6.1

Source: Author's calculations.

Having applied these magnitudes, we computed the output effects of fiscal adjustments spanning the period 2014–2019. Table 11 indicates that Ukraine's fiscal adjustment in terms of improvements in the CAPB of the consolidated budget approached 2.5% in 2014 and 4.3% in 2015, while fiscal loosening of 2016 yielded a decrease in CAPB by 2.1% of GDP. Taking into account the estimated values of the fiscal multipliers, we calculated the medium-term impact of the discretionary fiscal policy in 2014–2016. The results of these calculations are presented in Table 13.

Due to the radical fiscal consolidation of 2014 and 2015, Ukraine's real GDP is estimated to have contracted by 1% in 2014, 2.9% in 2015 and 2.8% in 2016. GDP is predicted to shrink further because of discretionary fiscal measures in 2014–2015, by 1.6% in 2017 and 0.6% in 2018. In other words, our calculations suggest that the radical fiscal adjustment of 2014–2015 has contributed to significant GDP declines in 2014–2016 and its effect will be pronounced also over the years 2017–2018; it will bring about a total medium-term real GDP decline of 8.9%.

However, the output effect of the discretionary fiscal policy in 2016 has turned to positive values: ***a fiscal impulse in the magnitude of 2.1% of GDP will probably result in GDP growth of 0.8% in 2016, 1% in 2017, 0.6% in 2018 and 0.3% in 2019.*** Thus, fiscal loosening of 2016–2017 is mitigating the contraction effects of fiscal adjustments in 2014–2015; nevertheless, the combined effect of discretionary fiscal policy over the last three years is predicted to be negative. ***Summing up, driven by fiscal policy measures the real GDP in Ukraine will shrink by 6.1% altogether in the course of 2014–2019.***

3.3. PUBLIC INVESTMENT AS A LEVER OF ECONOMIC GROWTH

An important component of budget expenditures that may alleviate the impact of fiscal consolidation on economic growth is **public investment**. Physical investment – both public and private – is an important driver of economic growth in all economies. Efficient public investment tends to complement and encourage private sector investment. Besides, fiscal policy is known to raise total factor productivity through several channels, including by providing critical infrastructure and raising government efficiency.

Public investments financed out of the state and local budgets in Ukraine were extremely low in relative terms. They amounted to only 1.3% of GDP in 2014, 2.4% in 2015 and 3.0% in 2016 (see Table 14). The volumes of capital expenditure in Ukraine are extremely low by international standards. According to the IMF, in emerging markets (EMs) and low-income developing countries public investment rates peaked at more than 8% of GDP in the late 1970s/early 1980s, declined to around 4–5% of GDP in the mid-2000s, but have recovered since then to 6–7% of GDP. In advanced economies, average public investment decreased steadily from a high of just under 5% of GDP in the late 1960s to a historic low of just over 3% of GDP in 2012 (IMF, 2015c). In individual transition countries, in 2014, general government investments accounted for 5.3% of GDP in the Czech Republic, 7.3% in Hungary, 4.9% in Latvia and Lithuania, 5.1% in Poland, 4.1% in Slovakia and 7.3% in Slovenia.⁹

The State Statistics Service of Ukraine reports that over the period 2013–2015 the share of the State budget in total capital investment (both public and private) in the economy constituted only 1.2–2.5%. The most substantial component in the structure of public investment was investment in economic

⁹ Author's calculations on the basis of OECD data.

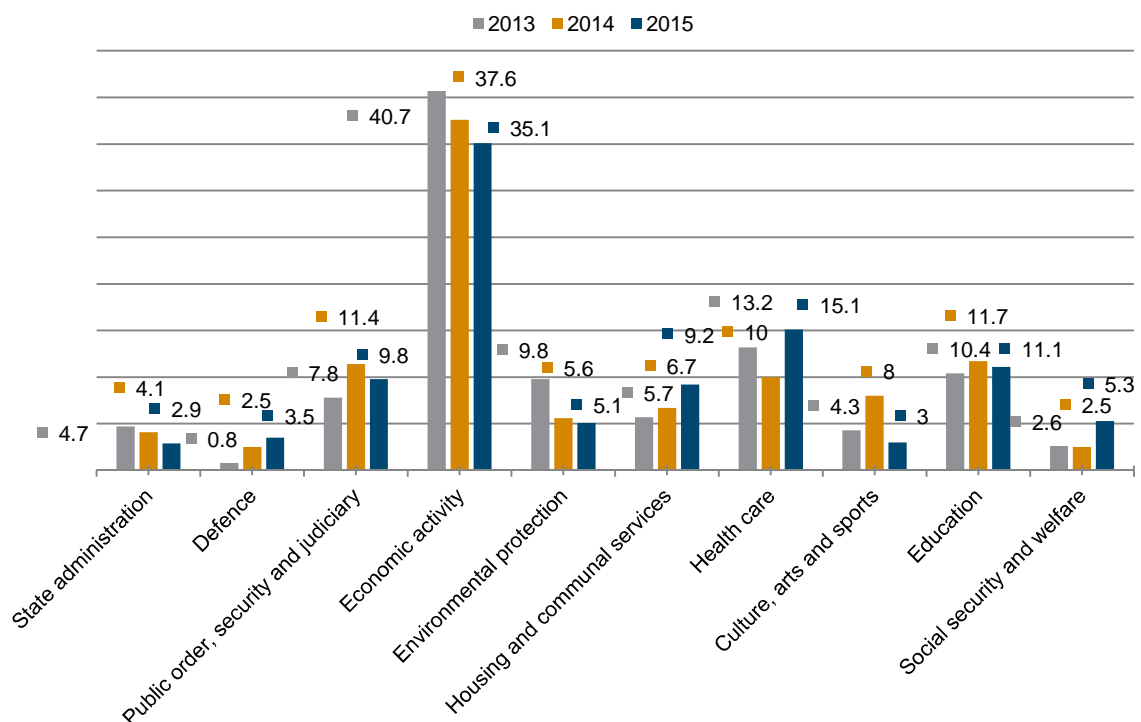
activity which took the form of acquisition of fixed capital and of capital transfers to enterprises. The share of investments in economic activity in total public investments stood at 35.1% in 2015 (see Figure 6). The second priority for government investment policy turned out to be the healthcare sector (15.1% of total investments) and the third one public order, security and judiciary (9.8%). The shares of defence (3.5%) and environmental protection (5.1%) were surprisingly low in 2015.

Table 14 / Capital expenditures of the consolidated budget, % of GDP

	2013	2014	2015
Total capital expenditures	1,93	1,27	2,36
State administration	0,09	0,05	0,07
Defence	0,02	0,03	0,08
Public order, security and judiciary	0,15	0,14	0,23
Economic activity	0,79	0,48	0,83
Environmental protection	0,19	0,07	0,12
Housing and communal services	0,11	0,09	0,22
Healthcare	0,25	0,13	0,36
Culture, arts and sports	0,08	0,10	0,07
Education	0,20	0,15	0,26
Social security and welfare	0,05	0,03	0,12

Source: Author's calculations.

Figure 6 / Share of the branches of public sector investment in total investments out of the consolidated budget (%), 2013–2015



Source: Author's calculations.

An important source of funding of infrastructure investments in Ukraine that complement government investments are international financial institutions, i.e. the IBRD, IFC, EBRD, EIB, BSTBD and others.

For instance, as of April 2016, the World Bank Group provided a total of USD 4.6 billion to Ukraine, including USD 2.25 billion in direct budget support over the past 20 months. The Bank's investments have focused on improving basic public services such as district heating, power, roads, water and sanitation, health, and social protection. IBRD investment projects related to infrastructure are listed in Table 15.

Table 15 / Operating IBRD investment projects related to infrastructure in Ukraine

	Project title	IBRD loan	Duration of project
1.	Road Sector Development Project	USD 560 million	2015–2021
2.	Second Road and Safety Improvement Project	USD 450 million	2012–2016
3.	Energy Efficiency Project	USD 200 million	2011–2016
4.	Hydropower Rehabilitation Project	USD 166 million	2005–2016
5.	Second Power Transmission Project	USD 330 million	2014–2020
6.	District Heating Energy Efficient Project	USD 265 million	2014–2020
7.	Second Urban Infrastructure Project	USD 300 million	2014–2020

Source: Compiled by author on the basis of IBRD data.

Among the EU financial institutions that support the government reform programme and promote modern infrastructure development in Ukraine are the EBRD and EIB. The EBRD has provided a comprehensive support package with a focus on strengthening energy efficiency and energy security, unlocking its agricultural and industrial potential and providing quality infrastructure. EBRD is the biggest institutional investor in Ukraine. The current EBRD portfolio in Ukraine amounts to EUR 4.45 billion, of which 52% in the public sector. Operating EBRD projects which complement essential public investments are listed in Table 16.

Table 16 / Operating EBRD projects in Ukraine in the public sector

	Project title	EBRD finance	Status of project
1.	Chernivtsi District Heating Project	EUR 7 million	Signed
2.	Ukraine Public Transport Framework	EUR 100 million	Approved by Board
3.	Odessa Trolleybus Project	EUR 8 million	Signed
4.	Vinnitsia Automated Fare Collection Project	EUR 8 million	Signed
5.	Lviv Wastewater Biogas Project	EUR 15 million	Signed
6.	Poltava District Heating	EUR 15 million	Signed
7.	Lutsk District Heating Project	EUR 7 million	Signed
8.	Legal EE Infrastructure: Dnipropetrovsk	EUR 20 million	Signed
9.	Ternopil District Heating Modernisation	EUR 10 million	Disbursing
10.	Lviv District Heating	EUR 20 million	Disbursing
11.	Dnipropetrovsk Metro Construction Completion Project	EUR 152 million	Signed
12.	Nuclear Power Plant Safety Upgrade Programme	EUR 300 million	Signed
13.	Zaporizhzhia Energy Efficiency Project	EUR 12.5 million	Approved by Board
14.	UKSATSE Air Navigation System Modernisation	EUR 45 million	Signed
15.	Pan-European Corridors	EUR 450 million	Signed
16.	Hydro Power Plant Rehabilitation Project	EUR 200 million	Signed
17.	South Ukraine Transmission Project	EUR 175 million	Signed

Source: Compiled by author on the basis of EBRD data.

From 2014 up until September 2016 the EIB approved investment projects for Ukraine with a financing volume of EUR 2.2 billion, accounting for 76% of total EIB financing of the Eastern Neighbourhood

countries and Russia. The Bank focuses its efforts on local private sector development, the development of social and economic infrastructure, and climate change mitigation and adaptation.

In general, international financial institutions in Ukraine apply modern and sophisticated procedures for project selection, evaluation, implementation and audit. However, the quality of government management with regard to public investment funded out of the state and local budgets remains quite low. In 2014 the IMF evaluated public investment management in 71 low- and middle-income countries by quality of investment strategy and planning, project selection procedures, project implementation, evaluation and audit. Ukraine was assigned a score of 1.93 out of a maximum 4 and thus occupied the 21st rank in the IMF's rating, being still left behind by post-socialist countries such as Armenia, Belarus, Kazakhstan and Moldova (Leshchenko, 2014).

In 2015 the government tried to improve the selection process for public investments and introduced some amendments to the Budget Code of Ukraine (Law N288-VIII) as well as adopted a special Resolution (N571 dated 22.07.2015). The government stipulated the application of state expertise for every investment project financed from the state budget, the establishment of an inter-ministerial Commission for the selection of investment projects and the allocation of not less than 70% of new funds towards the completions of projects started earlier.

However, the responsibility of the Commission for project failures is unclear, the criteria for project selection are too diverse and sectors' priorities for public investment are blurred. For instance, since 2013 the list of 'priority' sectors for public investment includes agriculture, housing and communal amenities, machinebuilding, transport infrastructure, metallurgy, tourism and the recreation sector (see Act of Cabinet of Ministers N843-r dated 14.08.2013).

Ukraine still needs strengthening of institutions related to the planning of investment projects, the allocation of budgetary funds and project implementation. Efficient public investment planning requires institutions that ensure public investment is fiscally sustainable and effectively coordinated across sectors, levels of government, and between public and private sectors (IMF, 2015c). At present Ukraine lacks fiscal principles or rules which ensure that overall levels of public investment are adequate, predictable and sustainable; national and sectoral plans which ensure that public investment decisions are based on clear and realistic priorities, cost estimates and objectives for each sector; and a rigorous framework for public-private partnerships which ensures the effective evaluation, selection and monitoring of PPP projects and liabilities. For an efficient allocation of public investment Ukraine needs objective criteria and competitive procedures for appraising and selecting particular investment projects as well as comprehensive, unified and medium-term capital budgeting. For a better appraisal, projects have to be subject to public procedures using standard methodology and taking account of potential risks.

According to the IMF, an efficient project implementation requires sufficient budget appropriations to cover total project costs and the protection of investment against discretion of the executive; the availability of funding that allows for the planning and commitment of investment projects; tendering of major investment projects in a competitive and transparent process, monitoring during project implementation and independent audit; identification of an accountable project manager working in accordance with approved implementation plans and the provision for standardised procedures and guidelines for project adjustments; and monitoring of public assets.

Summing up, public investment, provided it is efficient, is known to have a strong positive impact on economic growth. Over the past years, Ukraine experienced a small increase in public investment, although its relative volume is extremely low by international comparison. Ukraine still faces challenges in developing, executing and managing public investments projects as well as in channelling more public funds toward investments, since fixed capital stocks in the public sector are ageing and of mediocre quality and the country's needs for modern infrastructure are substantial.

3.4. COMPOSITION OF FISCAL ADJUSTMENT INSTRUMENTS AND THEIR DESIRABLE MIX

In view of the quite significant contribution of fiscal adjustment to the overall GDP decline and the low tolerance of Ukraine's population to a further elevation of poverty and deterioration of public services, the pace of fiscal adjustment has to be moderate. Fiscal consolidation should be gradual and spanned over several years. And, what is important, the subsequent fiscal consolidation path has to rely on instruments having a neutral or favourable impact on long-term economic growth.

As the fiscal sustainability analysis (presented in Chapter II) suggests, even after the radical fiscal adjustment in 2014–2015, the current high debt burden still calls for further, if minor, fiscal adjustment measures in Ukraine. A strand of the literature argues that fiscal consolidation is in general contractionary in the short run; it can be expansionary in the medium run if properly designed and implemented. In this regard the composition of the fiscal consolidation efforts and the pace of fiscal adjustments really matter.

Economic theory provides some insights into how fiscal policies can affect growth. For revenues, at an aggregate level, taxation of income tends to be more harmful for growth than taxation of consumption. Consumption taxes discourage neither savings nor employment. Some taxes, i.e. environmental taxes, may even improve resource allocation and correct market failures. By contrast, taxation of capital income reduces the return on savings and investment, thus discouraging both domestic and foreign investments and containing productivity improvements. On the expenditure side, public investment can boost returns to private investment, raise productivity and promote technological progress and, therefore, is generally supportive of economic growth. Similarly, health and education spending can support human capital accumulation. By contrast, subsidies to traditional branches in most cases distort the allocation of resources and harm growth. Transfers such as unemployment benefits can reduce employment incentives and worsen labour market outcomes. Excessive levels of public consumption can be inefficient and growth-damaging. However, public consumption is also comprised of basic public services which economies need in order to operate efficiently (IMF, 2015a).

OECD experts assessed the fiscal instruments on their own without considering how their side-effects on growth and equity could be minimised through structural reforms.¹⁰ According to the OECD, most fiscal consolidation instruments are harmful for growth in the short run and this effect operates via the

¹⁰ For instance, cuts in education spending achieved through reduced services provisions are described as purely budgetary measures whereas efficiency gains that can maintain a similar level of services for lower costs represent structural reform. On the revenue side, an increase in the standard VAT or other tax rates can be seen as a purely fiscal change while measures such as phasing out reduced rates or exemptions are part of a structural tax reform (OECD, 2013).

aggregate demand channel. In the long run, spending cuts may entail potentially large long-term losses in output if they fall into areas where governments provide particularly valuable public goods or growth-enhancing services that are insufficiently produced by the market forces. Empirical evidence suggests that cuts in public investment or government spending on education broadly fall into this category. The output-enhancing effect of reducing government spending is likely to be stronger in areas such as subsidies where public expenditure frequently distorts the allocation of resources in the economy. Similarly, cuts in public spending that can prompt a positive response of labour utilisation, such as in pensions, are likely to have a favourable effect on the long-term level of output per capita.¹¹

The OECD has developed a 'tax and growth ranking' according to which taxation of corporate profits has the most adverse impact on growth, followed by labour taxation. By contrast, recurrent taxes on immovable property are the least distortive, followed by broad-base consumption taxes, particularly VAT. Table 17 summarises the main OECD findings and reports the effects of fiscal consolidation tools on growth and equity (2 plus or minus signs correspond to a strong effect, while 1 to a moderate effect).

Table 17 / Impact of fiscal consolidation tools on growth and equity

	Economic growth		Equity	
	Short-term impact	Long-term impact	Short-term impact	Long-term impact
Spending cuts				
Education	--	--	-	--
Health services	--	-	-	-
Other government consumption (excluding family policy)	--	+	-	
Pensions		++		
Sickness and disability payments	-	+	--	-
Unemployment benefits	-	+	-	
Family benefits	-	-	--	--
Subsidies	-	++	+	+
Public investments	--	--		
Revenue increases				
Personal income taxes	-	--	+	+
Social security contributions	-	--	-	-
Corporate income taxes	-	--	+	+
Environmental taxes	-	+	-	
Consumption taxes (other than environmental)	-	-	-	
Recurrent taxes on immovable property	-			+
Other property taxes	-		++	+
Taxes on sales of goods and services	-	+	-	-

Source: OECD (2013), p. 13.

According to OECD, more than half of the spending cut measures have a positive long-run impact on economic growth (cuts in subsidies and pensions having the most pronounced effect). However, the effects of spending cuts on equity are negative in all cases, except for the reduction in subsidies. The situation is opposite when the fiscal consolidation package relies on revenue-enhancing measures.

¹¹ The OECD argues that tax consolidation instruments may reduce the productive potential of economies. At the general level, raising the tax burden tends to reduce factor supply and long-term output. Evidence on the impact of the tax structure indicates that taxes on mobile or adjustable production factors affect aggregate supply with particular severity. In particular, personal income taxes, social security contributions and corporate income taxes fall into this category. Other taxes such as value-added or consumption taxes have proven to exert still meaningful but less strong distortionary effects.

Many revenue tools improve equity and reduce income disparities in the long run (exceptions are social insurance contributions and sales taxes). However, revenue-enhancing measures have a negative impact on long-term growth in all cases, except for environmental taxes and hikes of sales tax. These findings suggest that, if a government is on a path of fiscal consolidation and is concerned about social inequity, it tends to rely more on revenue-enhancing instruments. On the other hand, if a government worries more about economic growth and neglects equity considerations, it is inclined towards expenditure cuts to pursue fiscal tightening.

Having applied the OECD framework, we arranged Ukraine's fiscal consolidation instruments into two groups, conditional on their estimated effect on economic growth in the long run: positive effect – beneficial policy, negative effect – harmful policy. Table 18 reveals the magnitude of specific expenditure and revenue categories in terms of their budgetary saving or revenue-enhancing effect achieved over the period 2014–2016.

The most powerful effect seems to be generated by a decline in real pensions. Pension Fund expenditures are estimated to have declined by 5.4% of GDP within the three-year period. Although the depreciation of the real value of pensions and wages in the public sector contributed considerably to the degradation of human capital and to the elevation of poverty in Ukraine, from the point of view of its aggregated impact on long-term growth it might be positive (this effect operates through better labour utilisation).

Table 18 / Evaluation of fiscal consolidation instruments in Ukraine from the standpoint of their long-term effect on economic growth

(budgetary effect of relevant instrument in % of GDP)

	2014	2015	2016	3 years total	OECD, long-term impact
Beneficial policy*					
Fall in real pensions*	-1.7	-2	-1.7	-5.4	2 plus
Drop in subsidies for coal industry	-0.4	-0.5	0	-0.9	2 plus
Increase in royalties for oil, gas and other minerals	0.3	0.6	-0.2	0.7	1 plus
Drop in subsidies for agriculture	-0.1	-0.1	-0.1	-0.3	2 plus
Spending cuts on state administration	-0.2	-0.1	0	-0.3	1 plus
Growth of capital expenditures	-0.6	1.1	0.6	1.1	2 plus
Corporate income tax reduction	-1.1	-0.5	0.5	-1.1	2 plus
Harmful policy					
Education spending cuts	-0.6	-0.6	-0.3	-1.5	2 minus
Rise in personal income tax	0	0.3	0.8	1.1	2 minus
Healthcare spending cuts	-0.4	0	-0.5	-0.9	1 minus

* Human capital and equity considerations are not accounted for.

Source: Compiled by author on the basis of own assessments of beneficial and harmful instruments, numerical values are taken over from Table 1.

However, at the disaggregated level the contraction of government consumption and of basic public services supplies which economies need to operate efficiently may be harmful. Areas of concerns in this regard are education and healthcare. Budgetary financing of education fell by 1.5% in the course of 2014–2016, and financing of healthcare by 0.9% of GDP (Table 18). Inevitably, such a policy will bring about a serious deterioration of human capital and a loss of labour productivity that will yield negative

long-run effects on economic growth. Another important aspect is the irreversible contraction and transformations of the healthcare and education sectors under scarce budgetary financing. Up to 2014 Ukraine, as a lower-middle-income country, had a reasonably good system of secondary education and specialised medical care, inherited from the former USSR. In 2014 Ukraine occupied the 81st rank among 188 countries covered by the UN's Human Development Index. A combination of budgetary financing and both official and unofficial private payments allowed medical and educational institutions to keep afloat and provide basic services to the population. However, radical cuts of budgetary financing are likely to shift some of these institutions beyond their ability to survive.

A rise in personal income taxation is also considered as a harmful policy instrument since the growing tax burden tends to reduce labour supply. In Ukraine, the rise in the basic tax rate, the introduction of a war tax and passive income taxation yielded 1.1% of GDP of extra revenues to the budget. Particularly worrisome is the taxation of deposit incomes at 16.5%, 21.5% (up to 2016) and 19.5% (starting from 2016), which under the condition of negative real interest rates on the financial markets acted as a tax on saving; it also contributed to bank runs in 2014–2015.

Among the **beneficial policy instruments** we should mention:

- › cut in subsidies for the coal industry and agriculture (budgetary effect of 0.9% and 0.3% of GDP, respectively);
- › reduction of spending on the state administration (saving of 0.3% of GDP);
- › rise in royalties for oil, gas and other minerals (extra revenues of 0.7% of GDP).

It can be assumed that an improved allocation of economic resources driven by minimising government subsidies, a lower administrative burden on the economy as well as better pricing of mineral resources and taxing of the natural rent will positively affect economic development in the long run. Moreover, these instruments are likely to have a positive impact on equity.

As beneficial policy instruments we should also mention a drop in corporate income tax and growth of capital expenditures. Although these changes have nothing in common with fiscal consolidation, their estimated impact on long-term growth is likely to be positive.

Summing up, ***the future fiscal consolidation path should rely on instruments with a positive effect on economic growth in the long run and a minimal or neutral effect on growth in the short run. The government should go ahead with the fiscal consolidation instruments mentioned in Table 18 as beneficial, and suspend cutting down expenditures on education and healthcare (see for details sub-chapters 4.4. and 4.5).***

4. Social implications of fiscal policy in Ukraine

4.1. QUALITY OF HUMAN CAPITAL IN UKRAINE AND SOCIAL EFFECTS OF FISCAL CONSOLIDATION IN THE INTERNATIONAL CONTEXT

Traditionally Ukraine has been considered a country with human capital of a high quality. In 2015 the UN put Ukraine into the group of countries with 'high human development' and Ukraine was assigned a human development index (HDI) of 0.747 that exceeds the world average of 0.711. Ukraine's HDI corresponds to the average HDI assigned to the region of Europe and Central Asia (including advanced countries). In the UN's ranking of human development in 2014 Ukraine occupied 81st rank among 188 countries. The demographic profile of Ukraine looks as follows (see Table 19).

Table 19 / Demographic characteristics of Ukraine's population

Indicator	2000	2005	2010	2013	2014	2015
1. Population, end of year, million	48.7	46.7	45.6	45.2	42.8	42.6
2. Share of rural population in total population, %	32.6	32.1	31.3	31.3	31.2	31.1
3. Share of population aged above 65, %	13.9	16.2	15.3	15.3	15.6	15.9
4. Average age of population, years	38.4	39.5	40.2	40.3	40.7	40.9
5. Increment of population in 1 year, million	-0.37	-0.36	-0.20	-0.16	-0.17	-0.18
6. Life expectancy at birth, years	67.7	68.0	70.4	68.5	71.0	71.4
7. Mean years of schooling	10.7	11.2	11.3	11.3	11.3	-
8. Employment level, % to working-age population	64.5	65.4	65.6	67.4	64.5	64.7

Source: Compiled by author on the basis of State Statistics Committee and UN data.

By international comparison Ukraine shows quite good indicators concerning educational achievements, child mortality rate, income equality and life expectancy at birth. However, Ukraine is distinguished by permanent decline in population, growing median age of population, exceptionally low satisfaction with healthcare services and general standards of living as well as low trust in the national government. In 2014, according to UNDP (2015), in Ukraine only 24% of interviewees expressed trust in the national government, while the average indicator for developing countries was 58%. In Ukraine, only 27% of polled citizens were satisfied with their standard of living and 28% with the quality of healthcare. The respective average indicators for the developing countries were 58% and 56% (UNDP, 2015).

The dramatically low indicators concerning trust in the national government and satisfaction with the quality of public services (even at the beginning of the period of fiscal adjustment) call for a fiscal consolidation which is responsive to social challenges and devised accordingly. International experience suggests that fiscal consolidation may be effective and sustained over the long run only if perceived as equitable and indispensable for a country's future development.

In the economic literature social expenditures are interpreted as a cushion against individual risks for citizens and as an instrument to equalise income and, more generally, the welfare situation of households within a society. Apart from this, public expenditures on education and healthcare are

treated as investments into human capital development which may boost total factor productivity and economic growth. At present, fiscal austerity in many countries affects the welfare of vast segments of the population as well as the access of people to essential public services; therefore, the social outcomes of fiscal consolidations draw special attention from researchers and policy-makers.

Ball et al. (2013), using episodes of fiscal consolidation in 17 OECD countries over the period 1978–2009, found that fiscal consolidation has typically had significant distributional effects by raising **inequality**, decreasing **wage income** shares and increasing **long-term unemployment**. Their estimation suggests that consolidation episodes (on average of about 1% of GDP) have increased the Gini index by about 0.1 p.p. (equivalent to about 0.4%) in the very short term – 1 year after the occurrence of the consolidation episode – and by about 0.9 p.p. (equivalent to 3.4%) in the medium term – 8 years after the occurrence of the consolidation episode. Their results also suggest that fiscal consolidations typically lead to a significant and long-lasting increase in long-term unemployment.

Vegh and Vuletin (2014) studied the social implications of fiscal policy responses to crises in Latin America over the last 40 years and in the eurozone during the aftermath of the global financial crisis. They focused on the behaviour of four social indicators: **poverty rate**, **income inequality**, **unemployment rate**, and domestic conflict. The authors found a causal link from countercyclical (procyclical) fiscal policy responses to reductions (increases) in all four social indicators.

Woo et al. (2013) found that on average a consolidation of 1 p.p. of GDP is associated with an increase in the disposable income **Gini coefficient** of around 0.4–0.7% over the first two years. Spending-based consolidations tend to significantly worsen inequality relative to tax-based consolidations. So do large-sized consolidations (those greater than 1.5% of GDP). The authors of this study also reveal that fiscal adjustment seems to start affecting **unemployment** immediately, with a consolidation of 1% of GDP leading to a 0.19 p.p. increase in the unemployment rate in the first year, and 1.5 p.p. cumulatively over five years. The impact subsequently becomes smaller, disappearing by the tenth year and then turning negative. The authors conclude that fiscal adjustments that are viewed as being unfair are unlikely to be sustainable. It is therefore critical that the costs associated with fiscal consolidations and weaker growth be shared equitably throughout the economy.

4.2. FISCAL POLICY IMPACT ON THE LEVEL OF INCOME AND POVERTY

Against the background of a strand of empirical studies suggesting that fiscal consolidations are typically associated with elevation of poverty and rise in income inequality, we analysed the dynamics of the relevant social indicators in Ukraine. The World Bank (2016) estimates the extreme poverty rate in Ukraine to have increased from **3.3% in 2014 to 5.8% in 2015** and the moderate poverty rate to have increased from **15.2% in 2014 to 22.2% in 2015**.¹² Official data of the State Statistics Service are less helpful for the measurement of poverty in Ukraine. Table 20 presents official data on poverty and income inequality over the period 2012–2015.

¹² Starting from October 2015, the World Bank set globally an extreme poverty line at 1.90 USD per day in purchasing power parity (PPP) terms; this poverty line uses updated price data and reflects the costs of basic food, clothing and shelter needs for people all around the world. The World Bank's methodology designed for Ukraine assumes a moderate poverty line of 5 USD per day in PPP terms.

Table 20 / Indicators of poverty and income inequality in Ukraine

N	Indicators	2012	2013	2014	2015
1.	Ratio of income of 20% richest categories of population to 20% poorest categories, times	3,3	3,3	3,1	3,5
2.	Relative poverty (share of households whose per capita monthly incomes are below 75% of the median income)	-	19,4	17,5	19,8
3.	Spending on food, in % of total monetary spending of households	52,8	52,6	53,5	55,0

Source: Compiled by author on the basis of State Statistics Service data.

According to data of the State Statistics Service, in the course of 2013–2015 Ukraine recorded a growing number of people with income above the upper income bracket and a declining number of people with income below the bottom income bracket. The main reason for that trend is lack of indexation of the income groups which are monitored by State Statistics Service – i.e. failing to depreciate nominal income brackets according to the annual inflation rate, which was 24.8% in 2014 and 41.4% in 2015; this of course introduced a significant bias into the measurement of income distribution.

Nevertheless, the effect of growing poverty since 2014 may be captured by the indicator of the share of food-related spending in the total monetary spending of households. This share increased from 52.6% in 2013 to 55.5% in 1st half of 2016. If over the same period the tariffs for housing and communal amenities had not grown so dramatically, the share of household spending on food would have increased even more. Both food and energy represent goods of primary necessity with low price elasticity; radical and simultaneous hikes in their prices result in absolute and relative growth of spending for their purchase. Under extreme poverty, sufficient consumption of one of those goods is only possible at the expense of deprivation related to the other good.

The national standard of relative poverty in Ukraine is defined as the share of households whose per capita monthly incomes are below 75% of the median income. The State Statistics Service collects these data in the context of household surveys. However, officially reported data on ‘relatively poor’ households (19.4% in 2013, 17.5% in 2014 and 19.8% in 2016) do not reflect the actual hardships and poverty among Ukrainian households, since real incomes in Ukraine fell dramatically throughout 2014–2015 and even households with incomes close to the median one may be considered poor. Some researchers investigated the consumption-based poverty in Ukraine and defined the ‘poor’ population as i) one with a share of food-related expenditures in total expenditures above 60%; and ii) one whose energy content of daily nutrition is below 2,100 kilocalories (Cherenko, 2015). They revealed a downward trend for consumption-based poverty, although their latest available data cover the year 2013.

As to income distribution in Ukraine, the ratio of income of the 20% richest categories of the population to the 20% poorest ones increased from 3.1 in 2014 to 3.5 in 2015; this can be interpreted, at least to some extent, as an effect of the fiscal consolidation. Traditionally, recipients of pensions, social benefits and wages in the public sector have been among the poorest categories of the population in Ukraine. Over the past years, the ratio of Pension Fund expenditures to GDP plummeted from 17.1% in 2013 to 13.4% in 2015. At the same time, the share of the wage bill in the general government sector in GDP declined from 6.8% to 5.2%. Apparently, when the share of the poorest categories in the total pie

shrinks, income distribution tends to worsen. This effect of worsening income distribution, at least partially driven by fiscal consolidation, has already been captured by official statistics.

The dramatic GDP decline and fiscal austerity affected the welfare of the population; in the case of the latter, elevated poverty and income disparities have been driven by declining social benefits and wages in the public sector. Obviously, poverty and high income inequality reduce the quality of life of the lower-income groups. We may also presume that elevated poverty and high income dispersion bring about lower life expectancy and a higher mortality rate, on account of the lower-income groups' lack of resources needed for medical treatment. Even for the wealthier nations (24 EU countries), Leitner and Stehrer (2016) found that higher levels of poverty are correlated with lower life expectancy and a higher mortality rate. In the case of Ukraine, empirical research and quantitative estimation are constrained by the poor quality of statistical data on poverty and income inequality.

Table 21 / Index of real wages by type of economic activity in comparison

with previous year = 100 and cumulative over 2014–2016 (2013 = 100), %

	2014	2015	2016 11 month	Cumulative 2014 - November 2016
Total for the economy	93.5	79.8	110.3	82.3
Education	89.3	73.4	107.5	70.4
Research and development	92.6	75.8	108.8	76.4
Healthcare	91.2	75.1	108.0	74.0
Libraries, museums and other cultural establishments	88.7	69.4	109.0	67.1
Government, defence, social insurance	90.1	74.1	119.7	79.9

Source: Author's calculations on the basis of State Statistics Service data.

As already mentioned, over the period 2014–2016, one significant reason for growing poverty and declining real incomes has been the slow and insufficient indexations of social benefits and wages in the general government sector under high inflation. For instance, while average annual inflation approached 48.7% in 2015, the government increased the wage bill in the general government sector only by 24% on average in nominal terms. In 2016 wages in the general government sector were indexed by 7% in May and roughly by 10% in December.

According to our calculations, real wages in the main branches of the general government lagged behind the average real wage in the whole economy. For instance, in education (funded mainly by the government) the average real wage over January–November 2016 dropped to only 70.4% of the average wage in 2013, in healthcare to 74%, in research and development to 76.4%, in culture to 67.1%, and in state governance and defence to 79.9% (see Table 21).

4.3. LABOUR MARKET IMPLICATIONS OF FISCAL POLICY

Undoubtedly, fiscal consolidation in Ukraine has widened the wage rate differentials between the EU and Ukraine. Neoclassical economic theory posits that differentials in wages among countries cause people to move from low-wage, high-unemployment regions to high-wage regions. The simplest economic models of migration presume that migration flows result from actual wage differentials across

markets, or countries, that emerge from heterogeneous degrees of labour market tightness. The World Bank (2006) identified poverty, unemployment, low wages, high fertility rates, lack of basic health and education, political conflict, insecurity, violence, poor governance, corruption, and human rights abuses as push factors of migration. Pull factors of migration, according to this study, are prospects of higher wages in the receiving country, potential for improved standard of living, personal or professional development, safety and security, political freedom, family reunification, and freedom from discrimination.

In view of this, ***the tight fiscal policy that contributed to real wage declines in the economy and induced real wage declines in the public sector may be seen as a powerful factor pushing people to exit the Ukrainian labour market.***

Bogdan and Shpenyuk (2015) tried to identify the factors driving the decision-making process of labour migrants with regard to their departure from Ukraine. Their sample was composed of national citizens who in the course of 2002–2011 did at least once leave their home country in order to earn income abroad and who stayed in the destination country for at least six months; in total 104 in-depth interviews were completed, 53 in the Ivano-Frankivsk and 51 in the Ternopil region. Respondents were asked to range their migration motives by the degree of importance. As a result, 85% of respondents stressed that ‘low wages and personal income in Ukraine’ was the most important reason for seeking jobs abroad; 54% of respondents mentioned ‘unemployment’ as a very important reason, 24% the ‘violation of the people’s civil rights by the state, bad governance, corruption’ and 23% ‘no possibilities for making careers in Ukraine, for implementing creative power, poor psychological climate at the working place’ (Table 22).

Table 22 / Importance of the motives for leaving Ukraine and seeking jobs abroad,

% of total respondents selecting a motive

Motives	Very important	Quite important	Not important
1. Low wages or personal income in Ukraine	85	18	1
2. Unemployment	54	29	21
3. No possibilities for making careers, for implementation of creative power, poor psychological climate at the working place	23	44	37
4. Bad housing conditions in Ukraine and low quality of housing and communal amenities	24	42	38
5. Low quality or non-accessibility of basic social services (education, healthcare, pensions)	19	51	34
6. Violation of people’s civil rights by the state, bad governance, corruption, no prospects for positive changes in the country	24	54	26

Source: Bogdan and Shpenyuk (2015).

Among the labour migrants interviewed in the Ternopil and Ivano-Frankivsk regions, the fact that ‘children are growing up without parental care’ was recorded as the most striking social effect of emigration; 54% of the respondents said that this problem affected their families. Obviously, such a situation seriously deteriorates the quality of life of the young generation, complicates the social orientation of young people and destroys the human potential of the Ukrainian society. Moreover, 42% of

respondents witnessed deteriorating health as a result of labour migration. 81% of respondents declared that they emigrated alone, without family members, as they had no means of subsistence abroad for their families. Separation worsened family relations (among husband and wife) for 28% of the respondents; 13% of respondents witnessed divorce as an outcome of labour migrations. 53% of respondents declared that they had not got an official contract with their employer abroad or the legal status as employee; as a result, 15% of respondents stated that their human and labour rights had been violated in the destination country.

As to the scale of labour migration out of Ukraine, official information remains incomplete and unreliable. There is no unified data collection system with statistical data collected by different institutions. The information collected by the State Statistics Service, various ministries and the National Bank of Ukraine does not cover all aspects of labour migration; it is not regularly recorded and processed, and very often not compatible. Hence, the migration data produced at the country level are contradictory and far from exhaustive. The International Organisation for Migration (IOM) estimated that there were about **688,200 Ukrainian citizens engaged in international labour migration in 2014–2015**. Of these, about 423,800 were engaged in long-term labour migration, and 264,400 in short-term labour migration. International labour migrants were defined as people who went abroad with the objective to work, and estimates were derived on the basis of household surveys. In addition to these migrant workers, about 25,400 Ukrainians were studying abroad and 18,200 people moved abroad for the purpose of family reunification (IOM Mission in Ukraine, 2016). The revealed number of long- and short-term labour migrants makes up 4.2% of the domestically employed population in Ukraine.

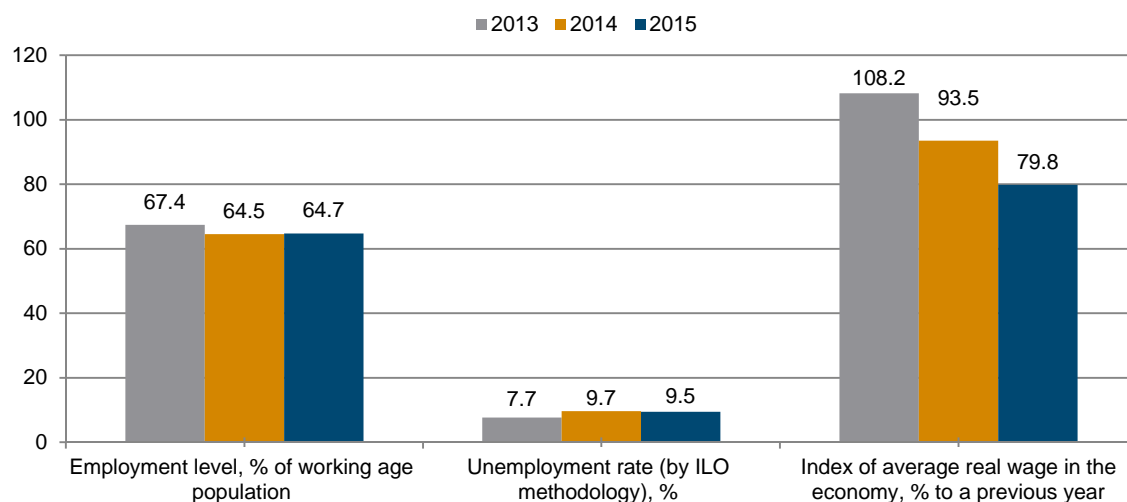
Thus, **labour emigration out of Ukraine is expected to exacerbate the negative social developments: deteriorating health of labour migrants; reduction of births and evolving social orphanage; family disruption in case of separate lives; violations of labour and human rights of migrants employed in the shadow economy.**

Table 23 / Indicators of the Ukrainian labour market in 2012–2015

Indicator	2012	2013	2014	2015	2016 9 month
1. Employment level, % of population aged 15–70	59,7	60,3	56,6	56,7	56,5
2. Employment level, % of working-age population	67,1	67,4	64,5	64,7	64,4
3. Unemployment rate (by ILO methodology), % of able to work population	8,1	7,7	9,7	9,5	9,6
4. Index of average real wage in the economy, annual change in %	114,4	108,2	93,5	79,8	109,1

Source: Compiled by author on the basis of State Statistics Service data.

The analysis of labour market statistics in Ukraine reveals a declining employment level through 2014–2016 and fluctuating unemployment rates (see Table 23 and Figure 7). Employment in per cent of the working-age population declined from 67.4% in 2013 to 64.4% over January–September 2016. At the same time, the unemployment rate, measured by the International Labour Organisation (ILO), increased from 7.7% of the able to work population in 2013 to 9.7% in 2014; thereafter, it decreased slightly in 2015 and rose marginally in 2016 (up to 9.6%). Interestingly, the growth of the unemployment rate during the period 2014– 9 month 2016 (by 1.9 p.p.) lags behind the fall in the employment rate (by 3 p.p.), which may indicate a **declining labour force participation rate and labour emigration given the prevalence of low wages offered by domestic employers.**

Figure 7 / Evolution of indicators of the labour market in Ukraine, 2013–2015

Source: Author's representation on the basis of State Statistics Service data.

4.4. EFFECTS OF FISCAL POLICY ON THE EDUCATION SECTOR

Education expenditures are considered as investments into working skills that affect productivity and the prospective income level. Adequate public spending on education and training can enhance labour productivity by improving workers' ability to absorb new technologies (e.g. IMF, 2016a). The opposite is also true: declining education expenditures may affect labour productivity negatively and present an obstacle to technological modernisation of Ukraine's economy. The European Commission (2015) highlights in its recent publication 'Education and Training Monitor' that austerity-driven cuts in public expenditure on education might lead to reduced access to high-quality education for all and may hamper the purpose of reducing social gradients in education.

Ukraine has shown quite good educational achievements by international standards over the last decade (see Table 24). According to UN data, Ukraine's average public expenditure on education stood at 6.7% of GDP during the period 2005–2014 versus 5.0% of the world average and 4.7% of the developing countries' average. However, when comparing Ukraine's figures with the world average we should take into consideration i) the over-reporting of budgetary financing of the education and healthcare sectors in the fiscal accounts in Ukraine, and ii) the drastic cuts in budgetary financing during 2014–2016 in the course of fiscal consolidation. According to Ukraine's official reports, public financing of education is anticipated to drop from 6.9% of GDP in 2013 to 5.4% in 2016 and 5.2% planned for 2017–2018.

What is important in this regard are the features of the national budget reporting system, which accounts all private fees (out-of-pocket money paid officially) to public schools, universities, kindergartens, etc. as part of the budget. While a significant portion of the private payments are made by students and their parents under the pressure of educational institutions' authorities, these private contributions are accounted as 'own revenues' of budgetary units and reported as a part of budget revenues (although recorded in a special budget fund). For decades, educational institutions have charged fees for some

services or levied 'charitable donations' on students in order to survive under the scarce budgetary financing.

Table 24 / UN indicators of educational achievements in Ukraine, selected East European countries and averages for groups of countries

Country or country groups	Literacy rate of adults, % (2005–2013)	Population with at least some secondary education, % of those aged 25 and above (2005–2013)	Pre-primary school enrolment ratio, % of preschool-age children (2008–2014)	Secondary school enrolment ratio, % of second. school-age children (2008–2014)	Public expenditure on education, % of GDP (2005–2014)
1. Ukraine	99.7	93.6	83	99	6,7 (4,7)*
2. Estonia	99	100	93	107	5,2
3. Slovakia	n. a.	99.3	91	94	4,1
4. Poland	99.7	82.3	78	98	4,9
5. Lithuania	99.8	91.4	76	106	5,2
6. Hungary	99.4	98.3	87	102	4,7
7. Latvia	99.9	98.9	92	98	4,9
8. Belarus	99.6	89.3	104	105	5,1
9. Russian Federation	99.7	90.9	91	95	4,1
10. Romania	98.6	88.9	77	95	3,1
11. Bulgaria	98.4	94.3	86	93	3,8
12. Georgia	99.7	n. a.	58	101	2
13. Moldova	99.1	95	82	88	8,3
Europe and Central Asia region	98	75.5	42	93	3.4
Developing countries average	79,9	51.2	50	70	4.7
World average	81,2	59.7	54	74	5.0

* Budgetary financing of education in Ukraine excluding the 'own collections of budgetary units' in the budget plan-2016. Source: Compiled by author on the basis of UN data.

If we distinguish between the 'pure budget' and the special budget fund related to private payments, pure budgetary financing or education is lower than officially reported, i.e. roughly 4.7% of GDP in 2016 and 4.3% planned for 2018–2019. Thus, Ukraine's indicators prove to be below the world average (5.0% of GDP) and close to that of the developing countries' average (4.7%). As mentioned above, there is the extremely high share of the shadow economy in Ukraine, (approximately 40% of officially reported GDP). Accounting for this, the denominator of the ratio of budget financing to GDP (i.e., an actual value added produced in a country) would be underestimated, which implies an over-reporting of the budgetary funding of education in relation to Ukraine's actual GDP.

In 2015–2016 the government, driven by fiscal austerity motives, implemented a range of reforms in the education sector and announced their continuation in 2017, such as: small redundancies of school teachers and an increase in their teaching hours from 18 to 20 per week; redundancies of kindergarten teachers; abolition of free-of-charge meals at primary schools; introduction of a fee for training in sports schools; closure of small secondary schools in rural areas; lowering the state grants for educating

specialists at universities; layoffs of lecturers at universities and increasing teaching hours per lecturer; closure of some higher schools of the first and second degree of accreditation; relocation of secondary vocational training to the local level; closure and reforming of professional training institutions.

Demographic changes in combination with the fiscal austerity measures had a significant impact on education facilities and the number of students (see Table 25). The number of students per 10,000 of population declined by 23.7% in vocational and technical schools and by 19.7–30.3% at institutes and universities. The number of teachers in schools as well as the number of schools and universities also decreased substantially.

While analysing the trends in higher and secondary vocational education, we should account for the fact that over the past few years the demand for the respective services has been affected by demographic changes, developments in the structure of the national economy (whose needs for higher education specialists shrank) and the low competitiveness of Ukrainian universities by European comparison. However, the lack of deep structural reforms in the education sector combined with the drastic cuts in budgetary financing could worsen the quality of Ukrainian education further.

Table 25 / Evolution of education sector indicators of Ukraine over the period 2012-2016, at the beginning of the studying year

Indicator	2012/13	2013/14	2014/15	2015/16	% of drop 2015–2016/ 2012–2013
1. Number of students in vocational and technical schools, per 10,000 of population	93	86	73	71	-23.7
2. Number of students at institutes and universities, per 10,000 of population (1 st and 2 nd degree of accreditation)	76	72	58	53	-30.3
3. Number of students at universities, per 10,000 of population (3 rd and 4 th degree of accreditation)	401	380	335	322	-19.7
4. Number of secondary schools, 1000	19,7	19,3	17,6	17,3	-12.2
5. Number of teachers in secondary schools, 1000	510	508	454	444	-12.9
6. Number of higher education establishments	823	803	664	659	-19.9

Source: Compiled by author on the basis of State Statistics Committee data.

Some distortions within Ukraine's education sector are evident and require policy response. For instance, the share of expenditures on higher education in Ukraine within total education expenditures is 1.5 times higher than the respective share in the new Member States of the EU. Meanwhile, expenditures on primary and secondary education in Ukraine are lower than those in the new Member States, both as a share in total education expenditures and as a ratio to GDP. In Ukraine the number of students per 1 lecturer in the higher educational institutions (including vocational and evening training) was 11.7 in 2015, while the average number in the EU was 15.4 (Repko, 2016). Ukraine has one of the largest higher education participation rates in the world with 70% of 18 year-olds enrolling in higher educational institutions.

These facts indicated the urgent need for deep structural reforms in the education sector and the respective reallocations of public spending within the sector. However, the Ukrainian government has undertaken across-the-board spending cuts, which covered pre-school education, general secondary education, secondary vocational training, etc. A breakdown of budget financing of education over the period 2013–2016 is presented in Table 26. Within the education sector, secondary vocational and technical training as well as higher education experienced the most dramatic fall in budgetary financing during 2014–2016 (-38.6% and -25.8%, respectively, as measured in per cent of GDP). The government declared that predominantly universities/institutes of the first and second degree of accreditation would go through a painful reform process and some of them would be closed. Nevertheless, universities of the third and fourth degree also suffered from a radical decline in budget financing (23.6% as measured in per cent of GDP). General secondary education has also been affected by fiscal austerity, its financing plummeted by 19.3% during 2014–2016.

Table 26 / Consolidated budget expenditure on education across its main components

	billion UAH				% of GDP				% of decline
	2013	2014	2015	2016	2013	2014	2015	2016	2016/ 2013
Education total	105.5	100.1	114.2	129.4	6.9	6.3	5.8	5.4	-22.5
Pre-school education	15.7	15.2	18.1	20.1	1.0	1.0	0.9	0.8	-18.9
General secondary education	44.2	42.4	49.7	56.5	2.9	2.7	2.5	2.3	-19.3
Secondary vocational and technical training	6.4	5.9	6.2	6.2	0.4	0.4	0.3	0.3	-38.6
Higher education	30.0	28.3	31.0	35.2	2.0	1.8	1.6	1.5	-25.8
– universities and institutes of 1 st and 2 nd degree of accreditation	7.3	6.9	7.4	7.8	0.5	0.4	0.4	0.3	-32.6
– universities and institutes of 3 rd and 4 th degree of accreditation	22.7	21.4	2.4	27.5	1.5	1.3	0.1	1.1	-23.6
Other programmes in education sector	9.3	8.3	9.2	11.4	0.6	0.5	0.5	0.5	-22.5

Source: Author's calculation on the basis of State Treasury of Ukraine and State Statistics Service data.

At present, reforms in the health and education sectors are implemented in an ad hoc manner with the core purpose of achieving budgetary savings, while clear objectives of the reforms and benchmark criteria are missing. For instance, in its Action Plan for 2016 the government declared 'a deregulation and a de-bureaucratization of management' as the key purpose of reforms in the education sector. The government stipulated the following benchmark criteria in education: to create facilities for 25,000 children in pre-school entities, to reduce man-hours for teachers spent on the preparation of reporting and information material by 30%, to enhance the skills of the management in educational entities, and to provide financial autonomy to higher educational establishments. In our opinion, these reforms are unlikely to tackle the full range of problems and challenges facing the education sector in Ukraine. Moreover, even the declared targets will hardly be achieved under the severe cuts of budgetary financing.

An important structural deficiency in the higher education sector is represented by the imbalance between students' degrees and the country's economic needs, with a large number of students studying law and economics. To eliminate the disconnection of the higher education system from the national labour market, the Ministry of Education and Science has to revise the structure of the government contracts (state orders) for educating students across degrees (specialties) with the universities. In addition, establishing higher education activity standards is advisable; it presumes setting minimum requirements for staffing, courseware and physical infrastructure. Among others, standards will be established to specify graduates' competencies, learning outcomes and entry requirements.

As to fiscal policy measures, ***we recommend retaining the size of education financing at the level planned in budget-2017*** (as a ratio to GDP) ***over the medium-term and focusing efforts on efficiency and effectiveness improvements in this sector***. The government should revise the indicative budget ceilings for education in the framework of medium-term budget and abstain from expenditure cuts on education in 2018-2019. In view of the current distortions, some ***redistribution of public spending within the education sector in favour of primary and secondary education is advisable***. A rise in wage rates of teachers, building new schools in big cities, endowment with necessary equipment, etc. are measures essential for the proper supply and quality of secondary education services.

As overstaffing seems to be a relevant problem for both secondary and higher educational institutions, the government must elaborate employment regulations for the different types of institutions and reduce the volume of budgetary funds being used for staff remuneration. In this context a transformation of the system of intergovernmental fiscal relations, taking place from 2017, and its effect on education sector are not well-justified measures. Currently local budget expenditures to teachers' wages are protected from spending cuts (since they are completely covered by central budget transfers), while other categories of secondary schools expenditures that are essential for schools maintenance are not secured in poor municipalities. As secondary education is a delegated responsibility for the local authorities, they have to be assigned with sufficient revenue sources and central budget transfers for funding the essential expenses of secondary educational institutions.

Over the medium run, after implementing the new employment regulations in education sector and reforming intergovernmental fiscal relations system, ***government could allocate budgetary savings achieved through efficiency improvements towards investments into physical infrastructure, software, information resources for secondary schools and universities***,¹³ as well as towards building new schools in growing cities. These components of budgetary financing are indispensable for improving the quality of educational services and Ukraine's faster integration into the European Higher Education Area. All proposed actions, if implemented, should have a positive effect on labour productivity and prospective income levels in the country.

4.5. IMPACT OF FISCAL POLICY ON THE HEALTHCARE SECTOR

Ukraine's health outcomes are quite poor by international comparison. The adult male mortality rate per 1,000 people is 295, while the world average is 181. In Ukraine life expectancy at age 60 is 17.4 years

¹³ In the course of 2013–2016 budgetary units in Ukraine were prohibited by the Cabinet of Ministers to incur any capital expenditures, including those on computers and software.

vs. a world average of 20.7 years (see Table 27). Ukraine's healthcare system has the following deficiencies: an emphasis on inputs; few incentives to use resources efficiently; an absence of government quality control; and weak responsiveness to consumers' demand. The World Bank (2015) states a failure of the existing health services in Ukraine to prevent, detect, and treat diseases effectively; the key problems lie in inefficient use of resources, decades of neglected investments and rampant corruption in the sector.

Table 27 / UN indicators of health outcomes in Ukraine, selected East European countries and averages for the group of countries

Country or country groups	Child mortality rate under 5, per 1,000 live births (2013)	Adult female mortality rate, per 1,000 persons (2013)	Adult male mortality rate, per 1,000 persons (2013)	Life expectancy at age 60, years (2010–2015)	Physicians, per 10,000 persons (2001–2013)	Public expenditure on healthcare, % of GDP (2013)
1. Ukraine	10.0	114	295	17.4	35.3	7,8 (2,9)*
2. Estonia	3.4	64	195	20.2	32.6	5,7
3. Slovakia	7.2	67	168	19.8	30.0	8,2
4. Poland	5.2	70	186	21.1	22.0	6,7
5. Lithuania	4.9	88	254	19.1	41.2	6,2
6. Hungary	6.1	91	201	19.9	29.6	8,0
7. Latvia	8.4	85	224	19.1	28.8	5,7
8. Belarus	4.9	100	299	17.1	37.6	6,1
9. Russia	10.1	126	339	17.5	43.1	6,5
10. Romania	12.0	81.0	205	19.4	23.9	5,3
11. Bulgaria	11.6	83	189	18.8	38.1	7,6
12. Georgia	13.1	66	174	19.8	42.4	9,4
13. Moldova	15.4	106	277	16.2	28.6	11,8
Europe and Central Asia region	23,8	102	216	18.7	25.9	5.9
Developing countries average	49,3	134	192	19.0	10.3	5.6
World average	45,6	120	181	20.7	13.8	9.9

* Budgetary financing of the health sector in Ukraine excluding the 'own collections of budgetary units' and including medical expenditures of social insurance funds in 2016.

Source: Compiled by author on the basis of UN data.

Table 28 reveals the key problems of Ukraine's healthcare system in international comparison: scarce budgetary financing and a high share of out-of-pocket payments, reliance on in-patient treatment, and overstaffing, all of which results in deplorable health outcomes.

According to World Bank data, 51% of total health expenditure in Ukraine came from public sources in 2014, which is low in international comparison. The average share of public financing in that year was 60% across the world, 76% in the Europe and Central Asia region, 62% in the high-income countries and 36% across lower-middle-income countries. Among the post-socialist countries, a lower share of public financing of the health sector was recorded only in the poor countries of the Caucasus and Central Asia region, such as in Armenia (43%), Azerbaijan (20%), Georgia (21%) and Tajikistan (29%). This has significant implications for equity in the healthcare system financing as private spending on health makes up the rest.

The volume of public financing in Ukraine (2.9% of GDP in 2016) seems to be low in international comparison. On average, public financing of the health system amounted to 5.9% of GDP in the world, 7.2% in the Europe and Central Asia region, 7.6% in the high-income countries and 1.6% of GDP in the lower-middle-income countries.

Table 28 / World Bank indicators of health outcomes in Ukraine, selected East European countries and averages for groups of countries

Country or country group	Health expenditure			per capita PPP USD 2014	Health workers		Hospital
	Total	Public	Out of pocket		Physi-cians	Nurses & midwives	Beds
	% of GDP 2014	% of total 2014	% of total 2014		per 1,000 2008-14	per 1,000 2008-14	per 1,000 2007-12
Albania	5.9	50	50	615	1.1	3.8	2.6
Armenia	4.5	43	54	362	2.7	4.8	3.9
Azerbaijan	6	20	72	1,047	3.4	6.5	4.7
Belarus	5.7	66	32	1,031	3.9	10.6	11.3
Bosnia and Herzegovina	9.6	71	28	957	1.9	5.6	3.5
Bulgaria	8.4	55	44	1,399	3.9	4.8	6.4
China	5.5	56	32	731	1.9	1.9	3.8
Croatia	7.8	82	11	1,652	3	5.3	5.9
Cuba	11.1	96	4	2,475	6.7	9.1	5.3
Czech Republic	7.4	85	14	2,146	3.6	8.4	6.8
Estonia	6.4	79	21	1,668	3.2	6.4	5.3
Georgia	7.4	21	59	628	4.3	3.2	2.6
Hungary	7.4	66	27	1,827	3.1	6.5	7.2
Kazakhstan	4.4	54	45	1,068	3.6	8.3	7.2
Kyrgyz Republic	6.5	56	39	215	2	6.2	4.8
Latvia	5.9	63	35	940	3.6	3.4	5.9
Lithuania	6.6	68	31	1,718	4.1	7.2	7
Macedonia, FYR	6.5	63	37	851	2.6	0.6	4.5
Moldova	10.3	51	38	514	3	6.4	6.2
Poland	6.4	71	24	1,570	2.2	6.2	6.5
Romania	5.6	80	19	1,079	2.4	5.6	6.1
Russian Federation	7.1	52	46	1,836	4.3	8.5	..
Serbia	10.4	62	37	1,312	2.1	4.5	5.4
Slovak Republic	8.1	73	23	2,179	3.3	6.1	6
Slovenia	9.2	72	12	2,698	2.5	8.5	4.5
Tajikistan	6.9	29	62	185	1.9	5	5.5
Turkmenistan	2.1	65	35	320	2.4	4.4	4
Ukraine	7.1	51	46	584	3.5	7.7	9
Uzbekistan	5.8	53	44	340	2.5	11.9	4.4
World	9.9	60	18	1,276	1.5	3.3	..
Europe & Central Asia	9.5	76	17	2,577	3.4	7.5	5
Low-income	5.7	42	37	91	0.1
Lower-middle-income	4.5	36	56	270	0.8	1.7	..
Upper-middle-income	6.2	55	32	930	2	3	3.4
High-income	12.3	62	13	5,193	2.9	8.6	4.2

Source: Compiled by author on the basis of World Bank data.

All over the world higher public expenditures on healthcare (either for prevention, medical treatment or care) allow enhancing the health status of the population and thus overall life expectancy. Leitner and Stehrer (2016), considering public health expenditures in 24 EU countries, find that expenditures indeed affect life expectancy positively and overall mortality rate negatively.

In Ukraine out-of-pocket payments constitute a considerable proportion of total health financing, reaching 46% in 2014. Out-of-pocket payments grew throughout the 1990s and 2000s against the background of chronic public under-funding of health services. Ukraine's share of 46% contrasts with the world average share of out-of-pocket payments of 18% and that of the Europe and Central Asia region of 17%; it is comparable to the average share across the lower-middle-income countries of 56%. Among the transition countries, as compared to Ukraine, only Albania, Armenia, Azerbaijan, Georgia and Tajikistan show higher proportions of out-of-pocket financing.

International experience suggests that out-of-pocket payments remain a significant part of health financing in the poorest countries, which have neither tax revenues for public funding nor the institutional capacity for medical insurance.

According to some estimates, in the structure of healthcare financing in Ukraine the user charges constitute a relatively small proportion (19.7–22.5%) of out-of-pocket payments (European Observatory, 2015). As for informal payments in the healthcare system, only some rough estimates are available. Survey data from 2011 found that 57% of outpatients and 70% of inpatients had paid out of pocket when accessing medical care, and a significant proportion had paid twice – informally directly to doctors and formally through charitable donations to the hospitals (Stepurko, 2013). Under such a financing system both primary and specialised medical services are inaccessible to the poor segments of the population.

The number of **hospital beds** in Ukraine is extremely large by international standards. Ukraine features 9 beds per 1,000 persons, while the average indicator for the region of Europe and Central Asia is 5 and for the high-income countries is 4.2. Ukraine's approach to financing based on capacity (rather than volumes or quality provided, or local needs) encourages unnecessary hospitalisations and excessive length of stay. Research has shown that almost a third (32.9%) of hospitalisations in Ukraine were unnecessary (European Observatory, 2015). Anecdotal evidence suggests that people can easily admit themselves to hospitals in Ukraine; this leads to long stays for nonclinical reasons. Meanwhile, primary medical care is hardly accessible in rural arrears and in big cities with a growing population (where the most recent polyclinics have been constructed by the Soviet authorities prior to 1991). In Ukraine approximately half of government expenditure is earmarked for in-patient medical services, with only a relatively small proportion going to **out-patient services**.

In 2014 Ukraine had 3.5 physicians and 7.7 nurses per 1,000 of population; this is close to the respective numbers in the Europe and Central Asia region. However, Ukraine's number of physicians is slightly above the world's average and significantly above the middle-income countries' average: 3.5 versus 3.3 and 1.7, respectively. Thus, overstaffing seems to be a relevant problem for some types of medical institutions.

Summing up, the indicators presented in Table 28 reflect the *core drawbacks of the Ukrainian healthcare system: poor protection of the population against the risk of tremendous healthcare costs and structural inefficiency of the health system*.

Apart from structural deficiencies, the **volume of total budgetary financing** of the healthcare system in Ukraine is a matter of concern. Since 2013, public spending on health declined substantially with respect to budgets at all levels and the social insurance funds. As mentioned above, the national budget reporting system accounts all private payments into the banking accounts of public hospitals, polyclinics

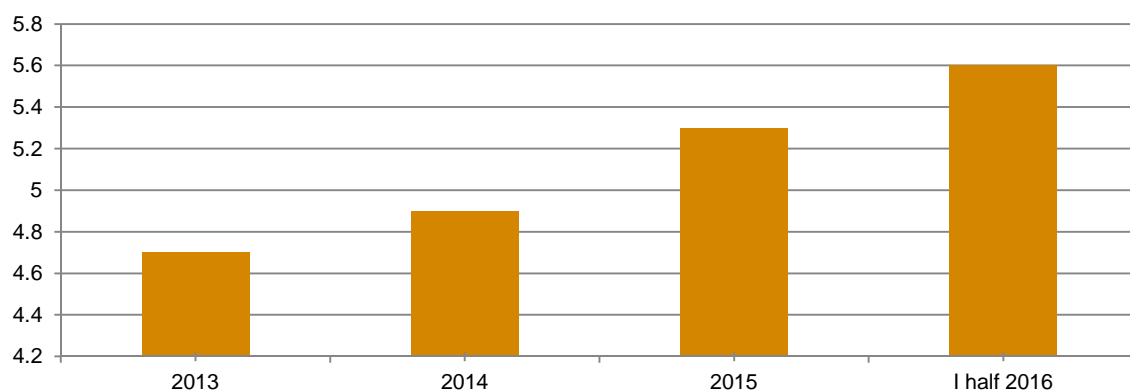
etc. as part of the budget. While patients make significant payments under the pressure of medical authorities, these private contributions are accounted as 'own revenues' of medical institutions and reported as a part of budget revenues (although recorded in a special budget fund). Medical institutions levy user charges or 'charitable donations' on patients in order to survive under the scarce budgetary financing. For the whole transition period, official private payments of this type co-existed with informal fees which went directly into the pockets of doctors and nurses.

Dividing the so-called budgetary financing of the health sector into a 'pure budget' and the private payments, the pure budgetary financing turns out to be only 2.8% of GDP in 2016. If we then add medical programmes financing out of the social insurance funds, we arrive at 2.9% of GDP of the public financing of healthcare in 2016. This indicator is far below the world average (5.9% of GDP in 2014) according to World Bank data.

After analysing the draft budget of Ukraine for 2017 submitted to Parliament in September 2016, MPs of the Healthcare Committee assessed the situation of the budgetary financing of the healthcare sector as catastrophic and predicted a 'social explosion' because of the dramatic decline in the quality and quantity of the medical services provided. Health sector employees and experts have called the referred draft a 'funeral' budget (Skripnik, 2016).

Ukraine's national accounts, in particular, the final consumption expenditures of households, track the growing role of out-of-pocket payments in the financing of the health sector. According to the State Statistics Service, a portion of households' final consumption expenditures used for the purchase of healthcare services increased from 4.7% in 2013 to 5.6% in the first half of 2016 (see Figure 8).

Figure 8 / Share of healthcare services in the structure of households' final consumption expenditures, in per cent



Source: Author's representation on the basis of State Statistics Service data.

In 2014–2016 the government implemented a range of reforms in the healthcare sector, driven by fiscal austerity considerations. Among those are: reduction of the hospital beds ratio by 25%, revisions of radiation pollution zones, elimination of price reduction on medicines for hypertensive patients and closure of some hospitals. The data presented in Table 29 indicate that fiscal consolidation brought about a serious decline in the quantity of healthcare institutions as well as their staff.

So far it is difficult to judge what portion of the above-mentioned declines is accounted for by the elimination of the past structural deficiencies in the system and what portion has affected the medical facilities being needed by local population. However, ***the chronic budgetary under-financing of the health system as a whole is evidenced by a growing share of out-of-pocket funding and lack of capital investments into the sector.*** For many years the purchase of medical equipment/devices for polyclinics and hospitals, their technical support, regular checks and repairs have not been included into the budgetary appropriations. Damaged medical apparatus as a rule sit idle for 6–18 months and cannot be used for diagnostic or treatment purposes unless money for their repairs is raised from external sources (Skripnik, 2016).

Table 29 / Evolution of healthcare sector indicators in Ukraine, 2013-2015

Indicator	2013	2014	2015	% of decline 2015/ 2013
1. Number of doctors, 1,000 persons	217	186	186	-14.3
2. Number of doctors, persons per 10,000 of population	48	43.5	43.7	-9.0
3. Number of nurses, 1,000 persons	441	379	372	-15.6
4. Number of nurses, persons per 10,000 of population	97.4	88.6	87.3	-10.4
5. Number of polyclinics and ambulatory stations, 1,000	10.8	9.8	10.0	-7.4
6. Number of hospitals, 1,000	2.2	1.8	1.8	-18.2
7. Number of hospital beds per 10,000 of population	88.0	78.5	78.1	-11.3

Source: Compiled by author on the basis of State Statistics Committee data.

As we can see from Table 30, the government undertook across-the-board cuts of budgetary financing in the healthcare sector throughout 2014-2016. A dramatic decline of budgetary financing has been recorded in the sub-sectors of therapeutic polyclinics and ambulance stations (-43.9% in relative terms), sanatoriums (-56.4%), public hospitals with a general profile (-25.9%), specialised clinics (-27.9%), sanitary and prevention institutions and actions (-25.7%), while the average decline of financing for the healthcare sector approached -22.6%. The specialised and stomatological polyclinics and 'other activities in the healthcare sector' proved to be relatively protected against the general spending cuts.

Table 30 / Consolidated budget expenditure on healthcare across its main components

	billion UAH				% of GDP				% of decline
	2013	2014	2015	2016	2013	2014	2015	2016	2016/2013
Healthcare total	61.6	57.2	71.0	75.4	4.0	3.6	3.6	3.1	-22.6
Polyclinics and ambulance stations, rapid and emergency assistance	12.7	12.3	14.2	16.4	0.8	0.8	0.7	0.7	-18.5
- therapeutic polyclinics and ambulance stations	3.3	2.0	2.3	2.9	0.2	0.1	0.1	0.1	-43.9
- specialised and stomatological polyclinics	1.7	1.9	2.2	2.6	0.1	0.1	0.1	0.1	-0.2
Hospitals and sanatoriums	40.3	36.9	46.0	46.3	2.6	2.3	2.3	1.9	-27.3
- public hospitals with general profile	25.9	24.0	31.6	30.3	1.7	1.5	1.6	1.3	-25.9
- specialised clinics	11.3	10.5	11.6	12.9	0.7	0.7	0.6	0.5	-27.9
- sanatoriums	1.8	1.0	1.2	1.2	0.1	0.1	0.1	0.1	-56.4
Sanitary and prevention institutions and actions	1.1	1.1	1.1	1.3	0.1	0.1	0.1	0.1	-25.7
Other activities in the healthcare sector	7.5	6.9	9.6	12.7	0.5	0.4	0.5	0.5	6.9

Source: Author's calculation on the basis of State Treasury of Ukraine and State Statistics Service data.

In our opinion, **part of the spending cuts in the sub-sectors of hospitals and sanatoriums was attributable to the elimination of excessive hospital beds and to the reduction of over-staffing.** However, a major part of fiscal austerity measures is likely to affect those medical services that are of extreme need by the population. **Spending cuts on polyclinics and ambulance stations, on sanitary and prevention institutions as well as almost zero budget appropriations for the purchase of medical equipment and its repairs cause a decline in the quality of, and access to, medical care of vast segments of the population.** Radical cuts in budgetary financing of the healthcare system will inevitably increase the portion of user charges and informal payments in the financing of the healthcare system. This has significant **implications for equity and deteriorates the health outcomes in Ukraine even further.**

If we think about a growing share of user charges and informal payments in the total financing of the health sector, we should account for the lessons drawn from international experience. Medical care is considered to be one of the primary necessities and a component of a sustainable society; a strong reason for public funding of healthcare is related to the costly out-of-pocket payments which are unaffordable for significant segments of the population. In order to contain costs and promote access, many industrial and post-socialist countries have increasingly financed healthcare through taxation, social insurance, or a mixture of the two. An alternative solution, fee-for-service payments, is known to create an incentive for oversupply (doctors have an incentive to prescribe more treatment). The resulting cost explosion has been a problem in almost all countries where fee-for-service payments are a significant part of health finance. For example, in 1992 the Czech Republic introduced a fee-for-service system without the necessary regulatory structure, resulting in an entirely predictable spending overrun (Barr, 1996).

Apart from the volume of public funding, the **financing model** is essential for the health outcomes. Currently, health institutions' funding is related to inputs such as the number of beds or number of doctors rather than to the treatment provided or to health outcomes. Budgetary allocations and payments are made according to strict line-item budgeting procedures in compliance with the Semashko system, where payments are related to the capacity and staffing levels of individual facilities. Under this system there is little incentive for a rational use of resources or cost controls over the healthcare facilities. Thus, reforming the public financing model has to be one of the objectives of the healthcare reform. In the Ukrainian reform process the key funding principle 'money follows the patient' must be introduced across the main types of medical facilities and structural inconsistencies within the health system must be eliminated.

The healthcare system reform in Ukraine should pursue the following *objectives: creating incentives to improve efficiency and encourage greater responsiveness to consumer demand under the dominant role of public financing.* The World Bank (2015) identified some crucial reform steps in the short term:

- › ensuring delivery of free care, including pharmaceuticals, to people in most acute need and against the most important diseases;
- › removing legal obstacles to a more efficient allocation of resources and moving from an input-based model focused on the number of hospital beds to a patient-based financing model;

- › increasing transparency and accountability in the piloting of new payment mechanisms, or 'purchasing', and in management arrangements in some primary care locations and hospitals.

Recently the government has prepared a draft concept for the reform of health system funding. It prescribes to implement the principle 'money follows the patient' and deny the automatic budgetary financing of costs of medical institutions; and to identify a package of medical services guaranteed by the state and supplied without any fees. That package would include primary medical care, emergency medical care, treatment in hospitals and reimbursement of the cost of medicines to patients. The government also foresees to deprive the polyclinics and hospitals of their status as budgetary entities (spending units) and turn them into 'state and communal non-commercial enterprises'. Private clinics are supposed to be included into a pool of institutions supplying medical services 'guaranteed by the state' to the population and competing with state-owned clinics for budgetary financing. Thus, the government puts forward quite bold ideas that, in order to be effective, may require additional budgetary financing. However, the government over-optimistically expects efficiency gains, which would yield medical services of higher quality without additional financing needs.

At present, ***the most challenging short-term tasks of the healthcare system reform are strengthening primary and emergency care, rationalising hospitals (in-patient services), transforming the model of healthcare financing from input-based towards output-based and backing all these measures by sufficient budgetary financing.***

Summing up, under severe fiscal austerity the government has not articulated a strategic vision of the reforms in the key branches of human capital development (except healthcare); no priority programmes have been specified, no sequence of actions and performance indicators have been defined. As a result, entities in the education, science and healthcare sectors have lost their most skilled staff and lack material inputs essential for the supply of public services. The fiscal austerity measures undermine the sustainability of the relevant sectors and contribute to human capital degradation as well as to the decline in the living standards of vast segments of the population. Moreover, in the healthcare sector fiscal austerity will probably worsen the life expectancy of Ukrainian people and lead to a further increase in the mortality rate.

5. Analysing the adopted budget for 2017 and the indicative budgetary framework for 2018–2019

On 15 September 2016, the government submitted to the Verkhovna Rada a package of budgetary documents (registration N5000) for the first reading that contained both the draft budget law for 2017 and the indicative budgetary framework for 2018–2019. On 21 December the Verkhovna Rada approved the state budget, with revenues of UAH 731 billion and expenditures of UAH 800 billion. The macroeconomic forecasts underlying the budget envisage real GDP growth rates of 3% in 2017, 4% in 2018 and 4% in 2019 as well as annual inflation rates of 8.1%, 5.5% and 5.2%, respectively. The government expects an improved situation on the international commodity markets and an acceleration in investment activity, partially driven by IFIs programmes.

The approved as well as the indicative budgets rely on a gradual reduction of the budget deficit from 3% of GDP in 2017 to 2.5% in 2018 and 2.3% in 2019. The consolidated budget primary surplus is projected to decline by 0.4% of GDP in 2017 as compared to 2016 (which implies some fiscal expansion) and to increase by 0.2–0.4% of GDP thereafter; the forecasted primary surpluses are targeted at 1.3% of GDP in 2017, 1.7% in 2018 and 1.9% in 2019.

The budget for 2017 with projected consolidated **revenues** of UAH 901.6 billion actually evolves with a growing share of consolidated budget revenues in GDP: from 28.7% in 2014, 32.8% in 2015 and 32.5% in 2016 to 34.9% in 2017. We consider these projections over-optimistic, taking into account the fragile state of the Ukrainian economy and declining labour taxation that started from 2016 on. The main risks emanate from the groups of excise taxes, VAT and personal income tax. **Excise tax revenues** are forecasted to shoot up from 3.2% of GDP in 2015 and 3.8% in 2016 to 4.8% in 2017. The government justifies such projections by indexations and hikes in the excise tax rates (by 20% on strong alcohol, 12% on light spirits and 30% on tobacco in 2017) but neglects the risks of growing shadow production/sales of alcohol, tobacco and fuels, which may be critical this year.¹⁴

As to **personal income tax revenues**, government predictions suggest that its collections will go up from 5.0% of GDP in 2015 and 5.8% in 2016 to 6.0% in 2017 and then level off at 5.9% in 2018 and 6.0% in 2019. These forecasts may also be unrealistic, in view of new exemptions related to the taxation of pensions and relatively high shares of shadow wages in the entrepreneurial sector. In our opinion, the share of the shadow economy will rise in 2017 because of changing taxation rules for small businesses and hikes in the minimum wage. In fact, over the period December 2016 to January 2017, 128,400 small entrepreneurs officially reported the liquidation of their businesses.

Likewise, we regard the anticipated rise in **VAT** collections (from 9% of GDP in 2015 and 9.8% in 2016 to 11.3% in 2017 and 11.1% in 2018) as unrealistic. Although exemptions for agriculture will be

¹⁴ According to State Statistics Service data, in July 2016 the observed (official) production of alcohol decreased by 38.3% relative to July 2015.

eliminated entirely, and a unified electronic register for VAT reimbursement will become operational starting from 2017, such a considerable rise in VAT collections is unlikely to be achieved.

As to medium-term revenue targets, according to government projections the ratio of total budget revenues to GDP will shrink by 1.9% of GDP in 2018 and 0.5% in 2019, which amounts to a total share in GDP of 33% and 32.5% in those years. These forecasts and the underlying policy scenario seem to be realistic in view of the overestimated public revenues as a ratio to GDP in 2017 and further fiscal adjustment needs in Ukraine which rule out the possibility of a radical easing of the tax burden. The main positions of the future budgets prepared by the Cabinet of Ministers and approved by the Verkhovna Rada are presented in Table 31.

Table 31 / Consolidated budget of Ukraine: plans for 2017–2019 versus outcomes in 2013–2015, % of GDP

	2013	2014	2015	2016 pl.	2017 pl.	2018 ind	2019 ind
Revenues	29.1	28.7	32.8	32.5	34.9	33.0	32.5
Personal income tax	4.7	4.7	5.0	5.3	6.0	5.9	6.0
Corporate profit tax	3.6	2.5	2.0	2.3	2.5	2.7	2.7
Value-added tax (VAT)	8.4	8.8	9.0	10.3	11.3	11.1	11.2
Excise tax	2.4	2.8	3.2	4.0	4.8	4.6	4.3
Import customs duties	0.9	0.8	2.0	0.9	0.9	n.a.	n.a.
Royalties on land (real estate)	0.8	0.8	0.7	0.8	1.0	n.a.	n.a.
Royalties on oil and gas	0.8	1.1	1.7	2.3	1.5	n.a.	n.a.
NBU profit transfers	1.9	1.4	3.1	1.7	1.7	n.a.	n.a.
Other revenue categories	5.6	5.8	6.1	5.0	5.1	8.7	8.3
Expenditures and net credits	33.3	33.3	34.2	37.0	37.9	35.5	34.8
State administration	1.9	1.7	1.6	1.8	2.0	1.7	1.8
Debt service	2.2	3.1	4.3	4.4	4.3	4.2	4.2
Defence	1.0	1.7	2.6	2.7	2.6	2.4	2.4
Public order, security and judiciary	2.6	2.8	2.8	2.8	3.4	3.2	3.4
Economic activity	3.3	2.7	2.8	3.1	3.6	3.4	3.2
Environmental protection	0.4	0.2	0.3	0.3	0.3	0.3	0.3
Housing and communal services	0.5	1.1	0.8	0.7	1.0	0.8	0.8
Healthcare	4.0	3.6	3.6	3.1	3.1	3.0	3.0
Culture, arts and sports	0.9	0.9	0.8	0.7	0.8	0.7	0.7
Education	6.9	6.3	5.7	5.6	6.0	5.2	5.2
Social security and welfare	9.5	8.7	8.9	11.1	10.4	10.5	9.9
– transfers to Pension Fund	0.0	0.0	0.0	6.4	5.7	6.0	5.7
– other social programmes	0.0	0.0	0.0	4.7	4.9	4.5	4.2
Other expenditure categories	0.0	0.3	0.2	0.5	0.3	0.1	0.1
Overall budget balance (Ministry of Finance data)	-4.2	-4.5	-1.6	-4.4	-3.0	-2.5	-2.3

Source: 2013–2016: author's calculations on the basis of State Treasury and State Statistics Service data; 2018–2019: Ministry of Finance data as of September 2016; 2017: expert estimates on the basis of officially approved state budget revenues, expenditures, transfers and local budgets indicators projected by the Ministry of Finance.

The government predicts that central government debt (including guaranteed debt) will approach 88.8% of GDP at the end of 2017. Actual debt at the end of 2016 amounted to 80.1% of GDP. A detailed analysis reveals that main contributors to the rapid public debt growth lie outside the conventional budget. Officially projected deficits are not high (see Table 31), while economic growth and moderate

average interest rates on public debt might erode the debt level. However, this is not the case for Ukraine as the government continues to commit large-scale bail-out transactions. The budget law for 2017 again enables the government to accumulate public debt without limits and additional legislative authorisations for capital injections into the banks (both private and state-owned) and the Deposit Guarantee Fund. Public spending of this type lacks appropriate control and presumably fuels corruption schemes; moreover, the scope of such transactions endangers debt sustainability in the medium term.

The government announced the following **priorities for the budget 2017**:

- › higher defensive capability of Ukraine (defence expenditures are planned at 2.6% of GDP, which is comparable to the levels of 2015–2016) and increased funding of active diplomacy abroad;
- › indexation of social benefits and wages in the general government sector;
- › financing of specific programmes in the education and healthcare sectors: hikes in wages for medical staff (by 36.3%) and for school teachers (by 49.6%), resumption of financing of secondary vocational education, reimbursement of costs of basic medicines for treatment (UAH 500 million);
- › replenishment of the Energy Efficiency Fund (UAH 400 million of direct budget financing and EUR 100 million of donors' funding);
- › development of the road infrastructure (budget expenditures of UAH 14.2 billion and loans from international agencies of about USD 1 billion);
- › support for regional projects in the framework of the decentralisation reform (targeted transfers from the central budget are envisaged to increase from UAH 6 billion to 9 billion or from 0.27% to 0.36% of GDP).

Further fiscal adjustment needs in Ukraine will put downward pressure on the consolidated **budget expenditures**. The government projects these to increase from 34.2% of GDP in 2015 to 37.9% in 2017, and thereafter to decline by 2.4% in 2018 and 0.7% in 2019. According to our estimates, if government macroeconomic assumptions are held, some expenditure cuts will be required in 2017 relative to those planned since the approved revenue target for 2017 is unrealistic. Lack of budget revenues under the prevailing deficit financing restrictions will likely push the government to a sequestered budget 2017. Alternatively, in case of a high-inflation scenario, nominal budget revenues will be collected in full amounts and expenditures will be financed as planned in nominal terms, although the real value of expenditures will shrink.

The adopted budget for 2017 and the indicative budgetary framework for 2018–2019 envisage some **important fiscal reforms that must be assessed positively**:

- › indexation of social benefits and wage rates across the general government sector; this is likely to sustain real income of the most vulnerable categories of population;
- › introduction of a moratorium on the expansion of categories of social benefits' recipients;

- › taking steps towards energy efficiency and energy saving, including setting up a Fund for energy saving;
- › implementation of reforms in the coal industry, reallocation of budgetary funds for the closure of loss-making coal mines;
- › targeted financing of state investment projects and more transparent procedures for project selection;
- › improvements in VAT administration via the creation of an electronic cabinet of taxpayers and steps towards automatic VAT refunds via changes in the management of the VAT database;
- › increase in the fee for the transit of ammonia from USD 2.4 to USD 4.8 per 1 ton for every 100 kilometres of transporting; this seems to be an appropriate instrument of consolidation regarding its long-term impact on economic growth and equity;
- › restructuring of domestic government bonds held by the National Bank; this will reduce budgetary allocations for debt service and will free up resources for road construction and maintenance (as stipulated by the budget law).

These reforms partially comply with the list of permanent expenditure saving measures agreed with the IMF in September 2016 (see Box 2).

BOX 2 / IMF-SUPPORTED FISCAL REFORMS IN 2016–2020

- a. **Pension reform:** (i) gradually adjust the statutory retirement age and further reduce the scope for early retirement; (ii) tighten the eligibility criteria for the minimum pension; (iii) consolidate pension legislation and ensure a single principle for providing pensions without privileges for any occupation (with the exception of the military); (iv) expand the base for social security contributions; (v) ensure equitable tax treatment of pensions; and (vi) better link benefits to contributions.
- b. **Social assistance and social insurance reform:** (i) improve the targeting and progressivity of a number of social assistance programmes through better means-testing; (ii) streamline and consolidate programmes with similar objectives; (iii) realign the housing utility subsidies to prevailing international market prices for natural gas. The Ministry of Finance will complete the verification of beneficiaries of pensions and social benefits, take recourse against ineligible beneficiaries and reduce the administrative costs of the social insurance funds.
- c. **Education reform:** will improve spending efficiency by: (i) further optimising the school network through closing smaller schools and transferring students to better equipped schools; (ii) improving targeting of financial assistance to students through better means-testing; (iii) streamlining research institutions; (iv) facilitating private funding of higher and vocational education institutions; and (v) devolving part of vocational school funding to lower levels of government.
- d. **Healthcare reform:** targets higher decentralisation, increased managerial autonomy for hospitals, and transition away from funding based on the number of hospital beds to funding services. A full reform law will be adopted by parliament by end-December 2016.

- e. **Other expenditure measures:** will rationalise subsidies, including those to state-owned enterprises (SOEs); increase co-payments or cut costs for cultural programmes and public transport; and further streamline the number of government agencies. The government started developing a comprehensive public administration reform strategy and will ensure that the strategy is fully aligned with the medium-term fiscal programme. Further downsizing of the public sector could provide room for targeted wage increases to support efforts in combating corruption.

Source: Based on IMF (2016c).

The most radical component introduced into the budget 2017 during its consideration by the parliament was the government initiative regarding the twofold hike in the **minimum wage** (to UAH 3,200). At first sight, this initiative and the respective parliament decision may be assessed positively since the new minimum wage is getting closer to the real subsistence cost of labour (in September 2016 the Ministry for Social Policy announced that the actual minimum subsistence level for the able to work citizens was UAH 3,123 per month). The government also declared its intention to shift wage payments out of the shadow economy and incentivise businesses to pay salaries for their employees officially after a radical cut of the social tax rate. However, according to our assessments, one should be aware that such a drastic hike in the minimum wage will entail the following **drawbacks**:

- › *disproportional impact on different classes of labour and disincentives for qualified and higher-paid employees.* In November 2016 the average monthly wage in the economy was only 69% higher than the newly established minimum wage (UAH 5,406 versus 3,200). In the education and healthcare sectors, average wages exceeded UAH 3,200 only slightly (by UAH 523 and 223, respectively). Within the tariff scale, unskilled categories gain significantly from minimum wage hikes whereas remuneration of higher-paid staff are getting closer to the minimum wages.
- › *growth of wage bills in the general government sector will put pressure on Ukraine's public finances.* Additional budget outlays driven by hikes in the minimum wage are estimated by the Ministry of Finance at UAH 28.3 billion (1.1% of GDP). Since the sufficient budget resources are lacking for these additional payments, the parliament approved artificial budget revenues that are likely to entail a budget sequester in the course of the budget year, unless hryvna devaluation and higher prices boost nominal budget revenues (in case of a high-inflation macroeconomic scenario);
- › there is limited capacity of some branches of the economy for wage hikes that will push up *either the unemployment rate or the share of shadow production in those branches*; in these circumstances the officially declared goal of reducing the shadow economy will not be attained.

In our opinion, a number of **fiscal reforms, included in the budget plans for 2017–2019, cannot be seen to be steps in the right direction:**

- 1) **Reduction of royalties for oil extraction from 45% to 29%** (extraction depth of below 5000 metres) **and from 21% to 14%** (depth of over 5000 metres). As argued in Chapter III, hikes in property taxes and royalties are good options for balancing public finances in view of their positive effect on equity and neutrality with regard to economic growth. However, the budget 2017 entails a drop in this type of tax, which appears to be unreasonable.

- 2) **Growing expenditure on state administration from 1.6% of GDP in 2015-2016 to 2.0% in 2017.** In view of the declared goals of deregulation of the economy, the actual redundancies of civil servants (by more than 20,000 in 2015) and a gradual contraction of total public expenditure, a rise in spending on administration appears to be inconsistent. The redistribution of public funds in favour of bureaucracy provides evidence of its lobbying power and its inability to prioritise public interests.
- 3) **Introduction of a targeted subsidy for agriculture in the amount of UAH 4 billion** that is supposed to offset partially the suspension of the privileged VAT taxation. Obviously, agriculture is a growing industry of Ukraine's economy with good export prospects; therefore, its subsidisation is not expedient from an economic point of view. Moreover, the distribution mechanism of budget subsidies among producers is a non-transparent one and may induce rent-seeking behaviour. In 2017 total budgetary support of agriculture will increase 3.4 times and approach UAH 6.5 billion (0.25% of GDP).
- 4) **Stagnating expenditure on healthcare after radical cuts in 2014–2015, i.e. actual financing of 4% of GDP in 2013 and 3.6% in 2014–2015 versus 3.1% in 2016-2017 and 3% of GDP foreseen for 2018–2019** (including patients' contributions to special funds). In view of the government's ambitious reform plans for the healthcare sector, budget financing of this sector has to be increased significantly. The expansion of the system of primary medical assistance, setting up a competitive environment among clinics/hospitals of all ownership types, as well as adequate payments for their services out of the budget, and the reimbursement of the price of medicines to patients are costly measures. If, however, the budgetary funds allocated to the sector are insufficient, a portion of hospitals and polyclinics (predominantly those in poor municipalities) will be closed, the quality of healthcare services in public hospitals will be deteriorating further and medical care will remain inaccessible to poor households.
- 5) **Slight rise in expenditure on education from 5.4–5.7% of GDP over the last two years to 6.0% in 2017 that** is attributable to wage hikes in secondary education and **does not offset the dramatic decline in real financing after 2013.** In 2017 the government anticipates to increase nominal wages of secondary school teachers by 50% on average and to continue the fiscal austerity measures in higher educational institutions. The **problem of extremely low capital investments** in the education sector will persist, which is likely to keep the quality of services low. Moreover, potentially viable Ukrainian universities will suffer from chronic under-financing, which will affect their competitiveness as providers of educational services.
- 6) **Conservation of tremendous budget transfers to the Pension Fund, although in diminishing amounts: 5.9% of GDP in 2016 and 5.7% in 2017.** The steps undertaken by the government in order to reduce the Pension Fund gap are largely insufficient (i.e. cap on maximum pensions, reduction of privileged pensions, limitations of the amount of pensions for working pensioners, etc.). A small rise in the retirement age for both men and women is advisable, as well as full elimination of privileged pensions. Moreover, if the social contribution cuts over 2016–2017 result in no or only small 'de-shadowisation' of wages in the private sector, a moderate increase in the social contribution rate is advisable. This step is justified by the poor situation of public finances in Ukraine and by a fairly narrow wage wedge that seems not to be the main reason for unemployment in Ukraine.

Intergovernmental fiscal relations reforms are envisaged to be targeted at stronger financial autonomy of local governments, growth of their financial potential and more efficient public funds management. Starting from 2017 part of the budget entitlements in the education and healthcare sectors

has been transferred to the local level. In general, this is a welcome step in line with the subsidiarity principle. Decentralising the health and education systems is likely to make them more responsive to local needs and to increase the diversity of suppliers and practices that promote competition and enhance individual choice. These measures, however, will require a major change in the role of the central government entities, which will need to establish a framework for funding, accreditation of providers, and monitoring of service quality.

Table 32 / Selected indicators for local and regional budgets, % of GDP

Revenue indicators	2014	2015	2016	2017 planned
Revenues without intergovernmental transfers	6.4	6.1	7.1	7.1
Revenues with intergovernmental transfers	14.6	14.8	15.2	16.7

Source: Author's calculations based on data of the State Treasury of Ukraine, the Ministry of Finance and the State Statistics Service.

In 2017 revenues of the local and regional budgets, including transfers, are projected to increase from 15.2% of GDP in 2016 to 16.7% in 2017 (see Table 32). However, there is the danger of inconsistencies between the new expenditure obligations of local governments and the revenue sources assigned to them. For instance, the Deputy Chief of the Parliamentary Committee for Health Care O. Musiy announced that in 2017 local budgets would be lacking UAH 4 billion to fund energy and water bills of the local polyclinics and hospitals (Skripnik, 2016). Until 2016 local budgets covered the financing needs of polyclinics, hospitals and secondary schools predominantly via central budget transfers. Starting from 2017 local budgets have to bear a significant part of expenditures for schools and medical institutions, while central budget transfers are earmarked exclusively for financing teachers' salaries and hospital costs without energy and water bills. All the above indicates that in the course of intergovernmental administrative reforms vertical fiscal imbalances among different levels of government may emerge; in this case an immediate response by the central government will be required in order to secure the provision of public services at the local level.

Summary conclusions and policy recommendations

The magnitude of fiscal consolidation was quite significant in Ukraine and took the shape of both revenue-enhancing and expenditure-reducing measures. On the expenditure side, the government focused its efforts on spending cuts related to human capital development, social support of vulnerable segments of the population and subsidies to enterprises. Under real GDP contraction, the budget expenditure ratio to GDP rose by 1.5 p.p. in the period spanning 2014–2016. On the other hand, the budget revenue ratio increased by 3.7 p.p. through 2014–2015 and declined by 0.3 p.p. in 2016. Starting from 2016, an almost twofold reduction in the social tax rate has contributed to fiscal loosening, while the collections of personal income tax, VAT, excise and real estate taxes have risen constantly over the last several years. In 2016 real budget revenues constituted 91.9% of those in 2013, which means an 8.1% decline. The most considerable declines were recorded across corporate profits tax (-43%) and own revenues of budgetary institutions (-33%). In 2016 budget expenditures in real terms experienced a 14.1% fall as compared to 2013. As outlays on debt service increased by 50.5% and defence expenditure by 108.6%, several sectors suffered from huge expenditure cuts: environmental protection (-41.9%), healthcare (-36.3%), culture, arts and sports (-35.9%), education (-36.2%), and state administration (-30.6%).

The consolidated budget balance, adjusted for road loans, stood at -3.9% of GDP in 2014, -0.7% in 2015 and -2.1% in 2016. In order to determine whether further fiscal adjustment will be required after 2017 and whether Ukraine's public finances may be considered sustainable, we estimated a medium-term fiscal gap for Ukraine (sustainability indicator S1) over the period 2018–2025 in the framework of the government inter-temporal budget constraint. The estimated medium-term fiscal gap in 2018–2025 stands at 2.4% of GDP; this shows a medium degree of risk attributable to the public finances of Ukraine. The decomposition of the S1 indicator reveals that the cyclically-adjusted primary balance projected for 2017 should be more than sufficient to stabilise general government debt at the level of 2017. However, due to convergence to the debt target of 60% of GDP, the fiscal gap is getting a positive value and implies the need for notable fiscal consolidation efforts. In annual terms, after 2017 a small fiscal adjustment is required to restore debt sustainability, and annual expenditure-led or revenue-enhancing measures have to approach 0.3% of GDP. However, this scenario is sensitive to the assumptions of resuming economic growth, a moderate inflation rate and stabilisation of the real exchange rate.

Outside the conventional budget, the government issued bonds (OVDP) at a face value of 7.8% of GDP in 2014, 3.8% in 2015 and 5.6% in 2016 in exchange for securities of Naftogas, banks, the Deposit Guarantee Fund and other state companies. This situation raises serious equity concerns: while millions of Ukrainians suffer from an increasing tax burden, declining social benefits and real wages, big state-owned companies and banks are abundantly supplied with government funding that is spent without appropriate control and fuels widespread corruption schemes. Government bail-out transactions are carried out in a non-transparent way, lack legislative authorisation and proper accountability. From the point of view of equity, efficiency and debt sustainability considerations, the fiscal adjustment

programme should extend its coverage beyond the conventional budget and comprise all public funds, including those related to the recapitalisation of state-owned companies and banks.

In order to reveal the underlying fiscal position of the government when cyclical components are eliminated, we computed the cyclically-adjusted primary balance (CAPB) of Ukraine's budget for the period 2013–2016. The CAPB of the consolidated budget stood at 6.2% of GDP in 2015 and 4% of GDP in 2016; with these magnitudes Ukraine occupied a top position in the rank of countries reporting to the 'Fiscal Monitor' of the IMF. The highly restrictive fiscal policy stance (although loosening in 2016-2017) was not reasonable from an economic point of view; it was presumably due to the lack of qualitative fiscal institutions, the implementation of the IMF-supported programme, tight liquidity constraints and the high tolerance of Ukraine's population to economic difficulties under the pressure of Russian military aggression.

Fiscal adjustments are generally likely to impose economic costs; these are captured by the notion of the fiscal multiplier. To compute the magnitude of the fiscal multiplier in Ukraine, we followed the 'bucket approach' developed by Batini et al. (2014), who proposed to bunch countries into groups with similar multipliers based on their macroeconomic and structural characteristics. The first-year fiscal multiplier in Ukraine is estimated to be 0.4 and the medium-term multiplier 1.3. On the basis of fiscal multipliers, we calculated the effect of fiscal adjustment on output. Real GDP is estimated to have contracted by 1% in 2014, 2.9% in 2015, 2.8% in 2016, 1.6% in 2017 and by 0.6% in 2018. Thus, the radical fiscal adjustment of 2014–2015 has contributed to significant GDP declines in 2014–2016 and its effect will remain pronounced over the period 2017–2018, which will cause a real GDP fall by 8.9% in the medium run. At present, the fiscal loosening of 2016-2017 is mitigating the contraction effects of fiscal adjustments in 2014–2015. Nevertheless, the combined effect of discretionary fiscal policy of 2014–2016 is predicted to be negative: real GDP is estimated to shrink by 6.1% altogether in the course of 2014–2019.

An important component of budget expenditures that may alleviate the impact of fiscal consolidation on economic growth is public investment. Public investments, financed out of the state and local budgets in Ukraine, proved to be extremely low in relative terms; they amounted to only 1.3% of GDP in 2014, 2.4% in 2015 and 3% in 2016. As for individual transition countries, in 2014 general government investments stood at 5.3% of GDP in the Czech Republic, 7.3% in Hungary, 4.9% in Latvia and Lithuania, 5.1% in Poland, 4.1% in Slovak and 7.3% in Slovenia. The quality of government management with regard to public investment remains low in Ukraine. It still faces challenges in developing, executing and managing public investments, as well as channelling more public funds towards investments, since fixed capital stocks in the public sector are ageing, of mediocre quality and the country's needs for modern infrastructure are tremendous.

International experience suggests that fiscal consolidation may be effective and sustained over the long run only if perceived as equitable and indispensable for future development. Dramatically low indicators of the Ukrainian population's confidence in the national government and the low perception of the quality of public services (in particular, healthcare services) call for a fiscal consolidation which is responsive to social problems. The World Bank estimates the 'extreme poverty rate' in Ukraine to have risen from 3.3% in 2014 to 5.8% in 2015, while the 'moderate poverty rate' from 15.2% to 22.2%, respectively. Within the official statistics the effect of growing poverty is captured by the indicator of the share of food-related spending in the total monetary spending of households, which increased from 52.6% in 2013 to

55.5% in 2016. In 2014–2015 the ratio of the income of the 20% richest categories of the population to the 20% poorest ones rose from 3.1 to 3.5; this may to some extent be interpreted as an effect of fiscal consolidation. Elevated poverty and high income dispersion reduce the quality of life of poor households; they also bring about a lower life expectancy and a higher mortality rate.

According to our calculations, real wages in the main branches of the general government decreased significantly and started lagging behind the average real wage in the whole economy. For instance, in January–November 2016 the real wage in education dropped to only 70.4% of its level in 2013, in healthcare to 74.0%, in research and development to 76.4%, and in culture to 67.1%. As fiscal consolidation widened the wage rate differentials between the EU and Ukraine, it acted as a push factor for labour emigration out of Ukraine. In line with recent empirical investigation, labour emigration out of Ukraine is expected to exacerbate negative social implications such as deteriorating health of labour migrants; reduction in births and evolving social orphanage in affected families; family disruptions in the case of separate lives; and violations of labour and human rights of those migrants employed in the shadow economy.

A drastic cut of budgetary financing of the education sector without urgently needed structural reforms will probably deteriorate the quality of Ukrainian education and affect labour productivity in long run. Ukraine's education sector financing in 2016 as a per cent of GDP (after adjustment for special fund collections) is comparable to the world's average and developing countries' average. In contrast, public financing of the healthcare sector (2.9% of GDP) is extremely low by international comparison (5.9% of GDP world's average) and the existing structural deficiencies are challenging. Under such conditions, the government has undertaken across-the-board cuts of budgetary financing in the healthcare (relating to almost all sub-sectors) throughout 2014–2016. Spending cuts on polyclinics and ambulance stations, on sanitary and prevention institutions as well as almost zero budget appropriations for medical equipment purchases and repairs cause a decline in the quality of, and access to, medical care of vast segments of the population. Moreover, scarce budgetary financing and lack of structural reforms in the healthcare sector will probably worsen the life expectancy of Ukrainian people and push a further increase in their mortality rate.

Under severe fiscal austerity the government has failed to articulate a strategic vision of the reforms in the key branches of human capital development (except for healthcare); no priority programmes have been specified, no sequence of actions and performance indicators have been defined. Fiscal austerity measures undermine the sustainability of the respective sectors; they contribute to the decline in the living standards of vast segments of the population and to the degradation of human capital in Ukraine.

Some of the acute fiscal problems originating in 2014–2016 are tracked in the budget for 2017 and the indicative budgets for 2018–2019. Among them are:

- a) further expenditure cuts on healthcare: from 4% of GDP in 2013 and 3.6% in 2015 to 3.1% (including user charges) in 2017 and 3% in 2018–2019;
- b) declining expenditures on education from 5.7% of GDP (including user charges) in 2015 and 5.4% in 2016 to 5.2% in 2018–2019 versus 6.9% of GDP in 2013;

- c) only a slight cut of the tremendous budget transfers to the Pension Fund: from 5.9% of GDP in 2016 to 5.7% in 2017;
- d) growing expenditures on the state administration: from 1.6% of GDP in 2015 to 2% in 2017 and 1.7–1.8% in subsequent years;
- e) the probability of vertical fiscal imbalances among the individual levels of government driven by reassignments of expenditure obligations and limited reallocations of revenue sources.

In view of the quite significant contribution of the fiscal adjustment to the overall GDP decline and the low tolerance of Ukraine's population concerning a further elevation of poverty and deterioration of public services, the pace of fiscal adjustment has to be moderated. We argue that a gradual fiscal consolidation spanning over several years, embodied in smooth time paths for the cyclically-adjusted primary balance (to be increased every year by 0.3% of GDP), as well as choosing the right mix of fiscal instruments, may reduce the adverse effects of the consolidation on economic growth and social equity. The IMF (2016a) suggests that the speed of adjustment should be consistent with the economic environment, so as not to undermine the recovery; countries should take into account the growth effect of various fiscal measures across time horizons, as well as their durability.

Applying an OECD framework, we arranged Ukraine's fiscal consolidation instruments into two groups, conditional on their estimated effect on economic growth in the long run: beneficial policy and harmful policy. The most powerful consolidation instrument seems to be real pension declines (public funds saving of 5.5% of GDP over three years). Among the beneficial policy instruments we also revealed a cut of subsidies for the coal industry and agriculture (budgetary effect of 0.9% and 0.3% of GDP, respectively); a small spending cut on state administration (saving of 0.3% of GDP); a rise in royalties for oil, gas and other minerals (extra revenues of 0.7% of GDP). Among the harmful fiscal policy instruments we distinguished spending cuts on education and healthcare.

The future fiscal consolidation path has to rely on instruments that have a neutral or favourable impact on long-term economic growth. Available empirical research and our analysis suggest that Ukraine's government should go ahead with the following fiscal instruments:

- › a further cut of direct *subsidies* to enterprises and elimination of tax exemptions;
- › limiting *government bail-outs* of the state companies and banks until public debt converges to a benchmark level of 60% of GDP.
- › a rise in *royalties* and *excise taxes* with noticeable effects on rich categories of the population and energy consumption;
- › rationalisation of *expenditures on goods and services*, elimination of corruption schemes and improving public procurements;
- › consolidation of numerous *social benefits* programmes, extending the scope of means testing for the majority of government programmes, establishing an electronic system of the beneficiaries of state assistance;

- › design and implementation of a comprehensive *pension reform* that should equalise in the medium-term Pension Fund revenues and expenditures; in the short run a small rise in the retirement age for both men and women is advisable, as well as the elimination of privileged pensions.

On the other hand, we recommend reversing spending cuts on education and healthcare and focusing efforts on efficiency improvements in these sectors. Since public financing of the *healthcare system* in Ukraine is low by international standards and out-of-pocket payments are pervasive, an increase in targeted budgetary appropriations for healthcare programmes, combined with the implementation of radical structural reforms, are essential for better health outcomes. The most challenging tasks of the healthcare system reform are strengthening primary and emergency care, rationalising hospitals (in-patient services), transforming the model of healthcare financing from input-based towards output-based and backing all these measures by sufficient budgetary financing (including capital investments into the sector). As to the *education sector*, in view of the current structural deficiencies, a reallocation of public funds within the education sector in favour of primary and secondary education is advisable. Apart from that, overstaffing seems to be an acute problem in the whole education sector; therefore, the government must elaborate employment regulations for both secondary and higher educational institutions and decrease the lion's share of funds being allocated for staff remuneration. Central and local governments should allocate the budgetary saving achieved through efficiency improvements towards investments into physical infrastructure, software, information resources, etc. for both secondary schools and higher educational institutions, as well as towards building new schools in growing big cities.

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ZVR-Zahl: 329995655

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Nachdruck nur auszugsweise und mit genauer Quellenangabe gestattet.

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