Ukraine Growth Study Final Document

FASTER, LASTING AND KINDER

CONTENTS

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OVERVIEW

Like the East Germany's Trabant, the Ukrainian-made Zaporozhets was meant to be the people's car, and as such it was the most affordable vehicle of the Soviet Union. Between 1960 and 1994 3.4 million Zaphorozets cars were produced! However, the disruption of commercial and production networks associated with the disintegration of the Soviet Union, aggravated by asset stripping and an inability to attract foreign investment, resulted in the decline of Ukraine's auto industry. By 2017, Ukraine's largest automotive plant that used to make Zaporozhets produced only 1600 cars, mere one percent of its production capacity. While the Ukrainian-made cars slowly disappeared from the roads in the former Soviet Union, its parts production has recently found a new life. In Western Ukraine, manufacturers from Japan and Germany stepped up production of auto parts and components, turning the region into an integral part of Europe's vehicle industry. These companies have formed a wave of new investment in Western Ukraine that primarily involves producing automotive parts for global manufacturers. Today, nearly every car made in Germany is made with parts from Ukraine.

Openness to the outside world, adoption of new technologies and a vibrant entrepreneurial spirit is driving this transformation of the Ukrainian automotive industry. Similar trends are occurring in agriculture and information technology (IT). In just a decade Ukraine has become one of the leading exporters of grain in the world. And, with over 100,000 Microsoft certified software professionals the IT sector in Ukraine is now Europe's largest software development industry. There are many such examples of drivers of Ukraine's new economy in other sectors, too.

Today, Ukraine is at a crossroads: despite impressive success in some sectors, the foundations of the emerging new economy are still fragile, and the old economy is still having a strong negative effect on growth. The rate of growth of the new economy is still too anemic to absorb the excess supply of workers released by the old economy and by new entrants to the labor force. Many young Ukrainians have opted to emigrate, attracted by higher expected earnings in neighboring countries and elsewhere. In 2017 over one million Ukrainians worked in Poland, with several hundreds of thousands in other neighboring countries. The reliance on commodity-based exports, short-term foreign savings, and foreign remittances has made Ukraine's growth trajectory volatile and unsustainable.

The emergence of a more productive private sector economy continues to be constrained by low domestic savings, debt overhang, and limited foreign direct investment (FDI). Incentives to accumulate capital and to attract foreign investment continue to be affected by the influence of vested interests on the economy that undermine the effectiveness of Ukraine's economic institutions. In addition, Ukraine's economic transformation has been held back by the legacy of underpriced energy that provided short-term benefits to select sectors, but delayed much needed

industrial restructuring toward developing high-value added export-oriented industries.

Ukraine still presents many challenges to foreign investors, but the experience of the automotive industry shows that is possible to overcome these challenges to reap major economic success. Ukraine has untapped potential to narrow the gap between its capabilities and the global technological frontier through adoption and adaptation of existing technologies. The country is endowed with intelligent, energetic, and entrepreneurial people capable of seizing these opportunities.

Can these success stories of Ukraine's automotive industry be scaled up? Yes, but more needs to be done. This report argues that achieving *high*, *inclusive* and *sustainable* growth will require higher *productivity* of the economy at home, more benefits from *trade and integration* into the global economy, and stronger domestic *economic institutions* to withstand pressures from vested interests. At the center of these goals, the strength and durability of the transformation will depend critically upon the pace and depth of structural reforms and the long-term commitment by political leaders in the coming years. These will be discussed in length in this study of Ukraine growth—past, present and future.

The Ukraine Growth Report focuses on the following questions:

1. What would make a difference going forward?
2. What has been holding back Ukraine's prosperity?
3. How can Ukraine raise its economic growth rate?

1. WHAT WOULD MAKE A DIFFERENCE GOING FORWARD?

In 2014-16 Ukraine experienced acute political, security, and economic challenges. Public discontent over fundamental governance failures, capture of the state by vested interests, and deep-rooted corruption brought the *Maidan* uprising triggering new elections, changes in government, and the emergence of a new cadre of reform-minded politicians and civil society activists. These changes also led to the rupture of economic and political relationships and the realignment of commercial relationships with regard to the region and the rest of the world—the government effectively lost control of parts of Ukraine and a military conflict began in the east of Ukraine.

Five years after the *Maidan* uprising, Ukraine has accomplished a lot, with some sense of optimism that improvements are finally being made.

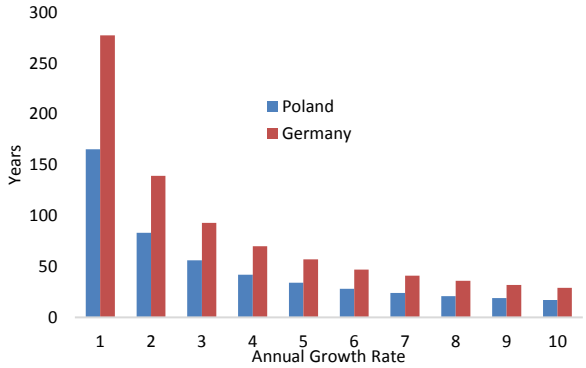
- First, the Free Trade Agreement with the European Union may provide an institutional umbrella that facilitates the modernization of the economy. Introducing laws and regulatory procedures and reforming nontransparent practices will certainly become easier with the support of this Agreement than had previously been the case.
- Second, Ukraine has made some progress in improving its economic institutions and implementing structural reforms. Reforms that had been postponed for decades were enacted in recent years including streamlining

the business environment, putting in place key instruments of anticorruption and bold steps to clean up the banking system.

- Third, the structural reforms undertaken are prompting the economy to realign resources according to market prices. Visible manifestations of realignment include the expansion of natural resource-based sectors, like agriculture where Ukraine has a comparative advantage and the decline in exports of energy intensive products where Ukraine does not have a comparative advantage.

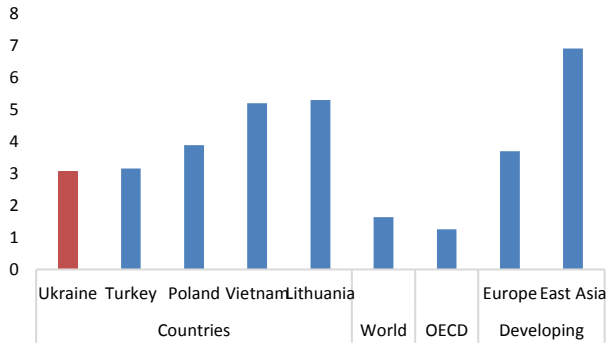
But what would make a difference going forward to sustain this momentum of optimism and accelerate economic growth? It is clear that the *old* growth model that relied on legacy industries dependent on cheap energy resources, commodity exports, and trade exclusively with the Commonwealth of Independent State (CIS) countries will not deliver Ukraine's aspirations. While much depends on the external global environment and on the structural forces that continue to transform Ukraine's economy, this much is certain—at the current growth rate of just about 3 percent per year (Figure O.2), it will take almost a hundred years to reach the current levels of income of Germany and about fifty years to reach levels of Poland (Figure O.1). A realistic appreciation of these trends is a significant incentive for Ukraine to continue the reform process to complete its transition to a market economy.

Figure O.1: A Relationship Between Annual GDP Per Capita Growth and Years Needed to Close the Income Gap between Poland/Germany and Ukraine



Notes: the years to converge to Poland and Germany GDP per capita are calculated as the years to close the difference between Ukraine's GDP per capita in 2017 from relative comparator GDP per capita in 2017 assuming various annual per capita growth rates.
Source: World Bank staff calculations based on World Development Indicators.

Figure O.2: Average Annual GDP Per Capita Growth 1998-2017, percent



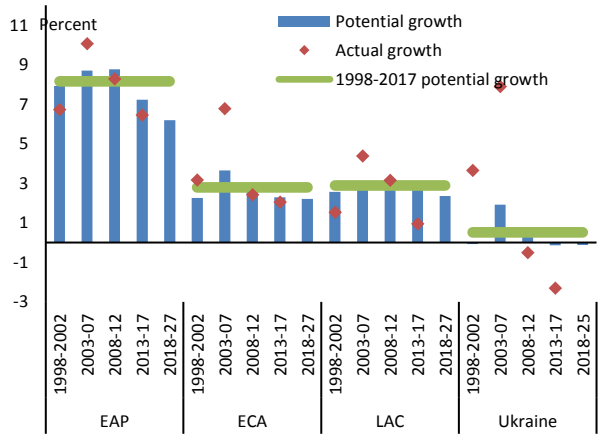
Source: World Development Indicators.

Structural reforms can fortify the foundations for accelerated growth. In the absence of reforms, growth is likely to stagnate. Achieving *fast*, *lasting* and *kinder* growth will require removing key constraints that have been holding back the economy to unleash its potential:

- First, policy changes that improve productivity and encourage capital accumulation would make growth *faster*. These reforms will be necessary to propel growth. The contribution of capital to support growth is constrained by a low domestic savings rate and low foreign direct investment. In addition, given demographic characteristics and outward migration, there will be a significant decline in the labor force in the next decade. Ukraine's aggregate

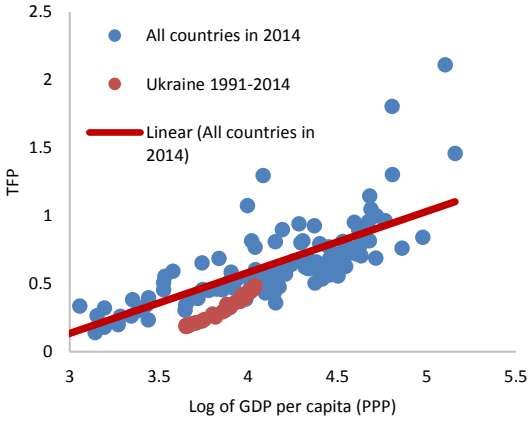
productivity is still low, well inside the global technology frontier (Figure O.3). If these trends are sustained, Ukraine's potential output growth is estimated to be close to zero (Figure O.4), and positive growth in potential productivity will be offset by a declining contribution of labor and capital. Reversing these trends is a necessary condition for the economy to takeoff. These trends will not reverse on their own, they can happen only through the implementation of appropriate policies that boost productivity and increase the returns on factors of production.

Figure O.3: Potential Output Growth with no reforms



Source: Calculations based on dataset prepared for Global Economic Prospects, January 2018, The World Bank.
Notes: Notes: EAP = East Asia and Pacific, ECA = Europe and Central Asia, LAC = Latin America and the Caribbean, MNA = Middle East and North Africa, SAR = South Asia, and SSA = Sub-Saharan Africa.

Figure O.4: Total Factor Productivity Relative to the Global Technology Frontier



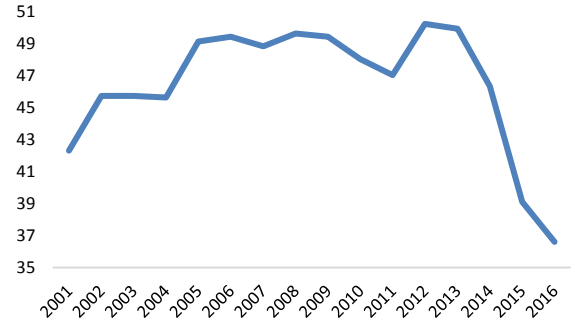
Source: Calculations based on Total Economy Database of Conference Board.

- Second, policies that maintain public finances in order would make growth *lasting* longer by reducing the risk of a disorderly unwinding of external imbalances. Ukraine's external debt remains high. In the medium term, Ukraine faces major financing needs to be able to repay public debt and cover the fiscal deficit in 2019-20. Moreover, Ukraine's recovery will most likely be accompanied by a current account deficit. In the past, the deterioration of the current account has been caused by a decline in domestic savings, including public savings, rather than an increase in productive investment. Going forward, the sustainability of the external financing is critical for the sustainability of economic growth.

- Third, policies that distribute economic growth dividends fairly across society by creating access to opportunities for all would make growth more *inclusive*. Economic growth is only sustainable if it does not leave vulnerable groups behind. The current model falls short of this goal. In recent years, the deep recession, depreciation, and compression of public current expenditures contributed to significant contraction of disposable incomes. As a result, the share of labor income in total income plummeted (Figure O.5). The same trends have been observed in other countries. However in Ukraine, the main driver of that decline is a significant decline in real wages rather than an increase in labor productivity (Figure O.6). Sharing benefits of growth depends on creating new jobs which itself depends on attracting new

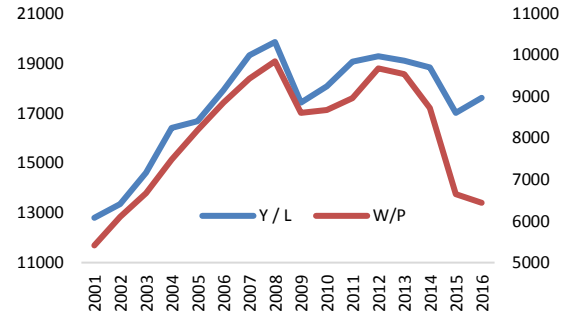
investment in the production of tradable goods and services and in expanding trade.

Figure O.5: Labor Share in Total Income, Percent of GDP, 2001-16



Source: National accounts data.

Figure O.6: Dynamics of Real Wages and Labor Productivity, in USD 2010 PPP per Person per Year



Source: National accounts data.

2. WHAT HAS BEEN HOLDING BACK UKRAINE'S PROSPERITY?

The transformations undergone by Ukraine in the past quarter of a century have been enormous. In a matter of just a few decades, Ukraine experienced three far-reaching transformations—economic, social and political. It went from being part of the Soviet Union to becoming an independent nation; it went from a command and control system governing the allocation of resources to one that largely depends on the decisions of households and firms interacting in a market economy; and it went from a centralized political and security system to developing sovereign institutions responsible for the provision of basic public services and that are accountable to its citizens for the quantity and quality of these services.

However, Ukraine's economic transformation to a full-fledged market economy remains incomplete. Formal market institutions—private property rights, a private sector, and private markets—were established, but the state has remained an important player in the economy due to its ownership of a substantial part of productive assets. A commitment to protect property rights is undermined by a high level of corruption and a weak court system. Many segments of the economy still remain distorted—the legislature has extended the land market moratorium seventeen times, and household gas prices remain heavily subsidized.

Ukraine's incomplete economic transition has created rent-seeking opportunities arising from arbitrage between the reformed and unreformed sectors of the economy. The arbitrage continues to generate highly concentrated rents to powerful special vested interest groups and to undermine the effectiveness of Ukraine's economic institutions. This has severely undermined incentives to accumulate capital, to attract foreign investment, and to reorient exports away from commodities. Five years after the *Maidan* uprising, actions have not yet gained sufficient enough traction to permanently weaken the influence of vested interests on the economy. Important parts of the economy continue to be dominated by oligarchs. Political divisions remain between reformist and *status quo* fractions influenced by vested interests.

As a result, Ukraine's growth has remained anemic. At the beginning of the transition in 1990, Ukraine's gross domestic product (GDP) per person was similar to that of Poland, but by 2017 Ukraine's GDP per person in purchasing power parity (PPP) terms was about three times lower than in Poland (Figure O.7). About half of the income gap between Ukraine and Poland is explained by divergent growth trajectories during the first decade of the transition (Figure O.8). Delay in the start of reforms in Ukraine resulted in the economic collapse at the beginning of the transition being more severe and lasting longer. For example, slow and delayed privatization only benefited insiders and those with access to credit. As a result, it delayed the introduction of modern management methods associated with large foreign firms; led to the creation of a group of oligarchs who would eventually have strong influence in policy making; and did not help open international markets for Ukrainian manufacturing products. By the yardstick of the number of years of continuous fall in GDP during the first decade of the transition, Ukraine experienced 10 years of accumulated contraction, compared to 6.5 for other Commonwealth of Independent States (CIS) countries and 3.8 for Central-Southern and Baltic countries.

Among the numerous reasons for the delay in starting reforms, two specifically stand out: difference in initial conditions (namely higher transformation costs); and limited resources to finance the cost of reforms. For instance, there are costs for reallocating resources away from industries that are not competitive any longer, such as some subsectors of the manufacturing industry, and into new sectors that demand a different set of skills. Such structural reallocation of capital and labor was anemic in the initial years of transition. In addition, the absence of a clear path to EU accession limited the resources available to transform the economy to the level of scarce domestic savings and moderated the impulse to enact structural reforms necessary to develop a market economy.

Figure O.7: Real GDP per Capita Levels in Ukraine and Poland, 1990=100 Percent

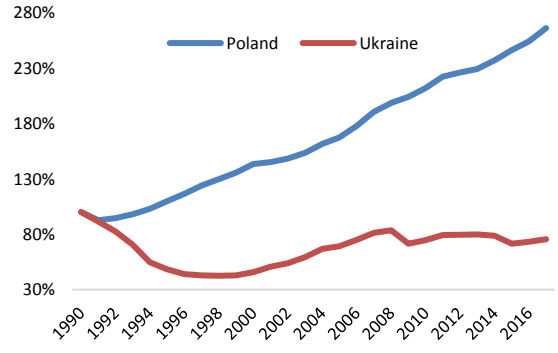
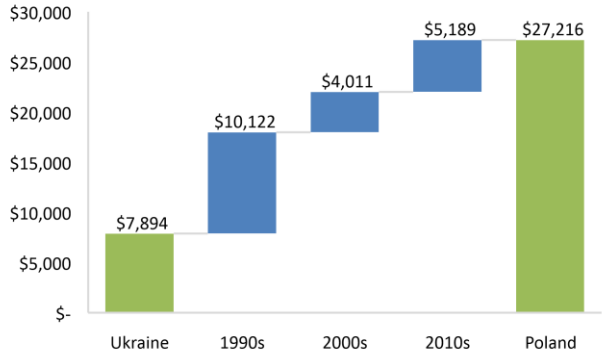


Figure O.8: Decomposition of Widening Income Gap between Ukraine and Poland: Income per Capita in Ukraine and Poland, in USD PPP terms, 2017



Source: World Bank staff calculations based on World Development Indicators.

The only period of high growth was short lived and supported by favorable external conditions. Before the global financial crisis—between 1998 and 2008—Ukraine's average rate of growth of GDP per capita was 7 percent per year. With this growth rate, Ukraine managed to almost double its GDP per capita. Household incomes rose, and Ukraine's middle class expanded. However, growth was driven primarily by favorable external conditions, not structural reforms. As such the nature of growth in 2000s was unsustainable and growth tapered off sharply as international financial

and capital flows stopped. Ukraine went on to experience a sharp recession in 2009, with GDP falling by nearly 15 percent. A weak and short-lived recovery gave way to an even sharper recession in 2014-15 that was triggered by the Euromaidan events and a conflict in the East of Ukraine. As a result, during 2014-15 Ukraine's GDP fell by a cumulative 16 percent.

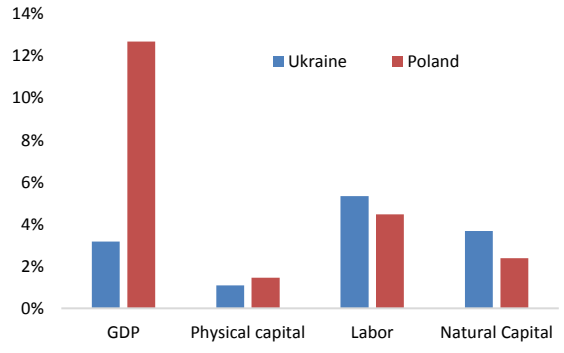
During the 2000s Ukraine's economic reforms were not comprehensive and decisive enough to produce growth that could withstand macroeconomic turbulence. Inconsistent economic policies deployed prior to 2013 made Ukraine vulnerable to recurrent crises and growth volatility. In terms of monetary policy, Ukraine long relied on effectively fixed exchange rates as a nominal policy anchor. In terms of fiscal policy, an accommodative fiscal stance and persistent quasi-fiscal deficits generated deep-seated structural vulnerabilities. These policies resulted in an overvalued real exchange rate, persistent fiscal and current account deficits, and increase in public debt. High volatility of the price level, the exchange rate, and the interest rate served as major deterrents to private investment, the proximate driver of growth.

While in recent years Ukraine has made considerable progress in addressing many of these inadequacies, many challenges remain. As discussed in the sections below, today the path to prosperity continues to be held back by: A. low productivity; B. over-reliance on commodity-based exports and limited global economic integration; and C. weak institutions.

A: Productivity: Low Savings, Leveraged Balance Sheets, and Lack of FDI

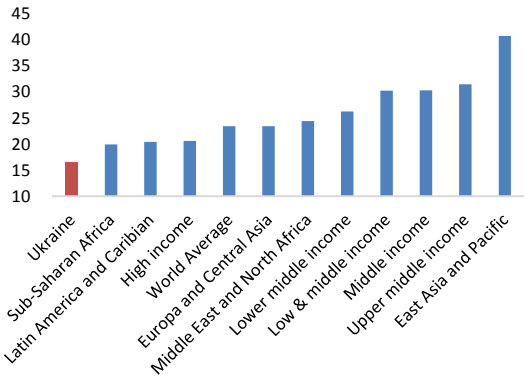
Ukraine's aggregate total factor productivity—the way labor, capital and land are used across sectors and firms—has remained low. Ukraine accounts for about 5 percent of total population of Europe and Central Asia but produces only 3 percent of the region's GDP, while Poland, with about the same share of population, produces 13 percent of the region's GDP (Figure O.9). While it is indeed the case that Ukraine's capital stock is lower than in Poland, the largest difference between the levels of income in both countries is due to the various ways that economies use these factors of production (Figure O.10).

Figure O.9: Ukraine's and Poland's Shares of GDP and Factors of Production in ECA Total



Source: Wealth of Nations, World Bank.

Figure O.10: Gross Fixed Capital Formation, Percent of GDP, Average 2010-17

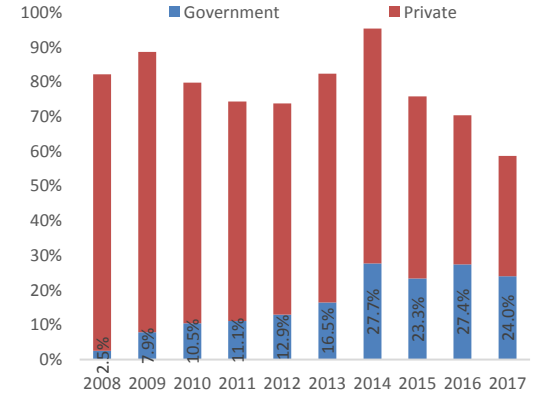


Source: World Development Indicators.

The most important impediment to productivity growth has been low investment rates. The initial capital stock was largely tied up in machinery and equipment in vertically integrated production chains spread across states of the former Soviet Union. During the transition period scarce investments were insufficient to modernize technologies and develop a dynamic *new* economy. The new investment has overwhelmingly entered the services sector, where legacy was low, rather than manufacturing or public utilities, where legacy is still high and entry more difficult. There are three core reasons why investment rates have remained low:

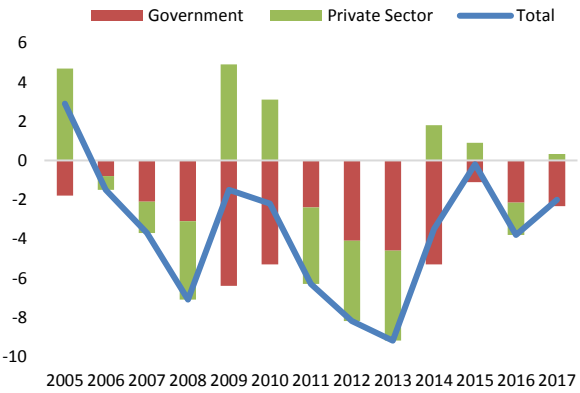
- First, Ukraine continues to struggle to attract FDI as official statistics overestimate genuine FDI flows. The use of "round-tripping" practices—where Ukrainian investors use legal entities in offshore jurisdictions to channel local funds back to the local economy in the form of FDI—continues to be overinflate the amount of FDI. Moreover, about half of these flows are absorbed by non-tradable sectors—financial intermediation, construction, real estate, and retail trade.
- Second, debt overhang—the legacy of the financial crises of 2009-15—continues to discourage capital formation. The dramatic depreciation of the Hryvnia had a devastating effect on the balance sheet of enterprises exposed to currency risk; the result was an increase in enterprises' indebtedness, a fall in their net wealth, and, a steep deterioration of the financial and equity position of commercial banks. The weak financial- and economic-state of private and state-owned enterprises seriously distorts their operation, discourages capital formation and the creation of new jobs, and is a major stumbling block to growth of the private sector economy. As the result of these resource constraints, the economy is currently entangled in an unresolved corporate debt overhang and is caught in a spiral of low investment and low job creation resulting from efforts by firms to reestablish a positive net wealth position. Part of the problem has been addressed with the restructuring of banks, but the corporate-debt overburden is still affecting the decisions of all actors in the economy.
- Third, large public sector imbalances continue to crowd-out and divert limited resources. In a depressed economy, government revenue lags behind government expenditures, and in the absence of alternative forms of financing, the government begins borrowing internally. In a period between 2009 and 2018 the share of the government debt in total domestic credit expanded from just 3 to 40 percent (Figure O.11). As a share of GDP, net claims on the central government reached 24 percent in 2017. In addition, the public sector has also been a key driver contributing to Ukraine's savings-investment gap (Figure O.12). An increase in the flow of credit to the government, in turn, leads to "crowding out" of private credit, which further represses real sector activity. The fact that most of government spending is allocated for current consumption rather than investment exacerbates the impact of this crowding-out on growth.

Figure O.11: Net Claims on Central Government and Other Sectors, Percent of GDP



Source: NBU data.

Figure O.12: The Public Sector Role as the Key Driver of Ukraine's Savings-Investment Gap



Source: NBU data.

Similarly, human capital skills demanded by the expanding sectors seem to be in short supply. The human capital skills demanded by the expanding sectors are different than those supplied by workers in the dying industries. The migration of workers to neighboring countries suggests that there is an excess supply of workers that cannot be absorbed by the current demand for labor. Indeed, Ukraine has high literacy rates, large numbers of university students, and significant numbers of graduates who contribute to industrial and scientific progress. Yet, cross-country data suggest that persistently high and rising education attainment rates—education quantity—are not accompanied by high-quality education outcomes. The number of registered patents per capita, an indicator of ability to apply knowledge, remains low. There is also a major supply and demand mismatch in Ukraine's labor market. Firms demand skills that are not supplied by the labor market.

Finally, the inability to purchase agricultural land undermines incentives to undertake investments that enhances productivity and to manage the land in a sustainable manner. Ukraine has relatively high natural capital. It has the largest endowment of arable land in Europe—33 million hectares, compared to 18 million hectares in France, 12 million hectares in Germany, and 11 million hectares in Poland. Ukraine also has one third of the world's endowment of black "*chernozem*" soil—a very fertile soil capable of producing high yields under the right conditions.[1] Yet, the current moratorium on farmland sales and low transparency has undermined investment and productivity in Ukraine's agriculture sector. The moratorium had also undermined the flow of financing to small- and medium-sized producers because land cannot be used as collateral. The lack of access to financing prevents many small- and medium-size farmers from growing and moving into higher value-added products. Another impediment to attracting investment in agriculture is the lack of transparency and clarity in land ownership and transactions.

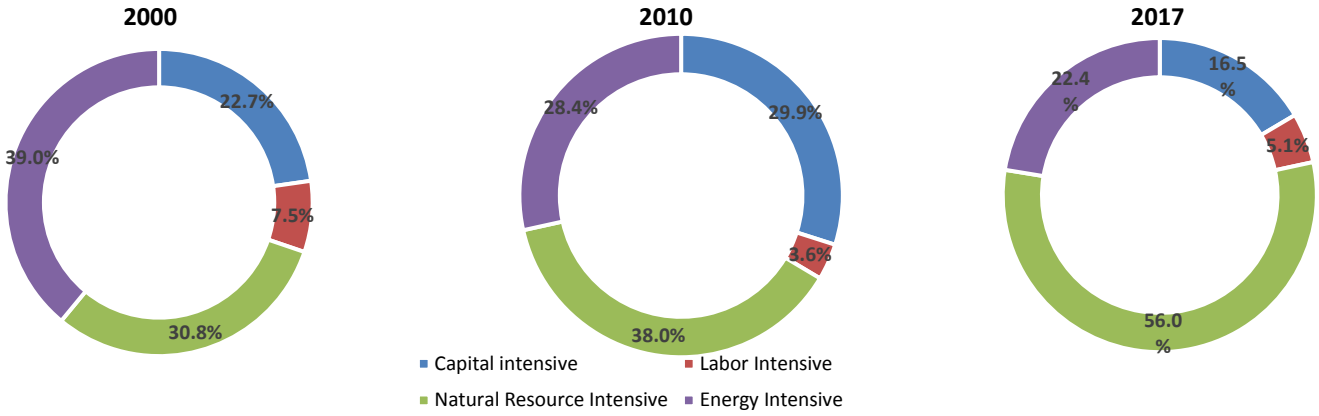
B. Trade: High Dependence on Commodities and Limited Global Economic Integration

Over-reliance on commodity-based exports has delayed much needed industrial restructuring toward developing high valued-added export-oriented industries.

[1] About 71 percent of Ukrainian territory (42.7 mln. ha) is classified as agricultural lands.

Ukraine's export structure remains highly concentrated in a small number of basic commodities: either metals or farm products. The total value of goods and services Ukraine exported in 2017 was 48 percent of GDP, about the same as in Poland, but the benefits associated with trade openness, such as technological externalities and knowledge spillovers, have remained limited. Constrained by the lack of investment, the share of capital intensive exports has declined to just about 16 percent in 2017. In addition, the share of labor intensive products—an endowment which Ukraine has as one of the largest countries in Europe—has remained very low (Figure O.13).

Figure O.13: Ukraine's Export Product Shares by Factor Intensity



Source: World Bank Staff calculations based on United Nations Comtrade. Energy intensive products include iron and steel. Natural resource intensive products include agriculture. Capital intensive goods include technology and skill-intensive goods.

Ukraine's export product composition—a low share of labor intensive products in exports—provides some important insights to explain the fact that despite a very significant realignment of exchange rates and decline of unit labor costs, Ukraine has not been able to increase its external competitiveness. In fact, balance of payment adjustments in two of the most recent corrections were driven primarily by compression of imports rather than growth of exports. (See Table O.1).

Table O.1: Changes in Effective Exchange Rate and External Sector Performance, Three Episodes of Adjustment in Ukraine

	1998-04	2008-12	2013-17
Change in Real Effective exchange rate (percent)	-25.1	-11.5	-23.8
Exports (average annual growth)	8.74	-2.96	-4.58
Imports (average annual growth)	4.83	-5.05	-2.80
Change in Current Account balance in Percentage points of GDP	13.75	-1.05	7.15

Source: World Development indicators.

The structural reforms undertaken in the past two decades are prompting the economy to realign resources according to market prices, although transformation of the manufacturing sector remains slow. Visible manifestations of realignment include the following: the expansion of natural resource-based sectors, like agriculture and metals, where Ukraine has comparative advantage; the significant increase in total factor productivity of privatized firms compared to SOEs; the contraction of sectors that depended on artificially low energy prices and a captive market; and the massive migration of labor to the rest of the world. However, the old economy is most visible in the manufacturing sector, where the state of advance of the transformation is more mixed. There has been a great deal of modernization in the food and iron-ore industries. But serious reforms are necessary, for instance, in the transportation

sector, where the role of the public sector is still large and improvement in the quality of services is necessary to keep pace with the transformations of the rest of the economy.

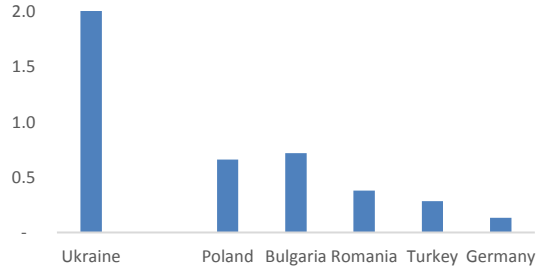
In the manufacturing sector Ukraine's participation in global value chains (GVC) has remained low. Through such GVC exports, countries not only exchange products but also technology, knowledge, and networks. For Ukraine, however, the share of such GVC products in exports has been low, at 5.7 percent in 2014, much lower than 27 percent for Poland, 38 percent for Romania, 38 percent for Turkey, and 59 percent for Vietnam. Expanding the share of GVC products would be a major opportunity for Ukraine to boost its exports. As highlighted earlier, Ukraine has demonstrated latent potential on this front through the exports of automotive ignition wiring sets which grew from $21 million in 2000 to $1.2 billion in 2017, one of the fastest growing product categories of Ukraine's exports in recent years.

Today Ukraine's inefficient logistics system limits its ability to boost exports and its integration into the global economy. Due to low population density, geography, and the structure of output (heavy reliance on metals, basic industry, and agriculture), transport volume per unit of GDP is much higher than in other countries in Europe (Figure O.15). For example, the costs of logistics in grain exports are affected by the underutilization of river transport, inefficiencies in rail transport, a high share of road transport, deficient storage management, and port fees. Weaknesses in Ukraine's logistics are also reflected in a low ranking in the Logistics Performance Index (Figure O.14).

Figure O.14: Logistics Performance Index and Its Components in Poland, Germany, and Ukraine

Source: World Bank's Logistics Performance Index.

Figure O.15: Inland transport volume (ton km) per unit of GDP (USD 2010 constant)



Source: World Bank staff estimates based on OECD transport data. Notes: data for 2016, Ukraine – data for 2012.

C. Institutions: Delayed Start of Reforms, Rent Seeking, and Weak Commitment to Rule of Law

Late and incomplete reforms (Figure O.16) created numerous market distortions and arbitrage opportunities that generated highly concentrated rents for powerful special vested interest groups. More importantly, incomplete reforms created 'intermediate winners' (Krueger, 1993; Hellman, 1998) who benefited from an economic system that was neither fully reformed nor fully transparent and that effectively deterred further changes. These groups especially fought against reforms which could undermine their monopolistic positions or eliminate sources of rents. These governance failures thus resulted in an economy largely built around redistribution of rents (excess returns above the normal levels that are generated in

competitive markets). In 2017, the total net worth of Ukraine's top three richest individuals was more than 6 percent of Ukraine's GDP, three times more than in Poland (Figure O.17). More importantly, the share of wealth accumulated by the richest Ukrainians, measured as a share of GDP, has remained broadly similar to levels in 2007. This has limited access to economic opportunities to make full potential of Ukraine's human capital.

Figure O.16: EBRD Transition Index: Overall Score: Ukraine and Select Comparators

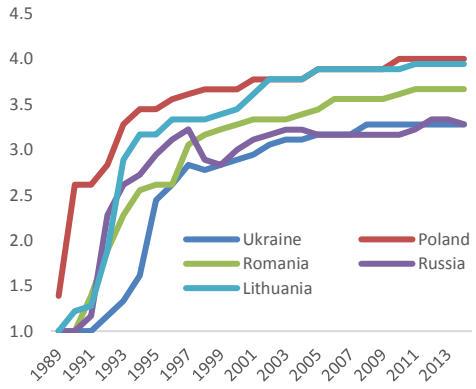
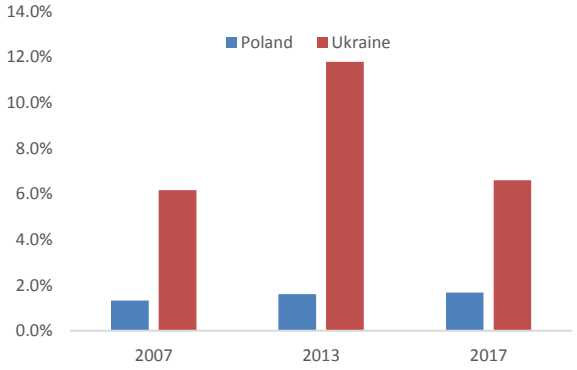


Figure O.17: Total Net Worth of Richest Three Individuals in Poland and Ukraine as a Share of GDP



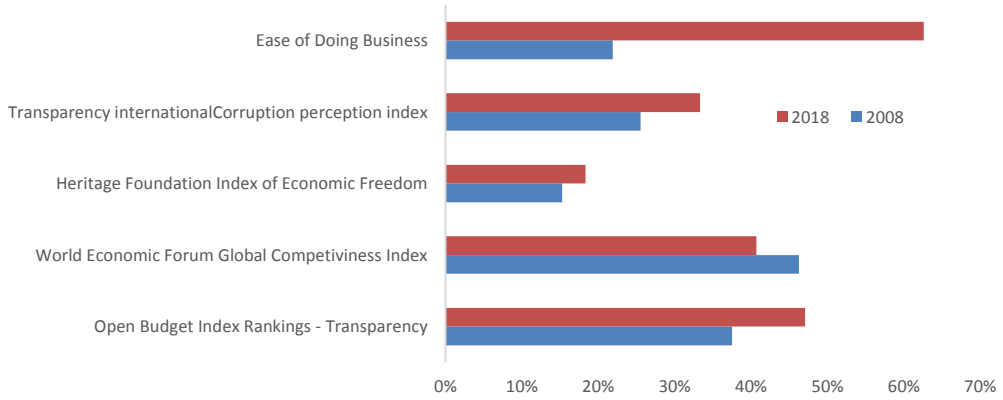
Source: EBRD. Forbes Magazine.

Notes: The measurement scale for the indicators ranges from 1 to 4+, where 1 represents little or no change from a rigid centrally planned economy and 4+ represents the standards of an industrialized market economy.

Vested interests have resisted efforts to establish a rule-based system and regulations. As a result, formal economic intuitions, including courts, have remained weak, and corruption has been high. This has undermined commitments to property rights and created legal uncertainty. Since contracts are weakly enforced by Ukraine's courts, property rights are reliant on connections with top officials, through international guarantees such as bilateral investment treaties, or through "round-tripping" of domestic capital as FDI. While such arrangements—which are costly—might work for large enterprises and for large transactions, they are prohibitively costly for small firms, and hence, serve to undermine economic growth potential. At the same time corruption continues to undermine de facto security of property rights and undermine relationships between contracts and property rights. While measuring corruption accurately is notoriously difficult, there is a widespread consensus that it remains at very high, albeit declining, levels. Transparency International's "Corruption Perceptions Index" (CPI) ranks Ukraine 130th out of 180 countries. Clearly, securing property rights in such an environment is not easy.

Reforms to strengthen economic institutions were implemented in recent years, but it is important to note that institutions change slowly. Over the last 10 years, Ukraine's relative ranking in a number of important governance indicators has remained relatively low (Figure O.18).

Figure O.18: Ukraine's Relative Ranking in Governance Indicators, 60 percent indicates that Ukraine is ranked higher than 60 percent of other countries reviewed.



Source: World Bank, Transparency international, World Economic Forum.

Ukraine's weak conditions for competition are also reflected in higher operational risks that firms perceive in relation to vested interests and cronyism, anticompetitive practices, and discrimination against foreign firms. As a result, for too long, Ukraine's economic policies were a blend of on the one hand a legacy of traditional controls to preserve select old economic structures, and on the other hand, policies to support innovative, forward-looking market processes that propel new sectors of the economy. For example, while Ukraine did encourage new entry in the services sector, the capture of the state by vested interests created a poor investment climate for this sector. Some enterprises were supported through subsidies granted through the budget, energy consumption, and the banking sectors. Evidence of this were specific regulatory and institutional barriers to entry, exit, and restructuring that restrained the Schumpeterian processes of creative destruction that drive innovation and structural change in market economies. Even today, conditions are not present to allow the expected rate of return on investment to become sufficiently attractive to induce more foreign and domestic private savings to finance this investment.

3. HOW CAN UKRAINE RAISE ITS ECONOMIC GROWTH RATE?

Ukraine is a middle-income country with significant potential for growth. Ukraine is endowed with key assets: intelligent, energetic, and entrepreneurial people; extraordinary fertile land; considerable natural resources; a geographic location at the crossroads of Europe and Asia; and an industrialized base with a skilled labor force.

Going forward, Ukraine's key challenge is not to achieve high growth next year or for a few years, but rather to make economic growth *faster*, *lasting* longer and *kinder* by giving equal opportunity to all. Three decades of transition have shown that Ukraine's key problem is not its inability to ignite growth—Ukraine has in fact gone through episodes of high growth. When external conditions are favorable, igniting growth does not even require significant institutional capacity of the economy. In 2000-08 Ukraine grew more than 7 percent a year. However, the pattern of that growth was based on huge international financial inflows and credit expansion, and it

proved to be unsustainable. Ukraine is still paying the consequences of the feast, most noticeably in the high nonperforming loans (NPLs) in the banking sector and difficulties in accessing new credit.

Sustaining significant growth—high growth over a long period of time—is challenging. Global experience shows that only a handful of countries have managed to significantly close the income gap with advanced countries in the absence of high savings or large sustained capital inflows. These have been European Union (EU) accession countries, resource rich economies, and oil and gas exporting economies. This is a clear reminder that sustaining significant growth—high growth over a long-period of time—is very challenging, yet not impossible! The Commission on Growth and Development has highlighted some of the distinctive characteristics of high-growth economies, and its analysis can provide valuable lessons to Ukraine. Three conclusions can be drawn relating to growth dynamics:

- The first conclusion is that fast, sustained growth does not happen spontaneously. It requires a long-term commitment by political leaders, a commitment pursued with patience, perseverance, and pragmatism.
- Second, the speed of growth is primarily determined by the pace of investment (public and private), and this investment is itself affected by availability of domestic savings or external inflow.
- Third, integration into the global economy is critical—it provides deep and elastic markets for exports and opportunities to import ideas, technology, and know-how.

Ukraine has already stared to lay the foundations for a new growth model—structural reforms undertaken in the past two decades are already prompting the economy to gradually realign resources to more productive uses. However, more reforms are needed. Ukraine's aggregate productivity remains low—an average worker in Germany in 17 days produces as much as an average worker in Ukraine in one year.

Large differences in Ukraine's low level of output per worker relative to advanced countries are due to both large *efficiency* and *capital* gaps. To increase output per worker Ukrainian firms have to not only become more efficient—to learn better ways to use currently available machinery and tools to produce more output in the same amount of time (*efficiency gap*)—but also increase the level of capital stock per worker that would allow each worker to produce more output by increasing access to machinery and tools (*capital gap*). During the last decade Ukraine has made progress in closing the efficiency gap yet constrained by low savings and limited FDI Ukraine's level of capital per worker is at the same level as in late 1990s (Figure O.20).

Ukraine's still low productivity may be the source of past disappointments, but it also offers a big opportunity. This can be illustrated with the help of a simulation based on a simple growth accounting framework. As indicated earlier, if Ukraine's productivity (total factor productivity TFP) growth remains negligible and the investment rate remains at the low levels observed in recent years the potential growth rate is almost zero per annum. Boosting TFP growth to 3 percent per year—a rate achieved in many high growth countries—would raise Ukraine's growth potential close to 2.5 percent even without an increase in investment (see Table

O.2). The gains to Ukraine's potential growth would be even higher if investment rates could also be raised alongside productivity growth. Boosting TFP growth to 3 percent per year and investment to 30 percent of GDP would result in potential growth of about 4 percent per year. Given declining total population this translates to GDP per capita growth of about 4.5 percent per year. With this growth rate, if sustained, Ukraine will be able to almost cut in half amount of years needed to achieve living standards of today's Poland (Figure O.19).

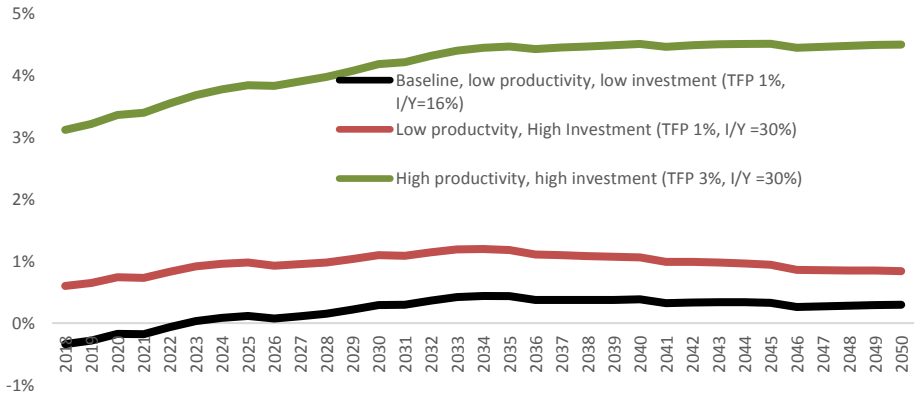
Achieving high investment and productivity would not be easy. As of today, such investment rate is about 12 percentage points higher than the average of the past decade. In the absence of foreign direct investment (FDI) it would imply a 12 percentage points increase in the savings rate which is difficult to imagine for a population with the demographic characteristics of Ukraine. However, the target rate would be within reach if Ukraine attracted FDI and expanded exports vigorously. Increasing TFP to 3 percent annually depends on dramatically increasing productivity in the tradable goods sectors. In recent years Ukraine's growth has been driven primarily by non-tradable sectors.

Table O.2: Projected long-term growth scenarios, average annual growth rates in percent

	Annual GDP Growth Rate		Annual Per Capita GDP Growth Rate	
	2020-24	2025-29	2020-24	2025-29
No reforms: low productivity, low investment (TFP 1%, I/Y=16%)	-0.1%	0.1%	0.5%	0.8%
Low productivity, high Investment (TFP 1%, I/Y =30%)	0.8%	1.0%	1.9%	2.1%
High productivity, low investment (TFP 3%, I/Y=16%)	2.1%	2.5%	2.7%	3.2%
High productivity, high investment (TFP 3%, I/Y =30%)	**3.6%**	**3.9%**	**4.2%**	**4.6%**

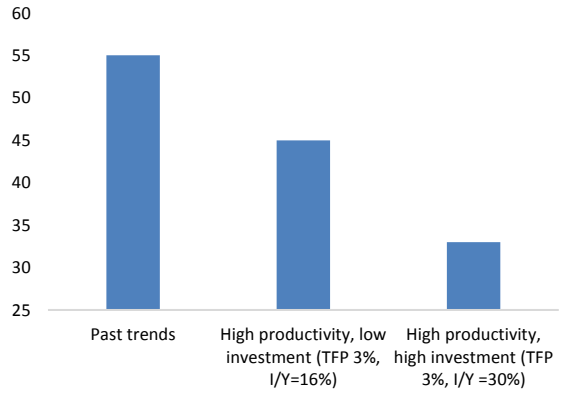
Source: World Bank calculations. Note: Simulations using the LTGM-PC calibrated to Ukraine, I/Y is the share of total investment in total domestic production; TFP = total factor productivity.

Figure O.19: Real GDP Growth Rate (potential) scenarios with changing Investment and Total Factor Productivity



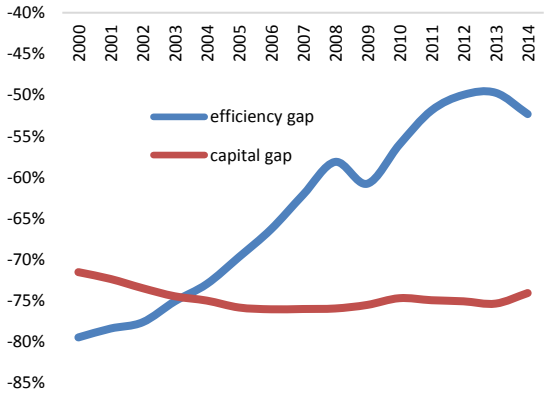
Source: World Bank calculations. Note: Simulations using the LTGM-PC calibrated to Ukraine, I/Y is the share of total investment in total domestic production; TFP = total factor productivity.

Figure O.20: Number of years needed to converge to the current levels of income per capita in Poland, various scenarios



Source: World Bank simulations.

Figure O.21: Ukraine's efficiency and capital gaps with respect to Germany, in percent



Source: World Bank staff calculations based on Penn World Tables 9.0.
Notes: efficiency gap defined as a ratio of Total Factor Productivity in Germany and in Ukraine minus one. Capital Gap as a ratio of capital stock per worker in Germany and in Ukraine minus one.

These scenarios clearly demonstrate that achieving high growth will require combining an increase in productivity growth and investment. The burden on investment and productivity growth are particularly high given that Ukraine's labor force is projected to decline due to demographic factors. This report argues that achieving high, sustainable and inclusive growth would require policy reforms in three areas (see Diagram 1-1):

i. adjusting the role of the state, addressing distortions in factor markets and strengthening human capital to ignite productivity growth;

ii. facilitating FDI and integration into global value chains, improving logistics and connectivity to fully leverage external trade opportunities and

iii. maintaining stable macroeconomic policies, giving everyone an equal opportunity and strengthening rule of law to make economic institutions more resilient.

Diagram O.1: Priority areas towards faster, lasting and kinderm growth: igniting productivity growth, leveraging external trade opportunities, strengthening resilience of institutions

A. Igniting Productivity Growth

Reforms in three areas are needed to ignite productivity growth: (i) creating supportive conditions for private sector development by adjusting the role of the state, (ii) addressing corporate debt overhang by strengthening the legal framework, strengthening the financial system and shoring-up the fiscal position of the government and (iii) strengthening Ukraine's factor markets by lifting the moratorium on agriculture land sales and increasing incentives to accumulate savings and human capital.

(i) Creating Supportive Conditions for Private Sector Development by Adjusting the Role of the State

A vibrant enterprise sector is critical for sustaining high growth. Reforms in the enterprise sector must begin with a recognition that as of 2018 the private sector produces most of Ukraine's GDP, yet the imprint of the public sector in production of goods and services is still too heavy. Reforms must focus on creating a nimbler and smaller state that will be an effective enabler of a growth model led by the private sector. Two specific sets of action are important to achieve this goal.

- First, government fiscal policy should be adjusted to better support the private sector. Currently, the government's footprint remains too big in the wrong places and too little in the right ones. In terms of fiscal expenditures, current expenditures remain too large, while public investment levels remain too small. Increasing productivity of the aggregate economy will require improved public investment and infrastructure to reduce costs and equip firms to be able to produce more competitively. In addition, large fiscal imbalances, if not addressed, will crowd out productive investment, further undermining Ukraine's growth potential. An increase in credit allocation to the government sector results in disintermediation of the nonstate sector, especially in small and medium enterprises.

- Second, use and management of state assets can be improved. Partly owing to its history, the state remains an extremely important player in the economy due to its ownership of substantial productive assets. The broad scope of state-owned enterprises (SOE) suggests that the state is directly intervening in sectors that go beyond the traditional network industries (electricity, gas, postal services, railways, air, water, road and urban transport, and water distribution), and has expanded to sectors as varied as agriculture, machine building, and hotels. Despite a few past efforts, no large SOE has been privatized in recent years. Only a small number of strategic SOEs should remain under state ownership, and those that do remain require further improvements in their governance, including the appointment of independent supervisory boards.

(ii) Addressing the Debt Overhang Problem by strengthening the legal framework for corporate insolvency, strengthening the financial system and shoring-up the fiscal position of the government

As of 2018, the main impediment to a faster recovery of Ukraine's economy is the still unresolved private and public enterprises/financial sector debt crisis. The resolution of this problem is perhaps the most important hurdle for Ukraine to get out of the quagmire it entered in 2009. Part of the problem has been addressed with the restructuring of banks, but further steps in debt reduction and debt restructuring are necessary to get the private sector back on course. Three specific initiatives are necessary:

- First, strengthening the legal framework for corporate insolvency needs, including implementing arrangements for out-of-court restructuring of corporate debt. This could include the following: (i) providing for the initiation of bankruptcy proceedings at an early stage in an insolvency, when the debtor is not financially distressed; (ii) protecting the rights of creditors who have failed to correctly pursue their claims; (iii) canceling the right of secured creditors to block resolution on rehabilitation; and (iv) improving transparency to foreclosure auction process.
- Second, further strengthening the financial system. Ukraine's financial system continues to suffer from large structural imbalances. The ability of the financial system to allocate capital and mobilize savings continues to be undermined by the dominance of state-owned banks, the large size of nonperforming loans, and the crowding out of resources.
- Third, shoring up the fiscal position of the government. There is a clear risk that if the fiscal position of government deteriorates it will negatively affect the quality of the assets of the banking system due to its large exposure to the government sector. To limit the possible risk, one policy option is to gradually reduce the share of domestic sovereign debt in banks' portfolios.

(iii) Strengthening Ukraine's Factor Markets by Lifting the Moratorium on Agricultural Land Sales, and Increasing Incentives to Accumulate Savings and Human Capital

Three specific reforms related to factor markets—capital, land and labor—are needed to ensure that resources flow to economic activities that yield the highest returns. First the moratorium on agricultural land sales hampers healthy development of the agricultural sector, where Ukraine has a comparative advantage.

It was introduced as a temporary measure in 2001 but still exists today. Of more than 42 million ha of agricultural land (or 70 percent of Ukraine's territory), about 41 million ha or 96 percent of the agricultural land in Ukraine is under a moratorium, with 68 percent of land under moratorium involving land shares held in private ownership by 6.9 million people or 16.2 percent of Ukraine's population. Second, the low level of domestic saving has contributed to Ukraine's low investment rate and has increased dependence on foreign savings, jeopardizing the sustainability of growth. Third, reforms need to address the skills mismatch in the labor market. Specific undertakings can include:

- First, undertaking land reform with the aim of accomplishing the following steps: increasing the efficiency of state land management through a new legal framework; opening a sales market for private and state agricultural land while ensuring transparency and equal access; and determining a clear status of unclaimed property. The scale and impact of the moratorium on agricultural land sales is far-reaching.
- Second, introducing measures to promote higher and longer-term domestic saving. Policy options can be grouped into two categories: demand-side policies to inform household saving decisions; and supply-side policies to improve regulatory, institutional, and other conditions in which saving decisions are made. Empirical evidence suggests that the degree of financial development is important in channeling savings into growth-enhancing activities. The introduction of the funded pension system could also help increase savings and help address the issue of the benefit adequacy in the longer term, but it should be done with considerable caution at proper time and proper preparatory work to ensure that people's funds are not lost. In addition, developing nonbank financial institutions (NBFIs) will help diversify the financial sector and enhance access to finance in the country. Currently the NBFI sector is underdeveloped with a poor regulatory framework and an unjustified large number of weak institutions operating in different markets. Unifying supervisory functions in the country is a vital first step to enhance the quality of sectoral supervision, to make it independent to mitigate the possible regulatory arbitrage, and to clean-up the system from nonviable institutions. This would create a level playing field for healthy NBFIs and further foster competition and access to alternative financial instruments in the market.
- Third, continuing to implement comprehensive reform of Ukraine's educational system. The educational process in vocational and higher education institutions is no longer aligned with the needs of the labor market. Significant progress was made when the Ukraine law "On Education" was adopted in 2017. This launched the development of special legislation for improving general secondary education, vocational education, and changes to higher education financing. An Important part of these reforms will be creating a fair and transparent system of funding that incentivizes improvement of quality and reduction of skills mismatches.

B. Leveraging External Trade Opportunities

Reforms in three areas are needed to leverage external trade opportunities: (i) attracting FDI; (ii) improving logistics and connectivity; and (iii) promoting services trade.

(i) Attracting FDI

One of the most important factors in attracting FDI is having in place the rule of law and the protection of property rights. Ukraine's ranking on the Rule of Law in the Global Governance Indicators was the 25th percentile in 2017, compared to the 52nd percentile for Bulgaria, the 68th percentile for Poland, and the 87th percentile for Estonia. Clearly, much more needs to be done to create a level playing field for FDI in Ukraine. This will not only require strengthening the anticorruption architecture and the judiciary, but also further streamlining the regulatory environment, strengthening competition policy, reforming state-owned enterprises, and making progress on privatization.

(ii) Improving Logistics and Connectivity

Key drivers of currently high logistics costs are: lack of regulatory clarity and suboptimal management of public assets that has resulted in the creation of barriers to private investments; underutilization of river transport; underinvestment in rail transport inefficiencies in storage management; and excessive use of road transport. Improving Ukraine's connectivity will specifically require reforms in transport.

Major reform in the transport sector can be achieved by promoting an efficient multimodal transport system that can have the effect of unleashing Ukraine's trade potential. High quality transport is a prerequisite to unleashing private sector productivity. To be successful in tapping trade opportunities, greater regional connectivity and improvements to transit corridors will be needed.

The current transport strategy for Ukraine is to seek a balanced development of different transport modes, with rail transport retaining its role as the dominant mode for heavy bulk goods, and the road network being developed to serve higher-value goods and to support better connection with Ukraine's neighbors. Increasingly, emphasis is also being given to the waterways sector as a means of relieving some of the harvest-time bottlenecks on the railways, but also as a means of getting bulk cargoes off the roads and thus reducing congestion and road deterioration.

Three specific transport strategy policy areas include:

- First, conducting a comprehensive revision of the transport pricing system, including revision or creation and approval of methodologies of tariffs for railway transport and for use of rail, river, and sea transport infrastructure.
- Second, developing river and portside infrastructure, including: removing logistical bottlenecks which exist in ports, railway transport, and inland waterways; increasing river transport capacities; and facilitating cross-border trade logistics by introducing automatic customs procedure systems that will be crucial to support competitiveness of Ukrainian Black Sea ports.
- Third, improving infrastructure in Ukraine by creating fiscal space for capital expenditures and also by improving public investment management (PIM).

(iii) Supporting Growth of Modern Services Sector

As Ukraine looks for new ways to integrate into the global economy, export of services is another area with great potential for growth. Over the last 10 years Ukraine has maintained and increased its comparative advantage in transport services; in 2016 transport services accounted for about 60 percent of total services exports (US$5.2 billion). However, Ukraine has also developed comparative advantage in telecommunications and information and communications technology (ICT) services which accounted for about 16 percent of services exports in 2016 (US$1.4 billion). However, many aspects of services trade remain subject to restriction in sectors such as telecommunications, transportation and professional services. High capacity networks at competitive prices are a necessary condition for a digital transformation of knowledge-intensive services, yet the lack of competition in the telecommunications sector contributes to Ukraine lagging behind countries in the region, such as Romania or Poland in terms of internet penetration. The cost of these restrictions and constraints falls disproportionately on small- and medium-sized enterprises. Specific policy areas to promote growth of modern services include:

- Addressing bottlenecks in transportation and logistics services to reduce trade costs. Specifically, despite strong domestic competition, the road freight transport sector presents some regulatory restrictions which may generate anticompetitive outcomes. For example, the sector is still fragmented and made up of more than 56,000 road transport operators, most of which are small or operate informally. Currently, bilateral transport agreements impose quantitative limits on foreign operators and cabotage is prohibited, both raising barriers to entry.
- Scaling back restrictions on foreign entry and barriers to the movement of professionals that discriminate against foreign services providers. For example, the existing regulatory framework places some restrictions upon the legal form that professional law firms can adopt, which inevitably restricts market entry by foreign firms.
- Adopting strategic reforms across a spectrum of trade, investment and competition policies to facilitate trade in services.

C. Strengthening Resilience of Economic Institutions

The ability of enterprises to transform factors of production into goods and services requires strong institutions that reduce frictions in real and financial sectors. This includes having in place clearly-defined rules of the game, protection of property rights, contract enforcement, market-based competition, appropriate incentives, and macro stability. Ukraine did establish formal institutions in areas such as private property, the private sector, property rights, and markets. However, Ukraine needs more resilient economic institutions and leadership in the following areas: (i) maintaining stable macro policies to ensure sustainable public finances and dampen volatility; (ii) ensuring equal economic opportunities for all to make full advantage of Ukraine's human capital (iii) improving its commitments to property rights and the rule of law; and (iii) supporting stronger competition policies that encourage private enterprise and entrepreneurship.

(i) Maintaining Stable Macro Policies

No economy can flourish in the midst of macroeconomic instability. High volatility of price levels, exchange rates, and interest rates serve as major deterrents to private investment, the proximate driver of growth. Hence, the quality of economic policy—both monetary and fiscal—is an important element of economic institutions.

Macro prudential regulations (such as decreasing the high dollarization level in the financial sector, lowering the concentration of credit risk, and resolving a large proportion of non-performing loans) will have to be strengthened to minimize risks associated with international financial inflows and outflows and the short- and medium-term distortions they can have on the real exchange rate and on allocation of resources. This is particularly relevant in the context of the law on currency that provides for liberalizing foreign exchange control, streamlining outbound investment procedures, and removing sanctions imposed for breaching foreign exchange regulations.

(ii) Creating access to economic opportunity for all to find a job or develop business by reducing regulatory burden and improving delivery of public services

For growth to be sustainable in the long run, it should be broad-based across sectors and inclusive of the large part of the country's labor force. Hence, inclusiveness encompasses equality of access to opportunity in terms of access to markets, resources, and unbiased regulatory environment for businesses and individuals. In specific terms it refers to creating access to economic opportunity to find a job or develop business by reducing regulatory burden and improving delivery of public services.

Today ineffective public services and weakly targeted assistance have contributed to inadequate employment outcomes, the reliance on transfers, and the unsustainable pattern of poverty reduction. A significant portion of household income in Ukraine and particularly for the poor comes from pensions and transfers. Ukraine spends a large share of GDP on social services and assistance, although this does not translate into high quality service delivery. At the same time, private sector job creation continues to be undermined by regulatory burden. Specific policy steps include:

- First, providing more effective services and targeted social assistance can, therefore, not only reduce expenditure pressures, but also help improve employment outcomes and result in tangible improvements in the quality of life for the population. Continuing improving the health system is also needed. Over 80 percent of deaths of working-age men are from illnesses that could have been treated through better primary care. The estimated number of productive life years lost due to premature death and disability is 5.9 million years (among the 45-65 age group) in Ukraine. This situation is hindering Ukraine's economic performance. Bloom, Canning, and Sevilla (2004) demonstrate that raising life expectancy by one year raises steady-state GDP per capita by about 4 percent.
- Second, in terms of streamlining the regulatory environment, the following reforms are important to modernize the registration system: simplify the licensing and permit systems and improve tax and customs administration. In this respect implementing the state supervision reform strategy to support introducing a risk-based and service approach on the part of regulatory

bodies is important, including, setting up the Financial Investigation Service as a single agency for combating economic crime, moving away from force-based to analytical methods in financial crime investigations.

(iii) Improving Commitment to Property Rights, Rule of Law and Stronger Competition Regime

In terms of the definition of property rights, Ukraine has established a formal regulatory framework protecting property interests, as well as mortgages and liens. Similarly, formal institutions that ensure stronger competition are set in place. Nevertheless, corruption remains a problem in Ukraine which undermines de facto security of property rights and undermine relationship between contracts and property rights. At the same time creating a more competitive and level playing field in the private sector will require streamlining the regulatory environment and strengthening competition policy. The issue of how effective policies have been in disciplining the *old* sector and encouraging the *new* sector therefore holds the key to understanding why growth has been better in some transition economies than in others. These forces Three specific reforms are needed, as follows:

- First, enacting needed reforms to further strengthen Ukraine's court system—slow and non-transparent enforcement of civil cases has locked up scarce capital, impeded the business climate and adversely impacted the economy including the banking sector. A weak court system has undermined commitments to property rights and created legal uncertainty.
- Second, strengthening anticorruption institutions, including setting up an anticorruption court and providing ongoing support of its operations after the court is in place.
- Third, policies that strengthen competition policy include enhancing the capacity of the Antimonopoly Committee (AMC), the competition watchdog, to implement legislation and to streamline state aid for enterprises to reduce distortion of competition. The AMC is supported by a relatively strong legal framework, which means the main challenge is in improving weak implementation of the law.

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Implementing these policies and completing the transition will not be easy. But in recent years, Ukraine has demonstrated its determination to implement difficult reforms when faced with formidable challenges. Emigration alone is a powerful signal of people voting with their feet and a reminder that the only sure path to arrest this trend is an increase in the demand for labor inside Ukraine, and this depends on enactment of reforms to ensure an inviting environment for investment. The experience of other Eastern European transition economies can be instructive for Ukraine. For example, Slovakia, a relative latecomer to transition, managed to overcome governance and political challenges and to catch up on market reforms and achieve high growth rates, partly thanks to the country's connection to the supply chain of the global automotive industry.

Experience of successful Eastern European transition countries has showed that reform will succeed only if backed by political will. As in the past, the government of Ukraine will need to weigh prospects of enhanced future growth against the interest of those who benefit from the current *status quo*. The success of the reforms

discussed in this report, and the prospects for continued Ukraine growth depend on it.

CHAPTER 1 CONTEXT: UKRAINE'S ASPIRATIONS, OUTLOOK AND OPPORTUNITIES

The transformations undergone by Ukraine in the past quarter of a century have been enormous. In a matter of just a few decades, Ukraine experienced three far-reaching transformations—economic, social and political. It went from being part of the Soviet Union to becoming an independent nation; it went from a command and control system governing the allocation of resources to one that largely depends on the decisions of households and firms interacting in a market economy; and it went from a centralized political and security system to developing sovereign institutions responsible for the provision of basic public services and that were accountable to its citizens for the quantity and quality of these services.

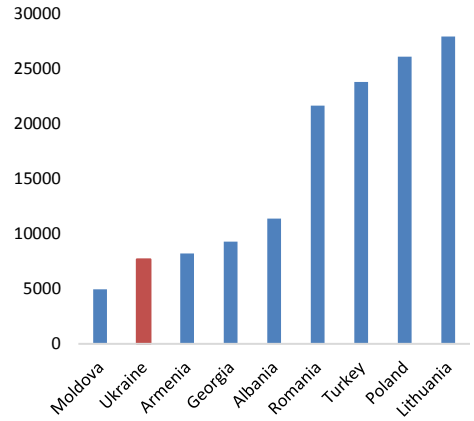
However, Ukraine's economic transformation to a full-fledged market economy remains incomplete. Many segments of the economy still remain distorted—state owned enterprises continue to dominate select sectors of economy, the legislature has extended the land market moratorium seventeen times, and household gas prices remain heavily subsidized. As a result, Ukraine's growth has remained anemic. At the beginning of the transition in 1990, Ukraine's gross domestic product (GDP) per person was similar to that of Poland, but by 2018 Ukraine's GDP per person in purchasing power parity (PPP) terms was about three times lower than in Poland.

Today, Ukraine is at a crossroads: despite impressive success in some sectors foundations of the emerging new economy are still fragile and the old economy is still having a strong negative effect on growth. The rate of growth of the new economy is still too anemic to absorb the excess supply of workers released by the old economy and by new entrants to the labor force. Many young Ukrainians have opted to emigrate, attracted by higher expected earnings in neighboring countries and elsewhere. The reliance on commodity-based exports, short-term foreign savings, and foreign remittances has made Ukraine's growth trajectory unsustainable.

ASPIRATIONS TO BECOME A PROSPOROUS COUNTRY

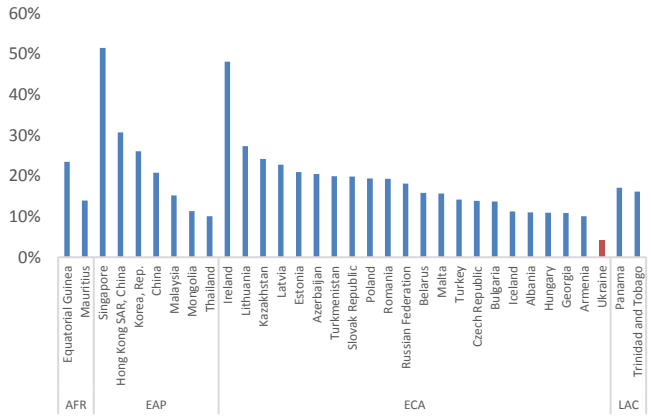
Ukraine's aspiration is to become a high-income country and to close the income gap with the advanced economies. Today Ukraine is far from that goal. In terms of GDP-per-capita, Ukraine remains one of the poorest countries in the region—at levels of Moldova, Armenia and Georgia (Figure 1-1). Global experience shows only a handful countries have managed to significantly close the income gap with advanced countries absent of large sustained capital inflows—European Union member countries—or resource rich economies—oil and gas exporting economies (Figure 1-2). While economic growth is not an end in itself, growth makes it possible to achieve other important objectives of Ukraine—particularly to become a stable and prosperous European country.

Figure 1-1: Ukraine GDP per capita compared to Armenia, Georgia, Moldova, Poland



Source: World Bank Development Indicators.

Figure 1-2: Closing the gap: economies that closed the gap with US income level by more than 10 percentage points during 1998-2017



Notes: 2011 PPP GDP per capita.
Source: World Bank Development Indicators.

To become a high-income country Ukraine needs to achieve high growth not only next year or for a few years, but rather to grow sustainably. Three decades of transition have shown that Ukraine's key problem is not its inability to ignite growth—Ukraine has demonstrated episodes of high growth. When external conditions are favorable, igniting growth does not even require significant institutional capacity of the economy. In 2000-08 Ukraine grew more than 7 percent a year but the pattern of growth was based on huge international financial inflows and credit expansion. Such growth is unsustainable—growth tapered off sharply as international financial and capital flows stopped. Ukraine went on to experience a sharp recession in 2009, with GDP falling by nearly 15 percent. A weak and short-lived recovery gave way to an even sharper recession in 2014-15 that was triggered by the Euromaidan events and a conflict in the East of Ukraine. As a result, during 2014-15 Ukraine's GDP fell by a cumulative 16 percent.

Achieving high and sustained growth rates would require a long-term commitment by political leaders to complete Ukraine's economic transformation. As in the past, the government of Ukraine will need to weight prospects of enhanced future growth against the special interests of those benefit from the current status quo. Rent-seeking opportunities arising from arbitrage between the reformed and unreformed sectors of the economy still remain the most visible legacy of Ukraine's incomplete economic transition. The arbitrage continues to generate highly concentrated rents to powerful special vested interest groups and to undermine the effectiveness and the resilience of Ukraine's economic institutions. This has severely undermined incentives to accumulate capital, to attract foreign investment, and to reorient exports away from commodities. Five years after the *Maidan* uprising, actions have not yet gained sufficient enough traction to permanently weaken the influence of vested interests on the economy. Political divisions remain between reformist and *status quo* fractions influenced by vested interests.

At the beginning of beginning of the transition in 1990s, the delay in the start of reforms resulted in the economic collapse being more severe and lasting longer. In 1990 Ukraine's gross domestic product (GDP) per person was similar to that of Poland, but by 2017 Ukraine's GDP per person in purchasing power parity (PPP)

terms was about three times lower than in Poland. About half of the income gap between Ukraine and Poland is explained by divergent growth trajectories during the first decade of the transition (Figure 1-4). For example, slow and delayed privatization only benefited insiders and those with access to credit. This delayed the introduction of modern management methods associated with large foreign firms; led to the creation of a group of oligarchs who would eventually have strong influence in policy making; and did not help open international markets for Ukrainian manufacturing products. As a result, Ukraine's growth has remained anemic and income per Capita (PPP) relative to the United States has stagnated (Figure 1-3).

Among the numerous reasons for the delay in starting reforms, two specifically stand out: difference in initial conditions (namely higher transformation costs); and limited resources to finance the cost of reforms. For instance, there are costs for reallocating resources away from industries that are not competitive any longer, such as some subsectors of the manufacturing industry, and into new sectors that demand a different set of skills. Such structural reallocation of capital and labor was anemic in the initial years of transition. In addition, the absence of a clear path to EU accession limited the resources available to transform the economy to the level of scarce domestic savings and moderated the impulse to enact structural reforms necessary to develop a market economy.

Figure 1-3. Income per Capita (PPP) Relative to the United States 1991 vs 2017

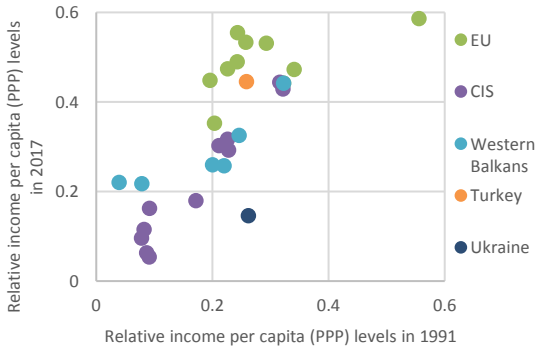
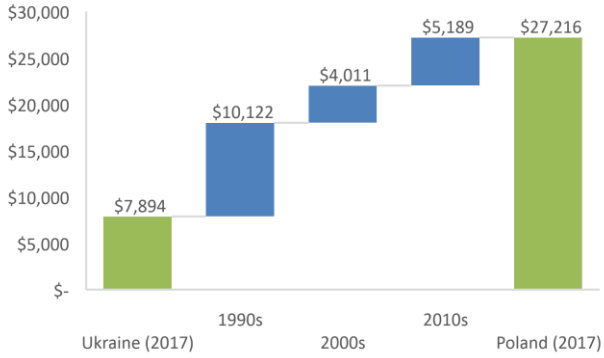


Figure 1-4: Decomposition of Widening Income Gap between Ukraine and Poland: Income per Capita in Ukraine and Poland, in USD PPP terms, 2017



Source: World Bank staff calculations based on World Development Indicators.
Notes: EU includes EU new member states during the 2004 enlargement.

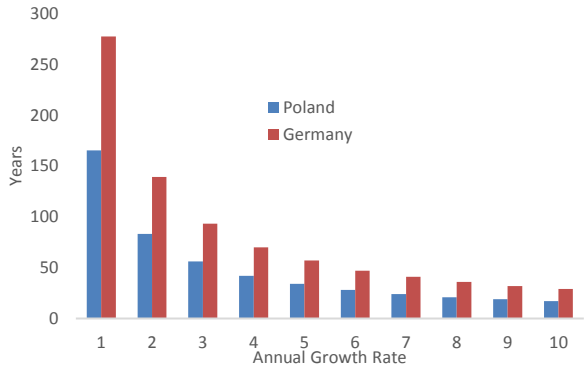
OUTLOOK: TRENDS AND RISKS

The 2014-16 years saw momentous changes whose final impact on economic growth is yet to be seen. Nevertheless, there is an optimism that things are finally changing. First, the Free Trade Agreement with the European Union (EU) may provide the institutional umbrella that facilitates the modernization of the economy. Introducing laws and regulatory procedures and reforming non-transparent practices will certainly become easier with this support than in the past. Second, Ukraine has made some progress in strengthening its economic institutions—for example bold steps to clean up the banking system and putting in place key instruments of anticorruption. Third, the structural reforms undertaken recently are prompting the economy to realign resources according to market prices. Visible manifestations of realignment

include the expansion of natural resource-based sectors, like agriculture where Ukraine has a comparative advantage and the decline in exports of energy intensive products where Ukraine does not have a comparative advantage.

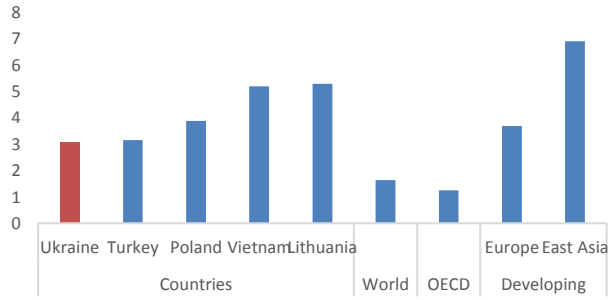
But what would make a difference going forward to sustain this momentum of optimism and accelerate economic growth? It is clear that the *old* growth model that relied on legacy industries dependent on cheap energy resources, commodity exports, and trade exclusively with the Commonwealth of Independent State (CIS) countries will not deliver Ukraine's aspirations. While much depends on the external global environment and on the structural forces that continue to transform Ukraine's economy, this much is certain—at the current growth rate of just about 3 percent per year (Figure 1-6) it will take about fifty years to reach the current levels of income of Poland (Figure 1-5). A realistic appreciation of these domestic and external trends is a significant incentive for Ukraine to continue the reform process to complete its transition to a market economy.

Figure 1-5. A Relationship Between Annual GDP Per Capita Growth and Years Needed to Close the Income Gap between Poland/Germany and Ukraine



Notes: the years to converge to Poland and Germany GDP per capita are calculated as the years to close the difference between Ukraine's GDP per capita in 2017 from relative comparator GDP per capita in 2017 assuming various annual per capita growth rates.
Source: World Bank staff calculations based on World Development Indicators.

Figure 1-6. Average Annual GDP Per Capita Growth 1998-2017, percent

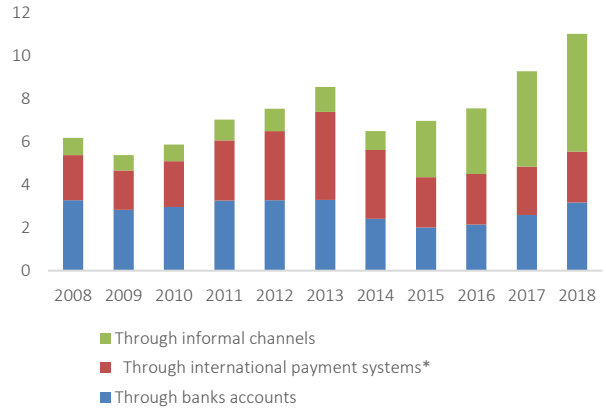


Source: World Development Indicators.

DOMESTIC TRENDS

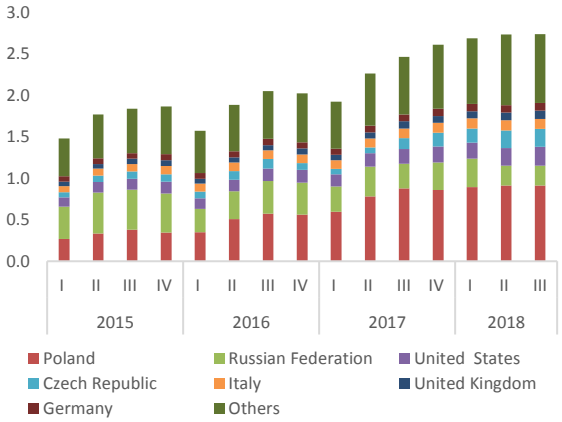
First, emigration and population aging will have profound implications for Ukraine's development over the next decades. Ukraine will grow *old* before it growths *rich*. While emigration results in a decline in the human capital wealth of Ukraine, it is not necessarily irreversible and has offsetting economic advantages in terms of worker's remittances, developing networks across borders, and possibly facilitating expanding international trade flows thereafter. However, emigration is a powerful signal of people voting with their feet and a remainder that the only sure path to arrest this trend is an increase in the demand for labor inside Ukraine which depends on reforms to ensure an inviting environment for investment.

Figure 1-7: Annual remittances from abroad to Ukraine by type of transfer, billions of USD



National Bank of Ukraine.

Figure 1-8: Quarterly remittances from abroad to Ukraine by country of origin, billions of USD



National Bank of Ukraine.

Second, economic performance continues to be affected by a military conflict with armed groups in the Donbas region in eastern Ukraine that remains unresolved. While it is premature to make a precise estimate of the economic cost of the conflict; the qualitative effect of having part of the Eastern territory de facto severed was a drop in overall GDP and an increase of the relative importance of the natural resource and human capital-intensive sectors of the economy. Armed groups were estimated to control about 3 percent of mainland Ukraine, corresponding to roughly 12 percent of population and 13 percent of GDP. As of early 2017, at least 9,800 people had died because of the conflict and more than 2.7 million had been displaced.

Third, Ukraine's economic transformation will continue to have a significant impact on the spatial distribution of economic growth. On the one hand Kyiv will continue to transform itself into a modern city supported by forces of agglomeration economies, on the other hand, numerous mono-functional towns will continue to struggle to find new economic growth. As a result, economic activities will continue to become more concentrated. And the differences in performance of individual sectors of economy will continue to have an impact on economic geography.

GLOBAL TRENDS

In 2018 the global economy seems to be leaving the legacy of the global financial crisis of the past decade behind. Yet in 2019 new global challenges and opportunities are emerging that will significantly affect the future trajectory of the world's economies and Ukraine.

First, as global trade continues to grow, the new frontier will be trade in services, now the fastest-growing component of global trade. Thanks to new informational technologies, services previously considered non-tradable (such as health and education) will be routinely provided across national borders.

Second, while global protectionism sentiment, especially in advanced countries, has increased in recent years, the forces of globalization are expected to remain strong as cross-border movements of goods, services, finance, people, and knowledge will endure and deepen. Production chains across borders will continue to flourish, and

intra-industry and intrafirm trade will intensify. To benefit from this trend, Ukraine's will need to accelerate its integration in global manufacturing value chains.

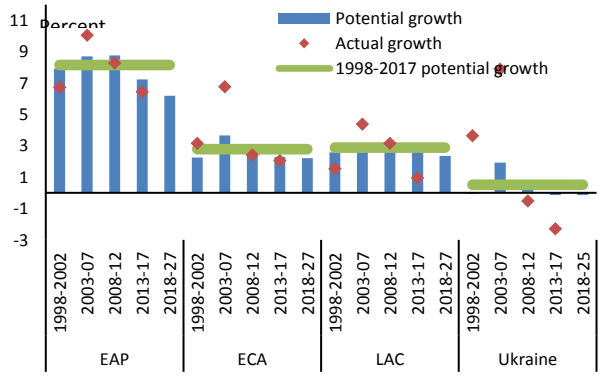
Third, normalization of expansionary monetary policies in the advanced countries, including the United States and Eurozone, could add to costs of international monetary and trade transactions. For example, a sudden tightening of monetary policy in the United States leading to a spike in interest rates could roil global financial markets, causing a slowdown especially in highly indebted countries, including Ukraine.

Fourth, the previous several decades of rapid global development are unlikely to repeat. Although the global economy has regained some strength since mid-2016, potential output growth—the rate at which an economy would grow when labor and capital are fully employed—has remained low and continued to decline. In addition, rapid technological progress and globalization are challenging the traditional model of export-led manufacturing as a well-worn pathway from low- to middle-income and ultimately to high-income status.

RISKS

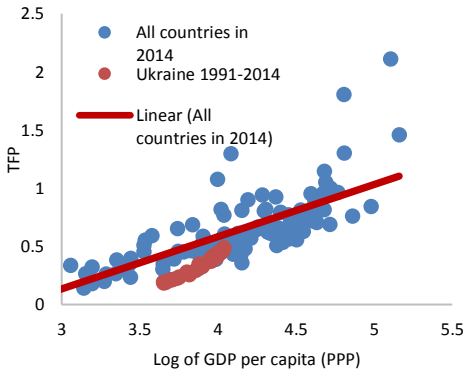
At the same time, there are several risks that could undermine Ukraine's path towards prosperity. Ukraine's key risk is economic stagnation. Given demographic characteristics of Ukraine, there will be a significant decline in the labor force in the next two decades; second, the growth of the aggregate capital stock is being constrained by a low domestic savings rate, and low foreign direct investment (Figure 1-10). On the demand side, Ukraine's weak integration into global markets has not allowed to fully benefit from technological externalities and knowledge spillovers associated with trade. Sustaining these trends, Ukraine's potential output growth will stagnate (Figure 1-9)—positive growth in potential productivity (measure as total factor productivity) will be offset by a declining contribution of labor and capital. As a result, the growth impact of Ukraine's reform efforts undertaken in recent years could be easily thwarted by bad luck. Reversing these trends is a necessary condition to the takeoff of the economy.

Figure 1-9: Potential Output Growth with no reforms



Source: Calculations based on dataset prepared for Global Economic Prospects, January 2018, The World Bank.
Notes: Notes: EAP = East Asia and Pacific, ECA = Europe and Central Asia, LAC = Latin America and the Caribbean, MNA = Middle East and North Africa, SAR = South Asia, and SSA = Sub-Saharan Africa.

Figure 1-10: Total Factor Productivity relative to the global technology frontier



Source: Calculations based on Total Economy Database of Conference Board.

There is also a risk of disorderly unwinding of external imbalances. Ukraine's recovery will most likely be accompanied by a current account deficit. Running a current account deficit per se is not necessarily a sign of weakness of the growth program, the strength of weakness of the program depends on the reasons that lie behind the deficit. For instance, it is not the same if the deterioration of the current account is caused by an increase in investment than if it is caused by a decline in domestic savings. If it is the former, in principle, Ukraine will be in safer territory. However, there are good and bad investments and the likelihood of having a high percentage of the latter type increases with the degree of distortion in relative prices such as the real exchange rate.

Box 1-1: Potential Output Estimation Techniques

What is potential growth? Potential growth is the rate of increase of potential output, the level of output an economy would sustain at full capacity utilization and full employment. Since it is not directly observable, the measurement of potential growth relies on a range of assumptions about its relationship to observable variables. Historical data on the growth of actual output growth, and of the factors of production—the labor force, physical capital, and human capital—provide the main indicators. Different estimates of potential output growth capture different time-horizons: "short-term" versus "long-term" (Basu and Fernald 2009).

Long-term potential output is a function of the available capital stock, labor input and current technology (Solow 1962). As such, long-term potential output growth captures movements in the slow-moving fundamental drivers of output assuming allocation of all factors of production to their most productive uses, regardless of temporary supply shocks. Long-term potential output sets the underlying trend of short-term potential output as well as actual output.

The most common approach to estimate potential is to use the production function approach. This approach represents potential output as a (Cobb-Douglas) production function of the amount of full-employment capital and labor, as well as technology and efficiency of factor allocation that drive total factor productivity (TFP). Potential TFP growth is typically estimated as the predicted value of a parsimonious panel regression of five-year averages of trend TFP growth on lagged per capita income relative to advanced economies (to proxy for convergence-related productivity catchup), education, demographics, and trend investment. Potential labor supply is estimated as the population-weighted aggregate of predicted values of age and gender-specific labor force participation rates from regressions on policy outcomes and cohort characteristics, business cycles, and country effects. The potential capital stock is assumed to match the actual capital stock.

Source: World Bank, GEP 2018 January.

Finally, there is also a risk that social tensions could undermine stability and growth. Economic growth is only sustainable if it benefits most of the people. The current model is short of this goal. In recent years the share of labor income in total income has started to decline (Figure 1-11). The same trends have been observed in other countries, however, in Ukraine the main driver of that decline is a significant decline in real wages rather than increase in labor productivity (Figure 1-12). Shared growth depends on creating new jobs and that depends on attracting new investment in the production of tradable goods and services and expanding trade markets.

Figure 1-11. Labor share in total income, percent of GDP, 2001-16

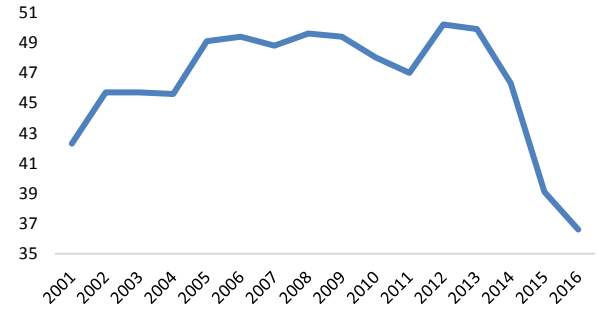
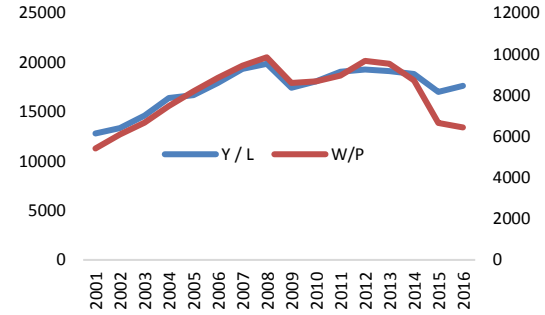


Figure 1-12. Dynamics of real wages and labor productivity, in USD 2010PPP per person per year



Source: National accounts data.

OPPORTUNITIES TOWARDS FASTER, LASTING AND KINDER GROWTH

A realistic appreciation of Ukraine's domestic and global trends is a significant incentive for Ukraine to continue the reform process to complete its transition to a market economy. Ukraine has significant potential for growth. It is endowed with intelligent, energetic, and entrepreneurial people; extraordinary fertile land; considerable natural resources; and a geographic location at the crossroads of Europe and Asia. In recent years significant progress—albeit variable—as occurred in reforms to transition to a market economy. And Ukraine has untapped potential to narrow the gap between its capabilities and the global technological frontier through adoption and adaptation of existing technologies. Finally, while domestic demand is no substitute for expansive global market, Ukraine's large domestic market and emerging urban middle class offers opportunities for Ukrainian enterprises to introduce new products and services easier.

Structural reforms undertaken in the past two decades are already prompting the economy to gradually realign resources to more productive uses. However, more reforms are needed. Aggregate productivity remains low. An average worker in Germany in 17 days produces as much as an average worker in Ukraine in one year. Differences in output per worker between Ukraine and Germany is due to both efficiency gaps (learning better ways how to use machinery and tools to produce more vehicles in the same amount of time) and capital gaps (increased access to machinery and tools to produce more vehicles in the same amount of time). Constrained by low savings and limited FDI Ukraine's level of capital per worker is at the same level as in late 1990s.

Ukraine's still low productivity may be the source of past disappointments, but it also offers a big opportunity. This can be illustrated with the help of a simulation based on a simple growth accounting framework. As indicated earlier, if Ukraine's growth remains negligible and the investment rate remains at the low levels observed in recent years the potential growth rate is almost zero per annum. Assuming an increase in the investment rate to 30 percent of GDP would increase potential growth to about 1 percent per year over the coming decade. Alternatively, boosting TFP growth to 3 percent per year—a rate achieved in many high growth countries—would raise Ukraine's growth potential close to 2.5 percent even without an increase in investment.

The gains to Ukraine's potential growth would be even higher if investment rates could also be raised alongside productivity growth. Boosting TFP growth to 3 percent per year and investment to 30 percent of GDP would result in potential growth of about 4 percent per year. Given declining total population this translates to GDP per capita growth of about 4.5 percent per year. With this growth rate, if sustained, Ukraine will be able to almost cut in half amount of years needed to achieve living standards of today's Poland.

Achieving high investment and productivity would not be easy. As of today, such investment rate is about 12 percentage points higher than the average of the past decade. In the absence of foreign direct investment (FDI) it would imply a 12 percentage points increase in the savings rate which is difficult to imagine for a population with the demographic characteristics of Ukraine. However, the target rate would be within reach if Ukraine attracted FDI and expanded exports vigorously. More importantly, increasing TFP to 3 percent annually depends on dramatically increasing productivity in the tradable goods sectors. In recent years growth has been driven primarily by non-tradable sectors.

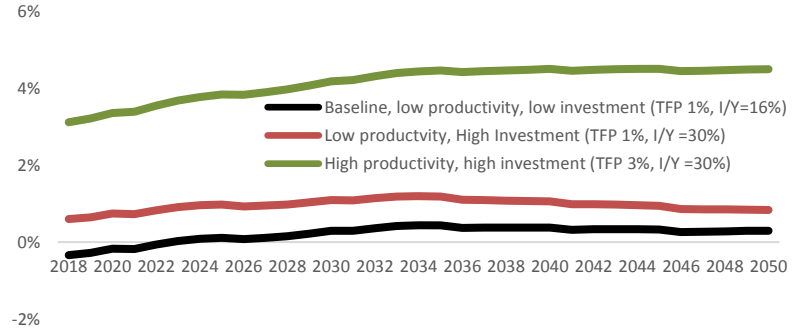
The link between investment and productivity is important. If an increase in investment went to new hotels, restaurants, "fancy" retail malls and sophisticated consumer services it is unlikely that it would be associated with a high and sustained increase in TFP. It is not that the expansion of these sectors would be 'bad' for the economy, it is that the growth of these sectors would only be sustainable if it followed the expansion of the tradable goods sectors.

Table 1-1: Projected long-term growth scenarios

	Annual GDP Growth Rate		Annual Per Capita GDP Growth Rate	
	2020-24	2025-29	2020-24	2025-29
Baseline, low productivity, low investment (TFP 1%, I/Y=16%)	-0.1%	0.1%	0.5%	0.8%
Low productivity, high Investment (TFP 1%, I/Y =30%)	0.8%	1.0%	1.9%	2.1%
High productivity, low investment (TFP 3%, I/Y=16%)	2.1%	2.5%	2.7%	3.2%
High productivity, high investment (TFP 3%, I/Y =30%)	3.6%	3.9%	4.2%	4.6%

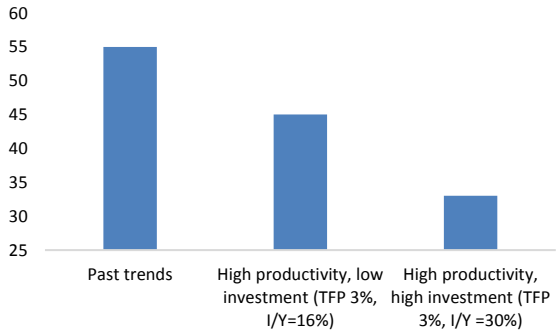
Source: World Bank calculations. Note: Simulations using the LTGM-PC calibrated to Ukraine, I/Y is the share of total investment in total domestic production; TFP = total factor productivity.

Figure 1-13: Real GDP Growth Rate (potential) scenarios with changing Investment and Total Factor Productivity



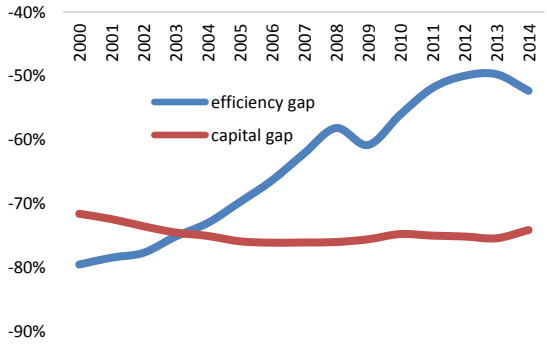
Source: World Bank calculations. Note: Simulations using the LTGM-PC calibrated to Ukraine, I/Y is the share of total investment in total domestic production; TFP = total factor productivity.

Figure 1-14: Number of years needed to converge to the current levels of income per capita in Poland, various scenarios



Source: World Bank simulations.

Figure 1-15: Ukraine's efficiency and capital gaps with respect to Germany, in percent



Source: World Bank staff calculations based on Penn World Tables 9.0.
Notes: efficiency gap defined as a ratio of Total Factor Productivity in Germany and in Ukraine minus one. Capital Gap as a ratio of capital stock per worker in Germany and in Ukraine minus one.

These scenarios clearly demonstrate that achieving high growth will require combining an increase in productivity growth and investment. The burden on investment and productivity growth are particularly high given that Ukraine's labor force is projected to decline due to demographic factors. This report argues that achieving high, sustainable and inclusive growth would require policy reforms in three areas (Diagram 1-1):

i. adjusting the role of the state, addressing distortions in factor markets and strengthening human capital to ignite productivity growth;

ii. facilitating FDI and integration into global value chains, improving logistics and connectivity to fully leverage external trade opportunities and

iii. maintaining stable macroeconomic policies, giving everyone an equal opportunity and strengthening rule of law to make economic institutions more resilient.

Diagram 1-1: Priority areas towards faster, lasting and kinder growth: igniting productivity growth, leveraging external trade opportunities, strengthening resilience of institutions

The experience of Eastern European transition economies that were early reformers can be instructive for Ukraine. There are many lessons Ukraine can learn from early reformers, including growth dividends made possible by prudential macroeconomic management and strong reforms that fostered integration with the world economy. For example, Slovakia, a relative latecomer to transition, managed to overcame governance and political challenges and to catch up on market reforms and achieve high growth rates, partly thanks to connection to the supply chain of global automotive industry.

SPOTLIGHT ONE: UKRAINE'S INCOMPLETE TRANSITION: A RETROSPECT 1991-2013

Following the collapse of the command and control model of organization of production and distribution, the transition economies followed a two-pronged strategy: the privatization of state-owned enterprises (SOEs) to develop a private sector that would use resources at hand more efficiently, and the development of institutions to facilitate market transactions and conflict resolution. The cost of carrying out these strategies was to be reduced by the entry of foreign direct investment (FDI) that would contribute modern management methods, technology and financial resources, and would facilitate the opening of markets in Western Europe and the rest of the world.

Compared with Eastern Europe or the Baltic States privatization of SOEs started late[2]. As of 2000 privatization results measured by cumulative privatization proceeds amounted to only 3 percent of the GDP (Elborgh and Lewis 2002).[3] Even in the case of agriculture where, following independence, Ukraine closed nearly all 12,000 of its collective farms, allocating non-land assets to non-state businesses (Sarna 2014; Nivievskyi and Reusche 2013) progress was slow[4]. Moreover, privatization was, for the most part, open only to Ukrainian nationals,[5] and it de facto benefited those with access to credit.

While this strategy may have kept a higher percentage of former SOEs in the hands of Ukrainian nationals it probably delayed the introduction of modern management methods, associated with large foreign firms, did not help open international markets for Ukrainian manufacturing products and, most likely, forced emerging firms to operate with high debt-equity ratios which may have had consequences on the capacity of these firms to withstand the dramatic external shocks that occurred between 2004 and 2016. Be that as it may, the privatization part of the two-pronged strategy worked far less smoothly than had been anticipated.

The second prong, the establishment of institutions that facilitate the development of private sector firms, also proceeded slowly. Beginning in the mid-1990s, Eastern European and Baltic states had started the process of accession to the European Union (EU). As a result, *de facto*, these countries *imported* Western European institutions which was the springboard inviting huge FDI in the following years. These

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[2] In 1992-94 there were divestures of about twelve thousand SOEs through lease buyouts by managers and employees. In 1995-98 the privatization program accelerated through auctions for privatization certificates for about 9 thousand medium and large enterprises. However, except for the case of agriculture and agro-industrial enterprises the advance of the privatization program during the 1990s was far from impressive.

[3] Elborgh-Woytek, K. and M. Lewis (2002), Privatization in Ukraine: Challenges of Assessment and Coverage in Fund Conditionality, IMF Policy Discussion Paper, PDP/02/7.

[4] Land assets were transferred to 6.92 million former workers, over 40 percent of the rural population, as land-shares. The land-shares corresponded to allocations of 4-8 hectares, depending on the size of the collective and the number of workers; at the same time, over 7 million rural residents were granted ownership of small plots of "reserve land" owned by the central or local governments. However, initially, land-share certificates denoted a specific plot size, but not a specified location, that is, workers did not receive clear title to demarcated plots, only a promise that they would eventually receive one. Significantly, the process of titling plots did not have a significant boost until May 2003 when Parliament passed a bill to regulate land titles.

[5] In practice it is hard to believe this limitation was too much of a constraint to censor the entry of potential foreign direct investment into the manufacturing sector.

conditions and geographical proximity with Western Europe facilitated attracting large FDI and helped narrow the time gap between the initial loss associated with the destruction of commercial networks and organizational capital and the development of a market economy. Neither Ukraine nor other CIS states benefited from accession into the EU. It turned out to be a huge obstacle to the foundation of institutions that facilitate the development of a market economy, and to the effectiveness of these institutions once they were established.

As a result the first decade of transition was characterized by reform delays, increasing inflation and deep and protracted recession. By the yardstick of number of years of continuous fall in GDP, Ukraine experienced 10 years of accumulated contraction, compared to 6.5 for other CIS countries and 3.8 for Central-Southern and Baltic (CSB) countries.[6] After a decade of contraction the Gross Domestic Product (GDP) index was at level 43, down from a base GDP in 1990 equal to 100[7].

Box 1-2 Why did Ukraine's GDP fall in the 1990s?

A starting point to answer this question is to decompose the rate of change of the GDP into the parts explained by changes in human capital (the labor force and the endowment of workers' skills); changes in the endowment of physical capital in production (machinery, roads, bridges, electricity infrastructure, ports and so forth); and productivity. A precise estimate of what happened is impossible given statistical limitations and the difficulty inherent in determining valuation of assets that had been built under a command and control rationale and whose value following reform depended on the net present value of highly uncertain future income flows. However, some clues as to what happened can be obtained through studying basic statistics on the path of the labor force, labor force participation, employment, unemployment, and the share of gross capital formation (investment) in the GDP.

First, what happened to the endowment of human capital? In 1991-99 there was a steep fall in the level of labor force (LABOR_FORCE) and of the labor force participation rates (LFP), Figure 1-16. The phenomenon is very similar to that observed in other transition economies. Although we can only guess as to the characteristics of the migrants it is very likely that their skills were much higher and their age younger than the average worker in the labor force.

Figure 1-16: Labor Force and Labor Force Participation

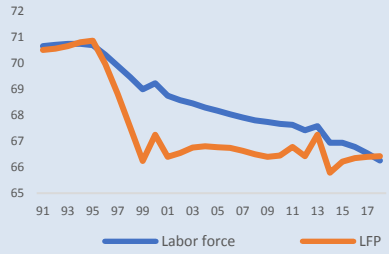
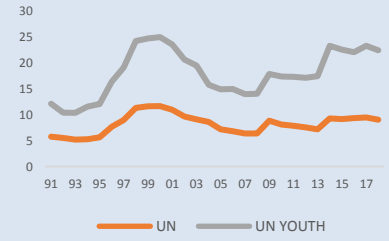


Figure 1-17: Rate of Unemployment



Source: World Bank staff calculations based on World Development Indicators.

Second, there was a steep increase in the unemployment rate (UN), Figure 1-17. It is noticeable that the incidence of unemployment was especially high among the youth (UNYOUTH) and has remained so during the whole period.

[6] The World Bank (2002), "Transition: the First Ten Years. Analysis and Lessons for Eastern Europe and the Former Soviet Union. ", Pp. ix, World Bank, Washington DC.

[7] The official estimate most likely overstates the GDP decline in Ukraine for two primary reasons. First, price indices most likely exaggerate the relative value of many Soviet era products that were produced from inertia in the early years of transition before being phased out. Second, the relative size of the informal economy likely expanded during this period. Several studies suggest that the actual size of the informal sector in Ukraine was closer to 50 percent of official GDP, as opposed to approximately 25 percent used in official estimates. CEM 2004.

Third, at 22.0 percent (Table 1-2) the average share of investment to GDP in 1991-1999 was about the same as the average, 23.2 percent, of the 172 countries for which there is information available in the World Development Indicators data set. Ukraine's investment share started to decline during 2000s.

Table 1-2: Investment Share in GDP, Mean (in Percent)

Period	All Countries	ECA	Belarus	Ukraine
1991-99	23.2	22.3	28.9	**22.0**
2000-08	23.4	22.5	28.6	**23.0**
2009-12	25.6	20.9	37.6	**20.5**
2013-16	24.2	20.5	32.0	**17.3**
1991-2016	23.7	21.9	30.6	**23.1**

Note: Arithmetic average based on Gross Capital Formation as a percent of GDP.
Source: World Development Indicators.

What can we conclude from data shown above? Reading the data through the lens of an underlying production function 88 percent of the fall in per capita GDP can be explained by a fall in total factor productivity, 8 percent is explained by the increase in the rate of unemployment (or fall in capacity utilization) and 4 percent can be attributed to changes in the labor force to population ratio. The production function, in economist's jargon, measures the potential GDP a country can reach by employing its human and physical capital resources. Total factor productivity is the ratio between the GDP and an index of the total endowment of factors of production; given the same endowment of factors of production (human and physical capital) a more efficient country can produce more GDP than a less efficient country; similarly, with the same endowment of factors of production a country can produce more (or less) GDP if the level of total factor productivity increases (declines).

Decomposition of the rate of growth of the GDP by component of aggregate demand shows a steep decline in aggregate demand during the period. Household consumption explains 53 percent of the decline followed by investment (43.4 percent), exports (17 percent), government consumption (12 percent), and offset by fall of imports (25 percent). In other words, the economy all but collapsed.

While these estimates are far from precise they strongly support the hypothesis that the steep decline in per capita GDP during the first decade of the transition is almost entirely explained by the disruption of commercial and production networks associated with the disintegration of the Soviet Union, aggravated by asset stripping and other ad hoc forms of privatization, called disorganization by Blanchard and Kramer (1997)[8].

In 2000-04 average GDP growth increased to 8.4 percent, up from -6.8 percent in 1995-99. This performance was similar to the average of Europe and Central Asia, excluding high-income countries (ECA), (see Table 1-3). Were there similar underlying reasons? To answer this question, it is helpful to decompose the rate of growth into the parts explained by different components of aggregate demand, and to analyze the contribution of different sectors of the economy to overall growth.

Table 1-3: Rate of Growth of Per Capita GDP

Period	2000-04	2005-08	2009-16
Ukraine	8.4	5.1	-2.2
Russia	6.9	7.1	0.6
Europe Central Asia	6.2	6.8	2.2
All countries	4.2	5.4	2.9

Note: Arithmetic average based on GDP at constant local currency units.
Source: World Development Indicators.

First, external circumstances provided a favorable context for the recovery. However, the policies undertaken by the GOU were also critical to the recovery: the fiscal accounts were in balance until 2003, and privatization and deregulation accelerated.

[8] *Blanchard*, Olivier, and Michael *Kramer*, 1997, "*Disorganization*," Quarterly Journal of Economics, Vol. 112 (November) pp. 1091-1126.

Household consumption explains 52 percent, net exports explains 22 percent and gross capital formation explains 21 percent *of overall growth in the period* (Table 1-4). Exports increased at an annual average rate of 12.2 percent and FDI inflows averaged 2.2 percent.

Table 1-4: Contribution to Growth by Component of Aggregate Demand

Aggregate demand	2000-04	2005-08	2009-16
Household consumption	52.0	78.0	-40.0
Government consumption	4.9	3.0	0.0
Gross capital formation	21.1	22.0	-65.0
Net exports	22.0	-3.0	5.0

Source: World Development Indicators.

Second, growth was broad based--all sectors showed clear dynamism in this stage of the recovery. Both tradable and non-tradable sectors showed strong growth during 2000-04. Table 1-5 shows the average rate of growth of value added in each period for each sector of the economy and the contribution the sector made to overall growth of value added.

Table 1-5: Contribution of Growth by Sector of Origin

	2000-04		2005-08		2009-16	
Sector	(1)	(2)	(1)	(2)	(1)	(2)
Agriculture	6.0	5.6	2.8	5.8	3.1	7.1
Mining	16.5	12.6	2.8	7.5	-4.5	-13.5
Manufacturing industry	11.3	17.2	3.1	13.4	-6.5	-31.6
Construction	9.2	7.6	-6.4	-13.6	-12.2	-19.7
Wholesale, retail etc.	17.9	19.1	6.9	27.8	-4.5	-23.6
Transport etc.	7.9	8.2	9.1	22.5	-1.2	-4.1
Other activities	9.3	29.8	4.5	36.7	-1.5	-14.6

Note: The first column of each period shows the geometric average rate of growth for the sector during the period. The second column shows the percentage contribution of the sector to overall growth. Agriculture= Agriculture, hunting and fishing= ISIC A+B; Mining= Mining and Utilities= ISIC C+E; Manufacturing industry= ISIC D; Construction= ISIC F; Wholesale, retail etc.= Wholesale, retail trade, restaurants and hotels= ISIC G+H; Transport etc.=Transport, storage and communications=ISIC I; Other activities= ISIC J to P.
Source: UN National Accounts Data Base.

Third, the private sector had a dominant role in both sub-periods of the growth acceleration of 2000-08; even so, there were huge differences between what happened within the private sector in each of the sub-periods. In the first sub period the expansion was led by rapid growth of exports and investment; in the second sub-period it was led by a consumption boom. The difference is sharply illustrated in the changes in the savings-investment gap between the sub-periods: in 2000-04 there was a 5 percentage point improvement of the savings-investment gap; an improvement made largely possible by strong fiscal performance[9] which fostered private sector expansion without creating stress upon the balance of payments.[10] In contrast, in 2005-08, there was a 17.7 percentage point of GDP deterioration of the aggregate savings-investment gap. The dominating factor in such deterioration was a decline in both private and public savings.

In 2005 to 08, the recovery of the economy continued, stimulated by high export prices and large international financial and capital inflows. The decomposition of the rate of growth is explained in part by changes in total factor productivity (TFP), the

[9] Claims on Central Government as a percentage of GDP fell from 15.2 percent in 1999 to 4.2 percent.
[10] During this sub-period credit to the private sector increased by 16 percentage points of GDP.

labor to population ratio, capacity utilization, and capital-labor ratio. Figures in these areas show exactly the opposite during this period than in the first decade of transition: 77 percent to 81 percent of the expansion is explained by an increase in TFP. The rest is explained by a fall in the rate of unemployment (about 6 percent), changes in the labor force to population ratio (about 4 percent) and changes in the capital-labor ratio (between 4 percent and 8 percent). The economy stabilized, and resources were put back to work.

Table 1-6 presents several indicators about the financial transformations of the economy from 2000-04 to 2005-08. The third column shows the gradual increase of the ratio credit to the private sector to GDP from 1999 to 2004 and the explosive increase of this ratio in 2005-08. The fourth column shows the balance on current account as a percentage of GDP whose trajectory differentiates clearly the two sub-periods. The fifth column shows the increasing importance of FDI revenue in 2000-04 and 2005-08. The last column shows the increase in importance of the ratio personal remittances to GDP as workers emigrate in search of better job opportunities. The possibility to emigrate sets a reservation price for worker skills that have alternative job opportunities outside Ukraine.

Table 1-6: Several Financial and BOP Indicators

	Claims on Central Government as a percentage of GDP	A Ratio of credit to the private sector to GDP	A Ratio of current account of the balance of payments to GDP	A Ratio of foreign direct investment to GDP	A Ratio of personal remittances to GDP
1999	15.2	8.6	5.3	1.6	0.1
2000	11.4	11.2	4.7	1.9	1.3
2001	9.5	13.0	3.7	2.1	2.2
2002	8.5	17.7	7.5	1.6	2.8
2003	6.0	24.6	5.8	2.8	3.0
2004	4.2	25.2	10.6	2.6	2.9
2005	-1.3	32.2	2.9	9.1	2.8
2006	-1.2	44.4	-1.5	5.2	2.9
2007	-0.5	58.2	-3.7	7.1	3.7
2008	2.6	88.4	-7.1	5.9	3.8

Source: World Development Indicators.

A current account deterioration of the magnitude of that experienced by Ukraine should always to be watched carefully; even so it should not to be interpreted mechanically as if it is the prelude of a crisis. However, when the driving force for the deterioration is an increase in consumption, both private and public, rather than an increase in investment, the balance of payments sustainability of the change is more questionable. Sustainability is further questionable when the expected rate of return on new investment is doubtful, as was the case in Ukraine. The reason the expected rate of return on the new investment was doubtful is that investment was used predominantly to expand the capacity of the services sector (which produces mostly non-tradable goods and services) rather than for the production of tradable goods and services; and it was financed by loans in foreign currency granted by the banking sector.[11]

The combination of these factors made the expansion of 2005-08 unsustainable and the situation of the banking system highly vulnerable. The financing of this increasing

[11] The ratio credit to the private sector to GDP increased from 25.3 percentage of the GDP in 2004 to 88.4 percent in 2008.

balance of payments gap was mainly short-run, which implied that a change in financiers' sentiments would make the deficit unsustainable and provoke a rapid depreciation of the Hryvnia and a deep contraction. Expansionary fiscal policy and unwary banking supervision aggravated the magnitude of the adjustment.

The global financial crisis of 2008-09 set off, in Ukraine and elsewhere, a sharp decline in international financial and capital inflows and brought a sudden halt to nine years of sustained economic growth. To provide context for the changes Table 1-7 shows changes in the current account balance and its underlying components, and changes in savings and in investment, expressed as a percentage of GDP, between 2006-08 and 2009-11 for transition states divided in two groups: CIS and non-CIS states. Non-CIS transition states had much larger current account adjustments, with median 5.1 percent of GDP, than did CIS countries, with median 0.2 percent of GDP, between the two periods. In addition, non-CIS transition states had a median increase in the savings-to-GDP ratio of 0.3, while CIS states had a median savings-to-GDP ratio of 3.7 percent. This is a trend opposite to what they need to undertake the investment necessary to modernize the economy.

In Ukraine, the sudden halt of financial inflows triggered both a balance of payments crisis and a banking crisis. In 2009 adjustment was brutal: the GDP fell 14.9 percent, the Hryvnia depreciated 50 percent, and the current account deficit fell from 7 percent to 1.5 percent of GDP (explained by a 15.1 percentage point decline in the savings ratio and an 8 percent fall in the investment ratio). The depreciation of the Hryvnia had an immediate impact in the balance sheet of firms that had taken loans denominated in foreign currency, by menacing a generalized default and triggering a run of deposits outside the banking system.

Table 1-7: Change in Current Account, Savings and Investment: 2006-08 to 2009-11 (as a percentage of GDP)

Country	Change in Current account balance	Change in savings rate	Change in investment rate	Country	Change in Current account balance	Change in savings rate	Change in investment rate
CIS				**Non-CIS**			
Armenia	-5.5	-15.3	-9.7	Albania	-1.9	-1.5	0.4
Azerbaijan	-0.4	-2.3	-1.9	Bosnia Herzegovina	3.0	-3.0	-6.0
Belarus	-5.5	-1.4	4.1	Bulgaria	18.4	8.8	-9.6
Georgia	7.8	-1.5	-9.3	Croatia	5.1	-2.7	-7.9
Kazakhstan	2.8	0.7	-2.1	Czech Republic	0.4	-4.1	-4.4
Kyrgyzstan	2.7	5.4	2.7	Estonia	15.3	0.3	-15.0
Moldova	4.4	-9.7	-14.1	Hungary	7.1	2.8	-4.3
Russia	-2.6	-5.2	-2.6	Kosovo	-0.1	4.3	4.4
Tajikistan	-2.5	-8.1	-5.6	Latvia	20.4	4.3	-16.2
Ukraine	0.8	-12.2	-13.0	Lithuania	12.1	0.2	-11.8
Mean	**0.2**	**-5.0**	**-5.2**	Macedonia	3.0	4.8	1.8
Median	**0.2**	**-3.7**	**-4.1**	Montenegro	22.0	6.3	-14.1
				Poland	0.8	-1.5	-2.4
				Romania	7.0	3.5	-3.4
				Serbia	11.9	1.1	-10.8
				Slovak Republic	2.1	-3.9	-5.9
				Slovenia	3.6	-5.8	-9.4
				Mean	**7.8**	**0.8**	**-6.8**
				Median	**5.1**	**0.3**	**-6.0**

Note: jY is defined as the arithmetic average of the j-to-GDP ratio for j= current account balance, savings and investment. The change reported corresponds to the difference between the arithmetic average of 2009-2011 and 2006-2008.

Source: World Development Indicators.

In late 2008, the Government implemented a stabilization program supported by the World Bank and the IMF with $16 billion in U.S. dollar financing[12]. However, the adjustment effort stalled after 2010 so that the average current account adjustment for the three-year period 2009-11 amounted to only a modest 0.8 percent of GDP compared to 2006-08. The change is explained by a 12.2 decline in the savings-to-GDP ratio and a 13 percent decline in the investment ratio, Table 1-7.

Table 1-8: Several Financial and BOP Indicators

	Claims on Central Government as a percentage of GDP	Ratio credit to the private sector to GDP	Ratio current account of the balance of payments to GDP	Ratio foreign direct investment to GDP	Ratio personal remittances to GDP
2009	8.0	90.6	-1.5	4.1	5.1
2010	10.7	78.6	-2.2	4.7	4.8
2011	11.3	71.1	-6.3	4.4	4.8
2012	13.2	69.6	-8.2	4.7	4.8
2013	16.7	73.5	-9.0	2.5	5.3
2014	27.9	75.2	-3.4	0.6	5.5
2015	23.5	56.7	1.8	3.4	9.3
2016	27.7	47.4	-1.4	3.7	10.2

Source: WDI.

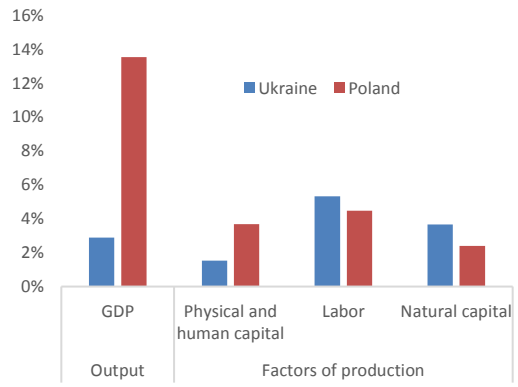
The stabilization program of 2009 brought a short-lived adjustment, but the adjustment effort stalled after 2010. The path of the current account of the balance of payments between 2009 and 2013 suggests that Ukraine had access to large external savings and that these inflows made it possible to relax fiscal discipline and postpone inevitable reform of the banking system. The ultimate consequence of incomplete restructuring of banks was hysteresis. The initial circumstances that prompted the crisis had been only partially addressed and the fledgling private sector suffered from credit asphyxia.

[12] In the spring of 2009, under a Word Bank-supported program and with technical assistance, the GOU established a framework for recapitalization of systemic problem banks, the least-cost resolution of non-systemic problem banks and strengthened insured deposit payout capabilities. Although these measures helped to stop the leakage of deposits out of the banking system, there was very little bank restructuring.

CHAPTER 2 INCREASING AGGREGATE PRODUCTIVITY: THE ROLE OF FACTORS OF PRODUCTION

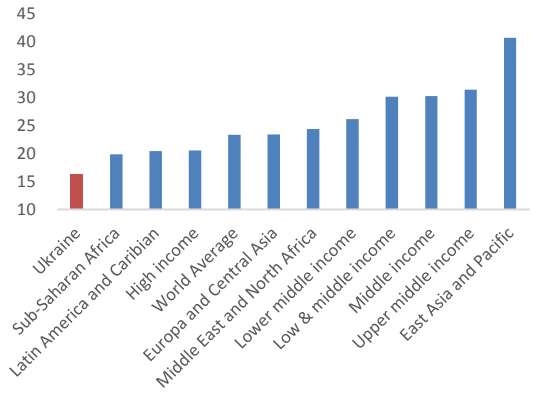
Bold aspirations require Ukraine to make the most of its available opportunities. Today Ukraine's biggest opportunity is achieving a more efficient use of its endowments. Specifically, over the long-term, the supply side factors and the returns resulting from the allocation of these factors across sectors and firms are key determinants of economic growth. The aggregate productivity—the way labor, capital and land are used across sectors and firms—remains low. Ukraine accounts for about 5 percent of total population of Europe and Central Asia but produces only 3 percent of the region's GDP, while, Poland, with about the same population, produced 13 percent of the region's GDP (see Figure 2-1). While it is indeed the case that Ukraine's capital stock is lower than in Poland, the largest difference between the levels of income in both countries is due to the various ways that economies use these factors of production.

Figure 2-1: Ukraine's and Poland's Shares of GDP and Factors of Production in ECA Total



Source: Wealth of Nations, World Bank.

Figure 2-2: Gross Fixed Capital Formation, Percent of GDP, Average 2010-17



Source: World Development Indicators.

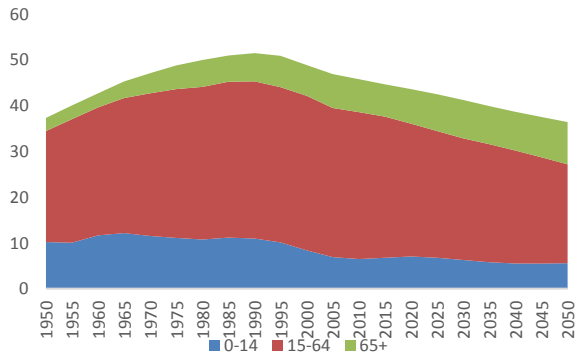
This chapter takes stock of Ukraine's factor endowments—labor, physical and human capital and land. The key conclusion of the chapter is that while Ukraine will continue to be constrained by aging and shrinking labor force and skills mismatch, the most important impediment to productivity growth has been low investment rates (see Figure 2-2). The initial capital stock was largely tied up in machinery and equipment in vertically integrated production chains spread across states of the former Soviet Union. During the transition period scarce investments were insufficient to modernize technologies and develop a *new* economy as (i) Ukraine continues to struggle to attract FDI, (ii) the legacy of the financial crises of 2009-15—debt overhang—continues to discourage capital formation, and (iii) large public-sector imbalances continue to crowd-out and divert limited resources.

LABOR: AGING AND SHRINKING

Over the last two decades Ukraine experienced an unprecedented quantitative transformation in the labor market: (i) changes in the age composition of the population and the labor force due to demographic transition, (ii) structural changes in sectoral composition of employment as the agricultural and industrial sectors experienced reduced shares in total employment and (iii) significant decline of labor force due to migration. The labor market transformation has a profound impact on Ukraine's growth.

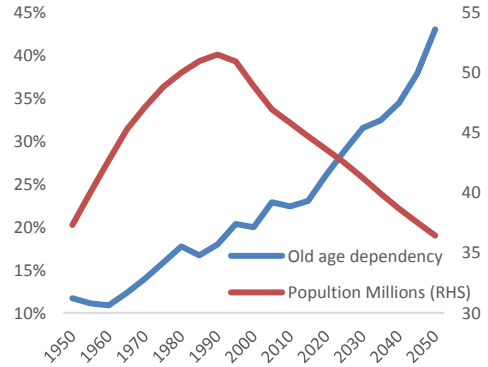
First, Ukraine's demographic dividends are reversing. The labor force[13] is projected to have an even stronger trend toward decline and aging than the total population (see Figure 2-3). Ukraine is already classified as "already old" because it has surpassed the threshold of 10 percent of population in the 65 and older age group (see Figure 2-4). Due to below-replacement fertility levels, high mortality, and emigration of the working-age population, Ukraine is expected to lose more than 6.2 million people of all ages and about 8.3 million people of working age by 2050. Between 1991 and 2017, in percentage terms Ukraine's labor force declined slightly less than the population decline. This was due to positive demographics. However, going forward that will not be the case. If labor force participation rates per age group remain constant at the level of 2011 and if projected changes in total population by the same age groups are taken into account, the labor force is projected to shrink by more than 15 percent by 2035. The share of the most active and productive age cohorts in the labor force—those 25 to 49 years—is projected to increase from 64.3 percent in 2012 to 66.4 percent in 2020 but then it will persistently decline to about 59.2 percent in 2035.

Figure 2-3: Ukraine's Declining Population. Millions of People



Source: UN population estimates.

Figure 2-4: Total Population and Share of Old People



Source: UN population estimates.

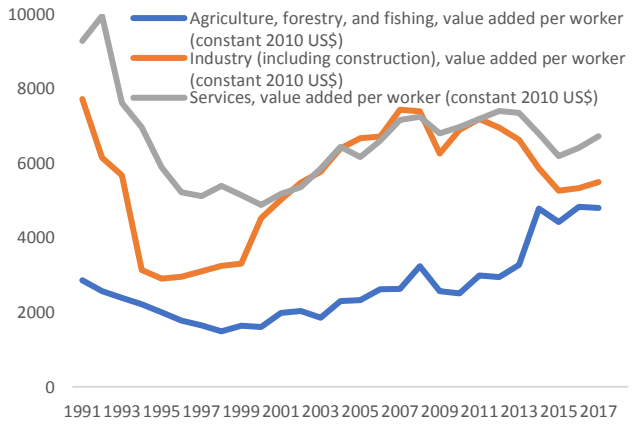
So far the negative impact of aging on per capita growth in Ukraine has not been observed so far because the share of the working-age population had been increasing in the past and the employment rate was also increasing. Until 2016, changes in the working-age population to population ratio have been minimal and

[13] The population aged 15-70 years, which contributes to the production of goods and services in the country and includes those who are either employed or unemployed.

most of changes in GDP per capita can be attributed to changes in labor productivity[14].

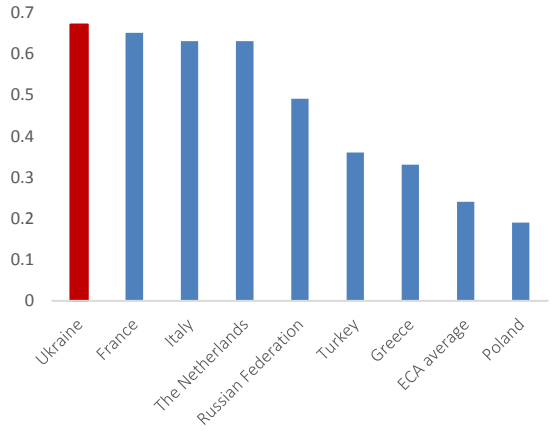
Secondly, growth dividends from structural transformation of the labor market are narrowing. Over the last three decades Ukraine experienced an unprecedented *quantitative* transformation in the labor market—structural changes in sectoral composition of employment as the agricultural and industrial sectors experienced reduced shares in total employment. Growth prospects in the medium and long terms depend, however, on whether the displaced labor goes to sectors with faster or slower productivity growth than the sector they came from. In the case of Ukraine, the ratios of value-added per worker relative to other sectors are very similar. The ratio of labor productivity in agriculture relative to the service sector stood at nearly 60 percent in Ukraine, based on 2012-17 averages. This compares to Italy and France. The agriculture-industry ratio for the period is 67 percent, which is among the highest reported in the figure below. Given the gains in labor productivity in agriculture, the problem lies with under-performing non-agricultural sectors.

Figure 2-5. Value-added per Worker in Agriculture, Industry, and the Service Sector, Real terms



Source: World Development Indicators.

Figure 2-6. A Ratio of Labor Productivity in Agriculture and Industry



Based on average values, 2012-2016. Value-added are expressed in $US (2010=100). Source: World Development Indicators.

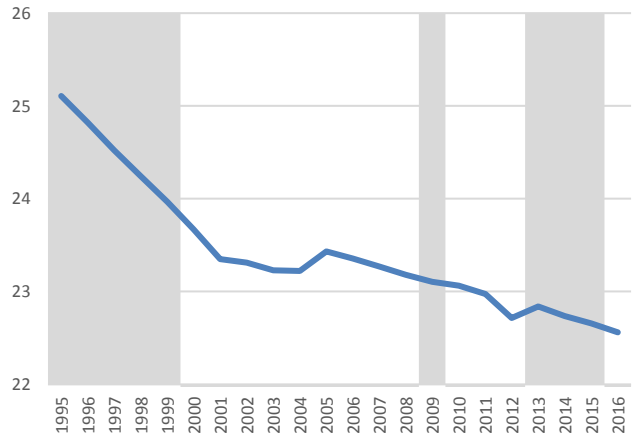
Thirdly, the resident population of Ukraine declined from 51.7 million at the end of 1991 to 45 million at the beginning of 2017, representing a loss of about 13 percent. With an average annual rate of population decline at 0.6 percent, Ukraine ranks second in the world (together with Bulgaria and Georgia) and after Moldova in terms of the pace of depopulation. Convergence of value added per worker among key sectors at very low levels is yet another strong push factor for outward migration of the labor force.

Labor migration to Poland has accelerated quite significantly in recent years. According to recent findings from the National Bank of Poland (NBP), a record-breaking 2 million Ukrainians entered the Polish labor market in 2017—an increase of 40 percent over 2016 levels. This wave is also partly explained by changes in regulatory tides in Poland. A recent change in the Polish work permit procedure

[14] Growth of GDP per capita can be expressed as growth of GDP per person employed (a proxy for labor productivity), growth of working-age population to population ratio (a proxy for aging), and growth of employment to working-age population (a proxy for the employment rate).

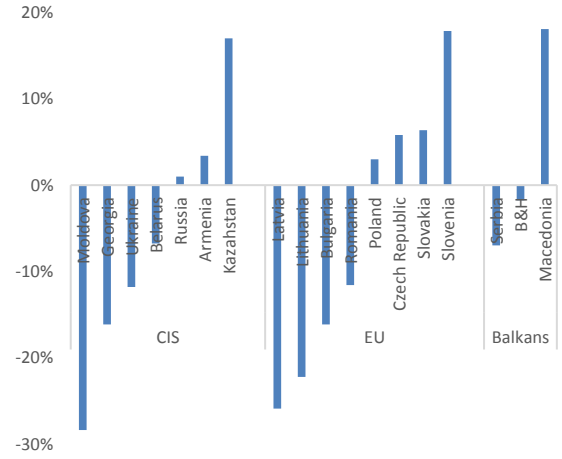
made it possible for individuals to work in Poland for up to 6 months per year without a permit. Polish employers, who already had an incentive to hire from the disciplined and relatively affordable Ukrainian workforce, found that the newly relaxed regulatory framework made it much easier to hire Ukrainian migrants.

Figure 2-7. Dynamics of Ukraine's Employment, in Millions



Source: World Bank Development Indicators.

Figure 2-8. Change in Employment Levels, 1991 versus 2016, Percent



Source: World Bank Development Indicators.

HUMAN CAPITAL: MANY DIPLOMAS, BUT FEWER SKILLS

Human capital—the sum of a population's skills, knowledge, experience, habits, and health—is, arguably, the most important resource for sustainable economic growth—it is the glue that brings together the other factors of production. The developmental impacts of inadequate human capital are severe. This section focuses on three aspects of human capital: education, skills and health care.

Box 2-1: Human Capital Index

The value of human capital can be calculated in several different ways. Traditionally, economists have done so by measuring how much more people earn after staying in school longer. Studies have found that each additional year of education increases a person's income by about ten percent on average. The quality of the education matters, too. In the United States, for example, replacing a low-quality teacher in an elementary school classroom with an average-quality one raises the combined lifetime income of that classroom's students by $250,000.

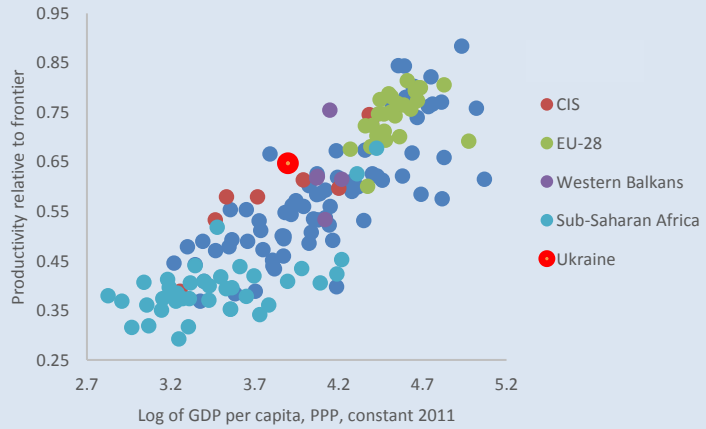
But cognitive abilities are not the only dimensions of human capital that count. Socioemotional skills, such as grit and conscientiousness, often have equally large economic returns. Health also matters: healthier people tend to be more productive.

World Bank has launched the human capital index—the new index measures the amount of human capital that a child born in 2018 can expect to attain by age 18 in view of the risks of poor education and poor health that prevail in the country in which she was born. The index is designed to highlight how improvements in the current education and health outcomes shape the productivity of the next generation of workers: it assumes that children born in a given year experience current educational opportunities and health risks over the next 18 years. A focus on outcomes—and not inputs such as spending or regulation—directs attention to results, which are what really matter. It also makes the human capital index relevant to the policy makers who design and implement interventions to improve these outcomes in the medium term.

The human capital index quantifies the milestones in this trajectory in terms of their consequences for the productivity of the next generation of workers. It has three components: (1) a measure of whether children survive from birth to school age (age 5); (2) a measure of expected years of

quality-adjusted school, which combines information on the quantity and quality of education; and (3) two broad measures of health—stunting rates and adult survival rates.

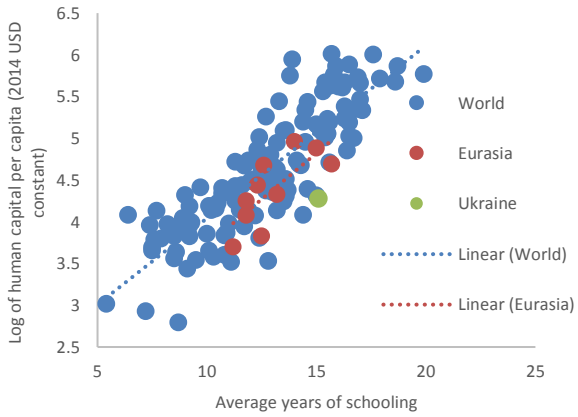
The Human Capital Index 2018 and real GDP per capita



Source WDR 2019.

First, Ukraine has high literacy rates, large numbers of university students, and significant numbers of graduates who contribute to industrial and scientific progress. Yet, cross country comparisons of education attainment are informative but capture only a small part of the picture. Such comparisons create the perception that Ukraine has a high education endowment. Cross country data suggest that persistently high and rising education attainment rates—education quantity—are not accompanied by high-quality education outcomes. Estimates suggest that Ukraine has one of the lowest levels of human capital controlled for its level of average years (see Figure 2-9). Similarly, number of registered patents per capita, an indicator of ability to apply knowledge, remains low (see Table 2-1).

Figure 2-9: A relationship between average years of schooling and log of human capital per capita



Source: World Bank Development Indicators. Human Capital estimates from World Bank Wealth of Nations 2018.

Table 2-1: Patents registration in the United States Patent Office (all years up to 2015)

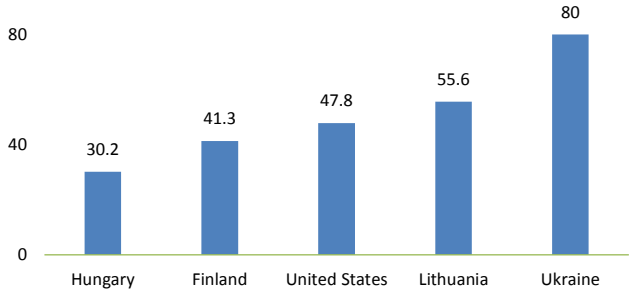
	Per 100,000 people	Patents
Germany	442.6	365627
Korea, Republic of	325.1	166353
Estonia	18.1	236
Poland	3.8	1442
China	3.3	45366
Belarus	1.4	128
Ukraine	**1.1**	**496**
Turkey	0.9	748

Source: United States Patent office.

In fact, Ukraine enjoys one of the highest enrollment rates in the higher education and high levels of budget outlays on education. Throughout the last decade at least 80 percent of Ukrainians between ages of 25 to 34 have a higher education degree (see Figure 2-10). While in the European countries this share varies from as low as 30.2 percent in Hungary to as high as 55.6 percent in Lithuania, far below levels

observed in Ukraine. High student enrollment rates coincide with relatively high levels of spending on education—averaging about six percent of GDP—one of the highest in the world (with only 1.6 percent of GDP on tertiary education).

Figure 2-10: Population with tertiary education (25-34 year-old, percent in the same age group, 2017 or latest available)



Source: OECD.

However, there is a major supply and demand mismatch in Ukraine's labor market. Firms demand skills that are not supplied by the labor market. According to the Ukraine STEP Employer Survey 2014—more than 40 percent of surveyed firms in Ukraine consider skills a major barrier to their growth. The level of skills does not necessarily equate with educational attainment: a diploma does not guarantee that graduates perform well in the workplace. Looking directly at prospective employees' skills—formed in and out of school—provides a more accurate view of human capital than just looking at years of schooling. A large body of recent empirical work documents the importance of skills, rather than formal educational attainment, in fostering employment and raising productivity. Developing skills increases employability and enables workers to carry out their jobs more efficiently, to use new technology, and to innovate. Hiring people with better skills allows firms to move up the value chain.

The skills mismatch is an outcome of the current system of tertiary education which continues to struggle to adapt to meet demands of today's labor market. There are several causes. First, the current model of financing (the government is funding an institution largely based on the number of students enrolled) reduces incentives to improve the quality of education at the institutional level. Second, education curriculum often is outdated. While firms seek to partner with education institutions to provide inputs to the curricula, less than a quarter of all firms surveyed actually have regular contacts with education or training institutions. Third, still high levels of corruption in higher education undermines the value and relevance of diplomas. According to the survey of Democratic Initiatives Foundation (conducted in 2017) 37 percent of the teaching personnel was recognized as corrupt (down from 50 percent in 2015)[15]. According to OECD report (2017) only one HEI in Ukraine was named mostly free of corruption—Kyiv-Mohyla Academy.

The impact of the skills gap on economic growth over the long term requires a more careful review. Recent empirical literature stresses[16] that the specific effect of

[15] Most of the applicants to HEIs reported about unequal opportunities during the admission process and application for financial aid.

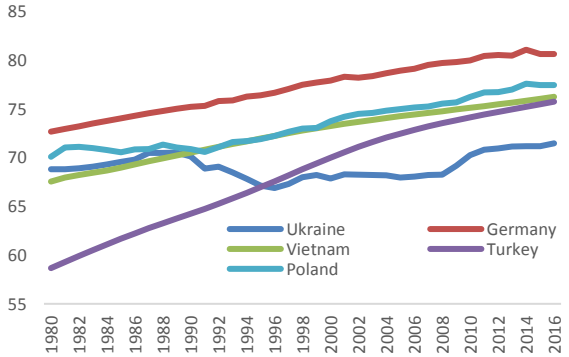
[16] Acemoglu et al. (2006), Vandenbussche et al. (2006), Aghion et al. (2009) or Papakostantinou (2014).

different levels of skills on economic growth would depend on the type of technological activities carried out by each economy (namely whether a country performs *technology innovation* or *technology adoption*). Vandenbussche, Aghion and Meghir (2006) argue, for instance, that "tasks of imitation and innovation require different types of human capital; in particular, it is reasonable to assume that unskilled human capital is better suited to imitation than to innovation". Also, it is assumed that "a marginal increase in the stock of unskilled human capital enhances productivity growth all the more the economy is further away from the technological frontier". Over the medium-term the hypothesis is that Ukraine requires *technology* innovation, and hence, the skills gap is an important constraint to economic growth.

Finally, health outcomes in Ukraine today are poor. Life expectancy at birth in Ukraine is 71 years, more than 10 years less than the EU average. The adult mortality rate is significantly higher than the average for Europe, especially for men the mortality rate is 65 percent higher. NCDs are the main cause of morbidity and mortality: cardio-vascular diseases and cancer accounted for 81 percent of all deaths in 2013-2014. Over 25 percent of the adult population, 18 to 65 years of age, has a chronic disease or condition; around 7 percent have multiple (three or more) chronic diseases or conditions. In addition, Ukraine has the highest HIV and tuberculosis prevalence in Europe.

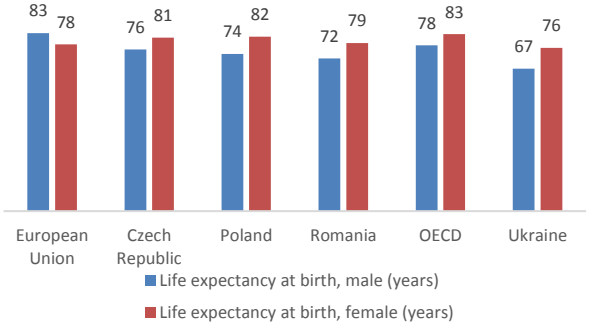
Improving health care outcomes is important both for the well-being of Ukrainians and their economic development prospects. The health system in Ukraine has not changed much from Soviet times when it was designed to cope with acute episodic care. Health care needs of Ukrainians today mostly relate to non-communicable diseases (NCDs), which require behavioral changes and health promotion. As a result life expectancy at birth remains low (see Figure 2.11 and Figure 2.12). Over 80 percent of deaths of working-age men were from illnesses that could have been treated through better primary care. The estimated number of productive life years lost due to premature death and disability is 5.9 million years annually (among the 45-65 age group) in Ukraine. This situation is hindering Ukraine's economic performance. Bloom, Canning, and Sevilla (2004) demonstrate that raising life expectancy by one year raises steady-state GDP per capita by about 4 percent.

Figure 2.11. Life Expectancy: Ukraine and Comparators, 1980–2016



Source: World Development Indicators, WHO, 2015.

Figure 2.12. Life Expectancy at Birth, Ukraine and Comparators, 2016



CAPITAL: LOW INVESTMENT AND DEBT OVERHANG

Ukraine's stock of physical capital is low and has been declining. Ukraine began the transition process with high levels of physical capital and infrastructure. However, a significant share of this capital was tied up in machinery and equipment in vertically integrated production chains spread across states of the former Soviet Union. The economic value of this physical capital stock depended on the preservation of the commercial relationship between these enterprises and their clients in other CIS countries, but once these relationships weakened or were interrupted, this value fell abruptly.[17]

Given the collapse of output in the early stages of transition, Ukraine just like other countries in emerging Europe underwent a dramatic decline in saving rates and a collapse in investment. Scarce investments were insufficient to modernize technologies. On average, the share of investment in GDP before the 2008-09 global economic crisis was about 23 percent; it later fell to 17 percent (see Figure 2-13 and Figure 2-14). The new investment has overwhelmingly entered the services sector, where legacy was low, rather than manufacturing or public utilities, where legacy is still high and entry more difficult.

Figure 2-13: Ukraine's savings and investment rates over years, percent of GDP

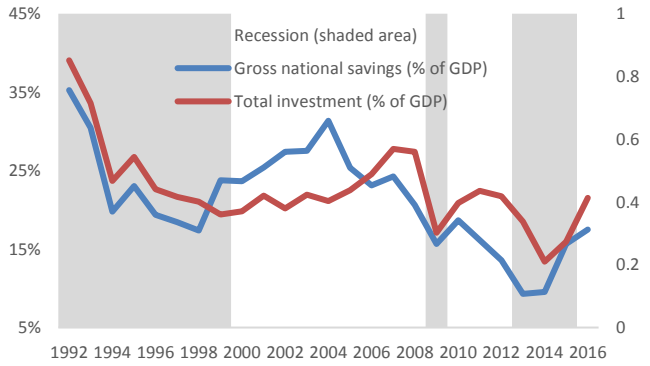
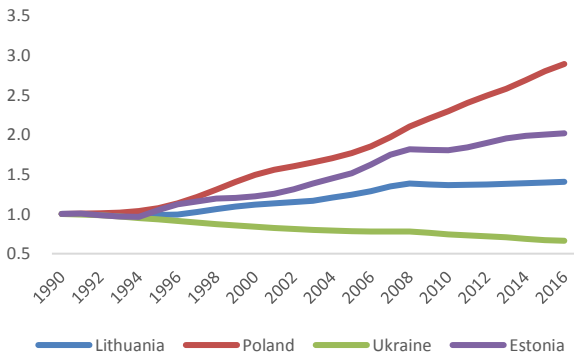


Figure 2-14: Capital Stock, index, 1990=1



Source: World Bank Staff Calculations based on World Economic Outlook Data, IMF, Penn World Tables 9.0.

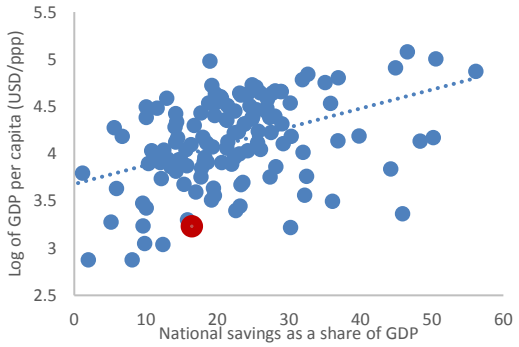
Studies that link quantity and quality of capital to growth and development have been prominent in economics, from Adam Smith (1776) and David Ricardo (1817) to Robert Solow (1956) and Paul Romer (1990). Simply put, a larger stock of capital—especially human capital—leads to faster growth (Bravo-Ortega and de Gregorio 2005). The Commission on Growth and Development estimated that countries which maintained high growth for several decades have invested at least a fourth of their output in fixed capital and that their governments have dedicated about 7 percent of GDP to infrastructure and other public capital goods.

Not only has Ukraine's savings rate remained low, most of domestic savings are not channeled through a formal financial sector (see Figure 2-16). The proportion of employed population who save and use financial institutions for savings in Ukraine are significantly lower than in Turkey and Poland. Reliance on informal mechanisms

[17] While buildings and other constructions may have been recycled into new destinies a high share of the past investment in machinery and equipment was irreversible.

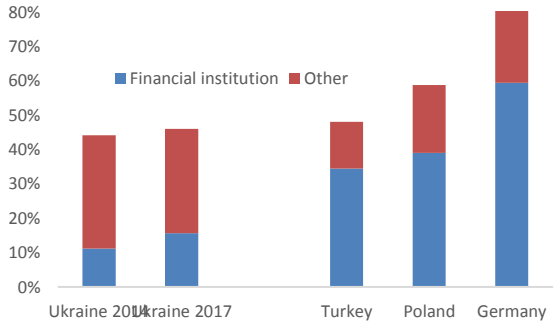
for savings undermines optimal use of these savings. In part this also explains why Ukraine is an outlier—for its level of national savings as a share of GDP it has the lowest level of GDP per capita (see Figure 2-15).

Figure 2-15: National Savings (Percent of GDP) and Log of GDP Per Capita Various Countries



Source: World Bank Staff Calculations based on World Development Indicators.

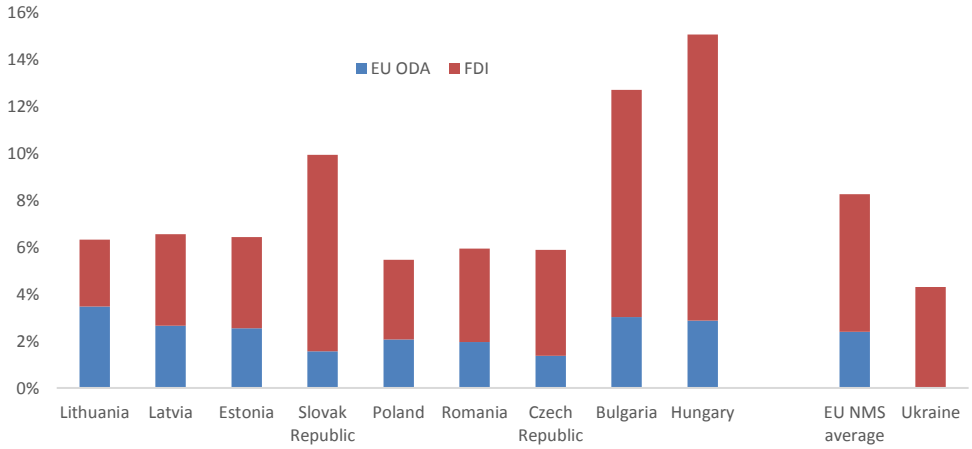
Figure 2-16: Proportion of Employed Population Who Save and Use Financial Intuitions for Savings



Source: World Bank Financial Sector indicators.

Ukraine had to rely on foreign savings, but the types of capital that Ukraine received was different from that of other transition countries that were on accession path with the EU. First, foreign direct investment (FDI) was lower than in other emerging markets. Moreover, the empirical work by Stojkov and Zalduendo (2011) showed that in countries where the EU membership prospects are still distant—such as the EU eastern partnership countries like Ukraine—foreign savings had not contributed to their economic growth. Second, insufficient financial development and weak institutions reduced absorption and caused capital inflows to boost unsustainable private and public consumption or asset-price bubbles that weakened the link to growth. Moreover, banking and other flows recorded a sharp increase in 2005-08 relative to the proceeding 4-year period.

Figure 2-17: Average Annual Inflows, Percent of GDP, 2004-17



Notes: FDI inflows from balance of payments, EU ODA defined as official net contributions received from EU, most of it in capital transfers

Ukraine continues to struggle to attract FDI—official statistics overestimate genuine FDI flows. The use of "round-tripping" practices—where Ukrainian investors use legal entities in offshore jurisdictions to channel local funds back to the local economy in

the form of FDI—continues to be widespread[18]. Moreover, about half of these flows are absorbed by non-tradable sectors—financial intermediation, construction and real estate and retail trade (see Figure 2-18 and Figure 2-19). With some exceptions, mostly in agribusiness, consumer products, retail trade and financial services, few large multi-national enterprises have invested in Ukraine (OECD, 2016). The investment flows to manufacturing have declined quite significantly due to a sharp decline in investment in industries related to basic metals.

Figure 2-18: Structure of FDI inflows by countries

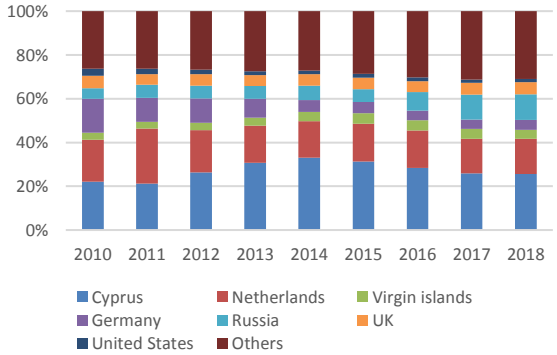
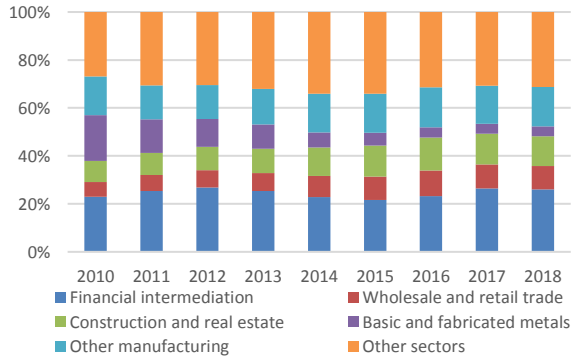


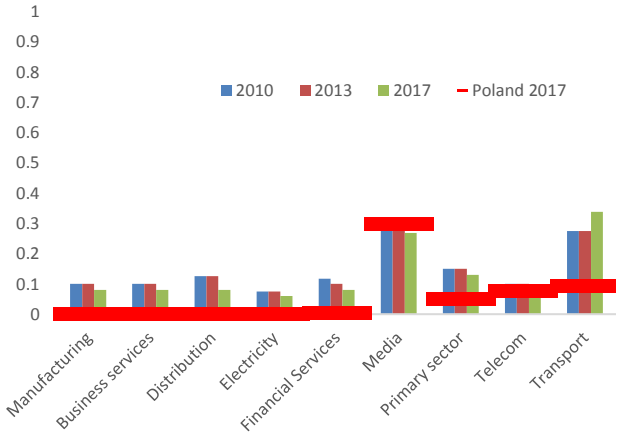
Figure 2-19: Structure of FDI inflows by sectors



Source: National Bank of Ukraine.

There are reasons why capital is not flowing into Ukraine. First, Ukraine's policy framework and high geopolitical uncertainty do not support the absorption of foreign savings. Second, differences in risk-adjusted returns to capital and low total factor productivity also constrain the absorption of foreign capital—the quality of economic policies and institutions might affect the returns to capital at high levels of industrialization and low levels of aggregate productivity. Third, many sectors continue to face various restrictions to foreign capital (see Figure 2-20).

Figure 2-20: FDI restrictedness index by sectors in Ukraine (2010, 2013, 2017) and in Poland 2017



Source: OECD (2018), FDI restrictiveness (indicator).
Notes: FDI restrictiveness is an OECD index gauging the restrictiveness of a country's foreign direct investment (FDI) rules by looking at four main types of restrictions: foreign equity restrictions; discriminatory screening or approval mechanisms; restrictions on key foreign personnel and operational restrictions. Implementation issues are not addressed and factors such as the degree of transparency or discretion in granting approvals are not taken into account. The index here shows the total and nine component sectors taking values between 0 for open and 1 for closed.

[18] As if January 1, 2018 the total stock of Ukraine's outward investment to Cyprus was 39 percent of total.

Financial intermediation is crucial for domestic and foreign savings to support growth. Over the last two decades Ukraine's financial sector had chronic problems including widespread related party lending, substantial banking supervision weaknesses, and an underdeveloped financial infrastructure. In addition, the financial sector had been under severe stress in recent years. In 2014 bank liquidity and asset quality were hit hard by the precipitous depreciation of the Hryvnia, the large contraction in GDP, and the security crisis. The stress in the financial sector has in turn reinforced the economic downturn and macroeconomic vulnerabilities.

Box 2-2: Related party lending

Related party (RP) lending was a common practice for Ukrainian banks for a long time. Insufficient control and regulation of these transactions caused accumulation of major risks that materialized during the crisis of 2014–15.

The diagnostic study of banks' RP exposures found that banks deliberately underestimated the share of such loans by dozens of times. Before the diagnostic study the banks recognized UAH 1.5 billion of RP loans, after the study - UAH 31.9 billion, failed banks excluded.

The issue of RP loans is most burning for private banks with Ukrainian capital. As of the end of 2016, RP loans accounted for 27% of said banks' corporate loan portfolio.

Of 99 diagnosed banks, 44 had exceeded RP loans limits (over 25% of the regulatory capital). Thirteen such banks have already gone bankrupt. At present, 21 banks exceed RP lending ratio and currently implement the RP lending reduction program.

The total RP loans at bankrupt banks exceeded UAH 83 billion. These loans remained non-performing and have caused substantial losses. Repayments to depositors of these banks from public funds amounted to UAH 38 billion. The rest of the amount was borne as direct losses by businesses and households.

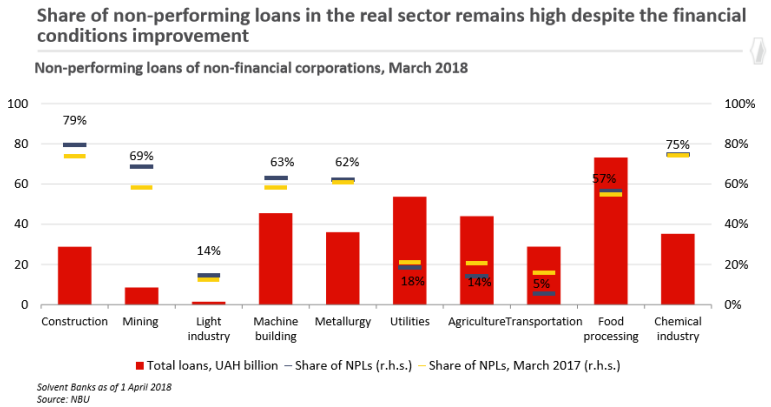
Related companies usually have poor financial standing in contrast to market borrowers or are nonoperating companies. In such a way the company owners tried to conceal real beneficiaries and to obstruct collection of debt.

Since the beginning of 2017, the share of RP loans at solvent banks decreased by UAH 8.5 billion or by 26 percent.

Financial Stability Report, National Bank of Ukraine, 2018.

While in recent years the banking sector has largely stabilized, credit growth has not resumed and levels on non-performing loans remain elevated. Furthermore, the cost of capital remains elevated. As the banking sector continues to de-leverage and the government attracts a greater share of local currency savings to cover fiscal needs, the private sector continues to suffer from limited access to finance.

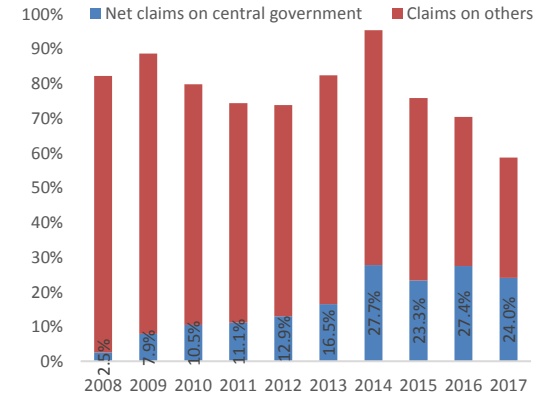
Figure 2-21: Share of non-performing loans in real sector, March 2018



There is also signs that Ukraine suffers from debt overhand in the real sector. The legacy of the financial crises of 2009-15—continues to discourage capital formation. The dramatic depreciation of the Hryvnia had a devastating effect on the balance sheet of enterprises exposed to currency risk; the result was an increase in enterprises' indebtedness, a fall in their net wealth, and, a steep deterioration of the financial and equity position of commercial banks. The weak financial- and economic-state of private and state-owned enterprises seriously distorts their operation, discourages capital formation and the creation of new jobs, and is a major stumbling block to the consolidation of the private sector economy. As the result of these resource constraints, the economy is currently entangled in an unresolved corporate debt overhang and is caught in a spiral of low investment and low job creation resulting from efforts by firms to reestablish a positive net wealth position. Part of the problem has been addressed with the restructuring of banks, but the corporate-debt overburden is still affecting the decisions of all actors in the economy.

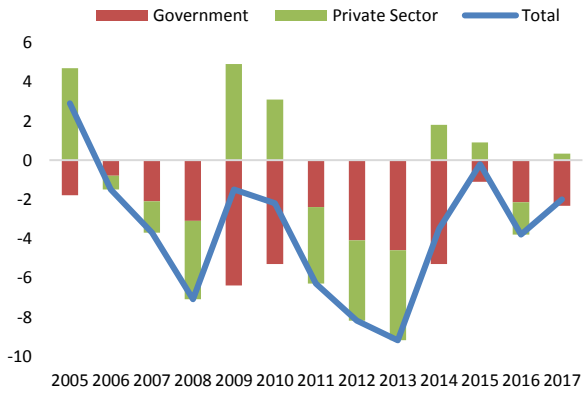
Finally, large public-sector imbalances continue to crowd-out and divert limited resources. In a depressed economy, government revenue lags behind government expenditures, and in the absence of alternative forms of financing, the government begins borrowing internally. In a period between 2009 and 2018 the share of the government debt in total domestic credit expanded from just 3 to 40 percent (see Figure 2-22). As a share of GDP, net claims on the central government reached 24 percent in 2017. In addition, the public sector has also been a key driver contributing to Ukraine's savings-investment gap (see Figure 2-23). An increase in the flow of credit to the government, in turn, leads to "crowding out" of private credit, which further represses real sector activity. The fact that most of government spending is allocated for current consumption rather than investment exacerbates the impact of this crowding-out on growth.

Figure 2-22: Net Claims on Central Government and Other Sectors, Percent of GDP



Source: NBU data.

Figure 2-23: The Public Sector Role as the Key Driver of Ukraine's Savings-Investment Gap



Source: NBU data.

Box 2-3: Links between sovereign and bank credit and implications for economic growth

In Ukraine the links between sovereign and bank credit risk are strong. According to the latest monetary survey as of August 2018, the central government absorbed 39 percent of total domestic credit of the banking sector. A decade before the central government absorbed just 3 percent and the private sector marshalled the rest.

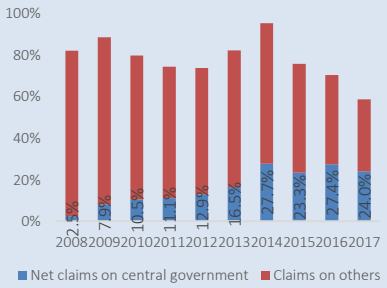
How did it start?

The story commences with the sudden stop of international financial inflows to Ukraine at the end of 2008, the devaluation of the Hryvnia to USD exchange rate from 5.8 as of November 2008 to 8.5

circa March 2009 and the subsequent steep decline of GDP in 2009. By 2018 the exchange rate weakened further to 28. The devaluation of the domestic currency combined with the steep contraction of the economy wreaked havoc on the balance sheet of most corporate firms who carried debt in US dollars and, most often, had most of their earnings in Hryvnia. No balance sheet can resist this change.

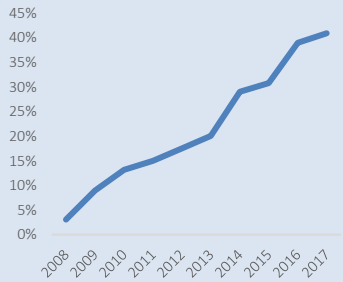
The collapse of the GDP by about 15 percent in 2009 had a negative impact on tax revenue collection and the budget deficit and in one year the share of the central government in total domestic credit went from 3 to 9 percent (figure 2). From 2009 to 2013, nothing much changed except that the share of the government in total domestic credit expanded to 20 percent. In 2014/15 Ukraine experienced yet another sharp decline in GDP (cumulative decline of 15.7 percent) and the adjustment in the exchange rate (devaluation). By 2018 the share of the government debt in total credit of banking system reached about 40 percent. As a share of GDP, net claims on the central government reached 24 percent in 2017 (figure 1).

Figure 1: Net claims on central government and other sectors, percent of GDP



Source: NBU data

Figure 2: A share of net claims on central g of total domestic credit, percent



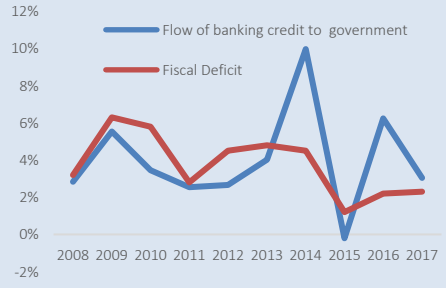
Source: NBU data

What drives this increase?

There are three ingredients to these feedback loops between fiscal accounts, the banking system and monetary policy.

First, *the real economy loop* between fiscal and monetary accounts. In a depressed economy government revenue lags government expenditure and, in the absence of alternative forms of financing the government starts borrowing internally. Indeed, the changes in flow of credit to the central government is driven by the aggregate fiscal deficit (figure 3). An increase in the flow of credit to the government, in turn, leads to "crowding out" of private credit which further represses real sector activity. Lending to the non-government sector contracted sharply in 2014-16 (figure 4).

Figure 3: Annual flow of banking sector credit to government and fiscal deficit, percent of GDP



Source: NBU data

Figure 4: Annual flow of banking sector credit to government and private sectors, percent of GDP

Source: NBU data

Second, the *bailout loop* between fiscal and monetary accounts. By 2014, Ukraine's banking system was in distress. Accumulated non-performing loans as well as wide-spread related party lending led to a sharp deterioration of asset quality in the banking system. A new source of government expenditure emerged associated with the financial needs of banks assisted by the National Bank of Ukraine, including recapitalization of the deposit insurance system.

Third, the *solvency loop* between fiscal and monetary accounts in Ukraine has not yet kicked in, but there is a clear risk that if the fiscal position of government deteriorates it will negatively affect the asset qualify of the banking system due to its large exposure to the government sector. To limit the possible risk, one policy option is to reduce the sensitivity of banks' sovereign debt portfolios to domestic sovereign risks. In the period between 2013 and 2017, total deposits in the banking system have declined by 18.9 percentage points of GDP (figure 5), while equity of the banking system declined 9.5 percentage points of GDP. All this happened while total credit to the government sector increased by 7.5 percentage points of GDP during the same time period!

AGRICULTURAL LAND: MORATORIUM ON SALES

Ukraine has the largest endowment of arable land in Europe—33 million hectares, compared to 18 million hectares in France, 12 million hectares in Germany, and 11 million hectares in Poland. Ukraine also has one third of the world's endowment of black "*chernozem*" soil—a very fertile soil capable of producing high yields under the right conditions.[19] In addition, Ukraine has a strategic location with access to agricultural markets in Europe, the Middle East, North Africa, and Asia.

In 2001, the Government passed a Land Code that regulated the ownership of private land and land transfers—and that included a moratorium on agricultural land sales. The law prohibits ownership by foreign persons or entities but was expected to lead to a domestic market for buying and selling agricultural land, following an initial 5-year moratorium. Since that time, the moratorium has been extended, most recently until 2019. A key obstacle to land markets has been weak land institutions, which affects leasing markets as well, although significant progress in strengthening land institutions has been made in recent years. Importantly, agricultural land registries (registry of land—cadaster and registry of land rights) are separated, with the State Land Cadaster being maintained by the State Agency for Land Resources of Ukraine. Registration of rights to agricultural land is managed by the Ministry of Justice of Ukraine and is part of the registry for immovable real estate (Nivievskyi and Reusche 2013).

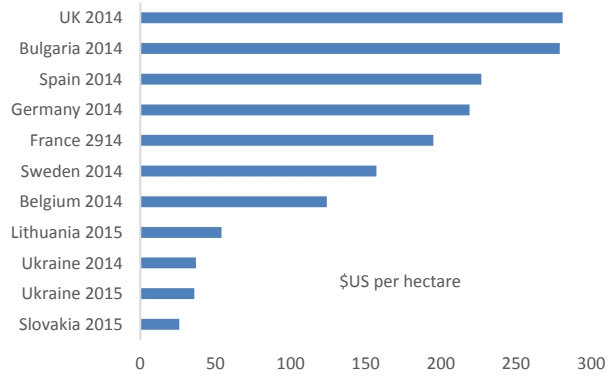
The legacy of land-shares and the moratorium on agricultural land sales has led to commercial farming based on leasing. Nivievskyi and Reusche (2013) reported that in 2013, 84.5 percent of the 20.5 million hectares of agricultural land used by formal agricultural enterprises was leased. In April 2015, amendments to the Ukrainian Land Code increased the minimum term for agricultural land leases to 7 years, annulling the provision for leases less than 5 years. Amendments were also introduced to deal with land use and management, the handling of agrochemicals and pesticides, and veterinary procedures. (OECD 2015) Prior to 2015, land was typically leased for 4-10 years, with maximum periods of 49 years. The terms of land lease agreements are now limited by law to a minimum of 7 years and a maximum of 50 years. Importantly, yearly lease payments are based on a percentage of their cadaster value, which also serve as the basis for the recently introduced agricultural land tax. Lessors have the first right of refusal when lease agreements expire.

There is a general view that rents are low in Ukraine. As discussed before, the value-added per hectare in Ukraine is low by international standards. Even so, yields for field crops are high, and most researchers conclude that land rents are low when

[19] About 71 percent of Ukrainian territory (42.7 mln. ha) is classified as agricultural lands.

compared to land that is put to similar use in other countries (Deininger, Nizalov, and Khan 2017; Shmorhun 2017).

Figure 2-24: Rental Prices for Agricultural Land in Selected Countries, 2014-2015



Source: Deininger, Nizalov, and Khan (2017); Shmorhun (2017).

The current moratorium on farmland sales and low transparency has undermined investment and productivity in Ukraine's agriculture sector. The inability to purchase land undermines incentives to undertake productivity enhancing investments and to manage the land in a sustainable manner, such as through irrigation investments, perennials, and crop rotation. This is because producers are uncertain about their ability to use the land over the long term. Limited access to capital and infrastructure undermines the ability of family farms to grow and move into employment-intensive products with higher value added.

The moratorium also undermines the flow of financing to small and medium producers because land cannot be used as collateral. If the ownership of land cannot be transferred, it also cannot be used as collateral for obtaining financing. The lack of access to financing prevents many small and medium-size farmers from growing and moving into higher value-added products. The moratorium thus prevents millions of land owners from using their most valuable asset as collateral.

Another major impediment to attracting investment in agriculture is the lack of transparency and clarity in land ownership and transactions. First, significant errors in the land cadaster and registry establish an extra cost for transactions and is a source of insecurity of rights. These errors would also undermine the use of land as collateral by banks even if the moratorium were lifted. Second, the lack of registration of prices for the limited number of land transactions outside of the moratorium means that a transparent history of land values and prices is not available. Third, a significant share of the rental market is informal. This lack of registration of existing leases makes them impossible to protect and thus the area is subject to abuse. Together, these issues lead to a self-reinforcing cycle of informality, weak rights, lost budget revenues, and low agricultural productivity.

The government has begun work on ways to improve transparency in land markets, to explore mechanisms to facilitate access to financing for small and medium farmers, and to discuss the principles of a draft land turnover law with stakeholders.

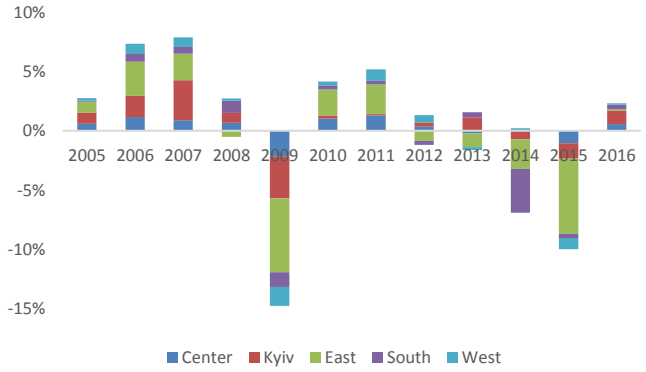
SPOTLIGHT TWO: UKRAINE'S REGIONAL CONVERGENCE

While national average income per capita has remained broadly constant over the last decade, there have been significant changes at a regional level. On the one hand Kyiv has transformed itself into a modern city, on the other hand, numerous mono-functional towns continue to struggle to find new economic growth, a legacy of Soviet industrial planning that still lingers today[20].

Figure S1.1: Average annual change in GDP 2000-17

Source: World Bank staff calculations Ukraine Statistics office.

Figure S1.2: GDP Growth Decomposition: Percentage Points by Regions



Source: Ukraine Statistics office.

Due to the scale of its territory and population Ukraine is sometimes divided into macro-regions—groups of oblasts—that are used for the planning, economic, social, political and other purposes. In order to facilitate the analysis of economic trends across Ukraine's regions this report uses five macro-regions: West, East, South, Central and Kyiv city[21]. Although the eastern region continues to play an important role in the economy, the western and central regions have been much more dynamic. This is partly explained by a combination of lower initial levels of economic activity in the West—compared to the East—and a faster transformation of the West from agriculture to more productive sectors. This is a reflection of three ongoing factors: (i) structural transformation of economic activity that has been shifting within and across regions; (ii) the impact of conflict; and (iii) regional convergence.

The performance of Ukrainian regions in terms of economic growth has been very heterogeneous over the last decade. (See discussion in Box S1.1.) While some subnational units experienced large increases in income per capita averaging to more than 3 percent growth per year, five regions (Luhans'k, Donets'k, Ivano-Frankivs'k, Dnipropetrovs'k and Poltava) present negative growth rates of GDP per capita over

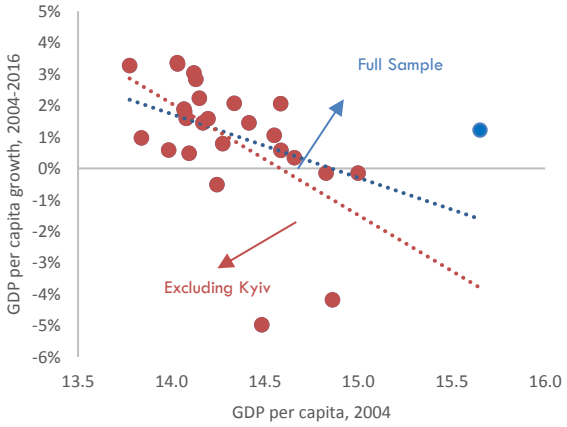
[20] A mono-functional city approach was extensively used in the period of the centrally-planned economy as the instrument for implementing industrialization and the territory management policy, which was heavily oriented towards large-scale industry and its accompanying infrastructure. During the 1950s-1970s, the narrow industrial specialization of individual cities combined with large-scale infrastructure and intensive transport flows were features of the paradigm of 'territorial industrial complexes' implemented throughout the USSR.

[21] These macroregions do not have any legal or administrative significance in Ukraine's territorial-administrative system.

the period. On average, poorer regions in Ukraine experiences higher growth rates of income per capita as compared to richer regions, which led to a substantial decrease of income disparities across subnational units. The dispersion of income per capita across regions has experienced an overall downward trend over the period 2004-13. Although the first years of this period were characterized by divergence in GDP per capita, a systematic convergence started in 2007 and continued until the end of our sample.

The beta-convergence plot in Figure 2-25 shows the relationship between initial income per capita in Ukrainian regions in 2004 and subsequent annual growth in the period 2004-16 (2004-13 for Crimea and Sevastopol). The within-country GDP per capita dynamics indicate a significant trend towards convergence and equalization of income per capita, with poorer regions growing at higher rates than richer ones. In addition to the behavior of income per capita in Luhans'k and Donets'k, where the effect of conflict led to extremely large decreases in GDP per person in 2014 and 2015, the behavior of Kyiv City also stands out of the systematic convergence trend in the rest of the regions of the country. The fact that regions hosting the capital city tend to have income dynamics which differ from those of other subnational units has been systematically reported in the empirical literature on regional economic growth in European regions (see for example Crespo Cuaresma et al., 2014). The average speed of income convergence implied by the GDP per capita growth experience of Ukrainian regions in this period is approximately 2.3 percent per year when using the full sample and 3.8 percent if the observation for Kyiv City is excluded from the sample.

Figure 2-25: The Beta-Convergence Plot



Source: World Staff calculations based on Ukrstat data.

Box 2-4 Sources of Differences in Income Growth Dynamics across Ukrainian regions

Assessing the speed of convergence to region-specific equilibria needs to be carried out in the framework of regression analysis, where potential determinants of long-run economic growth at the regional level are explicitly controlled for. In order to address the issue of model uncertainty in the estimation of the speed of income convergence, we use Bayesian Model Averaging (BMA) techniques that follow the work of Crespo Cuaresma et al. (2014), among others.

We start by considering cross-sectional models for regional growth in Ukraine of the type

$$g_i = \alpha + \sum_{k=1}^{K} \beta_k x_{k,i} + \varepsilon_i$$

where gi is the annual growth rate of GDP per capita in region i for the period under scrutiny and the explanatory variables included in the model are assumed to be chosen from a set of potential determinants of regional growth, including the initial (log) level of income per capita.

Instead of choosing a single specification in the class of models given by this model, we directly assess the problem of model uncertainty by basing our inference on weighted averages of model parameters across all possible regression models that can be specified making use of combinations of the potential determinants of regional growth differences in the country. The weight attached to each parameter estimate is given by the posterior probability of the corresponding model, which in turn is given by the product of the marginal likelihood of the model and the prior probability of the model (see Hoeting et al., 1999, for example, for a thorough introduction to BMA methods).

The Bayesian framework can be used to obtain posterior probabilities over models and parameters after choosing prior probability structures over both parameters and models. For the case of the vector of parameters given a model, we impose a so-called g-prior (Zellner, 1986), which is elicited by the choice of a single hyperparameter, g. Characteristic choices of g are the unit information prior (UIP) proposed by Kaas and Wasserman (1995) and the risk inflation criterion (RIC) proposed by Foster and George (1994). Fernández et al. (2001) perform an extensive comparison of g-priors by means of simulations, and conclude that the hyperprior performs best in controlled settings and propose a prior elicitation which bridges the UIP and the RIC and has been labeled BRIC prior.

A prior needs to be imposed over the space of potential models. A pragmatic approach would be to assign equal probability to all models. While this prior structure is often employed in BMA applications, it has the disadvantage of imposing a high prior probability to models which contain a relatively large number of covariates. Ley and Steel (2009) propose using a Beta prior on the expected model size, so that the prior on model size is thus a Beta-Binomial distribution. Ley and Steel (2009) show that such a prior over the model space can reproduce flat prior structures over model size.

For our BMA exercise , in addition to the initial income, we employ variables measuring the accumulation of factors of production (population growth, share of fixed capital investment on total GDP), human capital (share of population with completed secondary education, share of population with some tertiary education), research and development (R&D) expenditures (as a share of total GDP in the region), age structure (share of population in the age brackets 15-59 and above 60), geographical variables (area and a dummy measuring access to the sea) and a dummy variable identifying the capital city (Kyiv City). The results of the BMA exercise, based on an UIP prior and a flat prior over model size as in Ley and Steel (2009), are presented in Table 1. They are based on averaging over 2048 different models, which is the number of specifications that can be formed out of combining these covariates in linear regressions.

Table 1: Bayesian Model Averaging Results

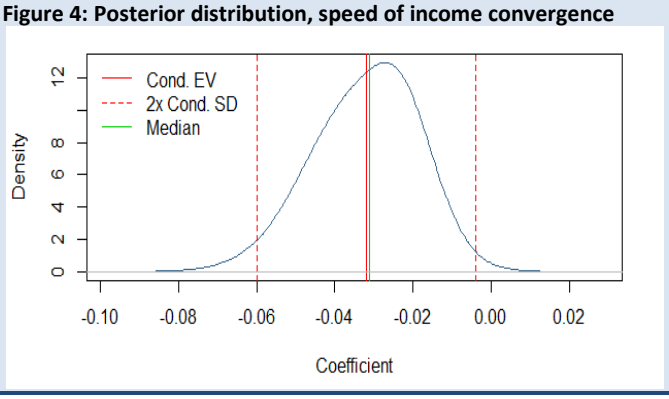
	Post. Incl. Prob	Post. Mean	Post. SD	Post. Mean/Post. SD
Initial income	0.459	-0.032	0.014	-2.286
Capital city	0.181	0.048	0.028	1.684
Population, share 15-59	0.121	-0.378	0.329	-1.149
Secondary education	0.098	-0.510	1.286	-0.397
R&D expenditure	0.097	0.857	0.802	1.068
Tertiary education	0.095	-0.403	1.327	-0.304
Pop. Growth	0.079	1.332	1.719	0.775
Population, share 60+	0.074	0.157	0.282	0.556
Area	0.068	-0.002	0.007	-0.234
Sea access	0.059	0.001	0.011	0.101
Fixed capital invest.	0.051	-0.021	0.088	-0.241

Notes: Posterior inclusion probability, mean and standard deviation of the posterior distribution of the parameters associated to each variable, conditional on inclusion of the particular covariate in the model. See text for details.

The results indicate that the most important source of differences in income growth dynamics across Ukrainian regions is actually income convergence. The initial income variable has the highest posterior inclusion probability among all variables and an estimate based on the models that include it implies a yearly income convergence rate of approximately 3.2 percent. If we average over all models (also those that do not include initial income as a control), the average speed of income convergence goes down to approximately 1.5 percent, a figure which is in the

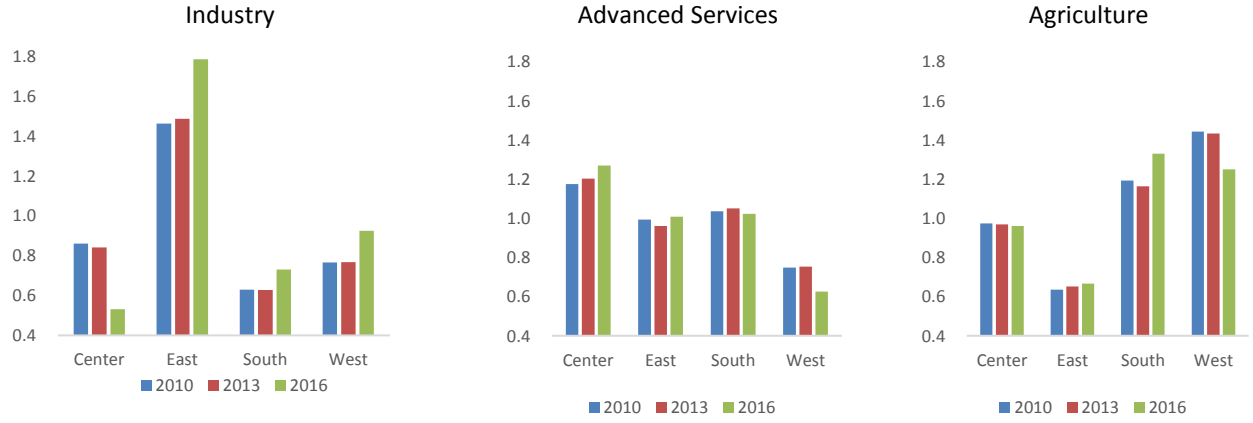
range of existing estimates of the speed of income convergence across EU regions (see Crespo Cuaresma and Feldkircher, 2013 or Crespo Cuaresma et al. 2014). The full posterior distribution of the speed of income convergence constructed by averaging over all models which include initial income as a covariate is shown in Figure 4.

Figure 4: Posterior distribution, speed of income convergence



Regional convergence is supported also by increased regional specialization. Location quotients[22] are used to determine the relative importance of each sector in different regions. This location quotient reveals the extent to which the share of an industry's employment in a given location is larger or smaller than that sector's share of overall national employment. High skill services are strongly focused in the central region, while employment in more traditional sectors like industry and other services has stayed fairly stable and at levels similar to the country's average. The industrial sector remains predominant in the eastern region (Figure 2-26); however, in recent years industrial activity has started to shift to western regions of Ukraine, closer to Poland and Slovakia.

Figure 2-26: Regional Specialization by Sectors: Location Quotient.



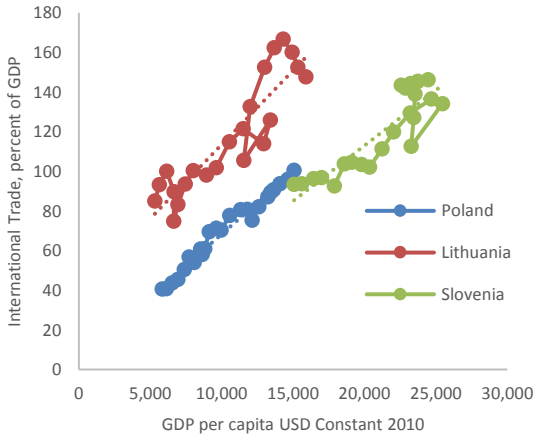
Source: Calculations based on Ukrstat regional data.

[22] The location quotient for any sector *i* in any region *j* is defined as π_{ij}/Π_i with $\pi_{ij} = x_{ij}/\Sigma_i x_{ij}$ and $\Pi_i = X_i/\Sigma X_i$, where x_{ij} is the amount of activity in sector *i* in region *j* and X_i is the amount of activity in sector *i* in Ukraine as a whole.

CHAPTER 3 LEVERAGING EXTERNAL TRADE OPPORTUNITIES

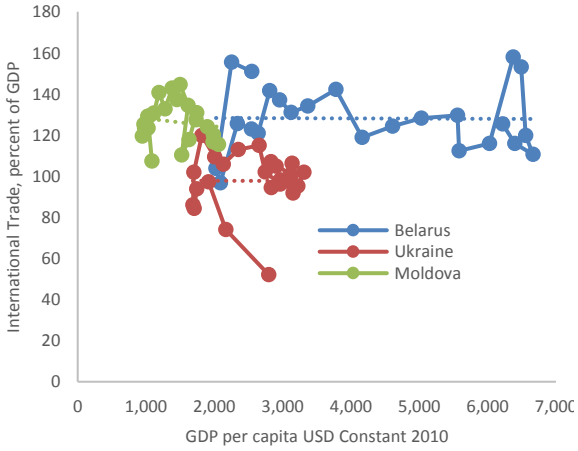
During the last three decades Ukraine opened its economy and, liberalized trade and investment flows. Ukraine's average tariffs have remained broadly lower than the average for developing countries at its income levels. In addition, from the early 2000s, Ukraine has been more open to trade than would have been expected based on its per capita income level. (See Figure 3.1 and Figure 3.2) However, openness to trade has not resulted in an increase of Ukraine's GDP per capita. Whereas Poland experienced an increase in standards of living with respect to the increase in openness to trade, Ukraine's trajectory, when tracing both variables in combination over time, appears erratic, resulting in an overall flat or slightly decreasing growth trend since the early 2000s.

Figure 3-1: Openness to Trade and per capita GDP in select EU new member states (1991-2016)



Source: World Development Indicators.

Figure 3-2: Openness to trade and per capita GDP in Ukraine, Belarus and Moldova (1991-2016)



Source: World Development Indicators.

This chapter focuses on how Ukraine uses *forces of gravity*—cross-border mobility of goods, services, capital and labor—to take advantages of trade, geography and natural endowments. The significance of integration in the world economy as a driver of economic growth has been a persistent theme in the literatures on economic history and development economics. This means taking advantage of opportunities that are offered by Ukraine's location in Europe, with its close proximity to the integrated market of the EU. But as Ukraine's recent history shows, this is not just about more trade.

This chapter stresses that trade helps growth in cases where trade openness results in large, dynamic benefits of technological externalities and knowledge spillovers. Similarly, as shown earlier, capital flows can help if they come with positive externalities related to better management and technology. This chapter concludes

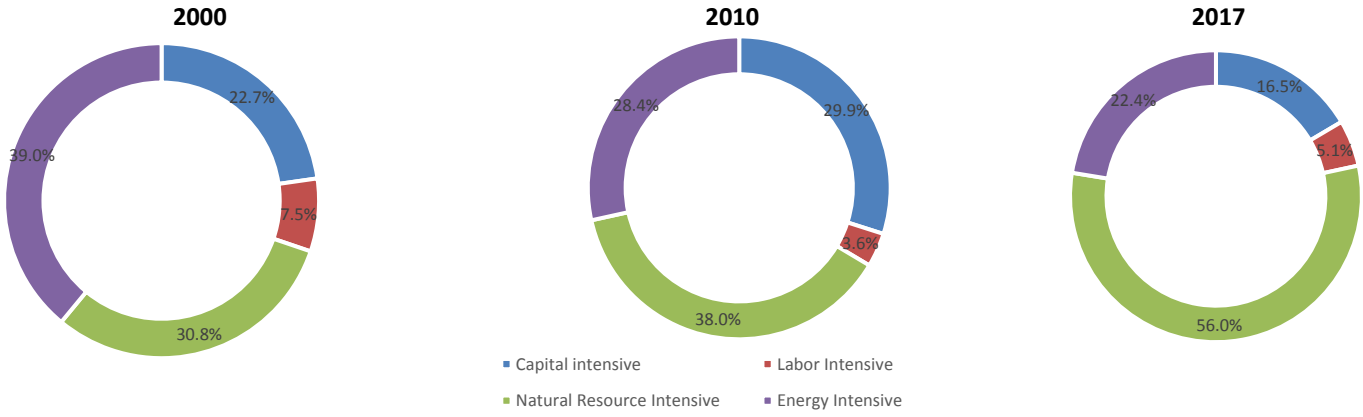
that over the last three decades Ukraine has been held back by different forces of gravity—underpriced energy provided short-term economic benefits, but this delayed much needed industrial restructuring.

FACTOR ENDOWMENTS AND COMPARATIVE ADVANTAGE

The experience of East Asian countries has left few doubts that the main reason for the biggest reduction of poverty in recorded history was their ability integrate into the global economy based on trade in goods and services that use relatively abundant endowments. At the core of the East Asian growth miracle was importing capital and know-how while exporting goods and services that require endowment that was available–labor (World Bank, 2007). Similarly, the relative success of Central European economies also reflects the same fundamental forces: gradual integration into the EU included the largest inflows of foreign capital in history (World Bank, 2014).

In Ukraine, the integration into the global economy began with exports of capital and energy intensive goods, but gradually Ukraine's export basket became intensive in the use of natural resources (see Figure 3.4). The share of labor intensive exports—an endowment which Ukraine has as one the largest countries in Europe—has remained relatively low, declining to about 5 percent of total merchandise exports in 2017, while natural resource intensive goods accounted for more than half of export value. A large share of capital intensive exports is a legacy of old industrial structure, constrained by access to new investment the share of capital intensive exports has declined to just about 16 percent in 2017.

Figure 3-3: Ukraine's Export Product Share, by Factor Intensity

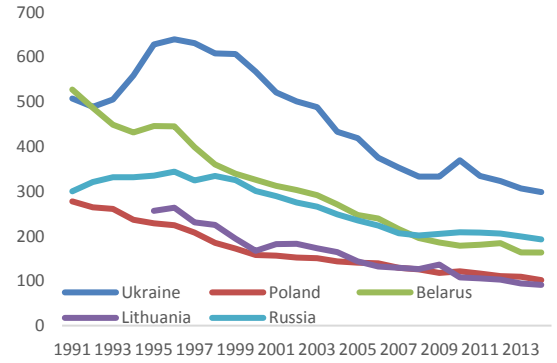


Source: World Bank Staff calculations based on United Nations Comtrade
Notes: calculated based on UN Comtrade data. Energy intensive products include iron and steel. Other product by commodity classification is based on Krause (1987). Capital intensive goods include technology and human capital-intensive goods. Agriculture is natural resource intensive goods.

Ukraine's large share of energy intensive exports is attributed to its energy intensive steel industry. Ukrainian steel industry continues to produce about a quarter of its output using open-hearth furnaces, which have been replaced in nearly every

country in the world[23]. Ukraine had been among the most energy-intensive economies in the world.

Figure 3-4: Energy use (kg of oil equivalent) per $1,000 GDP (constant 2011 PPP)



Source: World Development Indicators.

Ukraine maintained a competitive advantage in exporting energy intensive products because for most of the transition period unit prices of imported gas were significantly lower than in comparator countries, although, in recent years the price gap has been significantly reduced. For example, the energy sector contributed to 7 percent of manufacturing sectors' value added, while energy sectors' forward linkage contribution to exported manufacturing goods was 17 percent (Figure 5-12). In recent years, Ukraine's natural gas price was actually purchased at a premium relative to prices in Germany, this has significant implications on value added of Ukraine's manufacturing goods and their competitiveness.

Figure 3-5: Unit Prices of Imported Gas

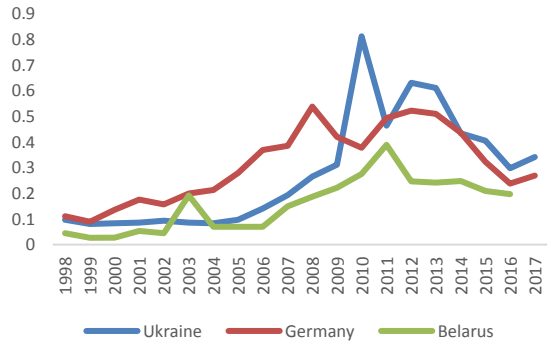
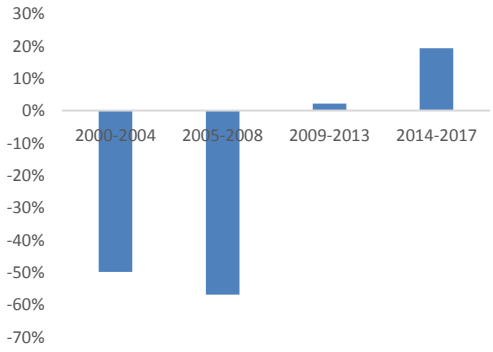


Figure 3-6: Ukraine's natural gas price discount (negative) and premium (positive) relative to Germany, percent

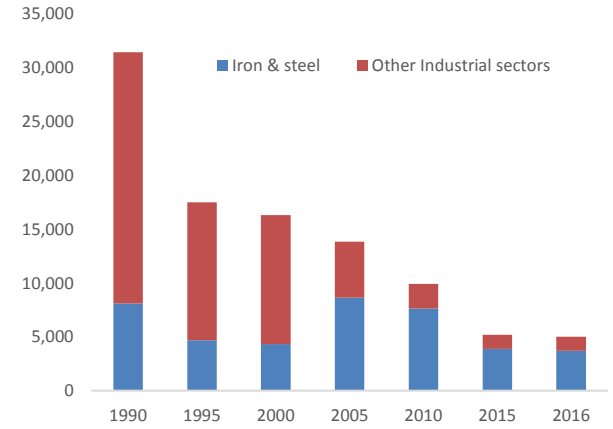


Source: World Bank staff calculations based on United Nations Comtrade Data based on average effective price paid.

The adjustment in gas prices has resulted in a significant decline in gas consumption in industry (see Figure 3-7).

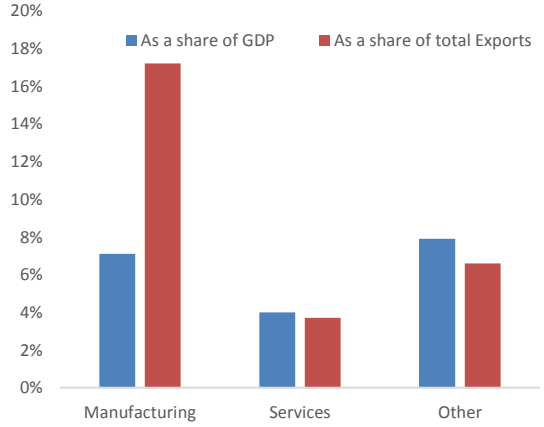
[23] According to World Steel statistical yearbook in 2017, 23 percent of total Ukraine's crude steel production output was done in open hearth furnaces, compared to 2.4 percent in Russia and zero percent in EU and Asia.

Figure 3-7: Final natural gas consumption in industry, ktoe



Source: World Bank staff calculations based on Eurostat.

Figure 3-8: The contribution of energy sector to value added of other sectors of economy, percent



Source: World Bank staff calculations estimating backward and forward linages of different sectors.

As the share of energy intensive exports decline, natural resource intensive products remain the backbone of Ukraine's commodity export trade. The share of agricultural exports – wheat, barley, rapseed and maze, have more than doubled from 2008 to 2017. In 2004-07 metals was the most competitive export category and accounted for almost 40 percent of Ukraine's exports, however, in 2014-17 there was a decreasing though still elevated comparative advantage and shares of total exports for metals and minerals, whereas both vegetable products and animal or vegetable fat and oils more than double their competitiveness and more than quadruple their share in total exports; this trend was accompanied more moderately by the category foodstuffs.

Table 3-1: Structure of Ukraine's Merchandise Exports, averages of 2004-07 versus 2014-17

Sectors	Average 2004-07			Average 2014-17		
	Exports ($B)	Share	RCAI	Exports ($B)	Share (%)	RCAI
01-05 Live Animals and animal products	0.6	1.63%	0.9	0.9	2.17%	1.1
06-14 Carrels, Vegetables	1.6	4.21%	2.1	8.5	19.80%	7.2
15 Animal or vegetables fat and oils	1.0	2.47%	6.2	3.9	9.14%	17.0
16-24 Foodstuffs	1.5	3.83%	1.4	2.7	6.31%	1.9
25-27 Minerals	4.3	11.12%	0.8	4.0	9.24%	0.7
28-40 Chemicals and allied industries	4.0	10.37%	0.8	2.6	6.04%	0.5
44-49 Wood, articles of wood and pulp	1.2	3.04%	1.1	1.8	4.29%	1.9
50-63 Textiles and apparel	0.9	2.40%	0.5	0.7	1.66%	0.4
71 Pearls, precious stones, jewelry	0.1	0.24%	0.1	0.1	0.23%	0.1
72-83 Metals	16.1	41.57%	5.3	10.8	25.12%	3.8
84-96 Machinery diverse	6.3	16.41%	0.4	6.0	13.96%	0.3

Source: World Bank Staff calculations based on United Nations Comtrade

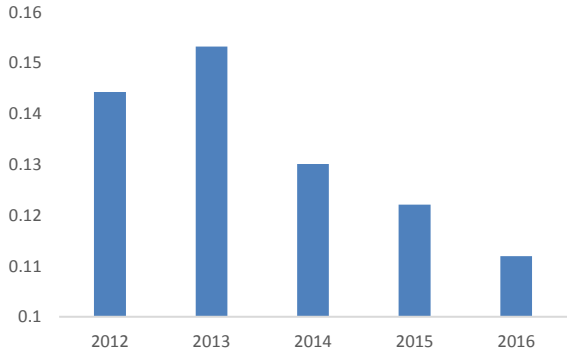
Ukraine's export product composition—a low share of labor intensive products in exports—provides some important insights to explain the fact that despite a very significant realignment of exchange rates and decline of unit labor costs Ukraine has not been able to increase its external competitiveness. In fact, balance of payment adjustments in two of the most recent corrections were driven primarily by compression of imports rather than growth of exports.

Table 3-2: Changes in effective exchange rate and external sector performance, three episodes of adjustment in Ukraine

	1998-04	2008-12	2013-17
Change in Real Effective exchange rate (percent)	-25.1	-11.5	-23.8
Exports (average annual growth)	8.74	-2.96	-4.58
Imports (average annual growth)	4.83	-5.05	-2.80
Change in Current Account balance in Percentage points of GDP	13.75	-1.05	7.15

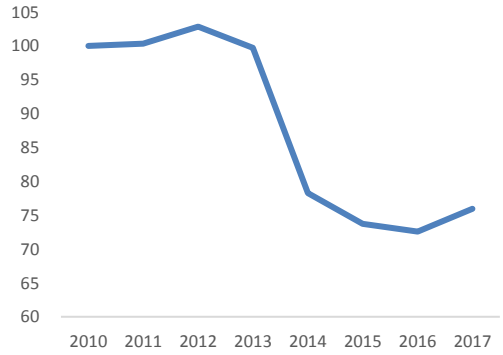
Source: World Development indicators.

Figure 3-9: Unit Labor Cost Dynamics in Ukraine



Source: World Bank staff calculations based on Ukrstat.

Figure 3-10: Real Exchange Rate Index, 2010=100



Source: World Development Indicators.

TRADE POLICY: A PIVOT TO THE EUROPEAN UNION

Ratification of Ukraine's Association Agreement with the EU in 2015 launched a pivotal period in Ukraine's political and economic landscape with respect to its relationship with the outside world. The wide-ranging treaty triggered reform of Ukraine's legal framework, aiming to align it with that of the EU, and includes a Comprehensive Deep and Comprehensive Free Trade Area (DCFTA) between Ukraine, and support for the Agreement's implementation. Although Ukraine had already officially declared European integration as a strategic objective of its foreign policy already in the late 1990s,[24] during the next decade cooperation with CIS countries had also been considered as a strategic priority to maintain benefits of economic integration of post-Soviet countries.[25] Up until about 2014 Ukraine's growth was highly correlated with that of Russia, a reflection of very strong forces of trade, energy and capital flows between two countries.

DCFTA represents a continuation of trade liberalization that began when Ukraine joined the World Trade Organization (WTO) in 2008. The agreement opened new markets in Europe, but also launched a political turbulence that ended Ukraine's trade relationship with the Russian Federation. The CIS market had been the main destination for Ukraine's exports most of the time, followed by the EU, which had in turn been briefly the main destination between 1999 and 2004, and then again in 2014 and 2015. Russia suspended Ukrainian imports in mid-July 2014, initially citing sanitary and phytosanitary (SPS) problems. On January 1, 2016, after DCFTA went into effect, the Russian Federation suspended the Agreement on Free Trade in the

[24] Ukraine started talks on association agreement with the EU in 1997, followed by technical negotiations of the Deep and Comprehensive FTA (DCFTA) that started in 2008 and completed in 2011.

[25] Ukraine signed a FTA with Belarus in 1992, with Russia in 1993, and with Kazakhstan in 1994.

Commonwealth of Independent States (CIS) area and extended to Ukraine its ban on agri-food imports previously applied to the EU. As a result exports to CIS countries declined sharply triggering a large decline in export volume.

Figure 3-11: Ukraine's Exports to Broad Destinations, 1996-2015

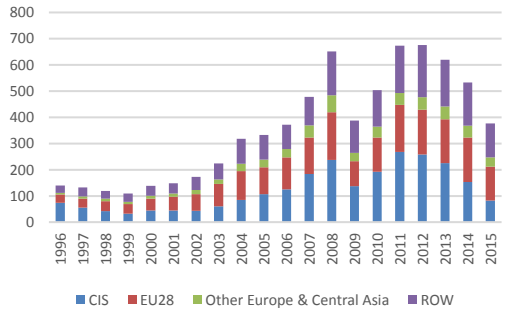
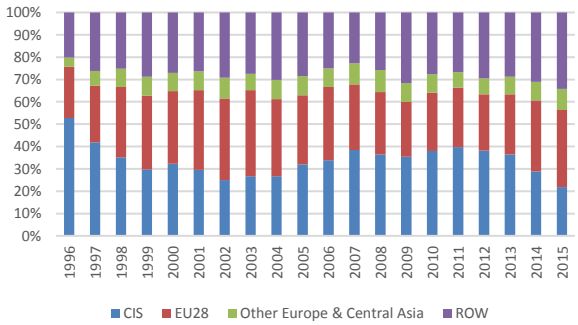


Figure 3-12: Share of Each Broad Destination in Ukraine's Total Exports, 1996-2015



Source: World Bank staff calculations based on reported data from UN Comtrade.

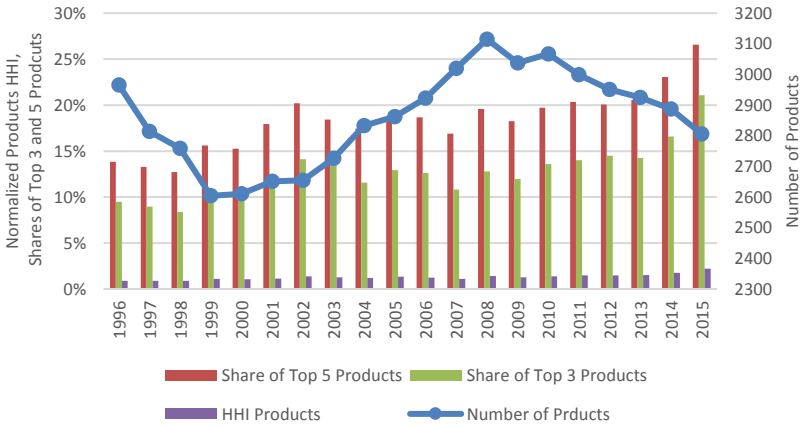
With the start of the provisional implantation of DCFTA, the EU opened 36 zero-tariff rate quotas (TRQ) for some of Ukraine's main agri-food products, including grain, meat, milk, and sugar. The agreement also obligated Ukraine to a phased market opening for EU goods, initially reducing tariffs to zero on one-third of all tariff lines initially, and eventually reaching four-fifths over time. In the treaty, Ukraine secured safeguard measures and additional trading conditions, including the right to apply entry prices for a certain number of tariff lines. Both parties committed to imposing no export subsidies on mutually traded agricultural goods (OECD 2015).

Ukrainian exporters failed to take full advantage of the TRQs. In 2014 Ukraine fully utilized 6 (natural honey, cereals, processed tomatoes, grape and apple juice, wheat, maize), out of the 36 TRQs. By 2017, the number of fully utilized quotas expanded to 10, as butter, sugar, poultry, wheat, barley meal and pellets were added to the 2014 list. There were several reasons for their inability to fully utilize quotas. Producers of meat, eggs, and dairy products face difficulty meeting public and private food safety standards in the EU. Poultry is an exception, and several processing plants in Ukraine have been licensed to export to the EU. In other cases, such as barley flour and cigarettes, exporters found better markets domestically or in non-EU countries (Movchan, Kosse and Giucci 2015). Conversely, Ukraine exports have exceeded in-quota levels; for example, in 2015 corn and corn products were 20 times higher than the TRQ amount, grape and apple juice exports were 8.6 times higher, and honey exports were 5 times higher (Emerson and Movchan (2016)). One reason for the varied experience has to do with the out-of-quota duty applied once the TRQ amount is exceeded. In the case of wheat, the duty is equivalent to a 63 percent tax, which encourages exporters to find other markets once the quota has been filled. For maize, the out-of-quota ad-valorem equivalent value is 3.8 percent. That said, some exporters find it profitable to ship to the EU, despite high out-of-quota duties. For example, juice exporters face a duty with an ad-valorem value of 29 percent, and honey exporters face a duty valued at 17.3 percent (Movchan, Kosse, and Giucci 2015).

STRUCTURE OF EXPORTS OF GOODS: NATURAL RESOURCES AND DECLINING SOPHISTICATION

Ukraine's export structure remains highly specialized—exporting few products to a few countries. Ukraine's export basket was and remains very simple—either farm products or metals (iron and steel products). The number of products exported steadily grew for a decade between 1999 and 2009, but has decreased consistently ever since (see Figure 3-13). Meanwhile, the share of main products in total export values indicate a relatively high but decreasing degree of product diversification.

Figure 3-13: Ukraine's Merchandise Exports Concentration in Terms of Products, 1996-2015

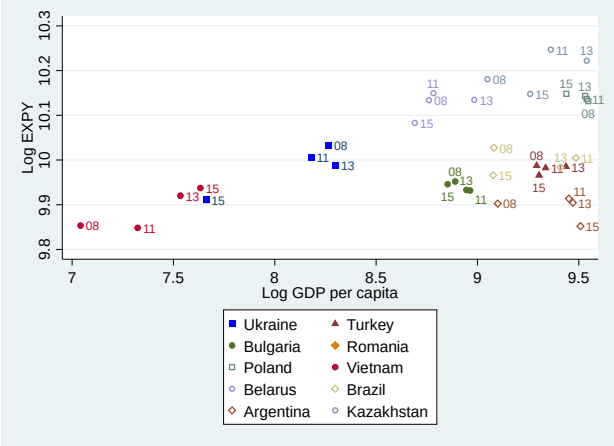


Source: UN Comtrade.

As argued earlier, underpriced energy prices made a distorted gravity field that delayed much needed industrial restructuring. In addition, Ukraine's share in world's total exports has remained broadly stable—0.35 percent in 2008, 0.34 percent in 2013, and 0.28 percent in 2017, comparing 2017 with Poland, where it was 1.43 percent and with Turkey, where it was 1.01 percent.

As Ukraine's exports become more focused on natural resources, the overall sophistication of Ukrainian exports has been decreasing. Even though most of its peers also exhibited a decrease in sophistication levels, in Ukraine, this happened more markedly and was paired with a sharp decrease of per capita GDP. It is worth noting that Poland and Vietnam escaped this trend and showed increased sophistication by the end of the analysis period, which in the case of Vietnam, was paired with a relatively significant increase in per capita GDP. In terms of technological content of exports (see Figure 3-14), in recent years Ukraine has seen a decrease of low and medium technology products with respect to an expansion of primary products.

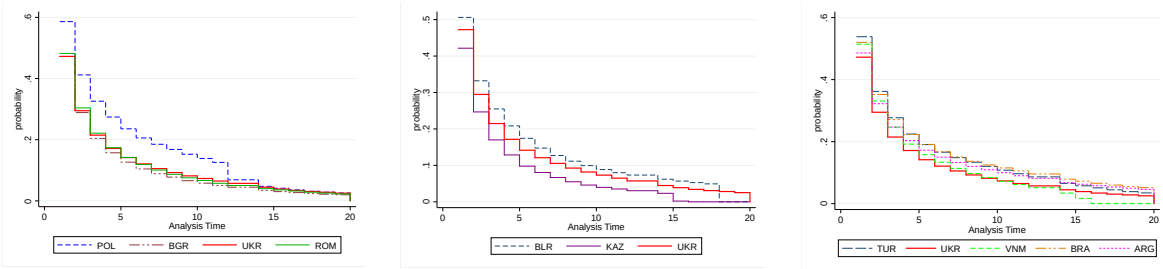
Figure 3-14: Export Sophistication and Per Capita GDP of Ukraine and Comparators, 2008-2015



Source: Author's calculations based on mirror data from UN Comtrade.

Survival probabilities are relatively low for Ukraine's overall exports to all destinations in comparison with the confront of its peer group, with its performance in this regard being similar to those of Bulgaria and Romania, and significantly better than that of Kazakhstan (see Figure 3-15). However, all remaining comparators, and Poland, in particular, tend to perform better. When targeting different destination markets, Ukrainian export relationships tend to survive the longest in CIS countries, followed by the European Union, with markets in the rest of the world appearing as the most challenging in this respect.

Figure 3-15: Survival Rates of Ukraine and Comparators' Total Exports to the World (1996-2015)

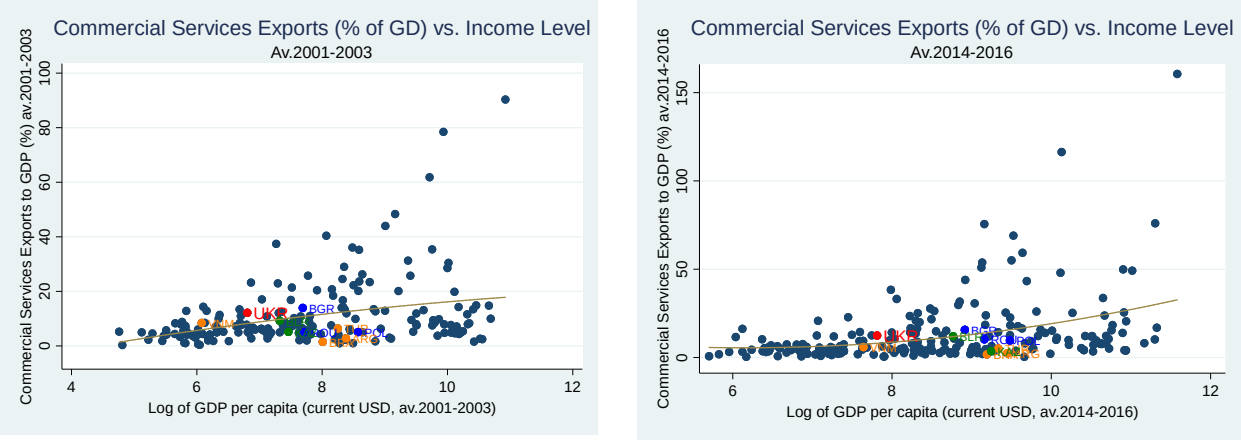


Source: Author's calculations based on reported data from UN Comtrade.

SERVICES TRADE: A SILVER LINING

As Ukraine looks for new ways to integrate into a global economy, export of services is an additional important channel that fuels economic growth. In the previous section we showed that what is exported matters. However, measuring the sophistication of services exports is much more difficult than for goods. For this reason, our analysis here is focused on gross exports of commercial services. Ukraine's gross exports of commercial services as a share of GDP is slightly higher than what would be expected for its income level, both in 2001-03 and in 2014-16, and is above equivalent levels in most of its comparators.

Figure 3-16: Commercial Services contribution to GDP versus Income Level, Average 2001-03 versus Average 2014-16



Source: Author's calculations based on data from WDI.

Ukraine's total commercial services exports are relatively high when measuring them as a share of services domestic value added, so are the country's other commercial services exports (excluding travel and transport). As shown in Table 3-3, the relative performance of Ukraine within its peer group is good according to both metrics, especially in comparison with ROW peers. Indeed, in terms of total Commercial Services share, Ukraine only performs worse than Belarus and Bulgaria, and when focusing in other commercial services exports, which are roughly one half of its total Commercial Services exports (25.9 percent and 12.2 percent, respectively), only Belarus has a larger percentage share, whereas Bulgaria's share is lower.

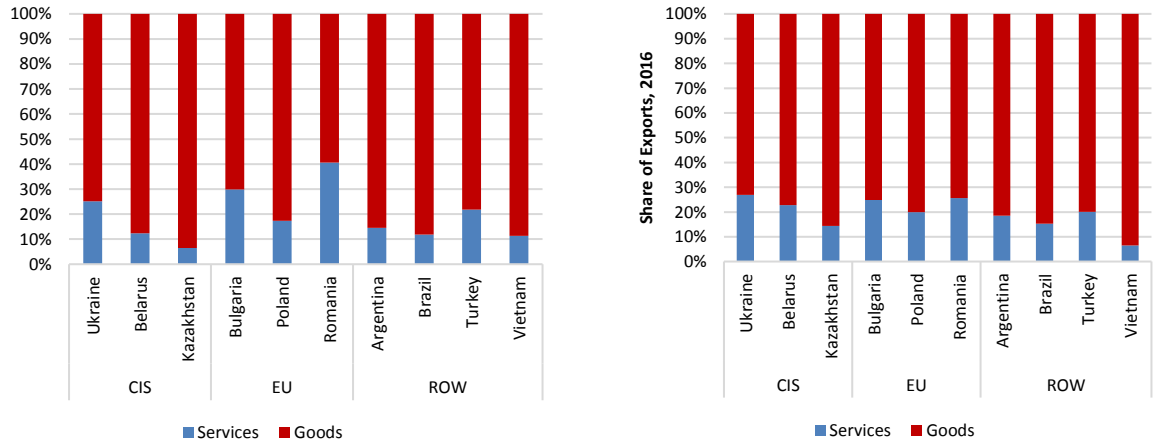
Table 3-3: Share of Commercial Services Exports in Total Services Value Added, Ukraine and Comparators (2016)

	Country	Share of Commercial Services in Total Services VA, percent	Share of Other Commercial Services (excl. Travel and Transport) in Total Services VA, percent
CIS	Ukraine	25.94	12.20
	Belarus	29.71	13.81
	Kazakhstan	7.67	1.27
EU	Bulgaria	27.35	9.35
	Poland	18.80	9.56
	Romania	18.54	11.20
ROW	Argentina	4.16	1.90
	Brazil	2.86	1.88
	Turkey	8.01	1.15
	Vietnam	14.58	n/a

Source: Author's calculations based on data from WDI (total services value added) and UNCTAD (total commercial services exports and other commercial services exports).
Note: Data for Vietnam in year 2016 was not available.

Even though Ukraine's share of services in total exports has only slightly increased between 2006 and 2015, going from 25.19 percent to 26.97 percent, it nevertheless has consistently been one of the highest among its selected comparators' group, in both periods. Indeed, in 2006 Ukraine's share of services in total exports was the third highest after those of Romania (40.59 percent) and Bulgaria (29.85 percent), whereas in 2016 its share was the highest of all, after Romania and Bulgaria's services exports decreased to 25.59 percent and 24.85 percent, respectively.

Figure 3-17: Share of Services Exports in Total Exports, 2006-16



Source: World Bank staff calculations based on data from UNCTAD.
Note: No available data for Bulgaria for year 2006, so 2007 data for this specific country is presented instead.

Over the last 10 years Ukraine has maintained and increased its revealed comparative advantage in transport services, and has developed a comparative advantage in telecommunications and ICT services, as well as in construction, but has lost competitiveness relative to other countries in travel and goods related services.

Table 3-4: Ukraine's Revealed Comparative Advantage in Services, 2005 and 2015

Services Categories	2005			2015			CAGR (2005-15)
	Value (Current USD m)	Share	RCA	Value (Current USD m)	Share	RCA	
Goods-related services	1,309	0.13	3.65	1,270	0.10	3.08	0.00
Transport	4,564	0.46	2.04	5,322	0.44	2.34	0.02
Travel	3,125	0.31	1.18	1,082	0.09	0.36	-0.10
Construction	115	0.01	0.66	288	0.02	1.17	0.10
Insurance and pension services	25	0.00	0.10	14	0.00	0.05	-0.06
Financial services	36	0.00	0.04	190	0.02	0.17	0.18
Charges for the use of intellectual property n.i.e.	22	0.00	0.03	85	0.01	0.11	0.14
Telecommunications, computer, and information services	157	0.02	0.20	2,105	0.17	1.75	0.30
Other business services	632	0.06	0.32	1,807	0.15	0.66	0.11
Personal, cultural, and recreational services	16	0.00	0.16	39	0.00	0.35	0.09

Source: Author's calculations based on data from UNCTAD.

CONNECTIVITY: IMPROVEMENTS IN LOGISTICS NEEEDED

To realize the full potential of integration into the global economy requires support of an efficient and competitive logistics system. At present, this is not the case. Port costs seem to be especially high in Ukraine compared to its competitors (Laing, Nivievskyi, & Botan, 2017). For example, the logistics costs[26] for moving grain from Ukrainian farms to the Black Sea ports are approximately 40 percent higher than

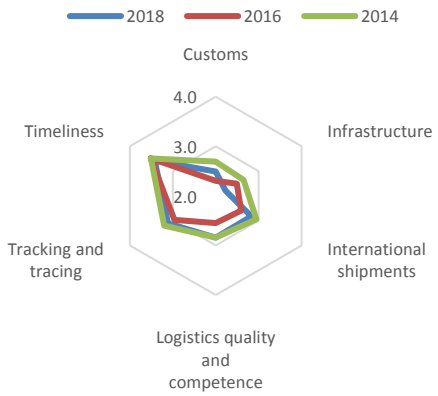
[26] Logistics costs' includes costs related to transportation, warehousing, storage, cleaning, drying, handling, document processing, duties, packaging, security, and any fees, tariffs and duties associated with the export of grain.

costs for comparable services in France and Germany, and about 30 percent higher than costs in the United States (The World Bank, 2015).

Five key drivers of current high logistics costs are the following: (i) lack of regulatory clarity and sub-optimal management of public assets that create barriers to private investments; (ii) underutilization of river transport; (iii) underinvestment in rail transport; (iv) inefficiencies in storage management; and (v) excessive use of road transport. Weaknesses in Ukraine's logistics are also reflected in a low ranking in the Logistics Performance Index.

Figure 3-18: Logistics Performance Index and its components in Poland, Germany and Ukraine

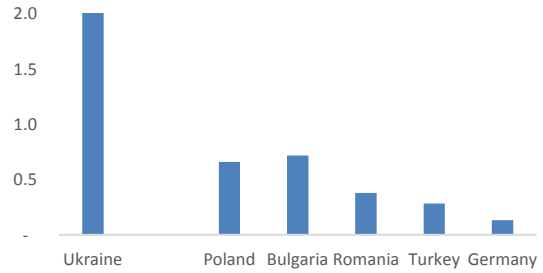
Figure 3-19: Logistics Performance Index and its components Ukraine in 2014, 2016 and 2018



Source: World Bank's Logistics Performance Index.

In addition, due to low population density, geography and structure of output (heavy reliance on metals, basic industry, and agriculture) Ukraine generates significantly more transport volume per unit of GDP compared to other countries in Europe. This implies that the transport costs make up a proportionately large part of the final price of many goods.

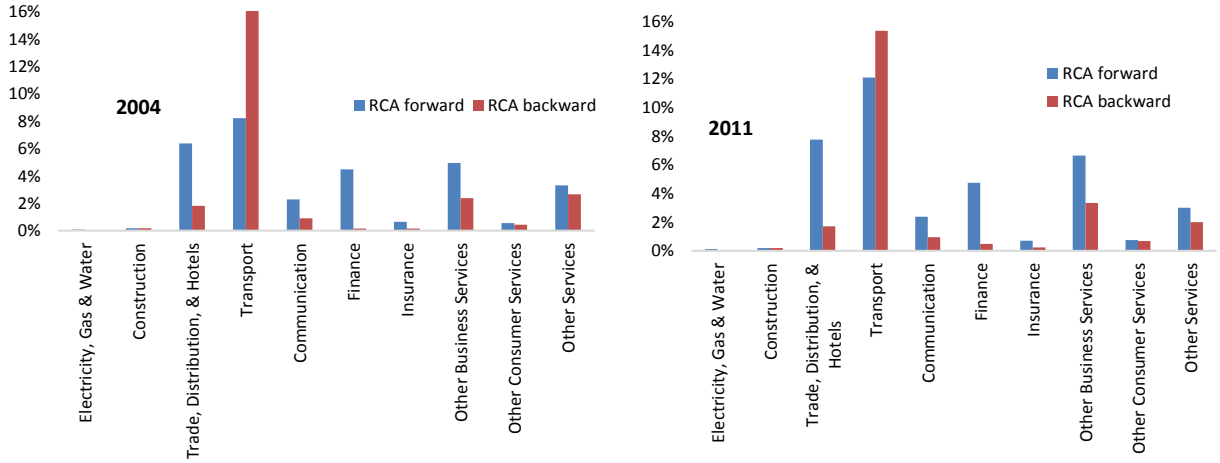
Figure 3-20: Inland transport volume (ton km) per unit of GDP (USD 2010 constant)



Source: World Bank staff estimates based on OECD transport data. Notes: data for 2016, Ukraine – data for 2012.

Both in 2004 and 2011, transport also has the highest backward linkages among all sectors and is the only sector who receives more value added than it contributes to others.

Figure 3-21: Revealed Comparative Advantage in Forward and Backward Linkages in Ukraine's Services Sectors (2004 and 2011)



Source: Author's Calculations using World Bank Trade in Value Added Database; Francois et al. (2013).

Imbalances between export and import flows and transport modes are substantial and have also impact on efficiency. Bulk and basic metal products dominate exports, while imports comprise mainly energy carriers, unitized manufactures, and consumables. As a result export and transit rely on bulk shipping by rail and sea. Import comprises manufacturing goods transported primarily by road and in containers. This results in substantial inefficiencies, because transports run empty on return legs and the possibilities for consolidating transport flows are limited.

Large exporters of full units or bulk typically enjoy relatively low transport costs and relatively few border-crossing problems. Their main logistics problems are related to availability of rail and port capacity and nontransparent tariffs in rail and port operations (see Shifting into higher gear: recommendations for improved grain logistics in Ukraine, World Bank 2015). Railways are currently the means of choice for grain transport accounting for more than 60 percent of volume moved each year, yet they severely lack investment. The rolling stock of grain hoppers owned by Ukrzaliznytsia (UZ), the state-owned rail company, is old and in need of renewal.

The costs of logistics in grain exports are affected by the underutilization of river transport, inefficiencies in rail transport, high share of road transport, deficient storage management and high port fees. At present, most of the grain is transported by rail (61 percent), followed by road (36 percent), while river transport only accounts for a marginal share (3 percent). Yet, river transport is the most cost-efficient method for transporting bulk agriculture products. a domestic river system that carried almost 66 million tons of freight in 1990 carried just a little over 3 million in 2014. During the months when most grain is transported, there is a shortage of supply of grain hoppers operated by the State Administration of Railways Transport of Ukraine (Ukrzaliznytsia or UZ). Delays are common and are accentuated by inefficient loading/unloading infrastructure next to railways.

In metal manufacturing, firms have difficulties using their own rolling stock in rail transport. The inflexible wagon reservation practices also complicate exports and contribute to inefficient operations of UZ. For importers dealing with less-than-full loads, the customs clearance and logistics operations are complicated and costly, which drive up end-user costs.

Finally, the annexation of Crimea by Russia and the on-going conflict in the eastern province of Ukraine have resulted in significant changes in the pattern of movements in the region, including access to parts in the Sea of Azov.

SPOTLIGHT THREE: UKRAINE'S PARTICIPATION IN GLOBAL VALUE CHAINS

Companies used to make things primarily in one country. That has all changed. Today, a single finished product often results from manufacturing and assembly in multiple countries, with each step in the process adding value to the end product. Through global value chain (GVCs), countries trade more than products; they trade know-how, and make things together. Imports of goods and services matter as much as exports to successful GVCs.

Ukraine's share of GVC exports in total exports is relatively low. They are composed mostly of final goods, which represent on average two-thirds of all such exports. (See Box S3.1 for a discussion of GVCs) However, the share of intermediate goods has increased over time, especially since the early 2000s, going from less than 10 percent in 1992 to almost 40 percent in 2014. Ukraine's GVC exports were dominated by final apparel until the mid-2000s, when exports of intermediate goods pertaining to the automobile value chain took the lead, increasing consistently ever since. This was driven by rapidly increasing exports of ignition wiring sets, which went from a low 14 million current USD in 1996 to 936 million current USD in 2015, as their market share within the intermediate motor vehicles category rose from 9 percent to 87 percent in that time span.

Box 3-1: Global Value Chains

GVCs are classically characterized by lead firms which coordinate production networks. The coordination of activities required to operate dispersed production requires governance structures, which mediate the activities of multiple firms in a network with a lead firm at the center (Milberg and Winkler 2013). Some analyses of GVCs essentially view all trade as GVC-oriented, especially those which focus on tracking global flows of value-added through input-output methods (Mattoo, Wang, and Wei 2013). In this view, a country which does nothing but export crude oil or metallic ores may have a high degree of GVC participation of a sort[27], since these crude materials are eventually transformed into sophisticated goods or parts of other goods in some other country. However, linkages with lead firms of the sort leading to technology transfer or deeper interactions with final markets may be more likely to take place when countries are engaged in the middle or later stages of the production process.

The GVCs in vehicles, electronics, apparel, footwear, and textiles are characterized by a lead-firm network structure, and have been much studied. The similarities and differences in the organization of these five GVCs are a useful entry point into an understanding of GVCs, or as they are sometimes called "global supply chains"[28] (U.S. International Trade Commission 2011). They have been used to analyze the response of developing-country GVC participants in the crisis of 2008-09 (Cattaneo, Gereffi, and Staritz 2010). These five sectors differ in the methods used to coordinate activity over long distances, and in the extent to which they tend to be coordinated by traditional manufacturers (autos), owners of brand names with strong research capabilities (electronics), or buyers of final products working with global middlemen (apparel, footwear, and textiles). The share of total global merchandise exports accounted for by these five GVCs has

[27] Exporters of primary products experience the sort of GVC participation described as "forward linkages" in international input-output databases. Countries which export final goods requiring copious amounts of imported intermediate goods are said to experience "backward linkages."

[28] The terminology in this area is not entirely standardized. "Value chains" connotes the coordination of the production of complex goods over many countries, emphasizing the role of lead firms which are usually multinational. "Supply chains" suggests a focus on the physical movement of goods necessary to make value chains happen, and can also be used to describe the transactions used in connecting global buyers and sellers of simple goods such as agricultural products.

fluctuated between about 14 percent and 28 percent since 1990, according to Ferrantino and Schmidt (2018).[29]

Figure 3-22: Share of Intermediate and Final Goods in Overall Ukraine's GVC Exports, 1992-2014

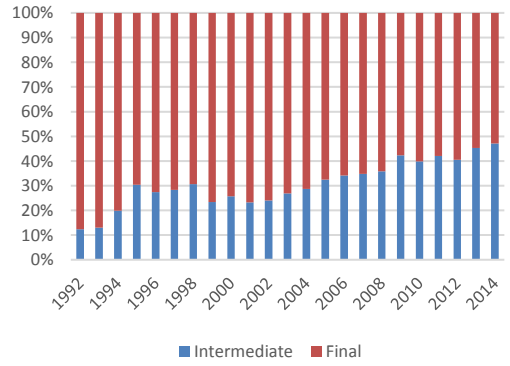
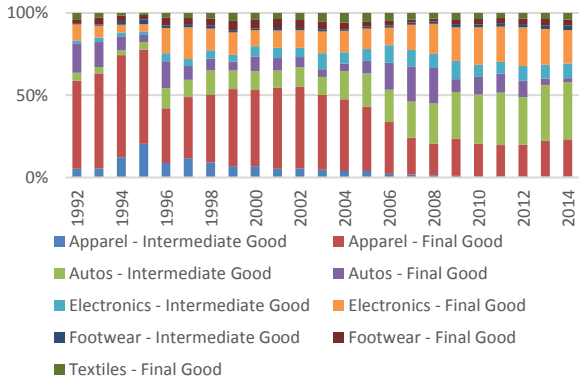


Figure 3-23: Share of Ukraine's GVC Exports in Total Exports by Type, 1992-2014

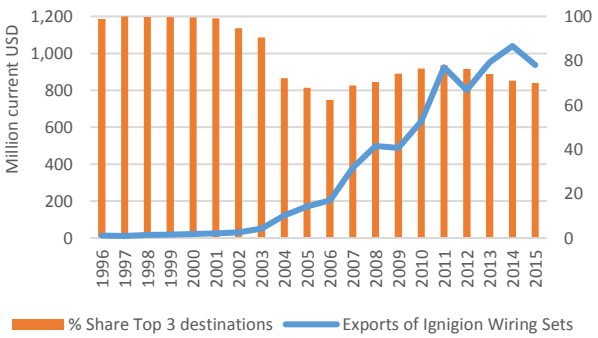


Notes: Values in percentage shares from original variables expressed in thousand current US$ (HS 2007 nomenclature, six-digits, mirror data). All trade data is drawn from Comtrade on WITS.
Source: Trade: World Bank MC-GVC database.

Even though Ukrainian exports of ignition wiring sets are highly concentrated across destinations, the degree of concentration has tended to decrease over time, with the share of the top three destinations decreasing from about 100 percent in the late 1990s and early 2000s, to about 70 percent from the mid-2000s until the end of the period, as Figure S3.4 shows. Germany has remained one of the top three destinations for such exports throughout the analysis period, even though its share has decreased sharply over time, going from as high as 98.28 percent in 1999 to as low as 16.14 percent in 2004, and a level of 25 percent in 2015. Meanwhile, the composition of the top buyers also changed, with the Russian Federation and Belarus falling off the top of the list at the beginning of the new century, when Ukraine leaned increasingly toward EU member countries. By 2015, the top ten destinations for Ukrainian exports of ignition wiring were EU member countries, which together absorb almost 100 percent of these sales, with the top three markets being Poland (27 percent), Germany (25 percent) and Hungary (18 percent), as Figure S3.5 shows.

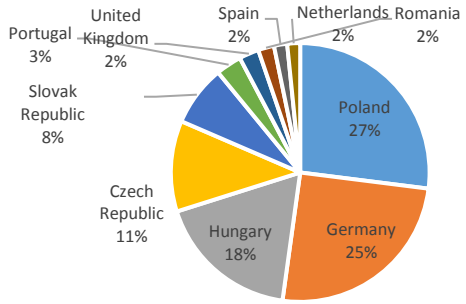
[29] Ferrantino and Schmidt (2018) use a modified version of the definition of the three classic GVCs in Sturgeon and Memedovic (2011). In their approach, products are classified as belonging to one of the three GVCs), namely apparel and footwear, electronics, and autos, based on a combination of expert opinion and their position in the U.N. Statistical Division's Broad Economic Categories (BEC), which help to distinguish between intermediate and final goods. This leads to a list of over 400 traded goods, identified in the Standard International Trade Classification (SITC) Rev. 3 classification at the four-digit or five-digit level. Each of the GVCs is then divided into two subsectors to reflect intermediate and final goods (for example, intermediate electronics and final electronics), making six GVC sectors all told. The weight of classic GVC trade in total merchandise trade tends to be higher when the price of oil is low, and vice versa.

Figure 3-24: Market Concentration of Ukrainian Exports of Ignition Wiring Sets to the World, 1996-2015



Source: UN Comtrade (HS 1988/92 nomenclature, six-digits, reported data).

Figure 3-25: Top 10 Destinations for Ukrainian Exports of Ignition Wiring Sets, 2015



Source: UN Comtrade (HS 1988/92 nomenclature, six-digits, reported data).

Ukraine's 2.76 percent share of global exports of ignition wiring sets is relatively small. This is especially true compared to the market shares of the major world exporters of this product: Mexico (22.65 percent), China (8.89 percent), Romania (7.34 percent), Philippines (6.17 percent), and Vietnam (5.83 percent). Nevertheless, Ukraine's global market share has grown faster than the shares of any of such top five exporters, at an impressive annual rate of almost 25 percent, as shown in Table S3.1. Poland and Germany are Ukraine's most important destinations for its exports of ignition wiring sets, accounting for respectively 27 percent and 25 percent of the country's exports of such product in 2015 (Table S3.2). Hungary, the Czech Republic, and the Slovak Republic are also important destination markets for Ukraine, absorbing respectively 18 percent, 11 percent, and 8 percent of the country's exports of this product.

Table 3-5: Ukraine's Exports of Ignition Wiring Sets to World benchmarked by those of the Top 5 Exporters of this product in 2015

Exporter	Exports 1996	Global Market % Share 1996	Exports 2015	Global Market % Share 2015	CAGR (1996-2015)
Mexico	2,422,447	29.81	7,676,717	22.65	6.26
China	128,784	1.59	3,043,215	8.98	18.11
Romania	60,853	0.75	2,486,277	7.34	21.56
Philippines	473,060	5.82	2,091,044	6.17	8.14
Vietnam			1,974,574	5.83	
Ukraine	14,022	0.17	936,185	2.76	24.75

Notes: All trade data is drawn from Comtrade on WITS (HS 1988/92 nomenclature, six-digits, reported data).
Source: World Bank MC-GVC database.

Table 3-6: Ukraine's Exports of Ignition Wiring Sets to the World and to its Top 5 Destination Markets for this product in 2015

Export Destination	Ukraine's Exports 1996	Ukraine's Global Market % Share 1996	Ukraine's Exports 2015	Ukraine's Global Market % Share 2015	CAGR (1996-2015)
World	14,022	0.17	936,185	2.76	24.75
Poland			252,086	0.74	
Germany	6,122	0.08	235,244	0.69	21.17
Hungary	184	0.00	167,497	0.49	43.12
Czech Republic			105,999	0.31	
Slovak Republic	4	0.00	70,808	0.21	66.66

Notes: All trade data is drawn from Comtrade on WITS (HS 1988/92 nomenclature, six-digits, reported data).

CHAPTER 4 ENHANCING CAPABILITIES OF FIRMS

In the past 25 years, Ukraine's economy has undergone two main transformations: (i) the emergence and growth of private sector enterprises as the main producer of goods and services along with the concomitant decline of state-owned enterprises; and (ii) the substitution of market prices for administrative prices as guides for the allocation of resources across sectors and firms. In agriculture, private firms have entirely replaced collective farms and there has been steady improvement in productivity and development of modern farm enterprises. Second, the retail and wholesale trade, logistics and information and telecommunications technology sub-sectors have emerged producing a range of goods and services formerly largely inexistent or underdeveloped during the pre-transition period.

These transformations have not been yet completed. The private sector produces most of the GDP, yet the imprint of the public sector in production of goods and services is still too heavy. In the transportation sector, the role of the public sector is still large and improvements in the quality of services are required to keep pace with the transformations in the rest of the economy. Similarly, in the financial sector, the, still incomplete, resolution of non-performing loans and a high level of state ownership in the banking sector, is undermining the consolidation of the private sector as the main producer of goods and services as well as the transformation of the role of the state from producer of private goods and services to regulator and producer of public goods.

This chapter examines the costs and benefits associated with the transforming the economy from plan to market through three examples: the modernization of agriculture; the benefits from privatization, and the expansion of the services sectors. Second, it analyzes the extent to which the old economy may be preventing the growth of the new economy against the background of micro-enterprise balance sheet and financial statement data available for sub-periods of the past quarter of a century. The main conclusions from the analysis are that:

- Ukrainian enterprises have been shedding labor and reducing the capital stock even during the period of sustained and vigorous economic growth. The downsizing trend suggests that labor scarcity is hardly a constraint to the growth of the new economy. The human capital skills demanded by the expanding sectors (for instance, agriculture, services, food industry) may be scarce; even so, this scarcity can hardly be blamed on the slow downfall of the old economy.
- The old economy is having a strong negative effect on the growth of the new economy (crowding out) through the financial/capital market channel. The high level of non-performing loans in the old economy increases the cost of borrowing to other healthy activities and especially constraints the growth

of small firms. The product market channel is relevant to the extent that the old economy may be an important source of intermediate inputs for the new economy. That may be the case in the areas of infrastructure, ports, railroads and energy and deserves to be seriously studied. Similarly, to the extent that the contribution of old firms to total government revenue is low or negative the effect is to increase the taxes levied on the new activities which may aggravate informality and hurt economic growth.

EVOLUTION OF PRODUCTIVITY IN AGRICULTURE, MANUFACTURING AND SERVICES SECTORS

The story of the modern economy is, at most, based on a 20-year-old experience. The impact of privatization on productivity is examined through reviewing the evolution of agriculture specifically studying the time it takes to modernize a sector that already existed, and also reviewing the evolution of productivity in privatized and state-owned enterprises. These examples illustrate the long lag that follows deep structural reforms such as privatization and provide a notion of the real cost of reform.

AGRICULTURE

Following independence, Ukraine closed nearly all 12,000 of its collective farms, allocating non-land assets to non-state businesses (Sarna 2014; Nivievskyi and Reusche 2013). Land assets were transferred to 6.92 million former workers, over 40 percent of the rural population, as land-shares ("pais").

However, it took more than a decade to go from land-share certificates to land leases that allow the modern exploitation of land. Initially, land-share certificates denoted a specific plot size, but not a specified location, and workers did not receive clear title to demarcated plots but only received a promise that they would eventually receive one. The process of titling plots was drawn out, beginning in the 1990s, eventually receiving a significant boost in May 2003 when the parliament passed a bill to regulate land titles. By 2013, 97 percent of the land-share certificates had been converted into legally valid land deeds (Sarna 2014; Nivievskyi and Reusche 2013). In 2013, Nivievskyi and Reusche (2013) reported that, 84.5 percent of the 20.5 million hectares of agricultural land used by formal agricultural enterprises was leased.

The legacy of land-shares, and the moratorium on agricultural land sales introduced in 2001, has led to use of a commercial farming system based on leasing. Land use is organized under three types of farms: household, medium, and large commercial-farms. Household farms are informal plots, the other two types are formal enterprises with reporting obligations[30]. Broadly, this creates a unique structure in which about 15.7 million hectares of farmland are managed by small households, and another 15.7 million hectares are managed by very large commercial operations, with a small balance of land (4.4 million hectares) managed by medium-size enterprises.

[30] In 2016, there were about 4 million household farms, with an average size of 3.9 hectares; 32,032 medium-size private farms with average land holdings of 138 hectares; and 9,851 large commercial farms, operating on an average 1,600 hectares.

In the first decade of the transition, agriculture output fell steeply although the rural population increased, a pattern repeated in many former Soviet countries. In the 2000s the output of cereals, beans, and oilseeds grew fast and, in 2007, the sector began a steady period of growth reaching in 2010-16 an average rate of 6.6 percent per year (Table 4-1).

Table 4-1: Production of Major Crops by Farm Type, Selected Years, thousand tons

Farm type	1990	2000	2010	2015	2016	2017
Cereals and beans						
Commercial farms	49,563.7	18,707.8	25,076.8	38,856.4	43,141.3	39,218.7
Households	1,445.2	4,494.8	9,491.6	13,619.2	14,065.8	14,011.6
Private farms	0.1	1,256.4	4,702.5	7,650.2	8,880.9	8,686.4
Oilseeds						
Commercial farms	2,752.4	2,875.8	7,010.6	11,935.3	13,410.7	13,003.9
Households	61.6	433.2	1,337.0	1,919.0	2,209.5	1,929.0
Private farms	0.2	355.0	1,685.4	3,107.2	3,572.2	3,478.5
Sugar beet						
Commercial farms	44,261.7	10,839.0	11,508.7	8,934.9	12,375.5	13,122.2
Households	2.8	1,604.7	1,085.8	777.0	662.4	654.4
Private farms	0.0	755.1	1,154.7	618.9	973.4	1,105.0
Fruits and berries						
Commercial farms	1,347.1	260.2	249.8	343.4	275.0	258.3
Households	1,554.6	1,188.5	1,459.7	1,741.1	1,636.8	1,714.2
Private farms	0.0	3.9	37.0	68.3	95.5	75.5
Roots and tubers						
Commercial farms	4,793.6	220.3	321.2	330.0	347.5	322.0
Households	11,938.8	19,561.4	18,222.3	20,383.3	21,282.1	21,778.8
Private farms	0.0	56.4	161.3	126.0	120.7	107.4
Vegetables						
Commercial farms	4,871.7	903.7	752.7	999.2	1,024.5	1,071.8
Households	1,794.3	4,835.0	7,157.8	7,932.4	8,091.6	7,942.4
Private farms	0.4	82.6	211.9	282.5	298.4	272.1

Source: Ukrstat (2018).

The protracted decline in agricultural output between 1990 and 2000 cannot be explained by a fall in the endowment of resources available for production. Like the phenomenon for the overall economy, in the first stage of the transition there was a huge decline in productivity, including in agriculture. The resources available to produce were roughly intact, but the organizations to put these resources to work had not yet been developed. While the transfer of land from collective farms to private hands had been quickly made, the process of titling plots was drawn out; it would take several years for intermediaries to build lease packages making it feasible for large commercial farms and medium-size enterprises to lease land for farming from many nonfarming households and to incentivize the use of modern inputs in production.

Box 4-1: A change in composition of Ukraine' agriculture output

After the reforms were consolidated, resources were used more efficiently in both a technical sense (units of output per unit of a bundle of factors used in its production), and, more importantly, in an economic sense (more value generated from a given bundle of resources), the result of a change in the composition of what the sector produces and who produces it.

The allocation of land to crops changed following the privatization of collective farms**.** Most vegetables were grown on large collective farms, the predecessor of today's commercial farms. About half of the fruit and berries came from large collective farms, as did more than a quarter of the potatoes and other tubers produced in Ukraine. That change occurred after privatization took hold as large commercial farms largely abandoned horticultural crops. During the same period,

sugar beet production fell to 11 million tons from 44 million tons. There was also a rapid expansion of oilseed crops across all types of farms during the 2000s**.**

Figure 1 shows the area allocated to crops in 2000 and 2016. For both years, wheat occupied the most land, 21 percent of the area planted to crops in 2000, and 23 percent in 2016. In the remaining area, there was a reallocation to corn and oilseeds from all other crops, especially fodder crops. The area devoted to sunflowers more than doubled during the period, and the area devoted to corn went from 1.36 million hectares to 4.29 million hectares. Soybeans were an unimportant crop in 2000 but occupied 1.87 million hectares in 2017.

Figure 1. Area Planted to Field Crops, 2000 and 2016

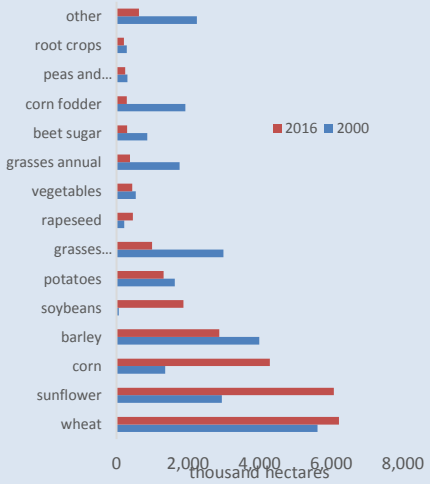
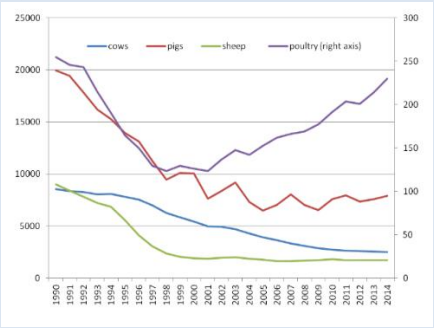


Figure 2. Livestock Production, 1990 to 2016



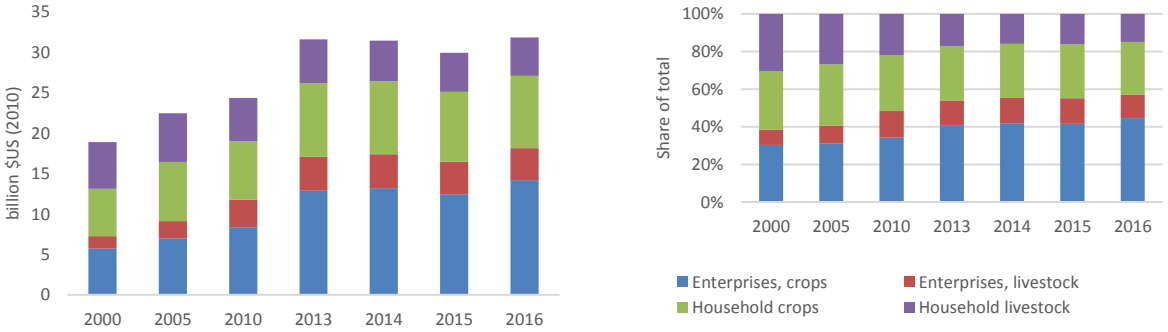
Source Ukrstat (2017).

Likewise, poultry production increased while other livestock production declined. Figure 2 charts livestock production from 1990 to 2017. The figure shows the steep decline of the livestock subsector from 1990 to 2000. During the remaining period, the number of sheep and pigs continued to decline, leveling off in recent years. The figure also tracks steep growth in poultry production since 2017.

Land productivity has been growing in Ukraine, especially for grains and oilseeds. Like labor productivity, yield gains have improved consistently. Taken together, cereals yields have grown by more than 2 percent per year over the period; gains in corn, sunflower and wheat have improved on average by more than 4 percent annually over 16 years.

Since 2000, most of the revenue growth for the agricultural sector has come from formal farm enterprises, private and commercial farms. Figure 4-1 shows that gross revenue from the sector increased from US$18.9 billion to US$31.8 billion between 2000 and 2016; most of the gain came from formal enterprises, where revenues from crops increased from US$5.7 billion to US$14.2 billion.

Figure 4-1: The Composition of Revenue by Farm Type, Selected Years



Source: Ukrstat (2008).

In recent years, yield and production gains have facilitated rapid growth in agricultural exports. For the period 2005-07, the value of agricultural exports averaged $US 5.3 million, which accounted for 13 percent of total merchandise exports (Table 4-2). Ten years later, for the period 2015-17, agriculture exports had more than tripled to $US 15.82 and accounted for 44 percent of export earnings.

Table 4-2: Export Earnings by Source, Average 2005-07 and 2015-17

	2005-07		2015-17	
	$US billion	Share	$US billion	Share
Agricultural products	5.03	13%	15.82	**44%**
Ferrous and nonferrous metals	16.87	**44%**	9.05	25%
Mineral products	3.75	10%	2.86	8%
Machinery and equipment	5.66	15%	2.98	8%
Chemicals	4.11	11%	2.11	6%
Timber and wood products	1.02	3%	1.57	4%
Other	1.22	3%	1.32	4%
Industrial goods	0.51	1%	0.51	1%
Total	38.18	100%	36.22	100%

Source: Central Bank of Ukraine (2018).

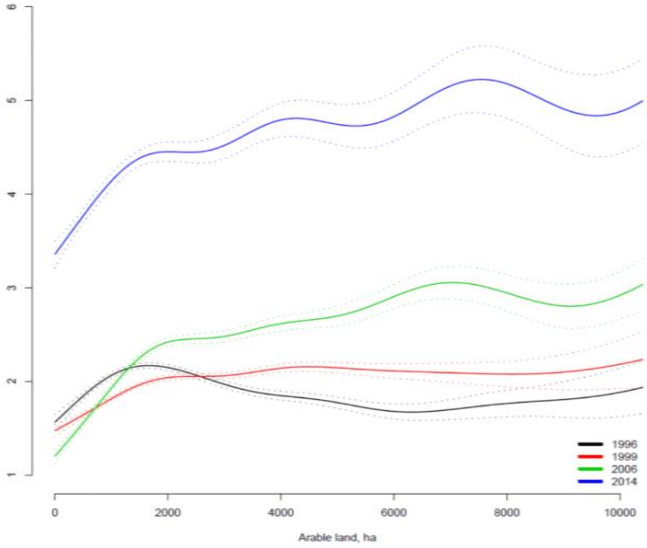
Two important questions relating to farmland management looking forward need to be addressed. Ukraine's farm structure is bimodal, with most agricultural land managed by either large commercial enterprises or by households. This feature of the sector prompts two questions: First is the current lease-based management of land *de facto* short-circuiting landowners from sharing in the gains in agriculture of recent years? Second, is the high percentage of land allocated to the production of cereals and other low-value crops evidence of a glaring distortion?

The answer is complicated as to whether the current lease-based management of land is *de facto* short-circuiting land-owners from sharing in the gains in agriculture in recent years. Because there were intermediaries that invested resources at building lease packages it was possible to attract private investment to the sector and thereby increase revenues. These intermediaries may either be part of the large commercial farms or independent of them; but regardless of which is the case, part of the rent that is not captured currently by landowners is a return on the investment incurred at building the lease packages in the past. Will the share of rents in total agriculture income increase in the future? Most likely yes. However, it is important to be alert to making sure that regulation does not tilt the power balance in ways that deter efficiency or skew income distribution any further.

With respect to whether the high percentage of land allocated to the production of cereals and other low-value crops is evidence of a glaring distortion, by 2016, most non-household land was concentrated in large farms of 30,000 hectares or more. Mega-farms operating more than 70,000 hectares were relatively rare in 2006, accounting for only about 9 percent of non-household land; however, by 2016, that share had increased to more than 27 percent. At the same time, the total value added per hectare declines as the share of total revenue generated by crops increases. Taken together the two observations may be interpreted as evidence that the allocation of land is very inefficient, and that more income could be obtained by increasing the share of land allocated to "high value crops". While this conundrum deserves further study, such a conclusion appears at first glance unwarranted.

On the one hand, farm consolidation trends are consistent with evolving economies of scale in grains. During the last 18 years, there has been a steady increase in the grain and oilseed subsectors in Ukraine. Figure 4.2 uses farm-level data to examine the evolution of grain yields from a micro-level perspective. The graph shows the distribution of grain yields against farm scale. The lines show a steady shift upward with time that is consistent with the growth in yields seen in the average crop-yields. The lines show an increase in implied economies-of-scale, with an especially significant increase in average productivity between 2006 and 2014. The points of inflection also move to the left, with yields peaking on farms with more than 7,000 hectares in cropland.

Figure 4-2: Grain Yields and Scale for Agricultural Enterprises, 1996, 1999, 2006 and 2014



Source: Form 50SG data. Spline regression results; dotted lines represent 95 percent confidence level.

On the other hand, high-value products like poultry, eggs, fruits and so forth are capital-intensive, input-intensive, and management-intensive. The relatively low area allocated to high-value products suggests that capital and management skills in the production of these products is scarce and therefore is not evidence of a glaring distortion.

MANUFACTURING SECTOR

After the USSR collapsed Ukraine inherited many unique industrial enterprises that were deeply integrated into the Russian market, often in a dual monopoly

situation[31]. For example, railway wheels for the entire USSR were produced in Dnipropetrovsk, and the same model applied to seamless pipes, pipes of large diameter, airplane engines and the largest transport airplane in the world, the production of which was based in the eastern part of Ukraine. While the unique set of natural resources and developed industrial base may have provided Ukraine bargaining political power to negotiate its independence and equal partnership compared to the other Soviet republics they also indicated a high dependency on the CIS market and on the *cheap energy* conditions under which these industries operated during Soviet times.

The highly specialized production structure of the manufacturing industry implied that the value of the resources allocated to several of its sub-sectors was extremely dependent on the preservation of the commercial relationship between these enterprises and their clients in other CIS countries. As this relationship weakened, the capacity of these sectors to generate value added at international prices declined and the value of the fixed capital allocated to these sectors faded. A direct consequence of this cataclysm was a drop in the capacity to generate domestic savings to finance the investments required to facilitate the modernization of the economy. This reality combined with the fact that initial conditions made Ukraine not very attractive to foreign investors, particularly for outside natural resource-based activities and other services, implied that investment was largely constrained by this further drop of already low domestic savings.

Box 4-2: The impact of policy reform on the manufacturing sector

The impact of policy reform on the manufacturing sector has been extensively studied by a group of researchers associated with the Kyiv School of Economics. The topics studied include: differentials in productivity between state-owned enterprises (SOEs) and private firms (Brown et. Al., 2006)[32]; the evolution of productivity across sub-sectors of the manufacturing industry during the period of high growth from 2001-08 (Huynh et. Al., 2015)[33]; the impact of deregulation and trade liberalization on productivity (Shepotylo and Vakhitov, 2012a[34] and 2012b,[35] 2013,[36] and 2015[37]); and the impact of privatization on wages and job creation/destruction, and so forth (Brown et. Al., 2006).[38] These studies measure TFP levels and evaluate TFP changes following enactment of policy reforms by using a rich database of Ukrainian firms available for subperiods of 1989-2016. Several of their findings are described in the following paragraphs.

[31] During the Soviet Union era, Ukraine was one of the most industrially developed republics, but production structure was squeezed towards intermediate goods for heavy industry.
[32] Brown, David J., John S. Earle, Solomiya Shpak and Volodymyr Vakhitov (2015). Is Privatization Working in Ukraine? New Estimates from Comprehensive Manufacturing Firm Data, 1989-2013, IZA Discussion Paper No. 9261 (August).
[33] Huynh, Kim P. David T. Jacho-Chavez, Oleksiy Kryvtsov, Oleksandr Shepotylo, and Volodymyr Vakhitov (2015). The Evolution of Firm Level Distributions for Ukrainian Manufacturing Firms. https://ideas.repec.org/a/eee/jcecon/v44y2016i1p148-162.htm.
[34] Shepotylo, Oleskander and Volodymyr Vakhitov (2012a). Services Liberalization and Productivity of Manufacturing Firms. Evidence from Ukraine. Policy Research Working Paper 5944, The World Bank. https://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-5944.
[35] Shepotylo, Oleskander and Volodymyr Vakhitov (2012b). Wage inequality and Trade Reform. Productivity Channel (November). http://www.academia.edu/2750479/Wage_inequality_and_trade_reform_productivity_channel .
[36] Shepotylo, Oleskander and Volodymyr Vakhitov (2013). Deregulation and productivity: selection or within-firm effect? (October). www-sre.wu.ac.at/ersa/ersaconfs/ersa14/e140826aFinal00700.pdf.
[37] Shepotylo, Oleskander and Volodymyr Vakhitov (2015). Effect of NTM on Productivity of Firms in Food Processing. Norwegian Institute of International Affairs, Working Paper 851 (April).
[38] Brown, David J., John S. Earle and Volodymyr Vakhitov (2006). Wages, Layoffs and Privatization: evidence from Ukraine. Centre for Economic Reform and Transformation. http://research.upjohn.org/up_workingpapers/126/.

Brown et al., 2006 analyzes the impact of privatization on total factor productivity of privatized and state-owned enterprises based on a panel of initially owned manufacturing industry firms. They find that there is[39] "an average 5-10 percent relative multi-factor productivity (MFP) gain for majority privatized versus state-owned firms." The study analysis continues as follows: "The gap increases with time since privatization reaching about 15-17 percent five years after privatization. It also increases with calendar time although recent privatizations are associated with smaller relative MFP…[The] data suggest[s] a higher survival rate for privatized versus state firms and one that is more closely linked to 1992 MFP. The results also imply that MFP gains from privatization are decreasing in pre-privatization MFP. The relatively few cases in which foreign investors take control result in much higher relative MFP, 22-40 percent on average, compared to domestic private ownership, but the gap is much lower when the foreign source country is 'offshore'—an indirect channel for Ukrainian nationals—and it is also lower when the source is Russia. Privatization of 100 percent ownership has much larger effects than partial privatization of either minority or majority stakes, ownership structures that have largely disappeared since the early 2000s, as Ukraine has sold off remaining shares."

In the calculation of these estimations each "legal entity" has the same weight regardless of its size as measured by value of assets or value added generated (for instance, the electricity company has the same weight as a mechanic repair shop). In addition, the study examines only firms in the manufacturing industry sector and limits the benefits from privatization to gains in productivity of firms that switched from state-owned to private ownership during the period; thus, the productivity improvements reported do not take into account benefits resulting from the entry of new, more efficient private firms following the liberalization of the economy.

As a result, the Ukrainian manufacturing industry has been shedding labor and reducing the capital stock all along the transition[40]. The spiral contraction of the human and physical capital endowments suggests that Ukraine, except for a few sectors, has not been able to create conditions that ensure an attractive rate of return to private investment on a sustainable basis. What explains these trends and what policy areas may be more effective at arresting these contractionary forces? There are multiple causes underlying these contractionary trends. Two causes stand out: the slow rate of reform of sectors of the manufacturing industry and the corporate debt overhang. Unsurprisingly, these two causes are intricately related.

The transformation of the manufacturing industry has been slow.[41] There are good reasons why this has been so, namely: the burden of legacy in this sector is much higher than in the rest of the economy and the magnitude of the adverse shocks that have affected several of the sub-sectors has been overwhelming. Because of these factors several manufacturing sub-sectors have not been able to adapt. For instance, during Soviet times the machine building sub-sector constituted 30 percent of total industrial output in Ukraine. The collapse of the Soviet Union led to a significant disruption of production chains in the sector, with some parts of the product made in Ukraine and others in Russia, Belarus and other former Soviet republics. By 2016 output in the machine-building sector was just a small fraction of the pre-transition

[39] The following is a transcription of the abstract of the paper.

[40] Huynh et al (2015) also find that firms downsized their labor and capital employment during the period of high growth.

[41] On the other hand, sub-sectors such as food processing and fabricated metal products have undergone significant modernization of production. Changes in ownership and FDI have facilitated consolidation of the sector and transformation from a fragmented market with mostly unbranded product lines, to a developed market featuring a wide range of both local and international brands with production plants in Ukraine. Metallurgy was the fastest growing sub-sector of the manufacturing industry during the expansion of 2000-2008, and there was significant investment in the acquisition of new technologies including pulverized coal injection technology replacing open-hearth furnaces to make operations more energy flexible and energy efficient.

level, the most affected sub-sectors were mining machinery, automotive, agricultural machinery, and aircraft and defense.

SERVICES SECTOR

During the command and control era services such as retail trade, hotels and restaurants, personal services were almost inexistent while others such as wholesale trade, financial, and business services, transportation and telecommunications were either underdeveloped or existed mostly within manufacturing industry firms and therefore had their contribution to GDP subsumed in the value added generated by these firms. Thus, part of the measured expansion of the services sector is the result of restructuring of manufacturing and other sectors of the economy.

The share of the services in total GDP grew from 28.9 percent of GDP in 1991 to 39.5 percent in 2000 and 50.8 percent in 2008. The expansion of the services sector has been the result of demand and supply forces. On the consumer side there was pent-up demand for services such as retail trade, hotels and restaurants, and personal services, which during the period of command and control, were almost inexistent. On the business side, services such as wholesale trade, financial, and business services, transportation and telecommunications were, during the command and control times, either underdeveloped or existed within manufacturing industry firms, and therefore had their contribution to GDP subsumed in the value added generated by these firms.[42]

On the supply side, the expansion of services was also stimulated by a number of factors, including: the passing of legislation liberalizing the sector; the entry of FDI; privatization; and the absorption of digital and management technologies that had been already incorporated in market economies for more than a decade. As of 2001, about 90 percent of output in the retail trade, financial, insurance, and business services sub-sectors was produced by private firms;[43] liberalization proceeded at a slower pace in the public utilities and transportation where the presence of SOEs remained strong.

[42] This implies that part of the measured expansion of the services sector has been the result of restructuring of manufacturing and other sectors of the economy.

[43] Vakhitov (2013).

Figure 4-3: Share of Sectors in Total Value Added

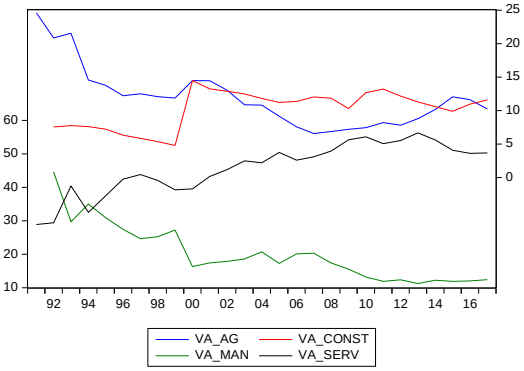
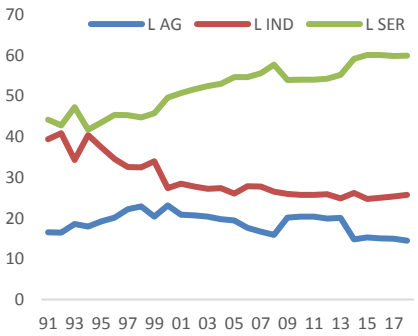


Figure 4-4: Share of Sectors in Total Employment



Source: World Bank staff calculations based on World Development Indicators.

The share of services in total employment grew from 44.2 percent in 1991 to 49.6 percent in 2000 and 57.7 percent in 2008 and the share of industry fell from 39.4 percent in 1991 to 27.3 percent in 2000 and 26.5 percent in 2008. Employment in agriculture increased during the recession of 1991-99 and again in 2009-16–a pattern also observed during recession periods in other transition economies.

Shepotylo and Vakhitov (2013) argue that liberalization of the services sector followed the WTO accession negotiations. "The major obstacle on the way to the WTO accession was to bring the national legislation in compliance with the WTO rules and regulations. However, not much had been done till 2001, when President L. Kuchma "instructed his government to speed up all technical work related to accession negotiations." The favorable political situation—the coalition government had the majority in the Parliament—allowed it to pass more than 20 new laws related to harmonization of the national laws and regulations with the WTO requirements in 2001-2003. Concerning services, the government developed new laws and amended existing ones that regulate activities of TV and broadcasting, information agencies, banks and banking activities, insurance, telecommunications, and business services.[44] Liberalization of the Ukrainian services sector in 2001-7 was accompanied by significant foreign direct investment (FDI). By 2007, the share of FDI stock in the services sector (excluding utilities) had reached 53 percent, while the share of FDI stock in manufacturing had declined to 30 percent.

In 2000 the share of financial and business services in GDP amounted to 7 percent, up from 5.5 percent in 1991; by 2009 the share of financial and business services had increased to 18.8 percent of GDP. How did this explosive growth happen? While obvious demand and supply factors such as: pent up demand for services, deregulation of the services, privatization, foreign direct investment and absorption of digital and management technologies contributed to the increase in the share of services in GDP these factors cannot explain the explosive growth of the financial intermediation share in GDP. Rather than a lasting structural transformation the registered expansion is the result of the way the national accounts of the sector are estimated. For instance, the value added associated with a marginal loan is accounted for as *true value added* although the original loan may have become eventually a loss for the banking system. Had the national accounts been

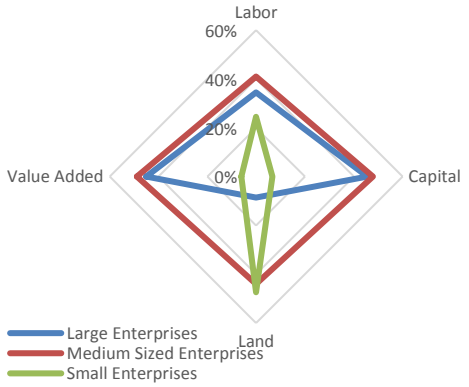
[44] Shepotylo and Vakhitov (2013) pp. 7.

reconstructed registering as value added of the sector only that part of the activity where banks really recovered the original amounts lent the boom of the sector in 2001-08 would tell a very different story!

ALLOCATION OF RESOURCES ACROSS SECTORS AND FIRMS

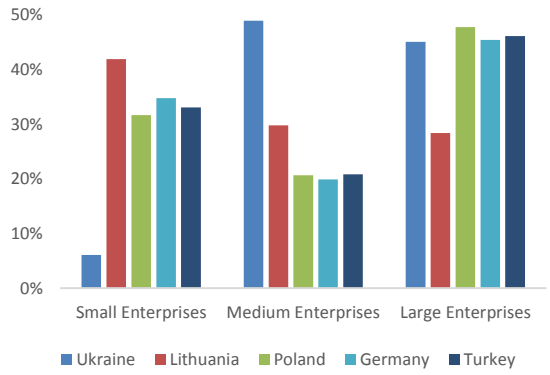
In Ukraine large financial-industrial groups continue to dominate the economy, relative to the more balanced structure of the private sector among OECD countries, where small and medium enterprises play a much more important role. Such structures contribute to weak firm dynamics that potentially hamper a healthy churning in the economy. While Ukraine's small enterprises—employing less than 50 people—account for about 25 percent of total employment (a similar share of total employment observed in other countries), they account for just 6 percent of total value added (Figure 4-5 and 4-6). Ukraine's weak institutional framework, including barriers to entry and exit related to the regulatory and legislative framework, may partially explain the lack of dynamism. Another unique feature of Ukraine's small enterprises worth investigating is relatively high concentration of land resources in the balance sheets of small enterprises. About a half of balance sheet value of land is recorded on the books of small enterprises (while accounting to just about 7 percent of total fixed capital and 6 percent of total value added).

Figure 4-5: Distribution of Factors of Production and Value Added by Enterprise Size in Ukraine, 2016, Percent of Total



Source: World Bank Staff Calculations based on Ukrstat.
Notes: Small enterprises are defined as ones with employment below 50, medium sized enterprises with employment between 50 and 249, large enterprises with employment above 250.

Figure 4-6: Distribution of value added by enterprise size in Ukraine and select comparator countries in 2016, percent



Source: Ukrstat, OECD.

Moreover, the list of Ukraine's ten largest enterprises continues to be dominated by state owned enterprises (SOEs) and privatized SOEs, with only a handful of newly established private companies. In fact, among the top ten largest companies there was only one new private company that is export oriented—Kernel, which is one of the world's leading exporter of sunflower oil and other agriculture products.

Table 4-3: Ten Largest Companies in Ukraine, by Revenue, 2016

	Company	Industry	Notes
1.	Metinvest	Manufacturing	Holding company consisting of privatized State-Owned Enterprise
2.	Naftogaz of Ukraine	Energy	State Owned Enterprise
3.	Energorynok	Energy	State Owned Enterprise
4.	DTEK	Energy	Holding company consisting of privatized SOEs and newly created private enterprises
5.	Ukrzaliznytsia	Transportation	State Owned Railway Company
6.	Kernel	Agriculture and food processing	New Private company
7.	ArcelorMittal Kryvyi Rih	Manufacturing	Foreign owned Privatized State-Owned Enterprise
8.	Fozzy Group	Consumer (retail)	New Private company
9.	ATB Market	Consumer (retail)	New Private company
10.	Tedis Ukraine	Consumer (tobacco)	

Source: Deloitte. Top 500 in Central Europe, 2016.

The largest contributor to value added among manufacturing sub-sectors in 2015 was light industry followed by machine-building sector (Figure 4-7 and Figure 4-8). Prior to 2008, the metallurgy sub-sector was the fastest growing segment of manufacturing, but much of the growth was driven by favorable terms of trade. Over the last decade, changes in terms of trade and the realignment of energy prices resulted in decline in steel output. Instead, light industry and machine building subsectors have become drivers of growth in the manufacturing sector. These sub-sectors of manufacturing are less capital intensive and offer more opportunities for smaller firms to enter and attract FDI. For example, food processing subsector has been able to attract FDI to undertake significant modernization of production.

Figure 4-7: Distribution of firms, employment, capital and value added in manufacturing subsectors, percent, 2015

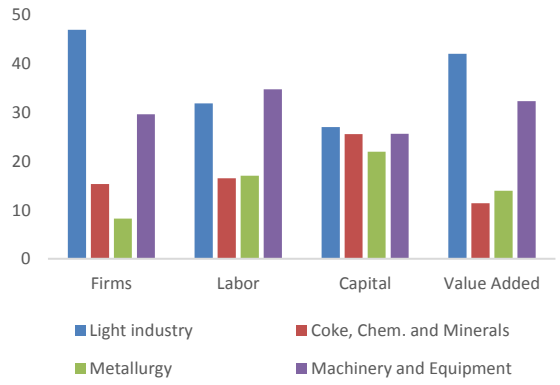
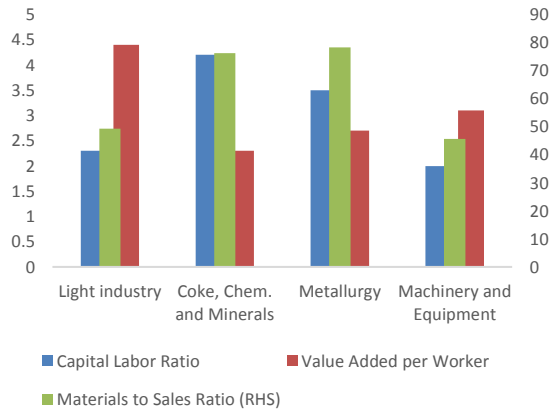


Figure 4-8: Key indicators of manufacturing sub-sectors, 2015

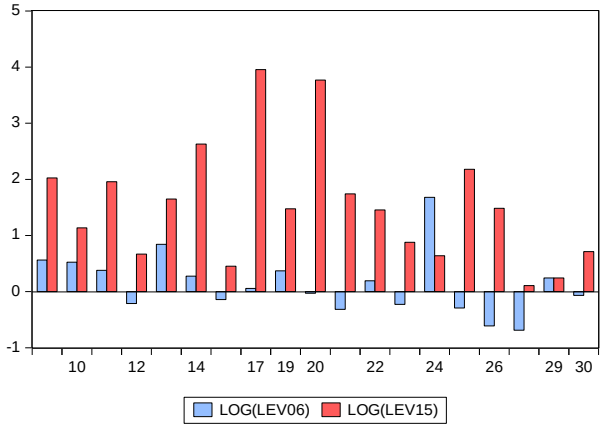


Source: World Bank Author's calculations.
Notes: Industry groups based on NACE Revision 1.1. Light industry = NACE 15-22; Coke, Chemicals, Minerals = NACE 23-26; Metallurgy = NACE 27-28; and Machinery and Equipment = NACE29-37. Sales, capital and materials are measured in millions of 2001 Ukrainian Hryvnias. K/L = Value of capital per worker times 100; M/S = Material per unit of sales times 100. VA/L = value added per worker times 100. Entries are sample means.

A key feature of Ukrainian firms is the fact that during the last decade Ukrainian enterprises in both manufacturing and services sectors have become more leveraged. Figures below show the financial leverage of Ukrainian firms in 2006 and 2015 defined as the ratio of financial liabilities to net wealth. Eight sectors report

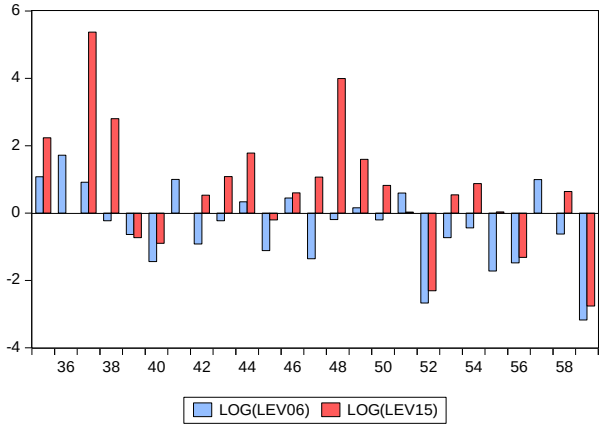
negative net wealth, of the remaining fifty-one only five have leverage ratios below one. The steep increase in the leverage ratio between 2006 and 2015, suggests that Ukrainian firms have excessive debt outstanding. Most of the deterioration is associated with the five-fold devaluation of the Hryvnia between 2006 and 2015. During this time the level of net wealth of most firms in the services and manufacturing industry sectors dramatically declined. A decline in net wealth indicates that assets of the firms grew by less (or declined) as financial liabilities increase. For example, net wealth declined in basic metals industry (21) and manufacturing of non-metal minerals (20). These indicators are extremely alarming and explain why Ukraine has had so many difficulties to takeoff after the breakout of the financial crisis. The first number in figure below corresponds to the sector defined by the NACE code (see Table 4-3).

Figure 4-9*:* Financial leverage of firms in the manufacturing sector: 2006-15[45]



Note: LOG(LEV06) is the logarithm of the financial leverage of firms in the manufacturing sector in 2006; LOG(LEV15) is the logarithm of the financial leverage of firms in the manufacturing sector in 2015. LEV >=0.
Source: World Bank Author's calculations.

Figure 4-10*:* Financial leverage of firms in the services sector: 2006-15



Note: LOG(LEV06) is the logarithm of the financial leverage of firms in the services sector in 2006; LOG(LEV15) is the logarithm of the financial leverage of firms in services sector in 2015. LEV >=0.
Source: World Bank Author's calculations.

[45] Log(LEV[i])<0 implies LEV<1.

Table 4-4: List of NACE Codes and Key to Read Figures

Primary	Manufacturing	Services
1. Agriculture and hunting (01)	9. Mfg. food (15)	35. Auto sale, repair; fuel sale (50)
2. Forestry (02)	10. Manufacture of tobacco (16)	36. Wholesale trade (51)
3. Fishing (05)	11. Mfg. textiles (17)	37. Retail trade, HH goods repair (52)
4. Mining, peat (10)	12. Mfg. apparel, furniture (18)	38. Hotels and restaurants (55)
5. Extraction of crude petroleum and natural gas (11)	13. Mfg. leather, luggage (19)	39. Land transport; pipelines (60)
	14. Mfg. wood, cork, straw pdct. (20)	40. Water transport (61)
	15. Mfg. paper, pulp (21)	41. Air transport (62)
	16. Publishing, printing (22)	42. Travel agency, transp. support (63)
6. Mining of uranium (12)	17. Mfg.coke, ref. petrol, nuclear (23)	43. Post, telecom (64)
	18. Mfg. chemicals (24)	44. Financial intermediation (65)
7. Mining of metal ores (13)	19. Mfg. rubber (25)	45. Insurance and pension funding (66)
	20. Mfg. non-metal mineral (26)	46. Auxil. fin. intermediation (67)
8. Other mining (14)	21. Mfg. basic metal (27)	47. Real estate (70)
	22. Mfg. fabricated metal (28)	48. Renting machinery, equip., HH (71)
	23. Mfg. machinery, eqip. nec (29)	49. Computer and related (72)
	24. Mfg. office machinery (30)	50. Research and development (73)
	25. Mfg. electrical machinery (31)	51. Other business activities (74)
	26. Mfg. radio, tv, commuic.equip. (32)	52. Public administration and defense (75)
	27. Mfg. medical, precision, watch (33)	53. Education (80)
	28. Mfg. motor vehicles (34)	54. Health and social work (85)
	29. Mfg. other transport (35)	55. Sewage and refuse disposal (90)
	30. Mfg. furniture (36)	56. Activities of member organizations (91)
		57. Recreational, cultural, sports (92)
		58. Other service activities (93)
		59. Activities of private households (95)

An increase in corporate in debt was broad-based across all sectors of economy in both manufacturing and services sectors. In the period from 2006 to 2015 the level of indebtedness of most firms increased (Figure 4-5 and Figure 4-6). This tend sharply contrasts with the declining trend in sales.

Figure 4-11: Financial liabilities of firms in the Manufacturing sector in 2006-15

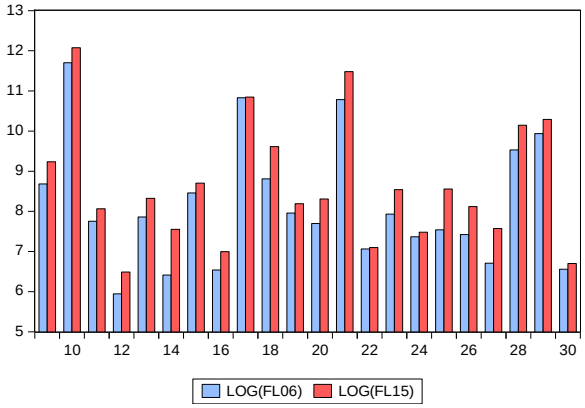
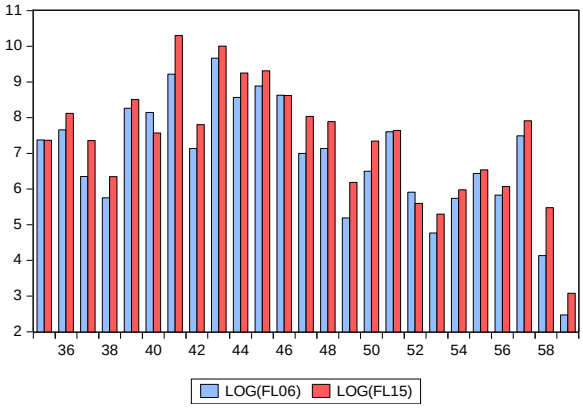


Figure 4-12: Financial liabilities of firms in the services sector in 2006 and 2015

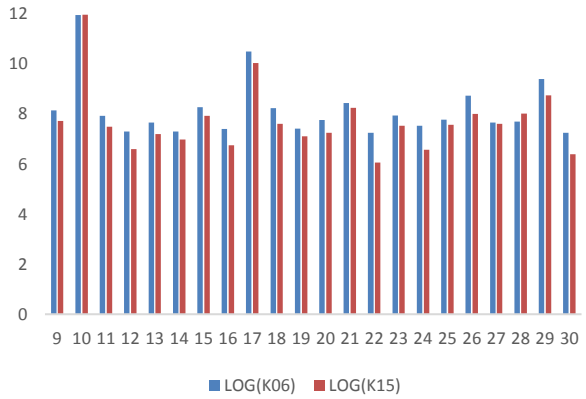


Note: LOG(FL06) is the logarithm of financial liabilities of firms in the manufacturing sector in 2006; LOG(FL15) is the logarithm of financial liabilities of firms in the manufacturing sector in 2015.
Source: World Bank Author's calculations.

These trends illustrate not only the vulnerable financial state of the Ukrainian corporate sector, but also have important the consequences on productivity, investment and employment growth**.** Analysis of firm level data clearly shows that Ukrainian enterprises have been shedding labor and reducing the capital stock even during the period of sustained and vigorous economic growth. The downsizing trend

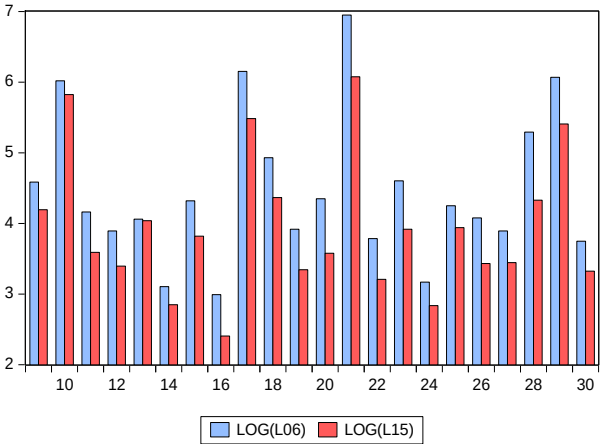
suggests that labor scarcity is hardly a constraint to the growth of the new economy. The human capital skills demanded by the expanding sectors (for instance, agriculture, services, food industry) may be scarce; even so, this scarcity can hardly be blamed on the slow downfall of the old economy. Earlier figures report a decline in physical assets in most sectors which implies disinvestment across most activities. At the same time there has been a decline in employment in all sub-sectors of the manufacturing industry and most sub-sectors of the services.

Figure 4-13: Physical capital of firms in the manufacturing sector: 2006-15



Note: LOG(l06) is the logarithm of capital of firms in the manufacturing sector in 2006; LOG(l15) is the logarithm of capital of firms in the manufacturing sector in 2015.
Source: World Bank Author's calculations.

Figure 4-14: Employment of firms in manufacturing: 2006-15

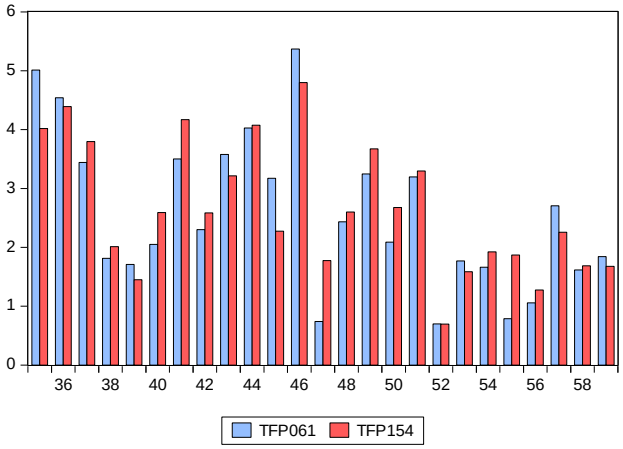


Note: LOG(l06) is the logarithm of employment of firms in manufacturing sub-sectors in 2006; LOG(l15) is the logarithm of employment of firms in Manufacturing sub-sectors in 2015.
Source: World Bank Author's calculations.

The firm is the main creator of value added and productivity growth in the economy. Traditionally, productivity—captured by the measure of total factor productivity (TFP)—has been calculated as the part of firm-level revenue or sales that cannot be explained by the contribution of capital, labor, energy, or other factors. Micro-level data suggest that there has been an increase in TFP in most sub-sectors of the manufacturing industry and the services. TFP was estimated restricting the estimates of the parameters of a Cobb-Douglas production function to have equal coefficients across all sectors[46].

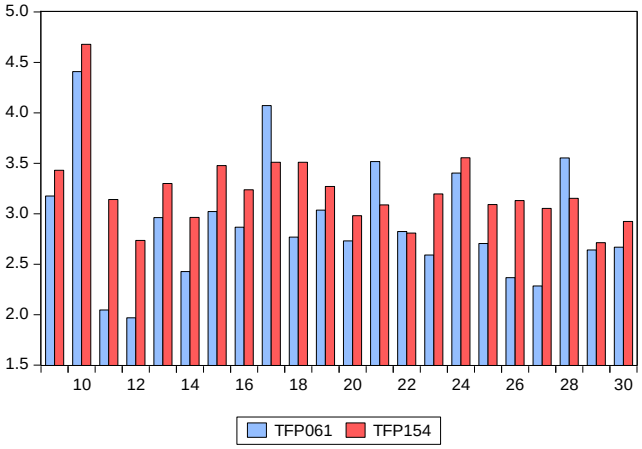
[46] There is also an increase in TFP in most sub-sectors of the manufacturing industry and the services based on a panel of firms.

Figure 4-15: TFP in the services sector: 2006-15



Note: TFP061 is the logarithm of TFP of firms in the services Sector in 2006; TFP154 is the logarithm of TFP of firms in the Services sector in 2015.
Source: World Bank Author's calculations.

Figure 4-16: TFP in the manufacturing sector: 2006-15



Note: TFP061 is the logarithm of TFP of firms in the manufacturing Sector in 2006; TFP154 is the logarithm of TFP of firms in the Manufacturing sector in 2015.
Source: World Bank Author's calculations.

While an increase in reported TFP is a positive development, two important caveats are important to note. First, since the firm's performance on balance sheets is measured as revenues over costs, the performance can increase through higher prices, higher efficiency, or both. Prices are, in turn, a function of costs of production on the one hand, and markups on the other. Markups, in turn, may both reflect product market competition in the traditional sense and require investments like upgrading quality, advertising, and marketing as well. At the same time, markups often signal market power arising from anticompetitive behavior or barriers to entry. Second, in terms of higher efficiency, in Ukraine firms shed capital and labor even during the episodes of high growth, thus, firms improved productivity by learning to produce more with less resources.

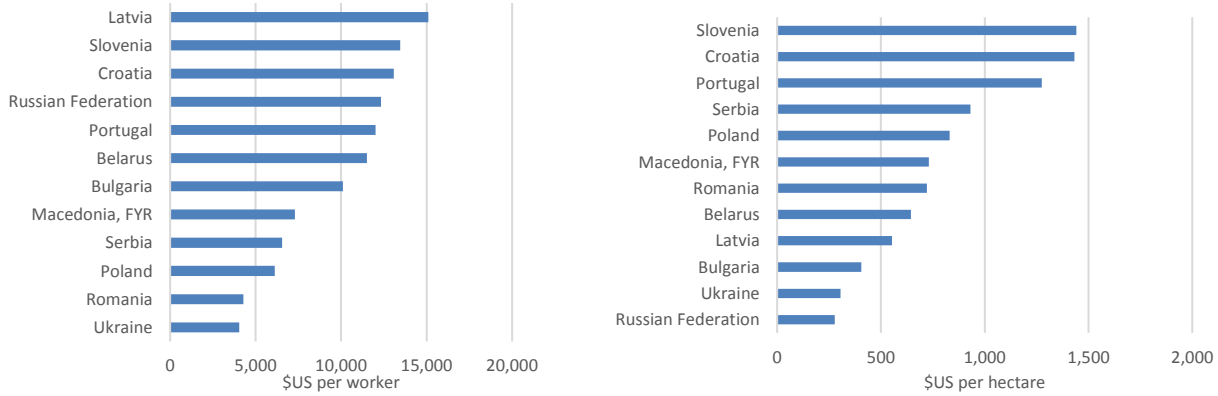
Ukrainian enterprises have been shedding labor and capital for the most part after 2008, a result consistent with the macroeconomic information reported in section one. These developments illustrate a state of deep disruption in the Ukrainian corporate sector. During recent years bold steps were taken to clean up and recapitalize the banking system. However, additional steps are still needed is to clear the debt overhang in the corporate sector. Without addressing these issues the old economy will continue to having a strong negative effect on the growth of the new economy through the financial/capital market channel. As highlighted earlier the functioning of the financial/capital market channels is hindered by the high level of non-performing loans in the banking sector and its mirror image, the debt overhang of private and state-owned enterprises. While reported total factor productivity increased in most sectors of the economy between 2006 and 2015; the result is hardly comforting against the simultaneous contraction of most sectors.

SPOTLIGHT FOUR: AGRICULTURE CHALLENGES AND POLICY PRIORITIES

Agriculture is a small part of the economy and employs a small share of Ukraine's labor force. Yet since 2010, agriculture has been a source of strong growth in an otherwise stagnant economy. From 2010-16, the sector expanded at a robust rate of 6.6 percent per year, even as problems in the industrial sector have slowed overall economic performance.

Despite rapid progress, agriculture faces a productivity conundrum. The performance of the sector should be a source of pride; however, the current structure of the sector will eventually face limits if the sector is to be a continued source of growth for the economy. This point is illustrated by Figure 4-17, which compares current land and labor productivity in Ukraine with productivity in select neighboring countries. The numbers show that both labor and land productivity will need to grow considerably if Ukraine is to close the productivity gap with countries like Poland and Macedonia.

Figure 4-17: Value-added Per Agricultural Worker and Per Hectare for Select Countries



Note: Average values 2012-2016. Source: World Bank Development Indicators (2018).

Within the sector, productivity gains can be achieved by increasing labor, land, and capital productivity under current uses, and by reallocating productive assets within the sector:

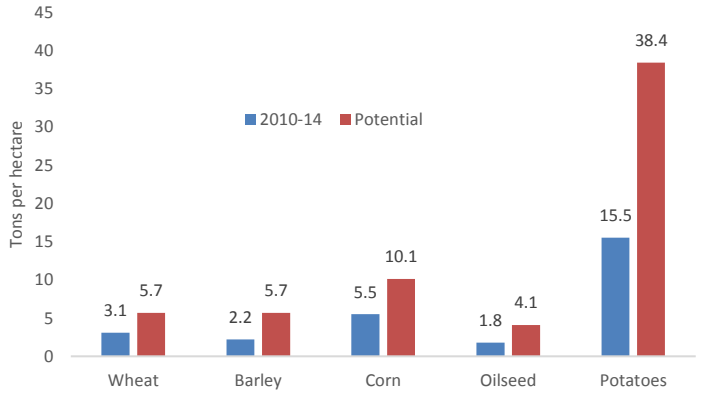
- The gains to capital are high in agriculture, which indicate a need for a supportive and transparent business environment to promote additional investment.
- For reasons already discussed, labor markets will likely tighten for agriculture, which indicates a need for increased investment in the public institutions that build-up human capital needed in an increasingly sophisticated agricultural sector.
- The third important asset class is land. Research suggests there is still potential for additional yield gains for the crops that currently drive Ukraine's large commercial farms.

However, there are limits of yield gains. Figure 4-18 shows the results of a study by Deppermann et al. (2018) that estimates the potential yields of key crops. The study

considers Ukraine's climate and soil endowments and is based on currently available technologies. The study suggests that there is still plenty of room for yields to grow under optimal conditions.

Still, a doubling of all yields would not significantly close the value-per-hectare gap between Ukraine and countries like Macedonia or Poland. Consequently, the longer-term success of the sector will depend on the growth of higher-valued crops like livestock and horticulture. This is not to diminish the value of a strong grain and oilseed subsectors, or the benefits of achieving further productivity gains; however, there is also considerable opportunities to advance on both fronts given Ukraine's rich agricultural resources. (See analysis of United States horticulture in Box S2.1).

Figure 4-18: Estimated Potential Yields with Current Technologies

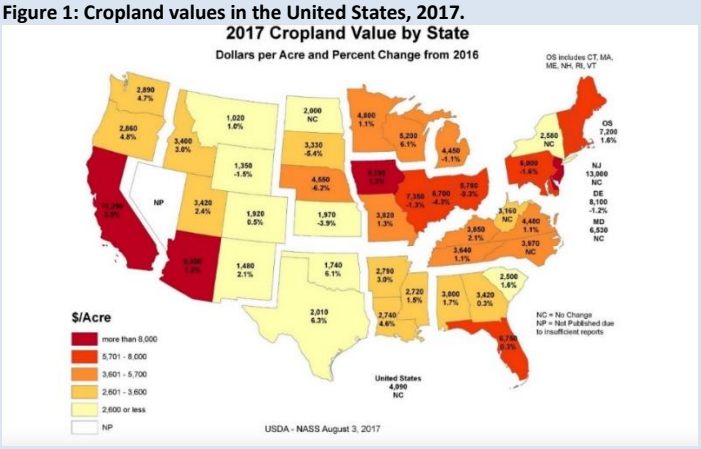


Source: Deppermann et al. (2018).

Box 1 An Example from the United States of the Value of Horticulture.

The United States is a major producer and exporter of grains and oilseeds, but it is a highly diverse sector that produces many higher-valued crops as well; average value-added per worker average more than $US 72,000 from 2012 to 2015. Within this diverse sector are regions with a high specialization in certain sub-crops. Although there are many drivers of farmland values, one key driver is the expected value of future crops produced on the land. As shown in Figure 1, the highest land values are in states like Arizona, California and Florida, that specialize in horticulture, and in Wisconsin, which is a center for the US dairy industry. By contrast, land prices are lower in Kansas, even though it is the center of a highly productive wheat sub-sector.

Figure 1: Cropland values in the United States, 2017.



Source: USDA NASS (2017).

What are policy options to encourage continued growth in Ukraine's agricultural sector based on a strong cereal and oilseed subsector that is balance by a shift into higher-valued crops?

First, manage food price risk through stable macroeconomic policies and targeted safety net programs. The Government of Ukraine is rightly concerned about the effects of high food prices, especially wheat prices, on consumers. Global commodity prices are notoriously volatile, so protections are needed. At the same time, some sources of instability can arise from domestic price and exchange-rate volatility. In fact, currency and exchange rate volatility are as much a concern as international wheat price volatility for domestic producers and consumers.

Table 5:Sources of wheat price volatility

Year	Wheat at US port $US	Wheat at border, UAH	FX	Inflation
1996-2006	2.36%	4.91%	4.30%	4.59%
2007-2017	5.13%	4.24%	6.45%	3.02%
All	3.74%	4.57%	5.38%	3.81%

Note: volatility is measured as average log-differences squared. Source World Bank (2018).

Current policies reduce farmgate prices and disrupt trade and divert attention and resources from growth-oriented programs. Experience shows price-management through public stocks is expensive and less reliable than targeted safety-nets. Pivoting to targeted safety-net programs creates budget space for financing pro-growth policies. Contributes to budget stability and therefore helps macroeconomic stability. A good example is from Mexico, where CONASUPO, a parastatal that operated from the mid-1930s to the 1990s managed the physical trade and prices of corn and other essential commodities. During the 1990s, the Government first scaled back CONASUPO's interventions to a few commodities, then gradual phased out physical market interventions, selling off CONSASUPO's physical assets. To address food security concerns, the Government introduced a series of needs-based safety-nets.

Second, shift fiscal support direct support to specific forms of production in favor of support for general services. A path toward greater productivity entails a shift toward higher-value products for domestic consumers and to take full advantage of trade opportunities. Current policy of providing direct support consumes most of MoAPF's budget and ties support to specific types of production. Past policies do not encourage innovation, but instead reinforce past approaches. Redirect expenditures toward public goods like research and extension, pest-and-disease control, facilitating strong public and private food safety standards, and providing an enabling a good environment for investment can support both paths to productivity increases. A good example of how to manage the transition can be found in the gradual shift in EU expenditures. Historically, the EU's Common Agricultural policy focused on supporting key constituencies in member countries. That began to change in the late 1990s with a shift to GSS-focused programs.

Third, investment in human capital. Agricultural labor productivity has been growing and is already high relative to other sectors. But labor markets in agriculture are expected to tighten further. Ukraine's population is declining and is declining most quickly in rural areas. expected to tighten further. The rural population in 2050 is expected to about half the number of people that lived in rural areas in 2010. Investment in human capital is required to sustain labor productivity growth, however public investment in agricultural education and technology has been declining.

Four, evidence shows an improvement in total-factor-productivity in recent years and that both large farms and small household farms can be productive. Productivity

shows that grain operations benefit from scale, but some of the most productive farms are capital-intense and require little land. Households, operating small farms, can be efficient producers of high-value products. But greater value-added is harder to achieve if production on 15 million hectares of small farms is ignored.

Five, high-value crops, like horticulture, require well managed supply chains that depend increasingly on quality and safety standards issued privately by grocery stores and restaurants. Large farms have an advantage in marketing, capital, and technology. Still, for larger-scale farms, high-valued crops, like fruit trees, may require fixed investments that are risky when land markets are weak. A greater share of high-value production is currently situated on household farms; however, it is challenging to organize many small farms in an integrated value chain. Further, delivering extension and other services to a large number of small producers can be challenging for government agencies. In addition, past agricultural policies have focused on field crops and large farms, which require fewer public goods. International experience shows how public/private partnerships involving farmers and agribusinesses can be used to promote standards and develop markets. Strengthening land markets can help, by facilitating capital investments tied to land.

Six, Government can be supportive by creating a positive environment that encourages competitive markets and private investment. Governments can help by developing sub-sector policies that recognize difference in the types of public goods needed. Country experience suggest that dual systems where some producers are linked to local markets or grocery chains can coexist with a more sophisticated system targeting export markets. Domestically, grocery stores and fast-food chains are early entry points for small producer. For example, Chile has been especially effective at creating public and private partnerships that set high quality and food safety standard among many fruit and vegetable producers. In Brazil, dairy agribusinesses frequently purchase high-quality milk from small producers. In Uzbekistan, with help from a World Bank loan, the government is helping medium size farmers convert land from annual crops to orchards. There are also encouraging lessons to be found in Ukraine. Drawing on household production, honey exports to the EU have grown rapidly under DCFTA. Kuns (2017) documents the rise of integrated markets for potatoes involving household farms.

CHAPTER 5 STRENGTHENING RESILIENCE OF INSTITUTIONS

Previous chapters of this report focused on the main proximate causes of growth—capital accumulation, and total factor productivity, together with macroeconomic policies. The focus on this chapter is on institutions. Institutions have received increasing attention in the growth literature as it has become clear that property rights, appropriate regulatory structures, the quality and independence of the judiciary, and bureaucratic capacity could not be taken for granted in many settings and that they were of utmost importance to initiating and sustaining economic growth.

Economic institutions shape the incentives of key economic actors in society—decisions to investment in physical and human capital and technology and the organization of production. Cumbersome regulations on firm entry, operation, and exit, as well as weak competition in potential markets, may discourage would-be entrepreneurs from taking risks and embarking on new endeavors. Acemoglu and Robinson conclude: "*Attempting to engineer prosperity without confronting the root cause of the problems—extractive institutions and the politics that keep them in place—is unlikely to bear fruit*".

In Ukraine vested interests have resisted efforts to establish a rule-based system and regulations (see box 5-1). As a result, formal economic intuitions, including courts, have remained weak, and corruption has been high. This has undermined commitments to property rights and created legal uncertainty. Since contracts are weakly enforced by Ukraine's courts, property rights are reliant on connections with top officials, through international guarantees such as bilateral investment treaties, or through redirection of FDI. While such arrangements—which are costly—might work for large enterprises and for large transactions, they are prohibitively costly for small firms, and hence, serve to undermine economic growth potential. At the same time corruption continues to undermine de facto security of property rights and undermine relationships between contracts and property rights. While measuring corruption accurately is notoriously difficult, there is a widespread consensus that it remains at very high, albeit declining, levels. Transparency International's "Corruption Perceptions Index" (CPI) ranks Ukraine 130th out of 180 countries. Clearly, securing property rights in such an environment is not easy.

Box 5-1: Special interests and Politically Connected Firms of Ukraine.

Late and incomplete reforms created numerous market distortions and arbitrage opportunities that generated highly concentrated rents to powerful special vested interest groups. More importantly, incomplete reforms created 'intermediate winners' (Krueger, 1993; Hellman, 1998) who benefited from an economic system that was neither fully reformed nor fully transparent and that effectively deterred further changes. These groups especially fought against reforms which could undermine their monopolistic positions or eliminate sources of rents. These governance failures thus resulted in an economy largely built around redistribution of rents (excess returns above the normal levels that are generated in competitive markets).

Politically connected firms in Ukraine have evolved since independence. The first stage, from 1991 to the late 1990s, included mass privatization and the establishment of regional business groups connected with regional authorities. The second stage, from the late 1990s to 2002, included the strengthening of regional groups, a process of legitimizing asset ownership of financial and industrial groups, and the launch of large scale privatization, notably in the energy sector. During the third stage, from 2003 to 2010, financial and industrial groups entered international markets and this led to the integration and formalization of business structures. The fourth stage, from 2010 to 2013, the period of Yanukovych's rule, saw the concentration of political influence in the hands of a few oligarchic groups. During the fifth stage, from 2014 until the present, several oligarchic groups lost their assets but connections between the state authorities and oligarchic groups have been largely preserved.

Politically connected groups use various channels to access economic rents. These include: public procurement; subsidized loans from state-owned banks; state debt guarantees; state aid in the form of direct transfers from the state budget; price differentials and discounts; trade regulations that restrict imports; privileged access to state assets through privatizations; tax exemptions; beneficial tax regimes; and access to concessional development finance.

The concentration of political influence in the hands of a few oligarchic groups resulted in high levels of wealth concentration. In 2017, the total net worth of Ukraine's top three richest individuals was more than 6 percent of Ukraine's GDP, almost three times more than in Poland (Figure 0.4). More importantly, the share of wealth accumulated by the richest Ukrainians, measured as a share of GDP, has remained broadly similar to levels in 2007.

Figure 5-1: EBRD Transition Index: Overall Score: Ukraine and Select Comparators

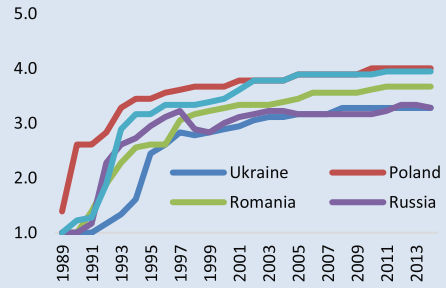
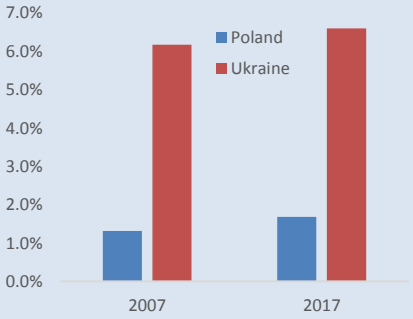


Figure 5-2: Total Net Worth of Richest Three Individuals in Poland and Ukraine as a Share of GDP

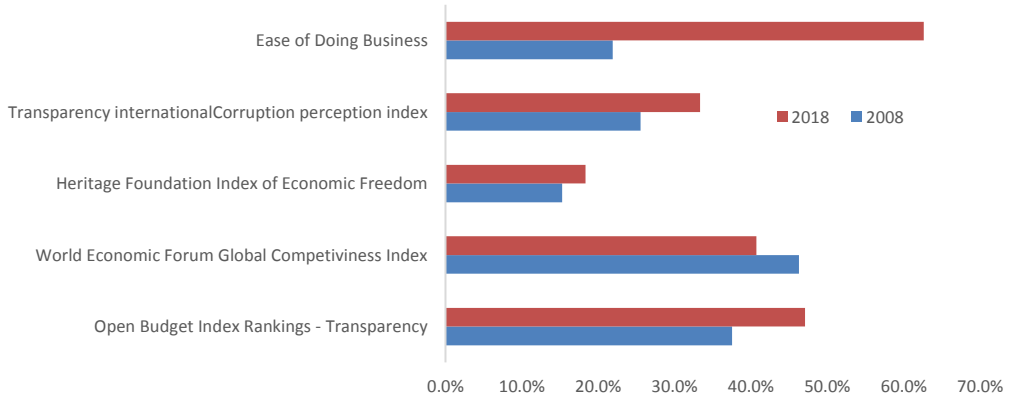


Source: EBRD. Forbes Magazine.

Notes: The measurement scale for the indicators ranges from 1 to 4+, where 1 represents little or no change from a rigid centrally planned economy and 4+ represents the standards of an industrialized market economy.

Reforms to strengthen economic institutions were implemented in recent years, but it is important to note that institutions change slowly, or hardly at all. Over the last 10 years, Ukraine's relative ranking in a number of important governance indicators has remained relatively low (Figure 5-1).

Figure 5 3: Ukraine's Relative Ranking in Governance Indicators, 60 percent indicates that Ukraine is ranked higher than 60 percent of other countries reviewed.



Source: World Bank, Transparency international, World Economic Forum.

The terms "institutions" is both overused and underspecified. This chapter looks at three specific issues and focuses on the ability of economic institutions to: (i) manage economic volatility; (ii) ensure fair competition; and (iii) enforce property and contract rights.

The key takeaway of this chapter is that Ukraine needs better economic institutions. The principles of stability, commitment, and competition are the priorities to reduce *friction*: stable macro policies to ensure stable public finances and dampen volatility; improved commitment to property rights and rule of law; and stronger competition regimes to encourage private enterprise and entrepreneurship.

Table 5-1. Issues for Economic Institutions in Ukraine

Level	Key Challenges	What needs to be done?
Macro: volatility	Volatile growth trajectory undermines confidence and distorts incentives to make long-term capital investments	Managing Volatility by maintaining prudent macro-fiscal-financial policies
Mezzo: competition	Misallocation of factors of production Energy, transport sectors remain mostly closed	Reducing market failures in product, factor and energy markets, reducing barriers for entry, exit of new firms Reducing distortions related to State's participation of provision of market-based goods
Micro: property and contract rights	Capability failure to utilize factors of production	Protection of property rights and enforcement of contracts, effective court system.

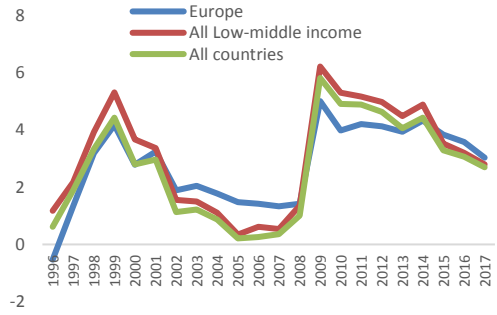
MAINTAINING MACROECONOMIC STABILITY

Inconsistent economic policies deployed prior to 2013 made Ukraine vulnerable to recurrent crisis and growth volatility. In terms of monetary policy Ukraine long relied on effectively fixed exchange rate as a nominal policy anchor. In terms of fiscal policy, accommodative fiscal stance and persistent quasi-fiscal deficits generated deep-seated structural vulnerabilities. These policies resulted in an overvalued real exchange rate, persistent fiscal and current account deficits and increase in public debt.

No economy can flourish in the midst of macroeconomic instability. High volatility of the price level, the exchange rate, and the interest rate serves as major deterrents to private investment, the proximate driver of growth. Growth volatility is associated with volatility in consumption, which adversely affects household welfare, particularly in poorer households with lower savings. Cross country estimates show a negative relationship between volatility and economic growth[47]. Hence, the quality of economic policy—both monetary and fiscal—is an important element of economic institutions. In this chapter we focus primarily on quality of fiscal institutions in terms of managing volatility and supporting economic growth.

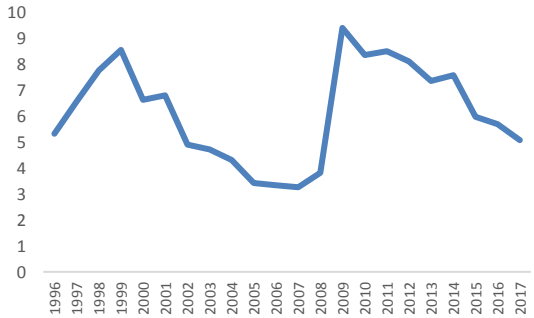
In 1996-2017, economic growth volatility in Ukraine (measured as a difference between standard deviation of annual growth rate with comparator countries) has been significantly higher than in other countries in the region. Moreover, In the past eight years this volatility resulted in the GDP falling in 2009 almost 14.8 percent and in 2014-15, 15.7 percent. Such large recessions have a lasting impact on potential output via depressed investment and declines in human capital (especially due to outward migration). The cost of three recession years like this exceeds the fall in real income and reveals loud and clear that investing in Ukraine is a very risky business!

Figure 5-3: A Difference between Standard Deviation of Annual Growth Rate in Ukraine and Select Comparator Countries, 5-year Rolling Interval 1996-2017



Source: World Bank staff calculations based on World Development Indicators.

Figure 5-4: Ukraine: Standard Deviation of Annual Growth Rate, 5-year Rolling Interval 1996-2017



Source: World Bank staff calculations based on World Development Indicators.

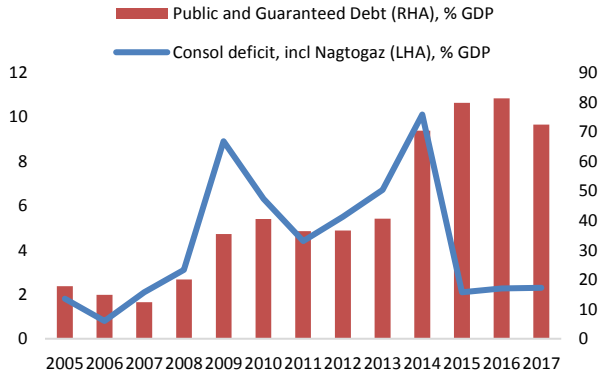
Supporting growth with stability is one of the most fundamental objectives of fiscal policy. This is not only related to the provision of public investment, but also supporting policies that result in the raising of aggregate saving. Thus, fiscal policy, has to be employed in such a way that a reasonable economic stability can be maintained, but not at the cost of the goal of higher economic growth.

Over the last few decades excessive reliance on an accommodative fiscal policy to support growth resulted in accumulation of sizable fiscal vulnerabilities. This was particularly the case prior to 2014. Combined with a fixed nominal exchange rate

[47] Ramey and Ramey (1995). Their data covered 92 countries for the period of 1962–1985; the dependent variable was per capita output growth, and volatility in output growth. Ramey and Ramey estimation results implied that an increase in realised volatility of one standard deviation was associated with lower per capita growth of over half a percentage point in the whole sample of countries and with lower growth of about one-third of a percentage point in OECD countries. A recent study confirms the Ramey and Ramey (1995) result that macroeconomic volatility is negatively related to economic growth. the full sample of 121 countries, a 50-percent increase in volatility translates into 0.4-percentage-point lower annual per capita growth.

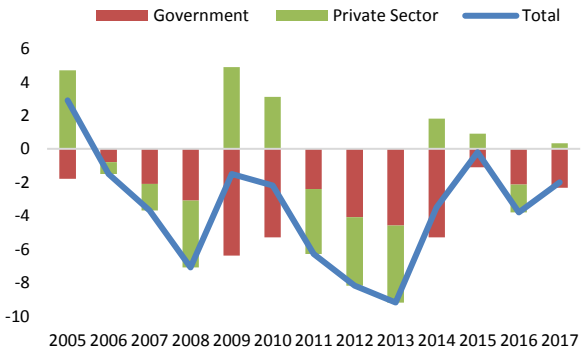
regime, this caused sizable current account deficits, inflation, the real appreciation of the exchange rate, a growing public debt and the erosion of investor confidence. The resulting periodic economic volatility was followed by a renewed accommodative policy to provide new support to economic growth, allowing underlying structural fiscal deficits to fester. As a result, the public sector has been—and still remains—the key driver of Ukraine's savings-investment gap. Persistent fiscal deficits were the main drivers of Ukraine's widening savings-investment gap after a short-lived balance in 2015 (Figure 5-6).

Figure 5-5: Ukraine's Long-Standing Fiscal Imbalances Put Public Debt on an Unsustainable Trajectory over the Last Decade



Source: State Treasury Service..

Figure 5-6: The Public Sector Has Been the Key Driver of Ukraine's Savings-Investment Gap



Source: Ukrainian Statistical Service (Ukrstat); WB calculations.

There were four key sources of fiscal pressures that undermined growth potential. *First*, weaknesses in the tax system distorted the business environment and undermined competitiveness leading to widespread informality that eroded the tax base. *Second*, social expenditures—particularly pension expenditures—had increased very rapidly due to frequent increases in public wages and pensions associated with the political cycles effectively crowding out public infrastructure spending and undermining growth potential. Excessive increases in fiscal expenditures led to an increase in the government's footprint—at 43.4 percent of GDP on average for the last ten years Ukraine's general government expenditures are about 10.3 percentage points higher than the regional average and about 14 percentage points above countries with similar per capita income. *Third,* large structural imbalances of state-owned enterprises (SOE)—particularly for the state gas supply company *Naftogaz*—increased quasi-fiscal and fiscal deficits through direct budget costs related to support for loss-making activities and contingent fiscal liabilities related to state guarantees on SOE debt. *Fourth,* persistent fiscal deficits effectively crowded-out private investment.

Ukraine has made remarkable progress in reducing its fiscal deficit and public debt, positioning the economy for strong growth. During the economic crisis of 2014-15, strict spending controls, coupled with high inflation, significantly reduced the fiscal burden of public expenditures, including public sector wages and pensions. A bold decision to adjust energy tariffs to the price of imported gas helped eliminate the

deficit of the state-owned gas company Naftogaz.[48] Overall, the general government fiscal deficit (including Naftogaz) fell from over 10 percent of GDP in 2014 to 2.2 percent of GDP in 2016. This fiscal consolidation, together with measures to support the macroeconomic adjustment such as the introduction of a flexible exchange rate regime, helped to restore confidence and stabilize the economy.

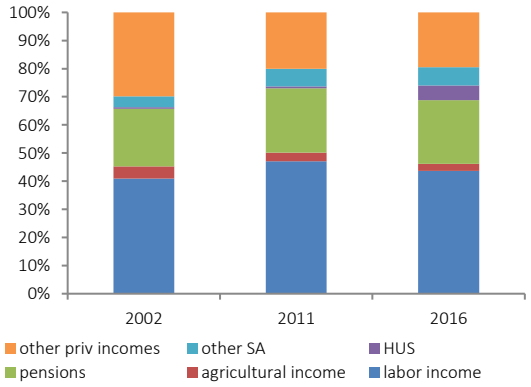
Nonetheless, at end-2017, public debt remained high at 72.3 percent of GDP, reflecting previous fiscal deficits, the sharp overall drop of GDP during the crisis, currency depreciation and the continued costs of banking support. Moreover, recently fiscal pressures have re-emerged—some of the ad-hoc fiscal consolidation gains achieved during the crisis proved unsustainable given an unfinished structural reform agenda. Ukraine's pattern of a pro-cyclical fiscal policy stance continued. As the economy stabilized and general government revenues recovered from 38.4 percent of GDP in 2016 to 39.2 percent of GDP in 2017, expenditures jumped from 40.6 percent of GDP in 2016 to 41.5 percent of GDP in 2017.

CREATING EQUAL ECONOMIC OPPORTUNITY

For growth to be sustainable in the long run, it should be broad-based across sectors and inclusive of the large part of the country's labor force. Hence, inclusiveness encompasses equality of opportunity in terms of access to markets, resources, and unbiased regulatory environment for businesses and individuals. In specific terms it refers to creating economic opportunity for all to find a job or develop business by reducing regulatory burden and improving delivery of public services.

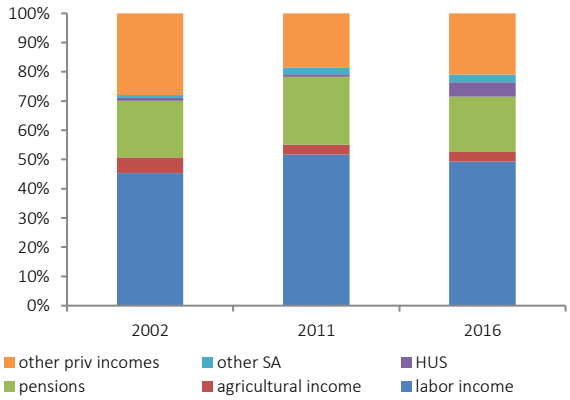
Today ineffective public services and weakly targeted assistance have contributed to inadequate employment outcomes, the reliance on transfers, and the unsustainable pattern of poverty reduction. A significant portion of household income in Ukraine and particularly for the poor comes from pensions and transfers. In period between 2011 and 2016, the share of labor income declined for households with high and low incomes.

Figure 5-7: Composition of household income by sources of income: bottom 40 percent of households



Source: Ukrainian Statistical Service (Ukrstat); World Bank calculations.

Figure 5-8: Composition of household income by sources of income: top 60 percent of households



Source: Ukrainian Statistical Service (Ukrstat); World Bank calculations.

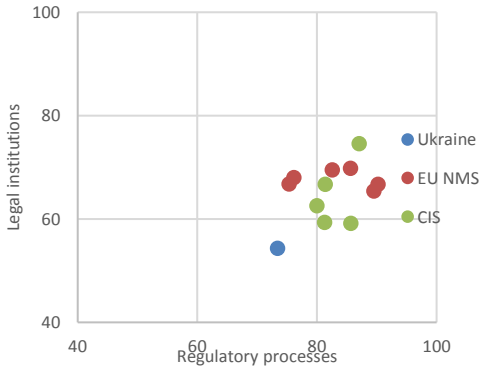
[48] In 2014, residential gas tariffs were increased by 56 percent on average and residential heating tariffs were increased by 40 percent on average. In 2015, residential gas tariffs were further increased by 285 percent on average, while residential heating tariffs increased by a further average 67 percent.

Ukraine spends a large share of GDP on social services and assistance, although this does not translate into high quality service delivery.

Opportunity for all to find a job or develop business to a large extend depends on investment climate that facilitates and encourages the private sector growth. During the transition period, Ukraine's economic policies were a blend of legacy of traditional controls to preserve select old economic structures and support innovative, combined with forward-looking market processes that propel new sectors of economy. For example, while Ukraine did encourage new entry in the services sector, the capture of the state by vested interests created a poor investment climate. At the same time, some enterprises were supported through subsidies granted through the budget, energy consumption, and the banking sectors. Evidence of this were specific regulatory and institutional barriers to entry, exit and restructuring that restrained the Schumpeterian processes of creative destruction that drive innovation and structural change in market economies.

In recent years Ukraine has made progress in strengthening its legal institutions, but in terms of effectiveness of regulatory processes Ukraine still has room to for improvement. (see Figure 5-9).

Figure 5-9: Average ranking on sets of Doing Business Indicators, 2018

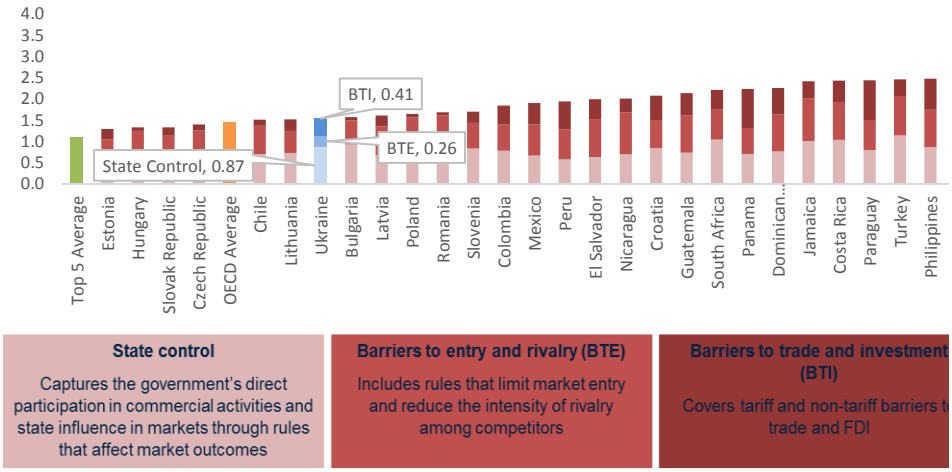


Source: World Bank staff estimates based on Doing Business database 2018.
Note: Strength of legal institutions refers to the average distance to frontier score on getting credit, protecting investors, enforcing contracts, and resolving insolvency, whereas complexity and costs of regulatory processes does the average ranking on starting a business, dealing with construction permits, getting electricity, registering property, paying taxes, and trading across borders.

At the same time Ukraine has made progress in improving product market regulation. New data collected by the Organisation for Economic Cooperation and Development (OECD) and the World Bank Group suggest that overall product market regulation (PMR) is favorable to competition—Ukraine's overall PMR score (1.54) places the country just behind the OECD average (1.46) in terms of regulatory restrictiveness (Figure 5-10).[49]

[49]Product Market Regulation (PMR) methodology was developed by the OECD. PMR indicators form a comprehensive and internationally-comparable set of indicators that measure the degree to which policies promote or inhibit competition in areas of the product market where competition is viable. Their advantages notwithstanding, PMR indicators are not designed to capture informal regulatory practices nor the effective enforcement of regulations, since they are only concerned with formal compliance with a number of criteria as they are on the books. Information for Ukraine was collected and validated based on the PMR questionnaire during April-August 2017 and PMR scores were calculated and updated during September 2017–January 2018. PMR takes into account the legal framework as it is on the books (as of early 2017) and does not cover implementation.

Figure 5-10: PMR Score - Ukraine and Comparator Countries



Source: OECD-WBG PMR.
Note: The top 5 performers are the Netherlands, the United Kingdom, the United States, Austria, and Denmark.

However, Ukraine's significant State intervention, including through SOEs in markets where private sector participation and competition are typically viable (such as energy generation, manufacturing, transport, and agriculture) is the main contributor to product market regulatory restrictiveness. Partly owing to its history, the state remains an extremely important player in the economy due to its ownership of substantial productive assets[50].

Moreover, a relatively large share of output is generated in highly monopolized and largely unrestructured network industries where state is the main owner. SOEs were found to hold significant market shares (greater than 50 percent) in at least 15 out of 28 sectors and markets where they operate.[51] The broad scope of SOEs suggests that the state is directly intervening in sectors that go beyond the traditional network industries where SOE are present in 9 sectors (electricity, gas, postal services, railways, air, water, road and urban transport, and water distribution), and end-up stretching to 17 sectors as varied as agriculture, machine building and hotels.

The issue of how effective policies have been in disciplining the *old* sector and encouraging the *new* holds the key to understanding why growth has been better in some transition economies than in others. In countries that succeeded, discipline was imposed early on, while development of private sector was complimented by a mix of Western European know-how and financing that build helped to integrate central European countries into the global economy and build modern markers and attain higher incomes. For long period of time Ukraine "got stuck" at a low level of reform equilibrium characterized by liberalization without discipline and with only limited encouragement of new entry (The World Bank, 2002).

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[50] According to the MEDT data, only half of the 3,591 SOEs were operational and contributed by around 20 percent of GDP in 2015. SOEs are the largest employer in Ukraine: about 1 million people or roughly 5 percent of the work force.[50] 94 of the top 100 SOEs included in a MEDT review employ more than 650,000 employees, owned assets worth almost UAH 1 trillion (around USD 45 billion)[50] in 2015 and generated annual revenues of UAH 240 billion between 2012 and 2014 (equivalent to around USD 10 billion).

[51] Based on the OECD-WBG PMR data and the MEDT Top 100 SOE Report, there is least one SOE in 28 sectors/markets. The number of sectors/markets with SOE presence may be higher.

Ukraine's weak competition conditions are also reflected in higher operational risks that firms perceive in relation to vested interests and cronyism, anticompetitive practices and discrimination against foreign firms (Economist Intelligence Unit, 2018).

IMPROVING COMMITMENT TO PROTECT PROPERTY RIGHTS AND RULE OF LAW

The core welfare results of economics concerning the role of competitive markets assume that property rights are well defined and costlessly enforced. Property rights[52] are typically treated as a bundle of rights that include the power to consume, obtain income from, and alienate assets, such as land, labor, or capital (Barzel 1989: 2; Riker and Weimer 1993).

In this section we focus on three aspects of property rights: (i) first how well they are defined, (ii) second, the relationship between contracts and property rights and (iii) most importantly, commitment to protect property rights. In a world with complete information and no contracting costs, resource allocation will be independent of the allocation of property rights[53].

In terms of the definition of property rights, Ukraine has established a *formal* regulatory framework protecting property interests, as well as mortgages and liens, yet corruption remains a problem in Ukraine which undermines *de facto* security of property rights and undermine relationship between contracts and property rights. While measuring corruption accurately is notoriously difficult, there is a widespread consensus that it remains at very high, albeit declining, levels. Transparency International's "Corruption Perceptions Index" (CPI) ranks Ukraine 130th out of 180 countries. Clearly, securing property rights in such an environment is not easy.

Ukraine's court system is a major problem. The sources of Ukraine's weak justice sector are complex, and have resulted in limited reforms to restrain arbitrary state actions and for legal redress. Ukraine's justice sector shares governance challenges with many transition countries, suggesting that historical legacies could play an important role, such as the emergence of oligarchs who have sponsored political parties and often exercise strong influence over government institutions and officials across all three branches of state. The significance of the challenge is illustrated by the high cost of enforcing contracts (46 percent of the total cost of the claim (compared to the ECA average of 26.2 percent according to DB2018) and the impact of non-enforcement of civil claims (Ukraine's recovery rate is estimated to be 9 cents on the dollar compared to, for example, 27 cents for the United States).

Since contracts are weakly enforced by Ukraine's courts, property rights are reliant on connections with top officials or through international guarantees such as bilateral investment treaties or through re-direction of FDI. While such arrangements—while costly—might work for large enterprises and large transactions, they are prohibitively costly for small firms, hence, undermining

[52] By property rights economists typically refer to private property rights a key feature of which is being able legally to exclude others from using a good or asset. This affects resource allocation by shaping the incentives of individuals to carry out productive activities involving the use of a good or asset, undertake investments that maintain or enhance its value, and also, to trade or lease it for other uses.

[53] In a world with perfect contracting, a rental contract is effectively equivalent to a change in ownership because these rights can be specified for every foreseeable contingency.

economic growth potential. In fact, given the weakness of many formal economic institutions, notably the court system, vertical integration remained a primary means of ensuring contract enforcement, protecting business interests relative to competitors, and achieving good relations with various state organs. The larger financially integrated groups are particularly dominant in the industries of metallurgy, energy, machine-building, food and chemical. The large gas and transportation complexes have been organized into large government-owned financial-industrial groups whose holdings also include enterprises of related upstream and downstream firms.

Finally, there is a challenge of ensuring time-consistent commitments to protecting property rights. Economic contracts, and policies, often promise benefits in the future for changes in behavior today. In other words, economic transactions are vulnerable to ex-post violations of its property rights by state agents. Again, a well-functioning independent court system that raise the costs to the government of violating the law may mitigate this problem.

In recent years Ukraine has introduced important reforms to strengthen the court system and anti-corruption institutions. The Verkhovna Rada (parliament) in mid-2016 adopted several constitutional amendments and a new law ("On the Court System and the Status of Judges"), which together aim to strengthen judicial independence and streamline the functioning of the justice system. Similarly, Ukraine adopted a new set of anti-corruption laws in 2014-15 with the support of the World Bank and other development partners. Most notably, these laws established the National Anti-Corruption Bureau (NABU, with investigative functions), the Special Anticorruption Prosecutor Office (SAPO), and the National Agency for Corruption Prevention (NACP, responsible for asset declarations of public officials and conflict of interest provisions). As of May 31, 2018, NABU had investigated a total of 611 cases and sent 140 cases to court. However, given major weaknesses in Ukraine's judicial system, an independent anticorruption court is critical to provide an impartial decision on the cases. In more than a third of the cases prepared by NABU, trials have not yet started; and in one of the highest profile cases involving the arrest of the former head of the state fiscal service in March 2017, it took three days to find a judge to hear the case. This has led to widespread frustration among citizens and undermined trust in the government's commitment to combating grand corruption.

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