Economic Assessment: Ukraine 2016

Version 1.0.3

January 22, 2016

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Data

Root Metrics

Root metrics for this report come from the following sources:

- http://data.worldbank.org/
- http://data.un.org/
- https://data.oecd.org/
- https://www.transparency.org/cpi2014/results
- http://www.theglobalipcenter.com/gipcindex/
- http://www.unesco.org/new/en/unesco/resources/online-materials/publications/unesdoc-database/
- http://comtrade.un.org/data/

Per tertiary educated labor force

Official statistics from World Bank, UNESCO and IMF capturing the total number of people in the workforce with tertiary education lack enough countries that it becomes difficult for us to do true market comparisons.

For this report, Akholi calculated the size of each country's tertiary educated labor force by multiplying the size of each country's labor force by the country's tertiary education rate. As with our per capita calculations, Akholi took great care to ensure this calculation is done on a year by year basis. If either the population size or tertiary education rate for a given country for a given year were not available, the tertiary educated labor force statistic for the given year and country was not calculated. While we provide full assessments on a per capita basis on 207 countries, we are only able to model 147 countries on a per tertiary educated labor force basis.

In addition to omitting some markets, this model has flaws and can both overstate and understate the true size of a country's labor force with tertiary education. While we believe this model provides great insight into economic performance based on a country's tertiary education rate, the potential over and understatement of the country's true tertiary educated labor force is significant enough that we do not use this metric for calculating economic targets. This metric is simply an indicator and provides additional insight.

5-Year Peak

As will be outlined later in this report, the crisis in Ukraine is having a material negative effect on the overall economy of Ukraine. Although we outline the impact the crisis, the intent of this report is to assess Ukraine's economic performance regardless of the crisis.

To help us measure Ukraine's pre-crisis performance, we do most of our modeling based on a 5-Year Peak score for each metric. Our 5-Year Peak pulls each country's top score over a five-year window from 2010 through 2014.

While this allows us to compare Ukraine at its best economic performance over the 2010 – 2014 window, it also compare's Ukraine against countries at their best over the same five-year window.

About Akholi

Akholi provides detailed quantitative analysis for government agencies wanting to materially improve both their workforce and overall economy.

Founded by the top executive team that partners leading global employers with foreign government agencies to jointly develop a future state workforce, we pair our data with a current and global private sector perspective. We help government agencies understand how the world's top employers view the greater country and outline key steps necessary for the country to improve global private sector involvement to develop their workforce and overall economy.

About Mr. Phillip J. Hatch

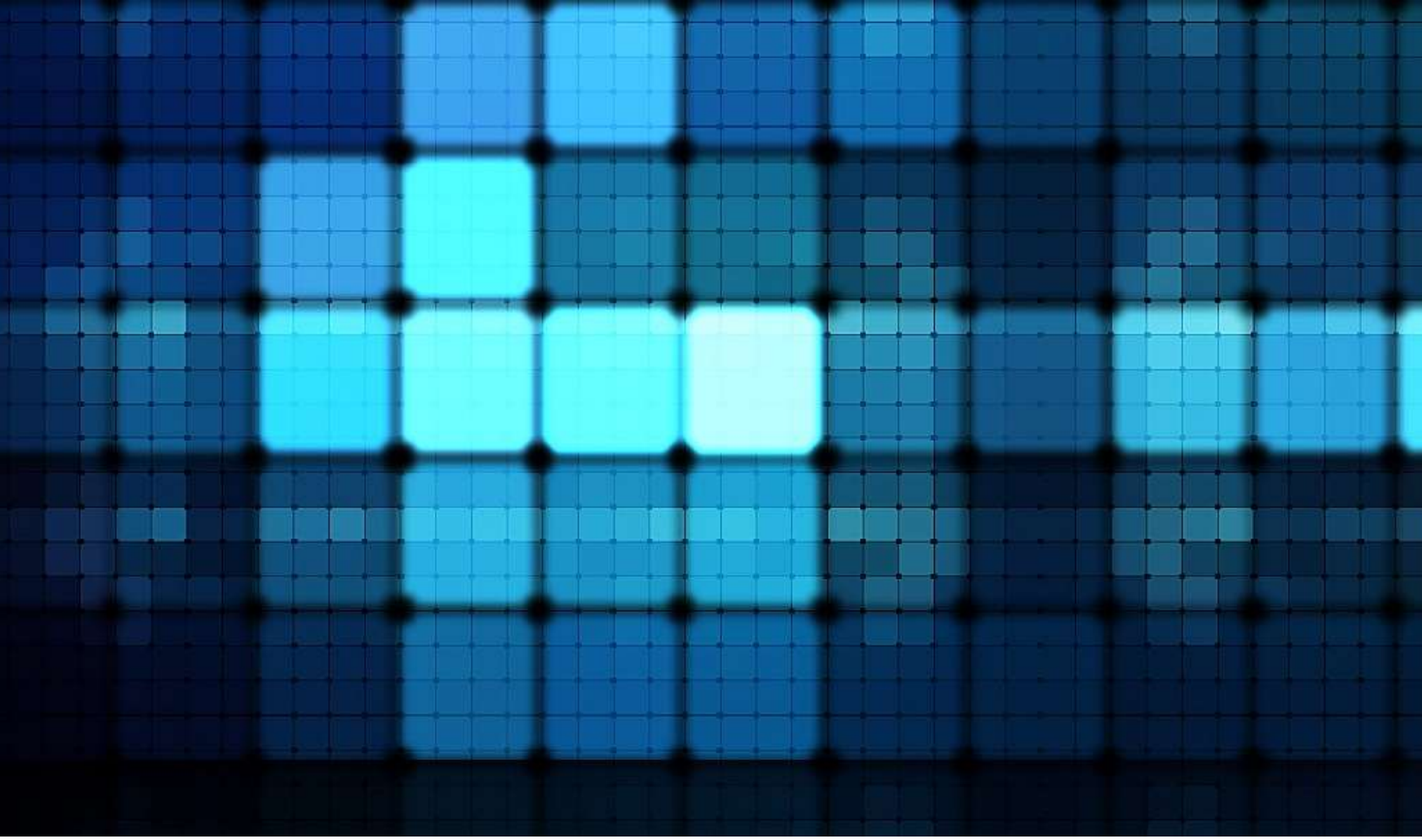
Mr. Hatch is a 20-year executive in the global labor, workforce and economic development space with extensive experience working with both public and private sector leaders.

Working with clients such as UBS, Goldman Sachs, Microsoft and Boeing, Mr. Hatch has helped address a variety of global strategy, workforce strategy, global expansion and outsourcing related issues.

Mr. Hatch has worked with top government officials in countries around the world helping them address labor shortage, jobs creation and economic development needs. Mr. Hatch has specialized in helping countries attract and partner with top global employers in order to create jobs and achieve economic growth.

Prior to founding Akholi Research, Mr. Hatch was an executive with Experis (a ManpowerGroup company) with responsibilities for global services. In addition to running the outsourcing division, Mr. Hatch worked closely with many of the world's top employers helping them gain a better understanding of coming economic and labor trends. In this role, Mr. Hatch also pioneered joint public-private sector programs that brought governments and top global employers together to create a high-demand talent base. Mr. Hatch's efforts directly led to the creation of new jobs and involvement of some of the world's top companies in new foreign markets.

Mr. Hatch is a noted thought leader in this space and authored, contributed to or been cited by hundreds of articles, research reports and books covering a variety of outsourcing, outsourcing vendor development, workforce development and economic development issues.



Executive Summary

Opportunity

January 18, 2016

For the greater part of the past decade, I have worked with teams in and traveled extensively across Ukraine. I have been impressed with the size of Ukraine's labor force and high education rates. I have always thought there is a massive opportunity for Ukraine if Ukraine can address ongoing issues around corruption and IP protection.

While Ukraine's tertiary education rate and large labor force impressed me, the enthusiasm I have seen in Ukraine resonated with me the most. There is still great belief in Ukraine's potential although most recognize how difficult of a challenge it will be to achieve.

This report will call out significant shortcomings in Ukraine. Fact is that Ukraine is underachieving given the size and education rates in Ukraine's workforce. The current crisis in Ukraine is certainly impacting Ukraine's economy. However, our modeling indicates that Ukraine's ongoing corruption and IP protection concerns have had a greater effect on the Ukrainian economy in total than the current crisis. Simply put, if Ukraine cannot resolve ongoing risk, Ukraine will never reach full potential.

That said, I am optimistic and hope this report conveys both the size of the opportunity and steps Ukraine can take to realize a brighter future. There are steps Ukraine can take now while addressing risk to greatly improve Ukraine's overall economy. Ukraine will likely not be able to grow high-value manufactured goods exports until risk is reduced. But, Ukraine can transform the entire economy through high-value service exports while Ukraine addresses ongoing risk issues.

Further, global employers want to help Ukraine develop their workforce. Over the past several years, we piloted concept programs in Ukraine intent on understanding how to improve global private sector involvement in Ukraine and methods for creating high-value jobs now. Our pilot projects proved there is an immediate global appetite for Ukrainian talent and the world's top global employers want to work with Ukraine to develop a future state workforce.

I believe in Ukraine. There is great opportunity and there are proven steps Ukraine should take now to realize this better future.

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Key Findings

1. The current crisis in Ukraine is having a material negative impact on all facets of the Ukrainian economy.
2. While the crisis is having a negative effect, ongoing corruption and IP protection concerns have had a larger total effect on the Ukrainian economy.
3. Ukraine's 5-year peak GDP Market Price of $183 billion is significantly lower than realistic targets we outline later in this report. Ukraine should be a $1.125 trillion economy.
4. Ukraine's salaries for high global demand skills is within an average range globally and high enough to drive a material change in the Ukrainian economy. Ukraine does not need to worry about improving salaries for high global demand skills. Ukraine must create more high-value jobs.
5. Ukraine's education rates are above average in the top education quintile globally.
6. Ukraine has done little to capitalize on or generate a return on education investment from this highly educated workforce.
7. Ukraine has no material involvement from the global private sector in developing the Ukrainian economy or workforce.
8. High-value exports (both goods and service) and specifically technology related goods and service exports have a significant opportunity for growth. Reasonable targets outlined in this report set targets for technology goods and service exports at $250 billion per annum representing a significant growth from Ukraine's 5-year peak technology goods and service exports value of $8 billion.
9. Until Ukraine resolves ongoing corruption and IP protection risk, Ukraine will not be able to materially develop high tech and high-value manufactured goods exports.
10. Membership in EU, new trade zones and other programs will not produce higher technology goods exports until corruption issues are resolved.
11. While Ukraine cannot develop technology goods exports until corruption and IP protection risk is resolved, Ukraine has a significant opportunity to grow high-value and ICT service exports.
12. Citing reference countries with near identical corruption index scores and even military conflict, Ukraine can achieve our full ICT service exports target of $75 billion (up from a 5-year peak of $5 billion) while addressing both corruption and the ongoing crisis.
13. Achieving this $75 billion ICT service exports target while Ukraine resolves risk will materially change Ukraine's economy. By achieving this target while maintaining all other exports at current levels will likely lead to a Ukrainian GDP Market Price over $300 billion.
14. If Ukraine can resolve current risks, Ukraine is poised to be a true global technology leader.

Ukrainian Economic Performance

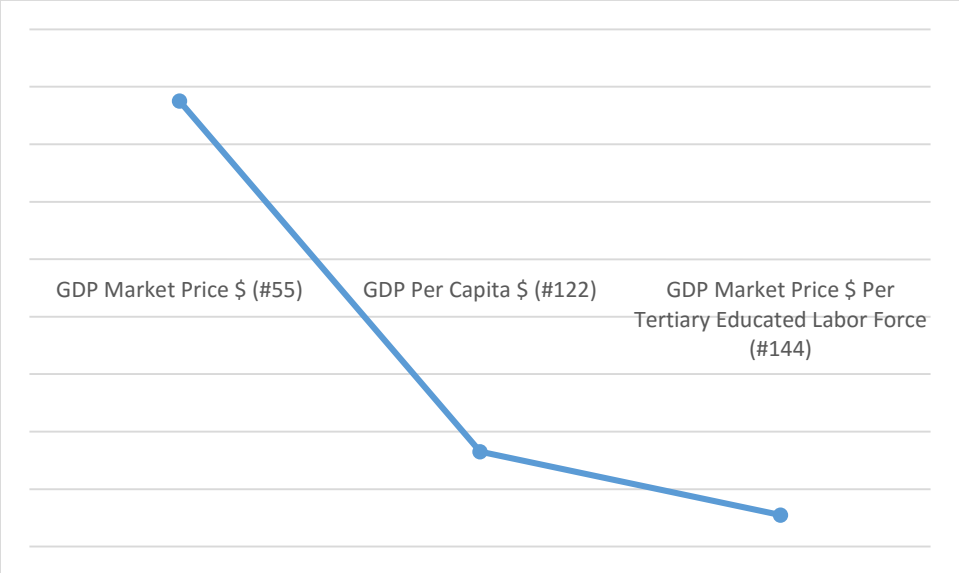
In our analysis, we consider three perspectives for each metric:

1. Root Metric. (GDP Market Price $)
   With Ukraine's large overall size, this gives a misleading picture of Ukraine's overall economic health. Most root metrics will rank Ukraine in the top two quintile globally.

2. per capita Metric. (GDP per capita $)
   With a five-year peak population of 45.9 million people (ranking Ukraine #30 globally), this perspective offers a widely accepted method for gauging the true health of Ukraine's economy. All of our target values and modeling are calculated using per capita rates.

3. per tertiary educated labor force Metric. (GDP $ per tertiary educated labor force).
   Ukraine has one of the highest tertiary education rates globally and has the 13th largest tertiary educated labor force. When considering the overall health of Ukraine's economy, we must factor in both the size and tertiary education rates of the overall labor force. While this perspective offers us significant insight into Ukraine's true economic health, we will not use this perspective in calculating Ukraine's economic potential.

A consistent theme we find across the board is declining performance and global ranking as we move through each of the above three perspectives for each metric. As an example:



In the chart above, Ukraine ranks #55 globally in regards to GDP Market Price $. Factoring in the size of Ukraine's population, Ukraine drops to #122 out of 205 markets assessed. Factoring in the size of the tertiary educated labor force,

Ukraine drops to #144 out of 147 markets with reliable tertiary education rate data. (Placing Ukraine 4th worst in the list.)

This decline in overall ranking through each of the three perspectives is a consistent theme found across the board for Ukraine.

Our interpretation of this is that Ukraine has done very little to generate any economic value from their tertiary educated labor force or generate a direct ROI from their educational investment.

Market Potential

Ukraine should be a $1 trillion economy and a global leader in regards to technology related goods and services exports. Leveraging a combination of models (outlined extensively later in this report), we set targets for Ukraine as follows:

	GDP	Total Exports	goods exports	service exports	high-tech goods exports	ICT goods exports	ICT service exports
Current	$183.10	$83.88	$64.43	$22.61	$2.62	$0.71	$5.02
Model 1	$487.70	$144.41	$117.12	$31.81	$12.80	$11.57	$9.94
Model 2	$640.80	$414.90	$321.05	$78.22	$30.21	$34.76	$21.92
Model 3	$772.30	$309.31	$201.07	$87.74	$15.41	$33.05	$19.49
Model 4	$926.30	$718.65	$606.34	$154.77	$69.01	$79.95	$38.49
Model 5	$1,136.50	$837.35	$700.24	$236.80	$101.50	$122.30	$63.35
Model 6	$1,487.90	$564.42	$441.66	$116.84	$36.50	$25.03	$23.09
Model 7	$1,656.60	$696.80	$519.31	$193.67	$58.74	$28.02	$66.38
Model 8	$1,673.70	$747.26	$651.28	$229.76	$45.57	$66.74	$75.38
Model 9	$2,797.20	$1,652.47	$1,006.48	$660.08	$86.08	$109.75	$169.53
Model 10	$7,430.80	$10,812.06	$3,831.85	$8,052.67	$1,145.08	$1,334.01	$1,718.82
Akholi Target	***$1,125.00***	***$500.00***	***$350.00***	***$150.00***	***$100.00***	***$100.00***	***$75.00***
	(Billion USD)						

In our research, we found:

1. Ukraine's greatest growth opportunity comes within high-value technical goods exports. (Rising from a current market value of $3.33 billion to a target of $200 billion). Ukraine will largely be unable to realize material growth in these areas until risk (corruption and IP protection) issues and the crisis in Ukraine are all resolved. Our data indicates that no country with similar corruption and IP protection concerns has ever been able to grow high-value technical goods exports without addressing risk first.

2. However, our data demonstrates that countries with similar risk are able to achieve significant high-value and technical service exports. Ukraine can (and should) aggressively push high-value service exports while addressing greater issues that are materially keeping Ukraine from achieving full potential

Global Involvement in Developing Ukraine

Ukraine's 5-year peak FDI $ per capita rate of $179.30 (preceding the FDI $ crash in 2014) ranks Ukraine within the second lowest quintile globally.

In addition to a lack of working capital to develop the Ukrainian economy, this is a strong indication that the global private sector has not been involved in helping steer overall development. It is extremely difficult to grow exports for manufactured goods, high-tech goods, ICT goods, ICT services, etc. without early stage advisory involvement from potential customers. Ukraine must take steps to get more global firms involved in the development of the Ukrainian economy.

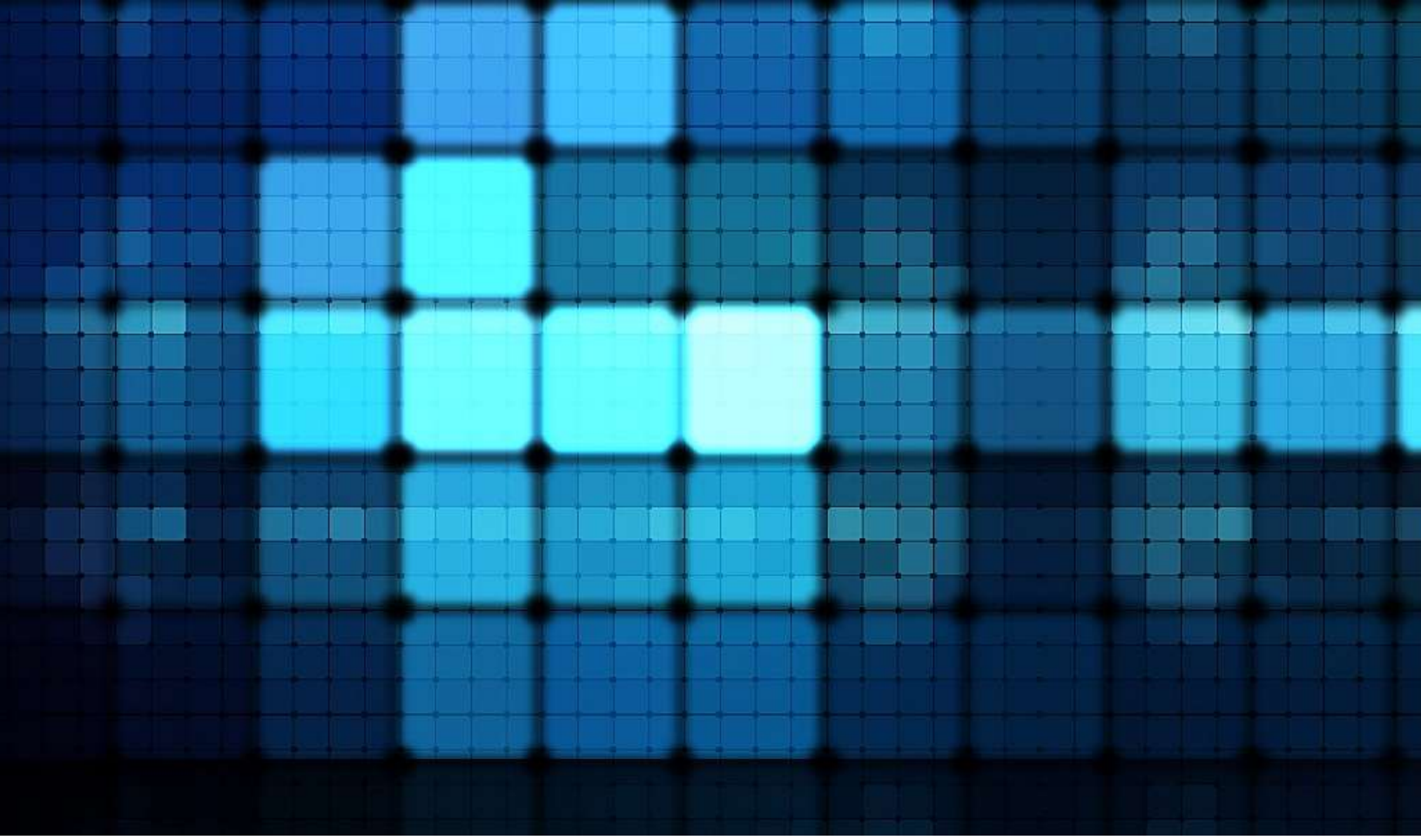
While Ukraine will likely not be able to materially improve FDI Net Inflow rates until risk concerns and the crisis are resolved, Ukraine has a significant asset in their highly educated workforce. Global employers are willing to engage with Ukraine to help steer the further development of this asset. While this will not improve immediate FDI rates, this involvement will help grow immediate services exports and seed the global marketplace for high-value Ukrainian goods exports for future growth.

Health Check Matrix

The above chart compares key indicators on a per capita basis against both global and regional markets. While Ukraine has a large and highly educated labor force, Ukraine has not been able to translate that into economic performance. A key theme has emerged that will flow through the rest of this report:

1. Mitigate risk from ongoing corruption and IP protection issues.
2. Push toward "higher performance"
   Examples of this theme:

Ukraine is not suffering from high unemployment.	→	Ukraine does not have enough high-value jobs.
Ukrainian salaries for high global demand skills are fair.	→	Ukraine does not have enough of these high-value jobs.
Ukraine has sizable manufactured goods export.	→	Manufactured goods exports are relatively low tech and low value in whole. Ukraine needs higher value exports.



Call to Action

Opportunity 1: Become the European Technology Capital

Ukraine is in a unique position to become the European technology capital.

1. Ukraine has a tertiary education rate that is above average in the world's top educated quintile. There is both infrastructure and a culture of higher education that is extremely difficult to create if lacking.

2. Ukraine has world-leading density of Science, Technology Engineering and Mathematics (STEM) resources. Ukraine consistently ranks in the top in regards to Engineering Graduates per capita.

3. In addition to R&D potential, Ukraine has history and infrastructure for manufacturing. Ukraine can transform into a highly technology based and modern automated manufacturing center for technology related goods.

Our challenge: Become the European technology capital and place Ukraine within the top technology goods and service exporters globally.

In order to achieve this goal, Ukraine will need to significantly boost both technical goods and service exports. We set our targets for Ukraine as follows:

While our targets are significantly higher than current values, our targets would create a per capita exports rate that is below top performers within the Central and Eastern European Region.

Achieving this goal would transform the Ukrainian economy.

	Current ($ billion)	Future ($ billion)
GDP Market Price $	$183	$850
Total Exports	$84	$400
Goods Exports	$64	$310
Service Exports	$23	$90
Technology Goods Export	$3	$200
Technology Service Exports	$5	$75

If Ukraine were to achieve targets we defined for technology based goods and service exports while leaving all other exports flat, Ukraine would likely achieve a GDP Market Price of $850 Billion.

While becoming the European technology centric leader would transform Ukraine, it will be a difficult task to do. Specifically, Ukraine is not likely to materially increase technology based goods exports until risk issues (corruption and IP protection) are resolved. To become a true global leader in technology goods exports, a country needs a massive capital inflow and significant commitment from the global private sector. Ukraine will not receive this participation from the global private sector until these issues are removed.

That said, Ukraine does have immediate opportunity now:

1. We have ample data proving the global market will consume technical and high-value service exports from countries that present significant corruption, IP protection and even military conflict risk. Some countries with similar challenges to Ukraine have achieved ICT service exports per capita and High Value service exports per capita rates that far exceed targets we have set for Ukraine.

2. Ukraine has an encouraging and growing software product industry. Global private sector firms and individual consumers have demonstrated an appetite for software products from risk markets- including Ukraine. While Ukraine may not be able to materially increase technology hard goods exports, Ukraine can continue to grow software product exports.

In order to achieve this challenge, there are steps Ukraine must take:

1. Immediate:
    a. Identify key technology industries where Ukraine has a compelling combination of an existing story and education leadership. Immediate industries we believe Ukraine can focus on: Aerospace, energy, transportation, biotech / pharmaceuticals, ICT and high-tech manufacturing.

b. Begin partnerships with key industry-centric global employers. While global private sector leaders are not likely to invest into Ukraine at this time, they will provide guidance on their needs for a future state workforce and will help define infrastructure, incentives, etc. they want in order to open facilities in Ukraine in the future. This will seed rapid growth once Ukraine addresses ongoing risk issues.
c. Aggressively grow ICT and high-value service exports. Ukraine can double the Ukrainian economy simply through achieving our ICT and high-value service exports targets. There is global demand, the greater Central and Eastern European region has demonstrated a global appetite for regional ICT service exports and global consumers (major firms) have demonstrated a willingness to buy service exports from countries with high risk. Use tax revenues from the growth of ICT and high-value service exports to fund the remaining program.
d. Implement a program to help develop and mature Ukrainian technology firms. From the start, begin working with service export firms to help them become globally competitive. As risk in Ukraine is reduced, begin seeding and maturing goods export firms.
e. Implement a Strategic Workforce Development Framework helping Ukraine measure and maximize ROI on workforce development programs.

2. Mid-Point
    a. As Ukraine progresses in resolving risk, begin to plan and implement special economic trade zones, infrastructure and incentive programs top global employers want in order to open captive centers (delivery centers) in Ukraine. While significant emphasis will be placed on growing Ukrainian exporters, captive center development presents a significant opportunity to create high value jobs and further develop the Ukrainian economy. Key to success on this point: Take all steps in partnership with global private sector employers.
    b. Begin to seed Ukrainian technology goods export firms.

3. Future
    a. As Ukraine achieves a reduction in corruption and IP protection risk to a level global private sector leaders are willing to begin investing into Ukraine, grow technology goods exports.
    b. Begin to aggressively sell captive centers to top global employers allowing them to leverage Ukraine's highly educated workforce.

Opportunity 2: Resolve Corruption and IP Protection Risk by 2020

Facts:

1. While the current crisis in Ukraine is the primary factor in a YOY decline in GDP of $51.5 Billion from 2013 into 2014 (28% reduction in GDP), ongoing corruption and IP protection concerns have had a more significant impact on the Ukrainian economy. Ukraine should be a $1 Trillion economy today. The primary reason Ukraine has not achieved full potential is due to ongoing corruption and IP protection risk. Global corporations are not willing to invest into or purchase high-value manufactured goods in volume from countries that present the same risk levels.

2. No country with a similar risk profile to Ukraine has been successful in achieving material growth in high-value and technology based goods exports. Ever. Any programs centered on creating trade zones, trade agreements, special economic zones, State backed investment growth programs, etc. will not succeed in *materially* growing high value-add and highly technical manufactured goods until these risks are addressed.

3. As previously noted (and will be explored later in this report), there is an opportunity to grow high value-add and technical service exports. These service exports can have a material effect on the overall economy. That said, Ukraine will not achieve full potential until risk is reduced.

4. There is a massive shift starting in regards to global workforce demographics and this change is placing Ukraine in a unique position of being a true top workforce market. If Ukraine can reduce risk, Ukraine can be the dominant global story in regards to highly technical, highly educated and moderate cost workforce well into the future. If Ukraine cannot resolve these ongoing risks, Ukrainian talent will likely leave country in record numbers as major European markets slip into a significant skilled talent deficit.

As a result of all of the above, we define our second challenge as a final resolution to ongoing corruption and IP protection concerns by the year 2020. This is an enormously aggressive timeline and will present the Ukrainian government with a potentially unachievable task. Unfortunately, global dynamics are at play and the target date of 2020 is not artificial. We are in the early stages of what will likely be the most profound skilled talent shortage in history. If Ukraine does not resolve corruption and IP protection risk by the year 2020, Ukraine likely will lose the opportunity to establish themselves as a true technology and highly educated workforce destination for the world's top countries.

The action plan for resolving ongoing risk is less clear for us. We are not experts in resolving such issues. We can only measure the impact of risk and demonstrate the need for resolving them. That said, our advice is as follows:

1. Have the Ukrainian government double down on efforts to resolve these issues. Again, corruption and IP protection risk had the greatest negative effect on the Ukrainian economy over the past two decades than any other issue.

2. Retain a global crisis PR and branding agency to begin working on the overall global Ukrainian "brand". Ukrainian businesses are fighting a negative brand at the moment and exports are likely below a realistic current day target simply due to the negative opinion of global buyers.

3. Set an extremely high-bar standard for Ukraine in regards to corruption and IP protection. With Ukraine's lengthy history struggling with these issues, Ukraine cannot simply "do as well as other countries". Ukraine must do better than other countries in order to counter negative branding in the global private sector.

Opportunity 3: Greatly Increase Global Private Sector Involvement

There is a significant opportunity to involve the world's top employers in defining and implementing both Secondary and tertiary education programs in Ukraine that will further develop both exports and domestic use of Ukrainian talent.

While hard data is difficult to come by, we have ample evidence of small partnerships between Ukrainian educational institutions and global employers already. In our travels through Ukraine over the past decade, we have met many teams in Ukraine's top universities that are partnering with top global employers on various research projects, product development and other initiatives. Ukraine should greatly increase the size and number of these relationships.

Through pilot projects we conducted in Ukraine, we know the following:

1. Ukraine has the raw skills (specifically STEM skills) top global employers are looking for.
2. It often takes very little to align current Ukrainian curriculum to meet the needs of top global employers.
3. Top global employers have a large desire to work with Ukrainian educational institutions to both further refine curriculum to meet there needs, and, to participate in the educational process.
4. Once students begin to graduate, global employers are willing to open captive centers in Ukraine hiring these new graduates and will keep them in Ukraine.
5. With students graduating with specific skills needed by the global market, global employers are much more likely to buy outsourcing services from Ukraine.

In parallel to addressing corruption and IP theft concerns, Ukraine can build the true workforce of the future. Doing so will greatly improve Ukraine's odds of becoming the economic powerhouse it should be.

Our third challenge for Ukraine: Involve the global private sector in defining and building the workforce of the future.

In addition to providing guidance on the skills they are forecasting to need, top global employers have demonstrated true willingness to help Ukraine build this workforce. Global employers will help define curriculum. Global employers will even help with the actual education process.

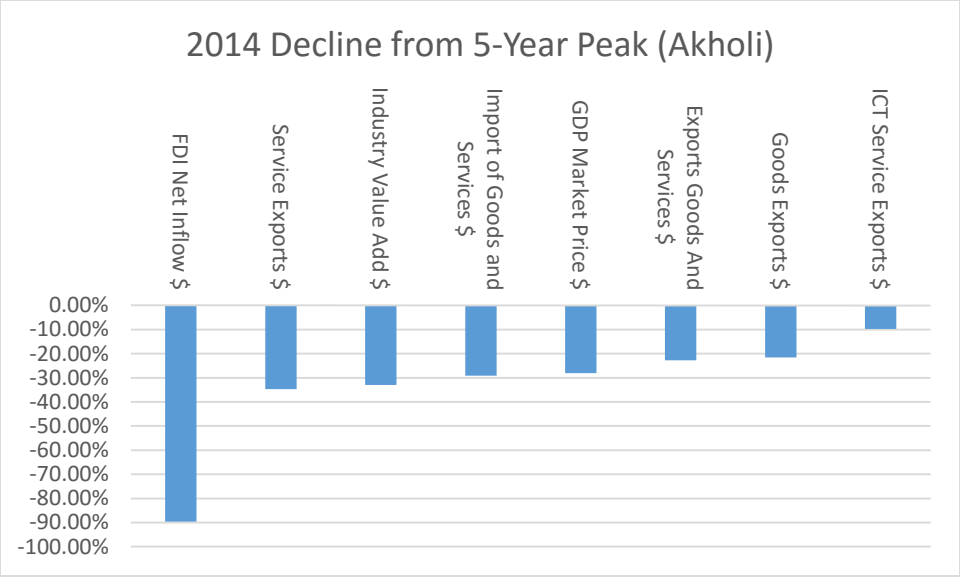
As students begin to graduate, top global employers are significantly more likely to invest into Ukraine to consume this new asset. Ukraine will see significant growth in service exports. As risk issues are addressed, this will seed a truly massive growth in high-value exports and captive centers. This is an investment that will pay dividends for Ukraine for years to come.

Current Crisis

The Current Crisis

The current crisis in Ukraine is having a significant negative impact to the economy of Ukraine with 2014 seeing a loss of $51.5 billion (GDP Market Price in USD, World Bank) from 2013. While we have anecdotal evidence to support the belief that this loss is directly related to the current crisis in Ukraine, direct causality can only be implied.

This contraction in the economy can be seen across all of the Akholi top economic indicators with FDI Net Inflows $ realizing the largest YOY decline from 2013 to 2014 of $3.7 billion (89.64% YOY decline) followed by service exports $ with YOY decline from 2013 to 2014 of 34.6%.



While the current crisis is a challenge, the intent of this report is to demonstrate the health of the Ukrainian economy in whole. This report is not intended to be an indication of the impact of the current crisis in Ukraine. As such, every metric, assessment and chart will be based on the maximum value over a period of time from 2000 through 2014. In doing so, we will demonstrate Ukraine's rankings globally at Ukraine's best.

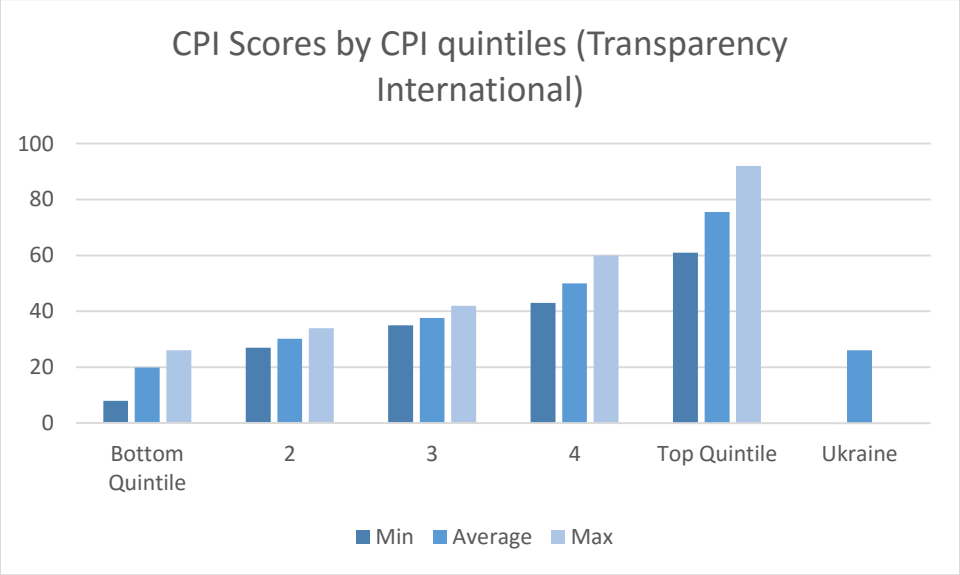
Corruption & IP Protection

Corruption

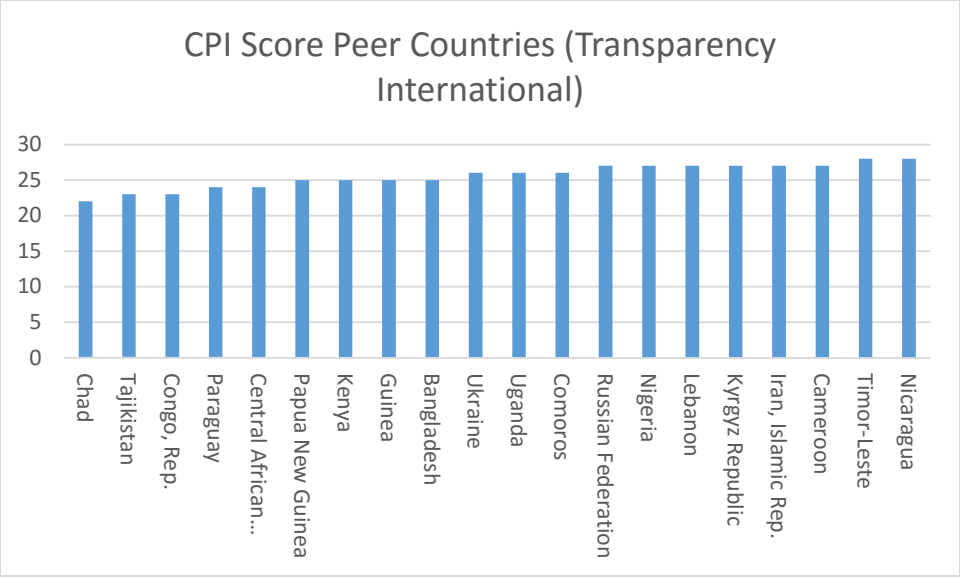
A country's corruption level has a direct correlation to their overall economic health and is the leading factors in Ukraine's economic underperformance.

This section will compare economic performance against the 2014 Corruption perception Index provided by Transparency International (https://www.transparency.org/).

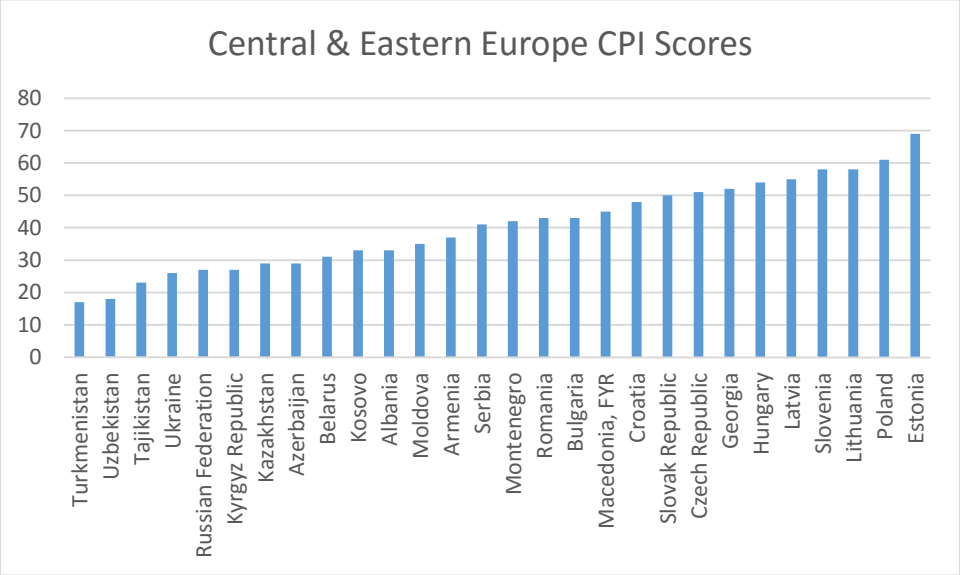
Ukraine's CPI Score



Ukraine, with a 2014 CPI score of 26, ranks Ukraine in the bottom CPI quintile and places Ukraine #142 globally.

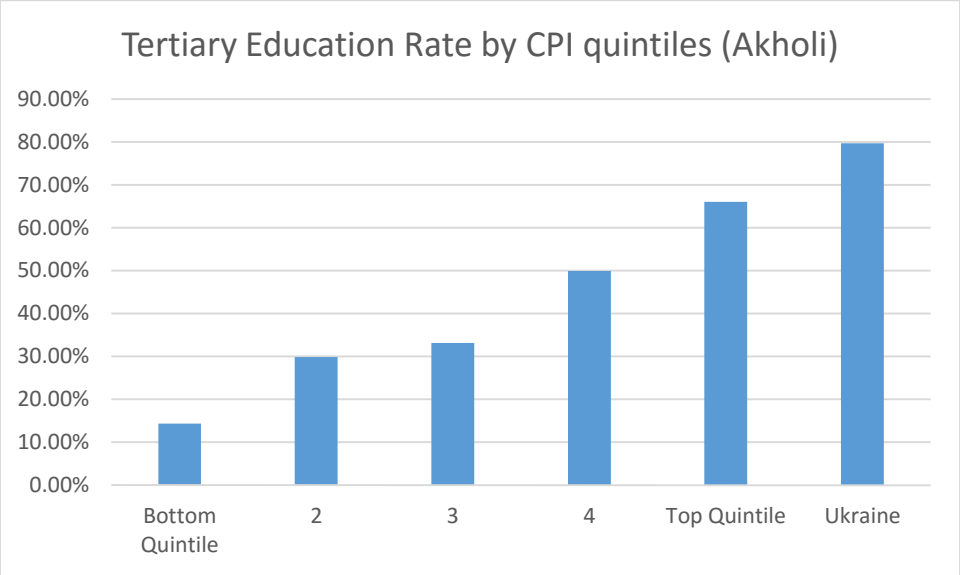


The above chart outlines all countries +/- 10 from Ukraine offering an indication of countries with a similar CPI score. Note that highly corrupt countries such as Uganda, Congo, Nigeria, etc. have very similar CPI scores to Ukraine.

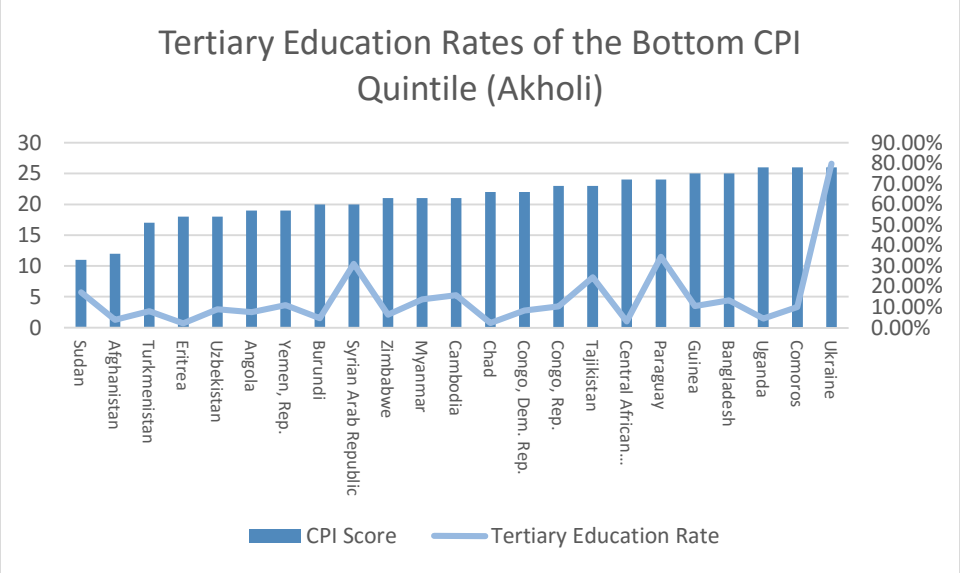


The above graph compares Ukraine's CPI score against all countries measured by Transparency International. Ukraine ranks 4th worst in region and well below the regional average of 40.5.

Tertiary Education Rates and CPI Scores

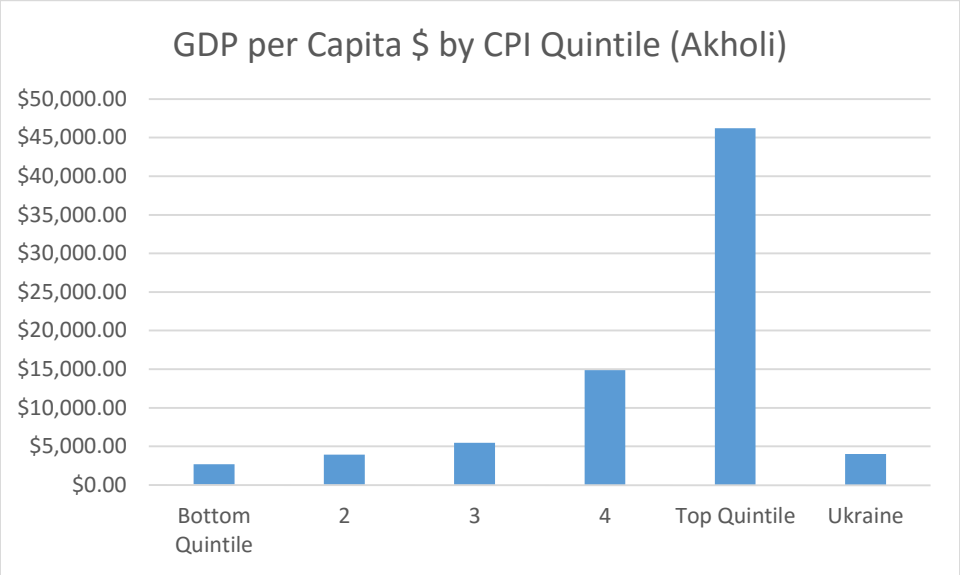


The above chart compares the average tertiary education rate by CPI quintile. There is a direct correlation between a country's CPI score and tertiary education rate. Ukraine is the only country the bottom CPI quintile to rank in the top tertiary education rate quintile.

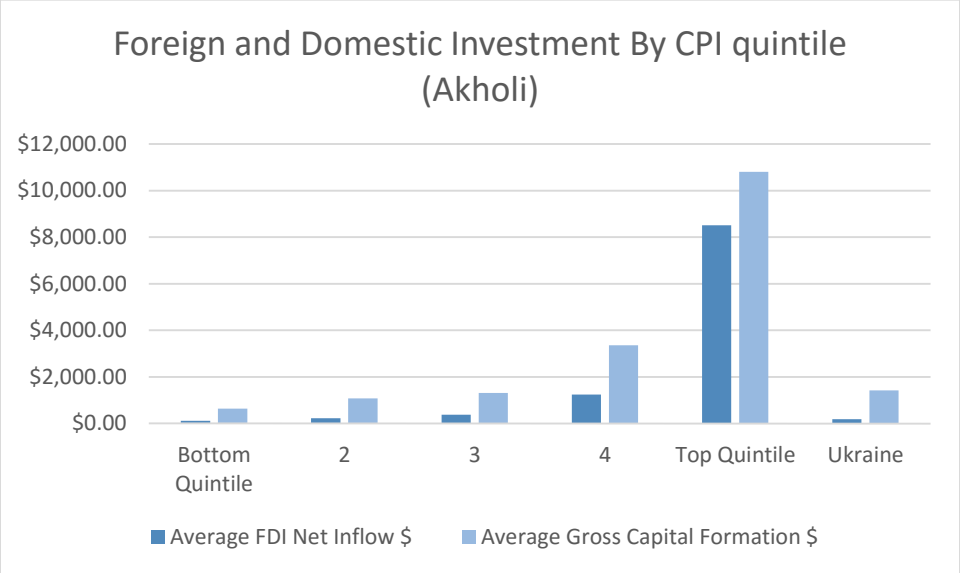


The above chart demonstrates how much of an anomaly Ukraine is in regards to tertiary education rates among the bottom CPI quintile. No other country comes close to the tertiary education rates that Ukraine continues to produce.

Economic Performance by CPI Quintile



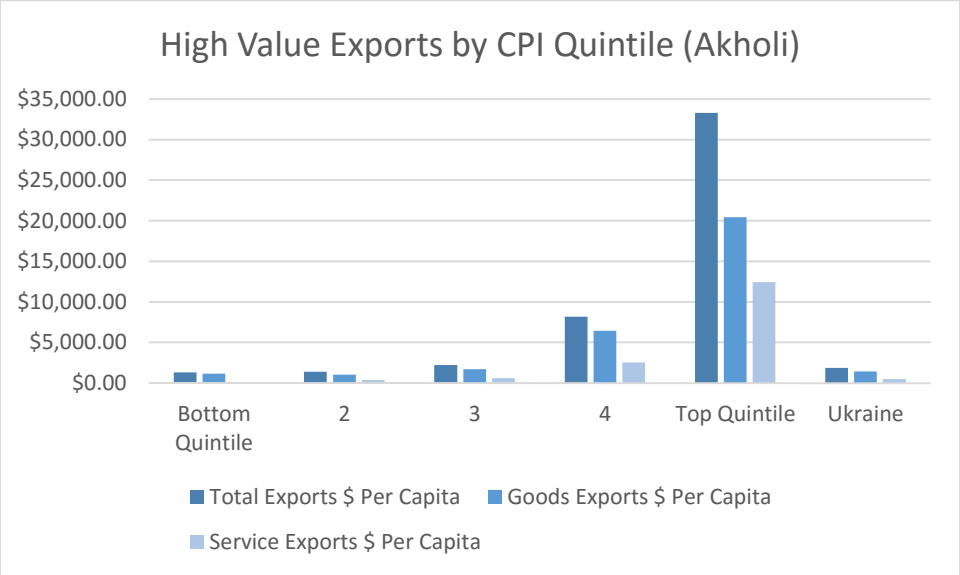
The chart above demonstrates a clear relationship between a country's GDP per capita and corruption rates. There is a direct and profound relationship. Countries with low corruption problems have higher GDP per capita $ rates.



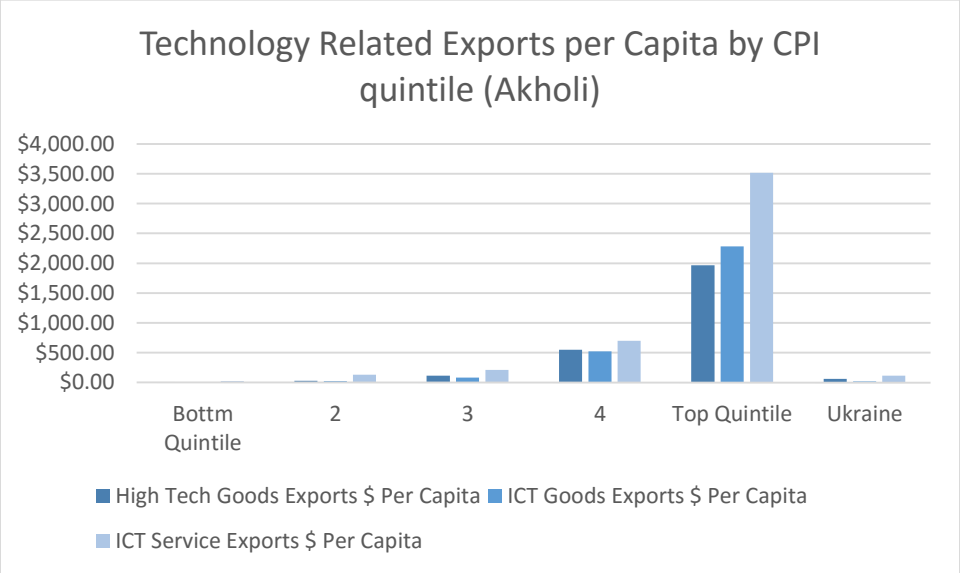
The above chart demonstrates total investments into a country's economy by CPI quintile. While low quintile countries may have base levels of Gross Capital Formation per capita, FDI Net Inflow $ per capita is virtually nonexistent.

The above model mirrors our previously held opinion. Outside of scenarios where a highly corrupt country has a large and valuable natural resource, the global private sector will not materially invest into a corrupt country.

Exports by CPI Quintile

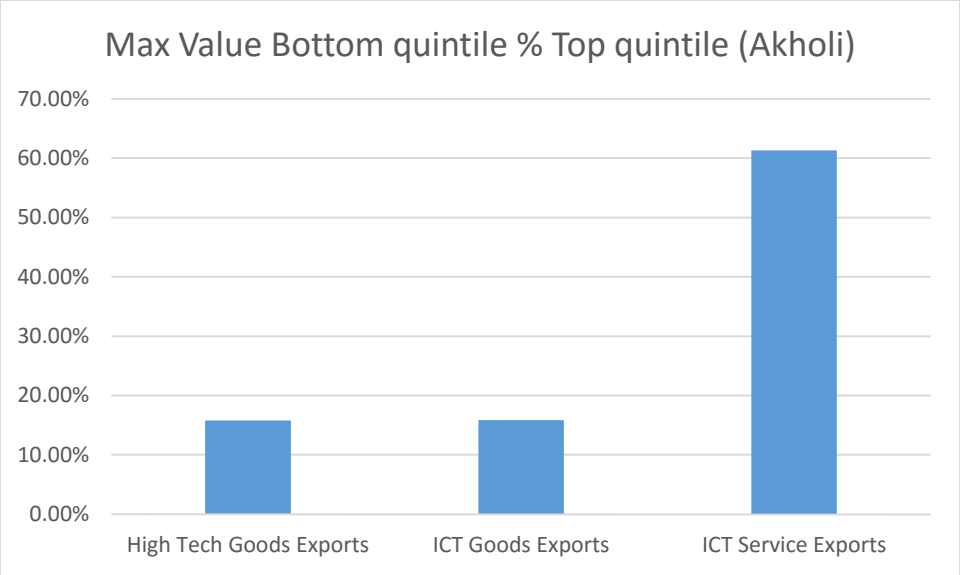


The above chart highlights the relationship between a country's CPI rank and high value exports. Outside of highly commoditized goods exports, there is little global appetite for goods exports from countries within the bottom CPI quintile.



The above chart demonstrates global demand for technology related exports by CPI quintile. Again, there is a direct relationship between global appetite and a country's overall CPI rank.

While the above chart demonstrates analysis by average exports, there are statistical anomalies that indicate potential opportunity for Ukraine.



While there is significant economic incentive to address corruption across the board, there is an opportunity to grow service exports in Ukraine while Ukraine resolves corruption issues.

The above chart presents a ratio of the maximum export value of the bottom CPI quintile against averages in the top CPI quintile. While there is very low demand for high-technology goods and ICT goods from corrupt countries, ICT services can still grow.

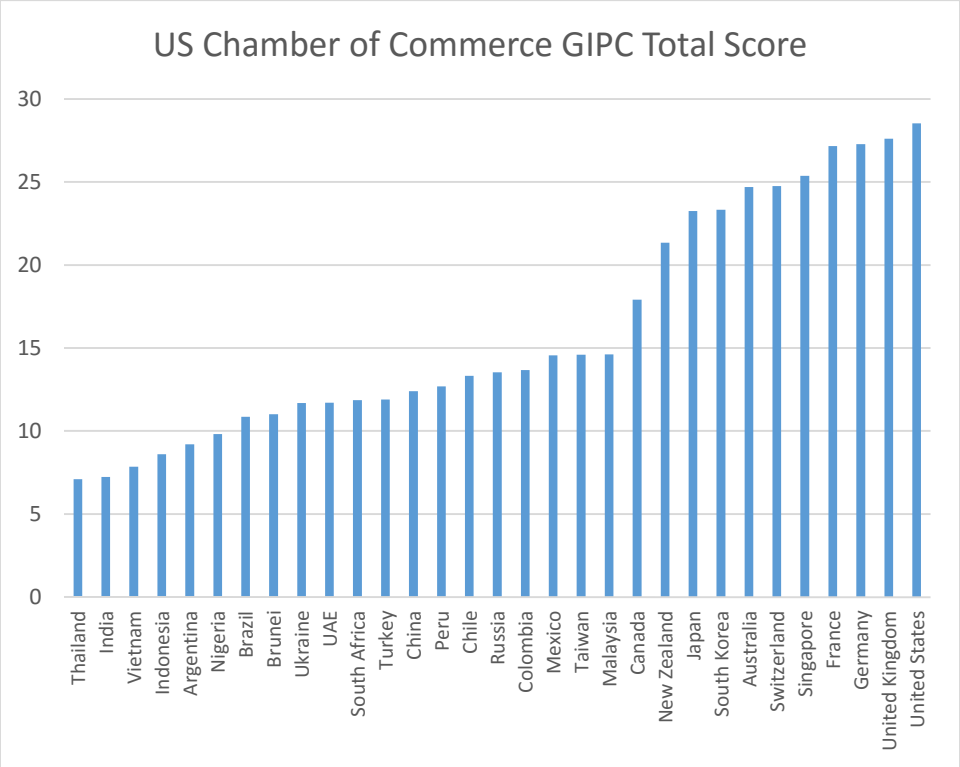
The above data highlights a market dynamic that we expect:

1. To become a leader in the ICT goods and high-tech goods exports world, it takes a great deal of investment (both domestic and global) to be competitive. It is extremely difficult for countries with corruption related issues to gain the funding necessary to be a success in tech related goods exports. The global market simply won't accept the risk.

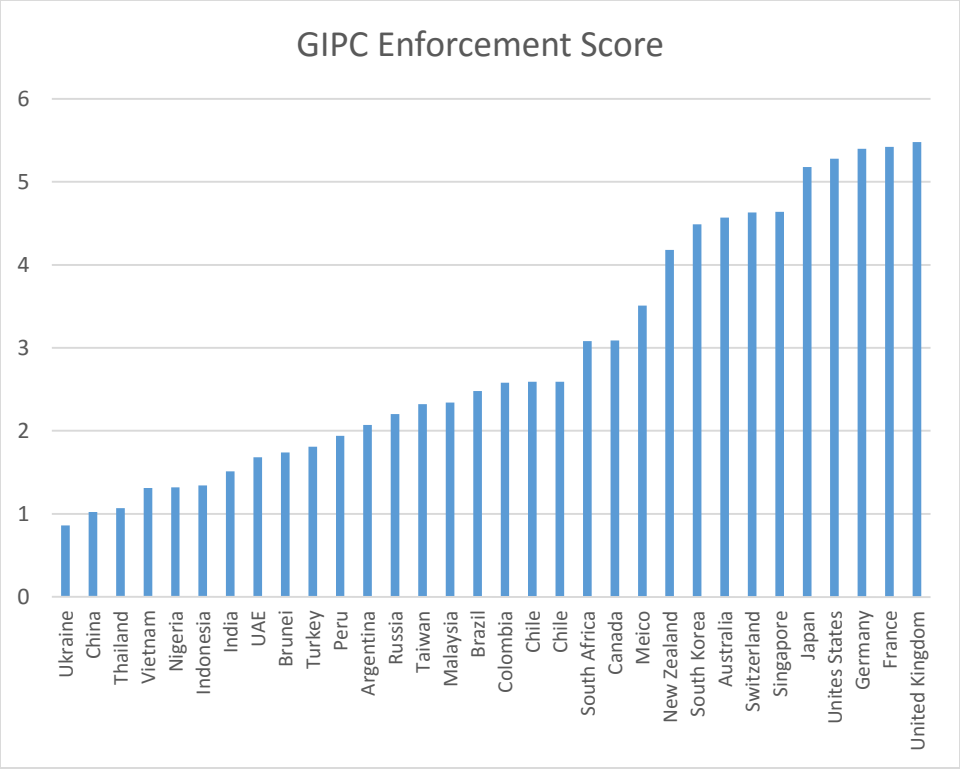
2. At the same time, it takes comparatively little investment to become a leader in the ICT services Export space. Countries can grow ICT and other high-value service exports with little capital and the global marketplace has demonstrated demand for service exports regardless of the sourcing country.

In our analysis, ICT service exports present the best opportunity for growth while Ukraine resolves ongoing corruption. Using reference markets for modeling, there is little reason why Ukraine cannot achieve the ICT service exports target of $75 billion we set as a result of this research report.

Intellectual Property Protection



In the US Chamber of Commerce GIPC study, Ukraine ranked 9th lowest of all countries reviewed. This is of concern. That said, countries such as Thailand, India and Indonesia have experienced growth through exports regardless of ongoing concerns over IP protection.



In the same study, GIPC ranked Ukraine last in regards to IP protection and enforcement. This is of grave concern and very likely a direct correlation to Ukraine's corruption problems.

Our data does show exceptions, however, there is a direct relationship between IP enforcement scores and FDI Net Inflow $, high-tech goods exports and ICT goods exports.

Until Ukraine can address these issues, all facets of Ukraine's exports and captive center development will be affected. Ukraine can still achieve material growth in service exports, however, global firms will limit the nature of outsourcing services from Ukraine until concerns over IP protection are addressed.

Lebanon

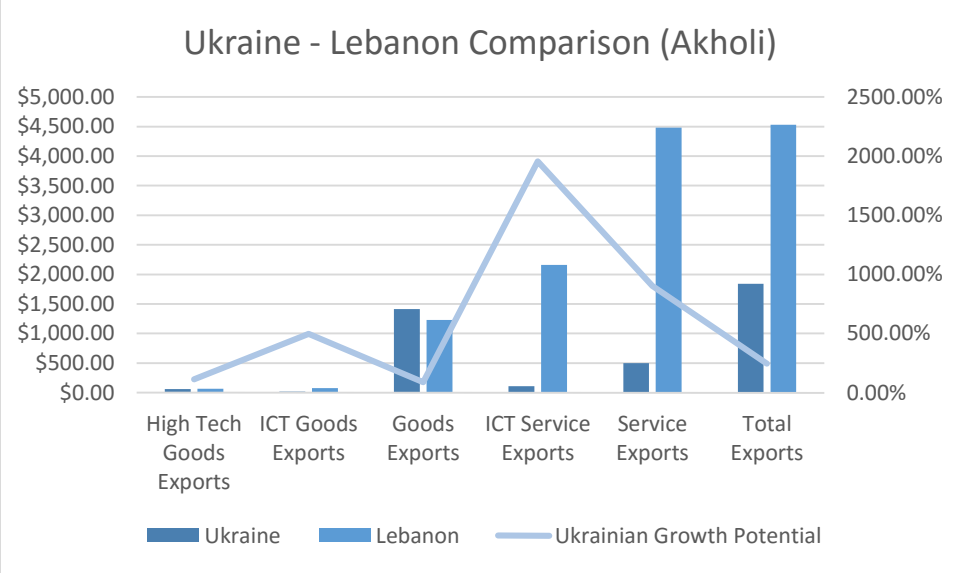
Lebanon provides a great comparative market for us to use in calculating Ukraine's theoretical potential while Ukraine addresses a combination of the current crisis, ongoing corruption issues and ongoing concerns over IP protection.

	Ukraine	**Lebanon**
tertiary education rate	79%	49%
CPI Score	26	27
CPI Rank	142	136
2014 GDP Per Capita	$4,029.72	$10,057.89
2014 Total Exports Per Capita	$1,839.84	$4,529.96
2014 Goods Exports Per Capita	$1,413.08	$1,001.19
2013 Service Exports Per Capita	$497.10	$3,224.94
2014 ICT Service Exports Per Capita	$110.38	$2,157.43

Lebanon, with:

- A tertiary education rate that is 62% of Ukraine's
- A nearly identical corruption index score
- A massive ongoing conflict within neighboring countries
- And recent military conflicts in country

Posted 5-Year Peak values in 2014 demonstrating growth regardless of the above challenges.



While Ukraine's goods exports per capita score is higher than Lebanon's, Lebanon exceeds Ukraine in regards to GDP per capita, service exports per capita and ICT service exports per capita.

In our research, no country has been able to materially grow high-tech goods and ICT goods exports with corruption, IP protection and political conflict concerns. However, we find several examples of countries growing service exports and ICT service exports regardless of these challenges.

Lebanon has clearly demonstrated a global appetite for service exports and ICT service exports regardless of the fact that Lebanon is struggling with corruption and military / political conflict in region.

If Ukraine were to match Lebanon's ICT service exports on a per capita basis, Ukraine would grow ICT service exports to $97.7 billion- an increase of over $92.7 billion from Ukraine's current ICT service exports levels. (Well above our target of $75 Billion).

Global Skilled Talent Shortage

The Coming Storm

Boston Consulting Group, July 2014

We are likely in the early stages of what will be the longest and deepest global skilled talent shortage in history. Research organizations around the world are forecasting a massive shortage of skilled resources for almost every country globally. Some are forecasting shortage levels that will completely change the global workforce dynamic. Countries that have traditionally been skilled talent suppliers (such as India and China) will soon experience skilled talent shortages of their own. Global employers that have heavily invested into these labor supply countries may find themselves in a position of changing countries to find a new source of talent.

On an increasing basis, we will find that market share and overall corporate success will be defined by a firm's ability to find a new workforce and their ability to consume this workforce more effectively.

While the magnitude and timing of the height of this forecasted global skilled talent shortage is debated, we know it is coming. In general, most research organizations believe this skilled talent shortage to be in full effect by the year 2030 and we will use this date for purposes of this report.

High Demand Skills

The forecasted shortage runs a wide range of moderate to highly skilled jobs. While there is forecasted to be a significant shortage of "skilled labor" (plumbers, electricians, welders, automation assisted assembly, etc.), there is also forecasted to be a truly massive shortage of resources with engineering, science and technology skills.

This pool of engineering, science and technology resources is specifically of interest to Ukraine. A large number of Ukrainian college graduates fall within this general category and are of prime interest to global employers.

This specific growing demand for engineering, science and technology labor presents both a significant risk and significant opportunity for Ukraine that we will explore later in this report.

Drivers

This shortage of skilled talent is being driven by a combination of factors. Primarily:

1. Domestic Consumption
   As emerging economies grow, their own domestic demand for talent will begin to compete with global demand on an increasing basis. Traditional talent supply countries will not be able to provide enough skilled workers to fulfill both this growing domestic demand and provide talent for the global market to the level they have in the past.

2. Shift Toward Higher Skilled Labor
   The world is rapidly shifting to a more skilled, sophisticated and technology dependent workforce. Example: As manufacturing shifts from manual assembly to automation, the skills required by the plant also shift.

   The world simply doesn't produce enough of this future-state workforce today to keep up with this overall shift.

3. Global Growth
   The natural growth of the global economy (and a more globalized and mobilized workforce) is outpacing the world's ability to provide enough talent with the right skills.

Private Sector Response

We are already seeing top global employers take steps to mitigate this growing risk. On a more frequent and more purposeful basis, we will see the following:

1. Shift in Talent Supply Markets
   As traditional talent supply markets tighten, we will see top global employers explore new markets searching for talent. This is already happening today and will become a more pronounced trend in the years to come.

2. Greater Mobilization of Talent
   Companies will become more likely to mobilize global labor. As they find pockets of talent in small to mid-tier markets (resource density too small or local environment not conducive to opening a captive center), companies will facilitate the migration of these resources out of their home country to regional delivery centers.

3. New Consumption Models
   Companies will also develop new methods to effectively consume talent in smaller pockets around the world.

4. Greater Involvement in Talent Development (Workforce Annuities)
   On an increasing frequency, companies will partner with countries and higher education institutions to create a bespoke future state workforce. They will develop methods to create the skills and volume of talent they need to fill their future open positions.

   This is already happening today. Further, we conducted a pilot project in Ukraine in 2013-2014 in partnership with one of the largest employers in the world to implement such a program. We know global employers are willing to work with and in Ukraine to create their future state workforce and see significant value in both the Ukrainian workforce and education system.

Ukraine: Opportunity and Threat

Ukraine has both a significant opportunity and threat as a result of this coming global skilled talent shortage.

Ukraine has the skilled resources the global marketplace wants. If the exact skills are slightly off-center, the global marketplace recognizes it would take little to adjust these skills to be an exact match for their needs.

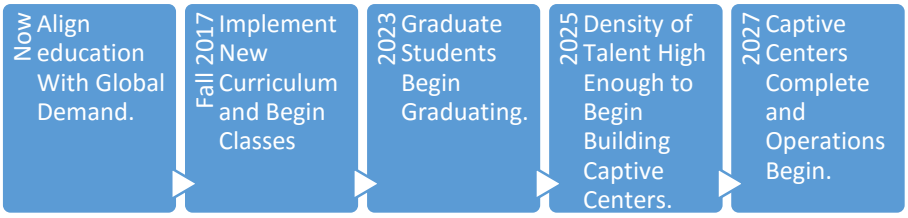
If Ukraine does not successfully resolve corruption and IP protection issues fast enough to get ahead of this coming wave of skilled talent shortages, Ukraine will likely see an explosion in the rate Ukrainians leave the country seeking work abroad. This is a very real threat and is closer than most people believe.

In the Boston Consulting Group report, Germany is forecasted to have a skilled talent shortage of 10 million people by the year 2030. German companies are already implementing systems to recruit both skilled labor and STEM related resources from Ukraine as they move into a skilled talent deficit. With Poland, Romania and other Central European markets forecasting a tight labor market of their own (or have already been poached by EU countries), Germany is faced with recruiting talent from either Eastern Europe or SE Asia. There is no doubt German firms will target Ukraine first. In working with companies in Germany, we have already seen plans to source talent from Ukraine.

However, *IF* Ukraine can resolve corruption and IP theft issues now, Ukraine will be in position to be the top location for international expansion. Rather than having European and North American employers remove talent from Ukraine, these employers are more likely to open facilities in Ukraine to hire and consume Ukrainian talent- keeping them in Ukraine.

Time for Ukraine is running out. Ukraine has an open window to position the country as the top destination for captive centers as a result of this coming skilled talent shortage. If Ukraine cannot address corruption and IP theft issues fast enough, the global private sector will make their long-term talent based expansion investments in other countries. It may be decades before we find another global driver similar to the one we are facing now.

While 2030 may seem like a long time from today, Ukraine is already behind.



The above chart illustrates a very real timeline that Ukraine must match in order to fully capitalize on this opportunity.

Two major milestones must happen in order for Ukraine to become a global leader in this space:

1. Ukraine must begin engaging with global employers now to define future workforce needs and to implement curriculum. Any slip in delivering this now will geometrically increase the chances Ukraine will miss out on this opportunity.

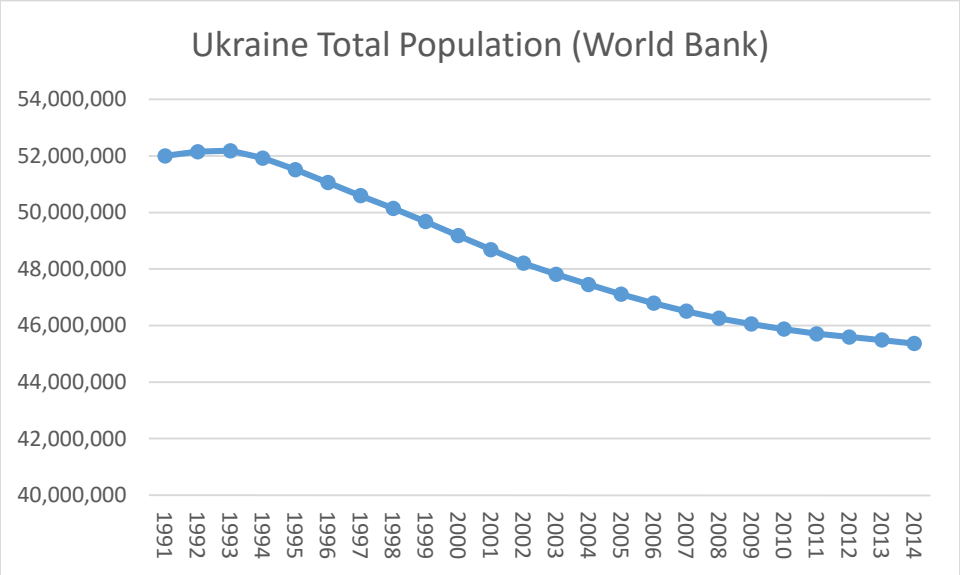
2. No later than 2020, Ukraine must be viewed by the global market as a truly pristine market in regards to corruption and IP Protection. Any ongoing concerns by global employers and they will not invest into opening captive centers in Ukraine.

Ukrainian Population, Labor Force & Education

Population

Ukraine has one of the largest populations in the world (2014: 45.3 million World Bank) with a population ranking Ukraine in the second highest population quintile globally.

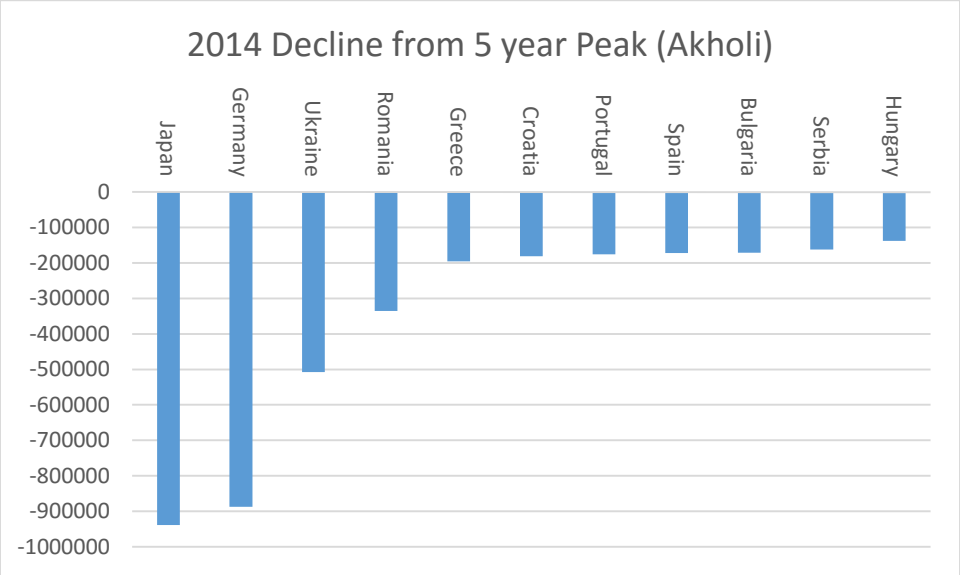
While Ukraine has a large population, Net Migration is an issue.



From Ukraine's population peak of 52,179,210 in 1993, Ukraine has declined in population each year. Ukraine's population decline slowed by 2013 reaching its lowest YOY population decline of 103,700 people since its peak in 1993. 2014 brought a slight uptick in population decline with a population decline of 126,700. As of the writing of this report, 2015 verified population data is not available.

The increase in population loss in 2014 has implied causality with the current crisis and worsening economic conditions in Ukraine although a direct relationship has not been established.

Five Year Population Trend

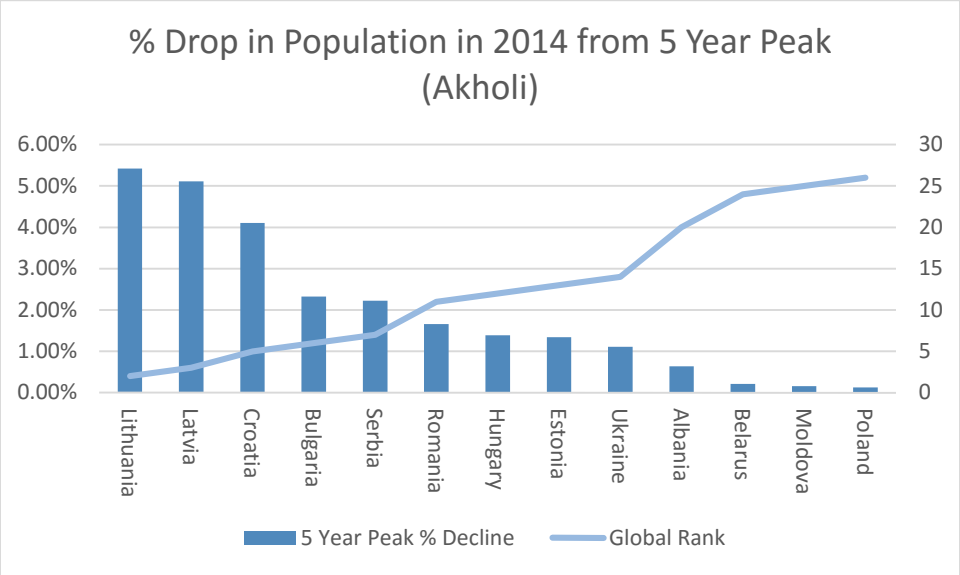


The Five Year Population Trend is troubling. In 2014, Ukraine saw the third highest decline from the most recent 5-year peak (2010 – 2014 peak population) with only Japan and Germany losing more people.

Note on Germany: The German population bottomed out in 2013 with a population gain in 2014. Although the German population grew in 2014, it has not yet offset the population decline from its 5-year peak in 2011.

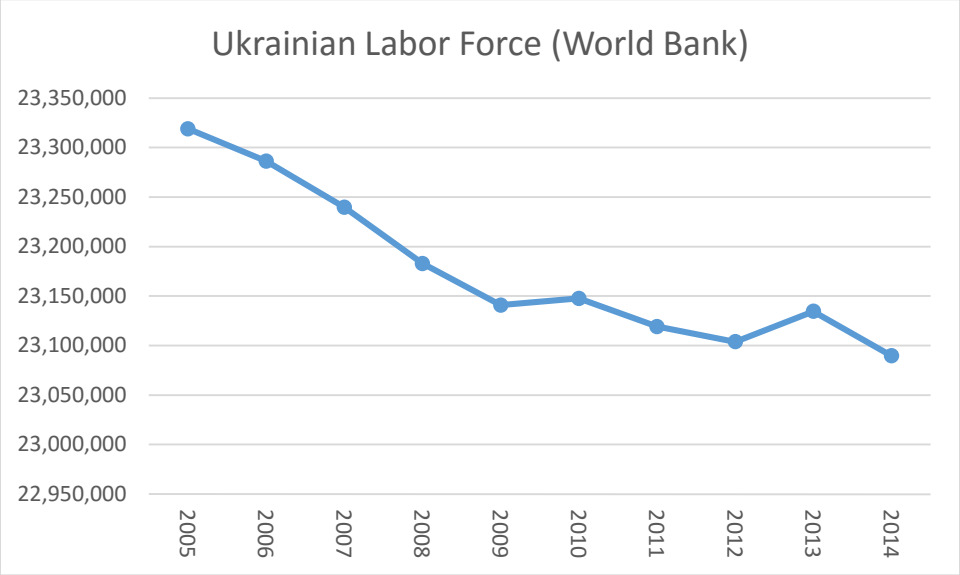
While the total number of people lost from Ukraine's total population is troubling, the percentage of total population indicates Ukraine's 2014 population is down only 1.1%. Ukraine's decline of 1.1% ranks 14th highest globally.

Regional Trend



Population loss in region is not exclusive to Ukraine. Analysis of the greater Central and Eastern Europe region indicates a massive population decline problem for the entire area. Of the top 25 countries with the largest percentage population decline from a peak within the most recent 5-year range to 2014, 14 of them are within the greater Central and Eastern European region.

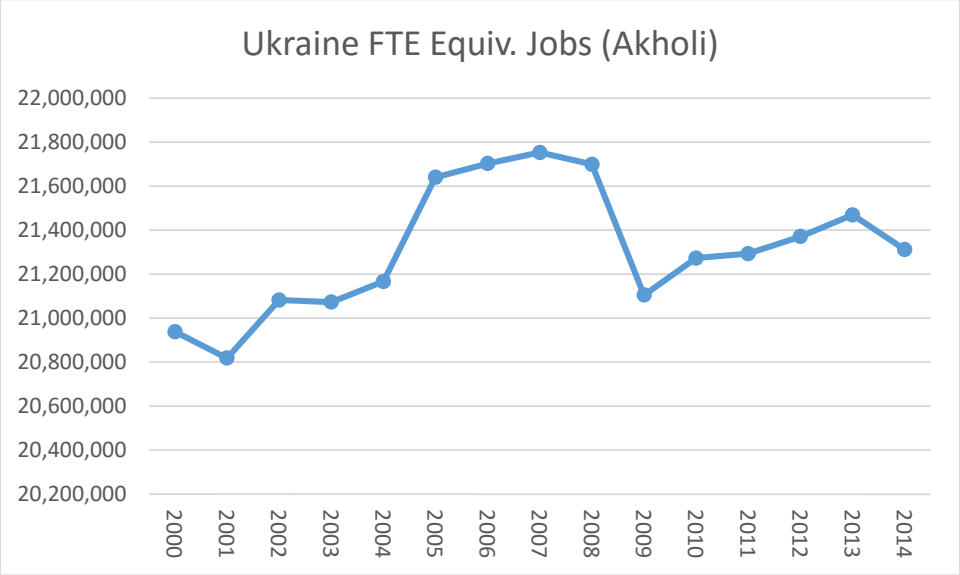
Labor Force



As a direct relationship to total population, Ukraine has one of the largest Labor Forces in the world (#29 globally). Although there have been years with labor force growth (the most recent being 2013), Ukraine's labor force has been on a fairly steady decline since peak numbers in 1991.

While the loss in total Labor Force over the years is concerning, the rate of loss over the most recent 5-year span is not as large as that of the total population. From a peak of 23,147,523 in 2010, Ukraine has lost 58,043 people from their Labor Force- or 0.25% decline from peak.

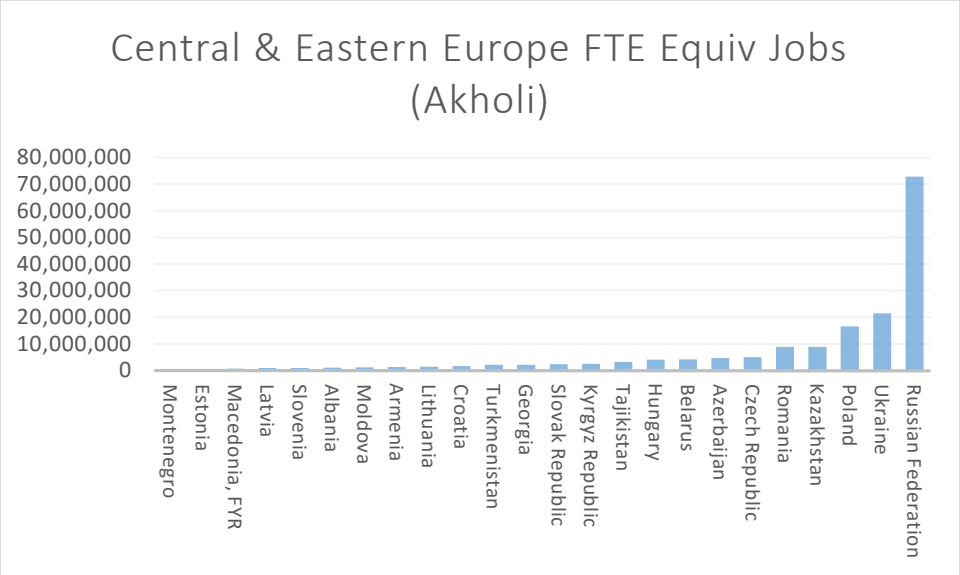
Jobs



Coming off multi-year lows stemming from the global financial crisis in 2008, Ukraine saw steady but modest gains in FTE Equivalent Jobs from 2009 (low) through 2013 (peak).

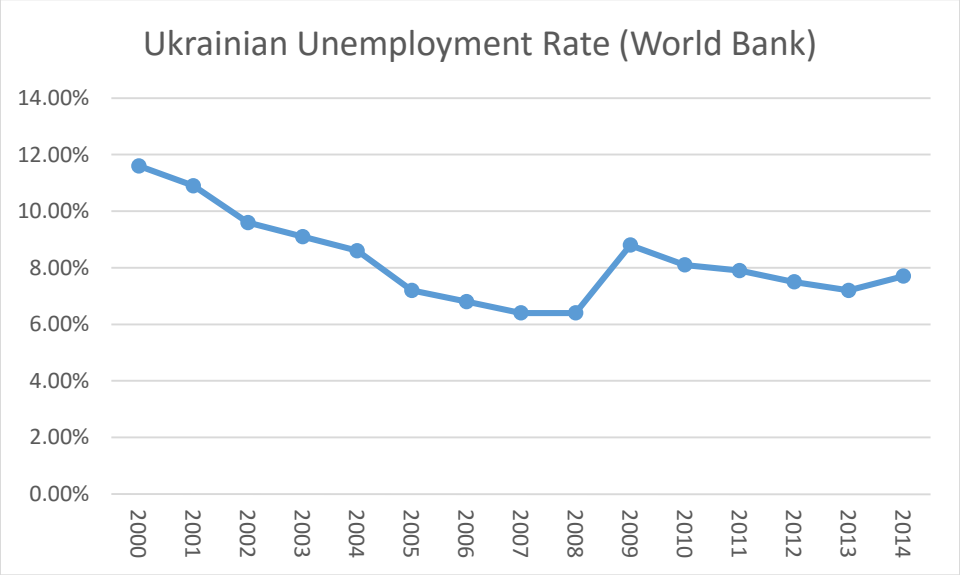
Ukraine saw a 2014 decline of 157,249 FTE Equivalent Jobs from its 5-year peak in 2013 of 21,468,839 to 21,311,590. (0.73% decline).

Although 2014 rates declined, Ukraine continues to have a large number of total FTE Equivalent Jobs ranking the Ukrainian market #28 globally and placing Ukraine within the top FTE Equivalent Jobs quintile.



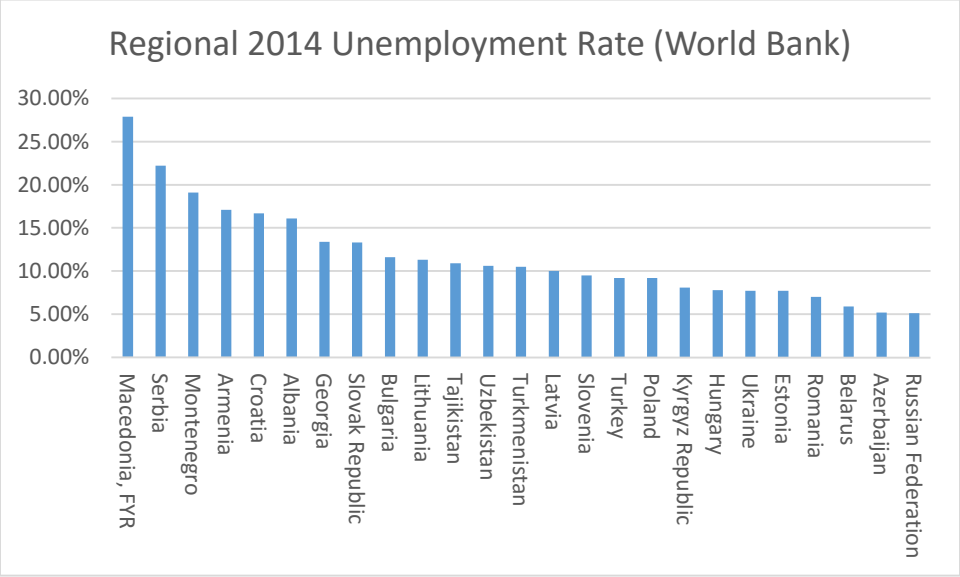
Regionally, Ukraine does stand out ranking behind only Russia in terms of FTE Equivalent Jobs.

Unemployment



Although Ukraine has had instances of high unemployment, Ukraine's 2014 unemployment rate of 7.7% is not considered high. (Ranking Ukraine in the 3rd Unemployment quintile globally).

2014 saw an uptick in unemployment from a 5-year low in 2013 (7.2%).



Regional comparisons indicate Ukraine is doing relatively well. Only 4 countries in the greater Central and Eastern European region have a lower unemployment rate than Ukraine.

Labor Force Cost and Average Salaries

Ukraine is a Mid-Tier Labor Force Cost Country with average salaries within range of countries such as Romania, Greece, Poland, Mexico and Chile.

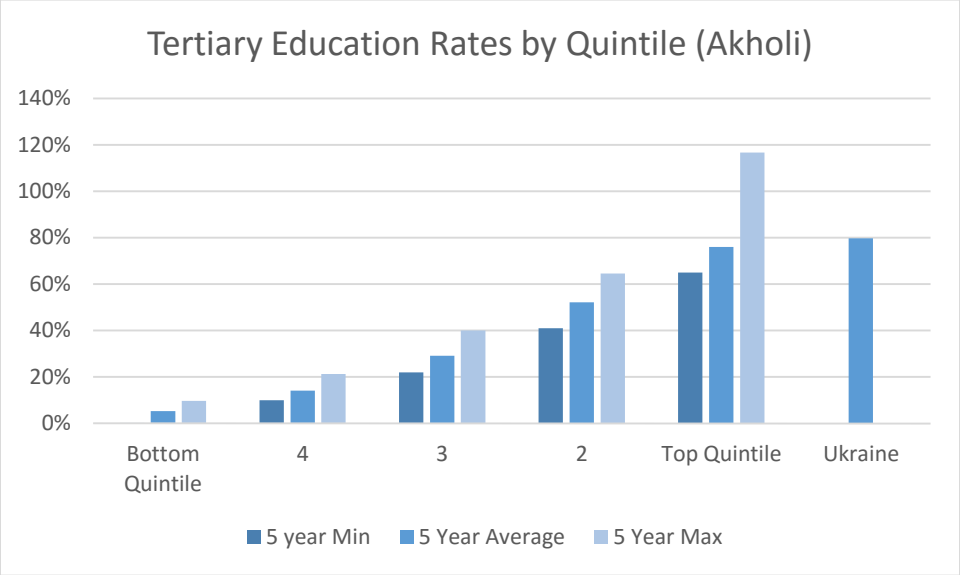
Country	Matching Data Points	Sample Salary: Software Developer	Global Workforce Cost Rank
Hong Kong	3	$30,503.74	44
Puerto Rico	4	$30,000.00	45
Turkey	4	$29,622.00	46
Estonia	3	$29,000.00	47
Brazil	4	$28,964.13	48
Cyprus	4	$27,439.00	49
Chile	4	$25,016.00	50
Hungary	4	$23,333.00	51
Mexico	4	$23,310.66	52
Romania	3	$23,162.00	53
Bahrain	4	$22,326.25	54
Ukraine	3	$22,200.00	55
Czech Republic	4	$22,093.00	56
Poland	3	$21,739.00	57
Portugal	5	$21,566.25	58
Greece	6	$21,531.00	59
Slovenia	3	$20,345.00	60
China	3	$20,170.03	61
Bulgaria	3	$20,067.00	62
Taiwan	4	$20,051.43	63
Costa Rica	4	$19,314.53	63
Russia	3	$18,478.33	64
Serbia	4	$16,015.00	65

Globally, there is a massive grouping of countries all with similar labor force costs spanning the second, third and fourth Labor Force Cost quintiles. While Ukraine statistically ranks within the 2nd highest Labor Force Cost quintile, we feel the difference between the 2nd and 3rd quintiles are small enough to categorize Ukraine as a mid-cost labor market.

Ukrainian salaries for high global demand skills are reasonable. They are high enough to generate material economic growth while still being low enough to attract global employers. Our data indicates Ukraine does not need to focus on raising salaries for high global demand skills. Rather, Ukraine must focus on creating more high value jobs.

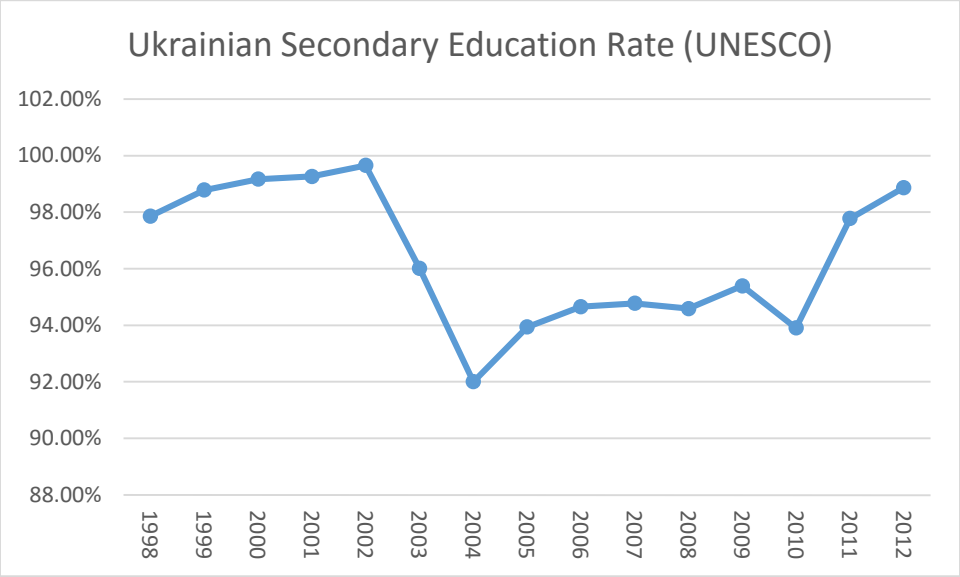
education

As the world continues to expand in the Information Economy, tertiary education rates become extremely important. Higher education rates typically translate to higher economy performance.



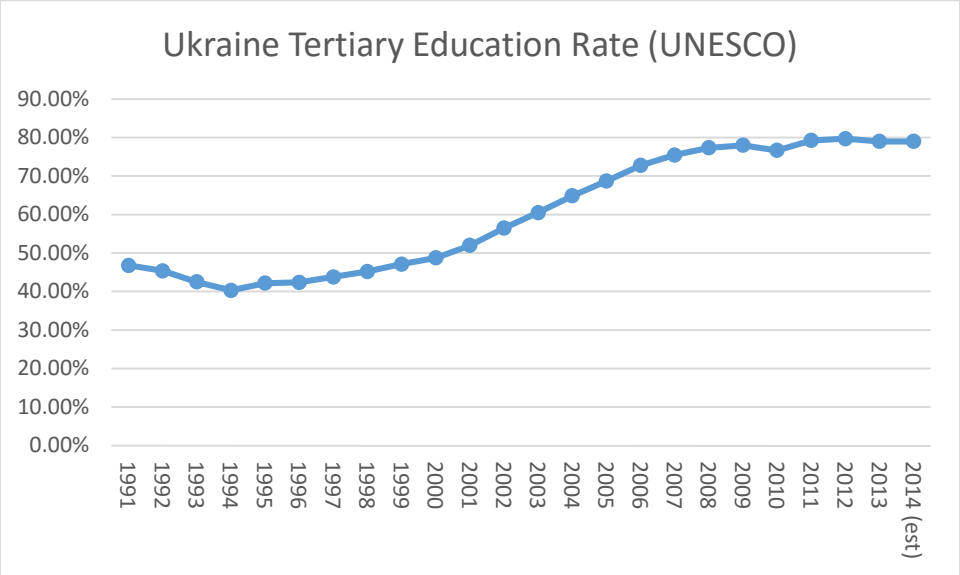
Ukraine is an extremely educated country. In regards to Secondary and tertiary education rates, Ukraine ranks among the top quintiles globally. In the figure above, Ukraine clearly ranks higher than the average tertiary education rate of the most educated countries globally.

Secondary Education Rates

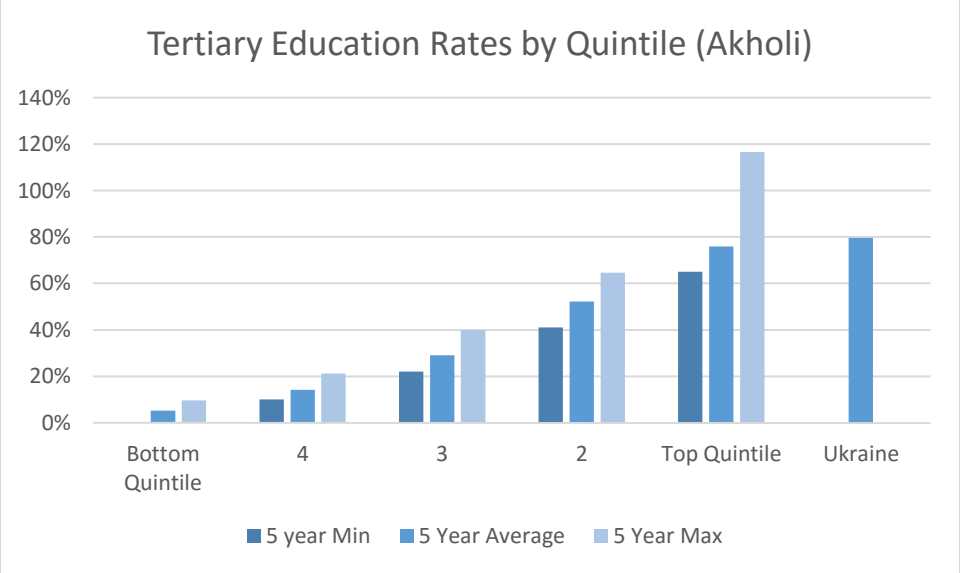


Ukraine continues to rank among the top countries globally in regards to Secondary education. Although there is some volatility in Ukraine's Secondary education rate from one year to the next (and should be watched), Ukraine's Secondary education rate is not a material factor in overall performance.

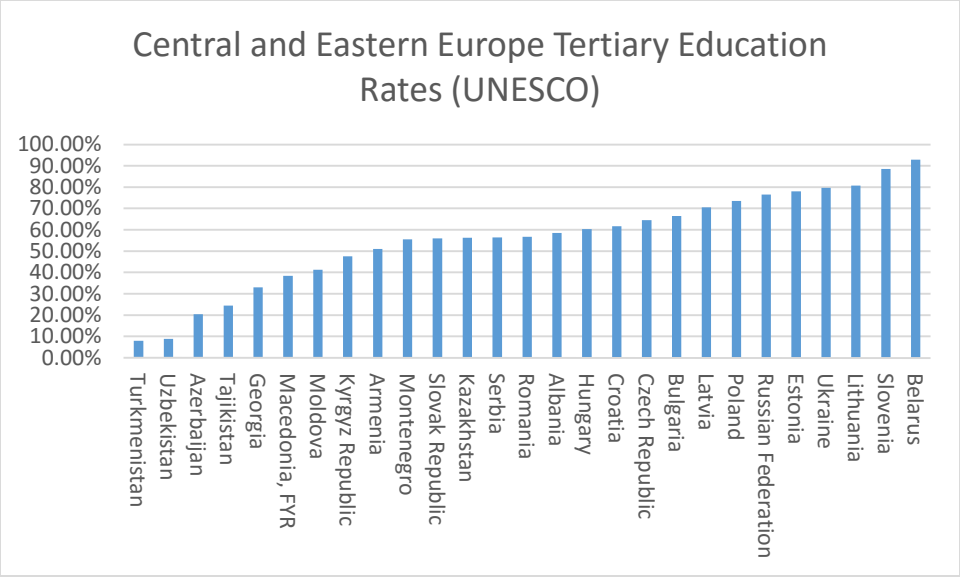
Tertiary Education Rates



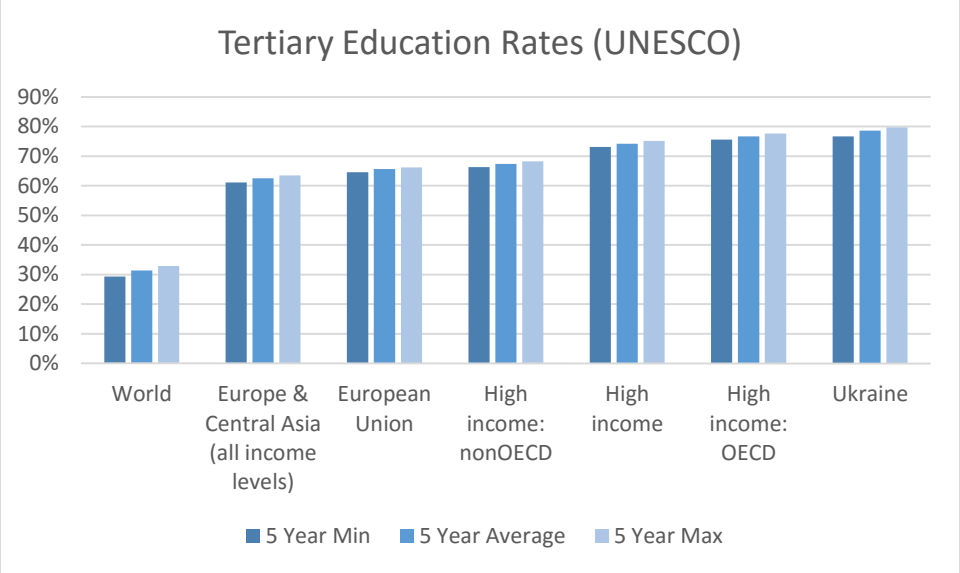
Although there have been slight YOY declines on a few occasions, Ukraine has steadily increased tertiary education rates since 1994 and has emerged as one of the most educated countries globally. Ukraine achieved both a 5-year peak tertiary education rate and all-time high tertiary education rate of 79.7% achieved in 2012 with only a slight YOY decline since.



Comparing Ukraine by tertiary education rate quintile of all countries globally, Ukraine's 5-year peak is higher than the average for the world's most educated quintile.



Regionally, Ukraine ranks high. Ukraine's 5-year peak tertiary education rate of 79.7% is above the regional average of 65.6%. Of special interest, Ukraine has a higher tertiary education rate than many of the high-income countries in region- including Estonia, Czech Republic, Latvia and Lithuania.



Comparing Ukraine to the major country classifications with the highest education rates, Ukraine ranks at the top. Of most importance to this report, Ukraine has a higher tertiary education rate than the averages for the EU and High Income Economies.

Ukraine's tertiary education rate is a true market differentiator and must be factored into the overall performance of the Ukrainian economy.

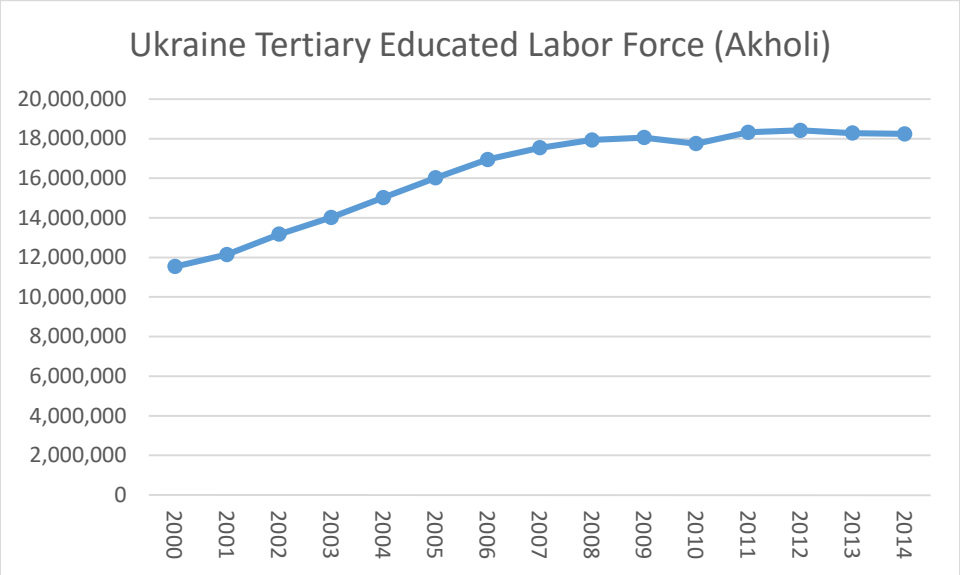
Improving Ukrainian Tertiary Education Rates

Pushing Ukraine's tertiary education rate beyond the current 79.7% may prove difficult until Ukraine can establish a more effective tie between a college degree and high-value jobs. The lack of utility for a college degree in Ukraine is likely the cause for a flatting tertiary education rate growth over the past few years.

Although Ukraine's tertiary education rate growth has flattened somewhat, Ukraine has a large enough tertiary educated labor force to still achieve most of the targets outlined in this report.

We expect that as high-value jobs are created in Ukraine and a direct link between a college education and a high-value job is effectively established, tertiary education rates will naturally increase.

Tertiary Educated Labor Force



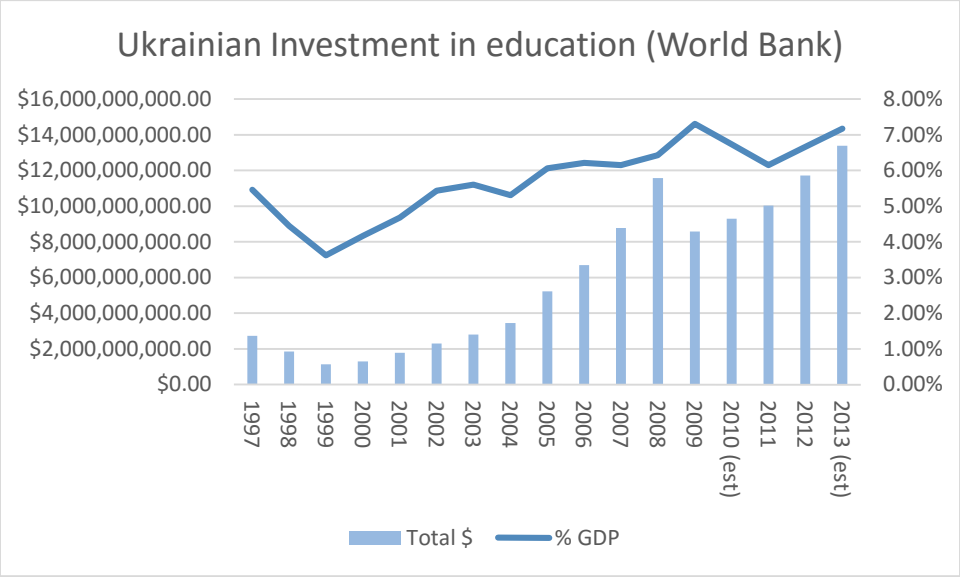
While Ukraine's population and total labor force have largely declined over the years, Ukraine's tertiary educated labor force has increased over the years. This increase is a direct result of Ukraine's increase in tertiary education rates.

With a 5-year peak and all-time high count of 18,414,094 reached in 2012, Ukraine's tertiary educated labor force has the 13th largest tertiary educated labor force globally. (Top quintile).

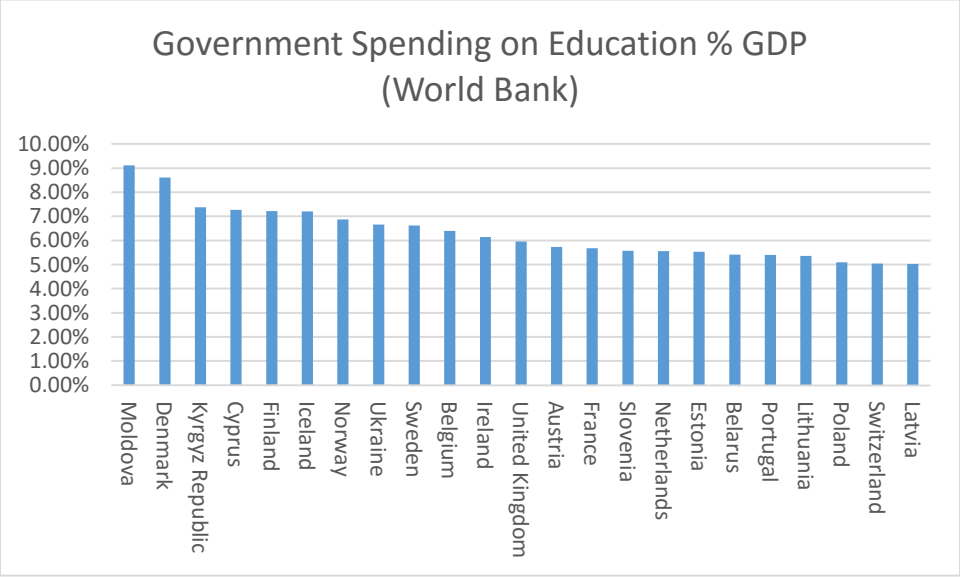
In the greater Central & European Region, only Russia has a larger tertiary educated labor force (58.9 million- ranking 4# globally behind China, United States and India.)

As will be called out throughout this report, the large tertiary educated labor force has largely been unleveraged over the years and represents Ukraine's largest underleveraged strategic State asset.

Cost of Education and Educational Investment



Government Expenditures on education in both % GDP and in total value ($) remain relatively high. Ukraine is investing enough into education to maintain or grow both Secondary and tertiary education rates.



Compared to the greater European and Central Asia region, Ukraine ranks high in regards to Government Spending on Education as a % of Total GDP. Only 7 countries allocate a larger percentage of their GDP to education.

2014 Higher Education Reform

The passing on July 1st 2014 of the New Law on Higher education appears to be a step in the right direct. While it is too early to measure the impact to the overall Ukrainian economy, we support any efforts to align the Ukrainian Higher education system with global standards and efforts to better align the number of students studying subjects based on true economic need should prove positive long-term.

Our advice to Ukraine is to take care in regards to alignment of both education and numbers of students pursuing any specific topical area. We encourage Ukraine to focus on a future state global workforce need rather than limiting efforts to current Ukrainian needs.

Ukrainian Economy

Economic Potential

For our calculations and estimations of potential Ukrainian market performance, we used the following comparative models:

	Model Name	Description
Base	Current Ukrainian performance	5-year peak value for Ukraine.
Model 1	World Average	Average per capita rate of all countries globally.
Model 2	CE Regional Average (All Countries)	Average per capita rate of all countries within the greater Central and Eastern European region.
Model 3	Metric 2nd quintile Average	Average per capita rate of countries ranking within the metric's 2nd top quintile.
Model 4	CE Region Top 5 Country Average	Average per capita rate of the top five metric performing countries within the Central and Eastern European region.
Model 5	CE Region Top Country Rate	Average per capita rate of the single top metric performing country within the Central and Eastern European region.
Model 6	13th Ranked Country Equiv. Rate	Average per capita rate needed to achieve the 13th largest value globally representing Ukraine's rank as the 13th largest tertiary educated labor force.
Model 7	European Union Average	Average per capita rate of all countries within the European Union.
Model 8	Top tertiary education rate quintile Av.	Average per capita rate for the metric by all countries ranked in the top tertiary education rate quintile.
Model 9	Top Metric Quintile Average	Average per capita rate of all countries ranked within the metric's top quintile.
Model 10	Top Metric Performer Rate	per capita rate of the country performing the best on a per capita basis to establish a theoretical metric cap.

Targets

Ukraine present an enormous opportunity for growth with the current size (and largely underleveraged) tertiary educated labor force.

After careful analysis, we feel Ukraine should set targets as follows:

	GDP	Total Exports	goods exports	service exports	high-tech goods exports	ICT goods exports	ICT service exports
Current	$183.10	$83.88	$64.43	$22.61	$2.62	$0.71	$5.02
Model 1	$487.70	$144.41	$117.12	$31.81	$12.80	$11.57	$9.94
Model 2	$640.80	$414.90	$321.05	$78.22	$30.21	$34.76	$21.92
Model 3	$772.30	$309.31	$201.07	$87.74	$15.41	$33.05	$19.49
Model 4	$926.30	$718.65	$606.34	$154.77	$69.01	$79.95	$38.49
Model 5	$1,136.50	$837.35	$700.24	$236.80	$101.50	$122.30	$63.35
Model 6	$1,487.90	$564.42	$441.66	$116.84	$36.50	$25.03	$23.09
Model 7	$1,656.60	$696.80	$519.31	$193.67	$58.74	$28.02	$66.38
Model 8	$1,673.70	$747.26	$651.28	$229.76	$45.57	$66.74	$75.38
Model 9	$2,797.20	$1,652.47	$1,006.48	$660.08	$86.08	$109.75	$169.53
Model 10	$7,430.80	$10,812.06	$3,831.85	$8,052.67	$1,145.08	$1,334.01	$1,718.82
Akholi Target	$1,125.00	$500.00	$350.00	$150.00	$100.00	$100.00	$75.00
	(Billion USD)						

In the chart above, we define our targets for the Ukrainian economy.

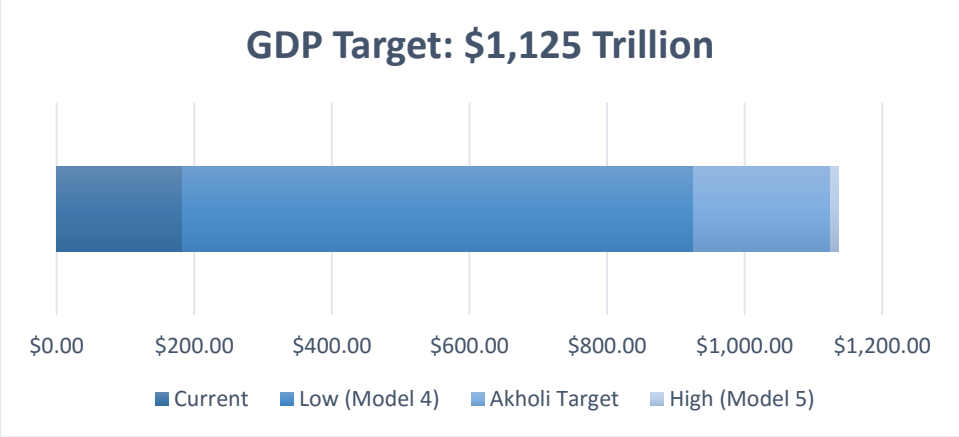
1. The GDP Market Price target will place Ukraine's GDP per capita rate within the top five performers in Central and Eastern Europe.
2. Total Exports, goods exports and service exports will place Ukraine's per capita rate above average for the greater Central and Eastern European region but will fall slightly below the average of the top 5 market in region.
3. Technology goods and service exports will place Ukraine's per capita rates at near the top in the greater Central and Eastern European region. While these targets are aggressive:
    a. There is material existing and growing global demand.
    b. The is demonstrated global demand for high-tech exports from the greater Central and Eastern European region.
    c. Ukraine has one of the highest engineering graduates per capita rate in the entire world.

Although aggressive, these targets are achievable.

GDP

Ukraine has one of the larger economies in the world in terms of GDP Market Price $. While GDP Market Price $ has declined from 2013 through 2014, Ukraine's GDP Market Price $ peak value of $183.3 billion in 2013 places Ukraine within the second largest GDP Market Price $ quintile.

However, analysis of Ukraine's GDP per capita $ and GDP per tertiary educated labor force $ clearly demonstrates Ukraine's lack of performance. Comparison of Ukraine's GDP per capita $ against all other Central and Eastern European countries indicates Ukraine's economy should be 3x larger. Comparison of Ukraine against other top tertiary education rate quintile countries demonstrates Ukraine's economy should be 9x larger.



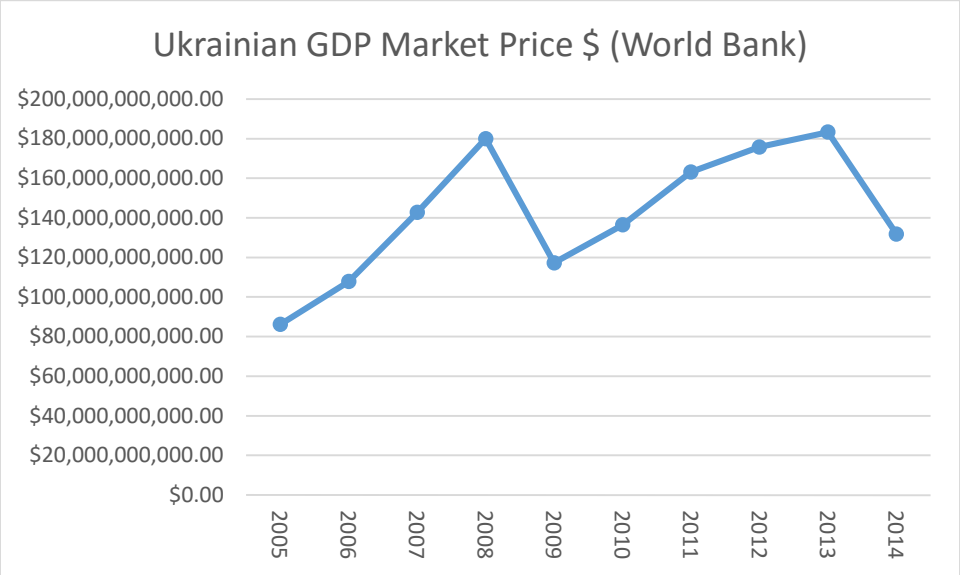
GDP Modeling

	GDP per capita	Model GDP Target (billion $)	Reference Market
Current	$4,029.72	$183.10	Ukraine
Model 1	$10,721.42	$487.70	
Model 2	$14,086.52	$640.80	
Model 3	$16,989.80	$772.30	
Model 4	$20,362.05	$926.30	
Model 5	$24,983.69	$1,136.50	Slovenia
Model 6	$32,709.12	$1,487.90	Spain
Model 7	$36,422.64	$1,656.60	
Model 8	$36,792.33	$1,673.70	
Model 9	$61,491.90	$2,797.20	
Model 10	$163,351.65	$7,430.80	Monaco
Akholi Target	$24,759.34	$1,125.00	

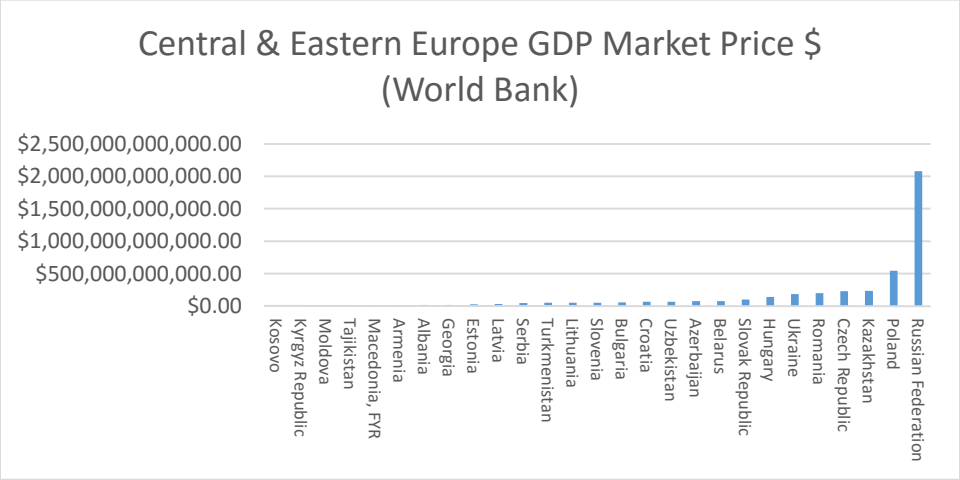
Model Guide

	Model Name	Description
Current	Current Ukrainian Performance	5-year peak value for Ukraine.
Model 1	World Average	Average per capita rate of all countries globally.
Model 2	CE Regional Average (All Countries)	Average per capita rate of all countries within the greater Central and Eastern European region.
Model 3	Metric 2nd Quintile Average	Average per capita rate of countries ranking within the metric's 2nd top quintile.
Model 4	CE Region Top 5 Country Average	Average per capita rate of the top five metric performing countries within the Central and Eastern European region.
Model 5	CE Region Top Country Rate	Average per capita rate of the single top metric performing country within the Central and Eastern European region.
Model 6	13th Ranked Country Equiv. Rate	Average per capita rate needed to achieve the 13th largest value globally representing Ukraine's rank as the 13th largest tertiary educated labor force.
Model 7	European Union Average	Average per capita rate of all countries within the European Union.
Model 8	Top tertiary Education Rate Quintile Av.	Average per capita rate for the metric by all countries ranked in the top tertiary education rate quintile.
Model 9	Top Metric Quintile Average	Average per capita rate of all countries ranked within the metric's top quintile.
Model 10	Top Metric Performer Rate	per capita rate of the country performing the best on a per capita basis to establish a theoretical metric cap.

GDP Market Price $

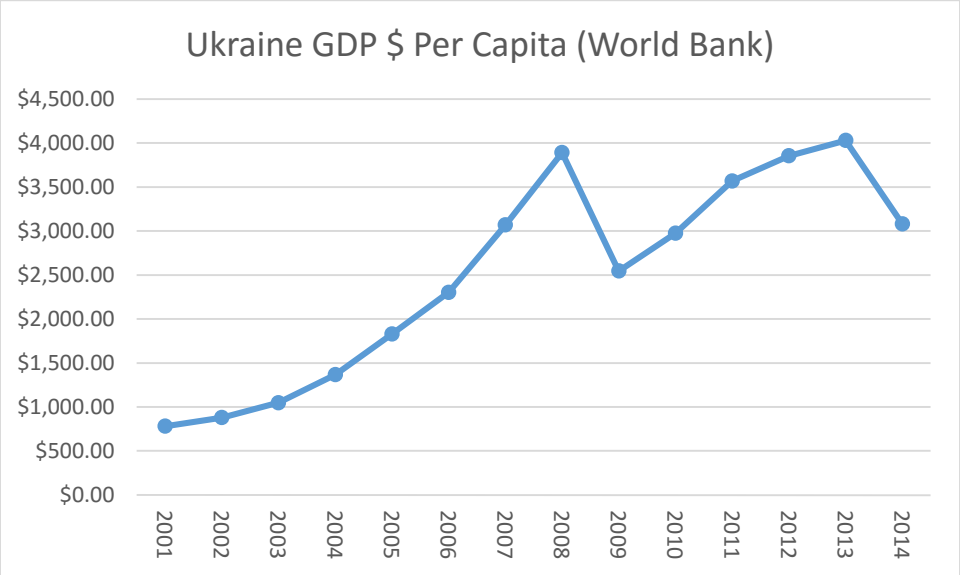


Ukraine achieved both a 5-year peak and all-time high GDP Market Price $ in 2013 of $183.3 billion ranking Ukraine as the 55th largest economy globally (2nd top GDP Market Price $ quintile).



Ukraine ranks among the larger economies within the greater Central & Eastern European region with a GDP Market Price $ that is $21 billion above the regional average of $146 billion.

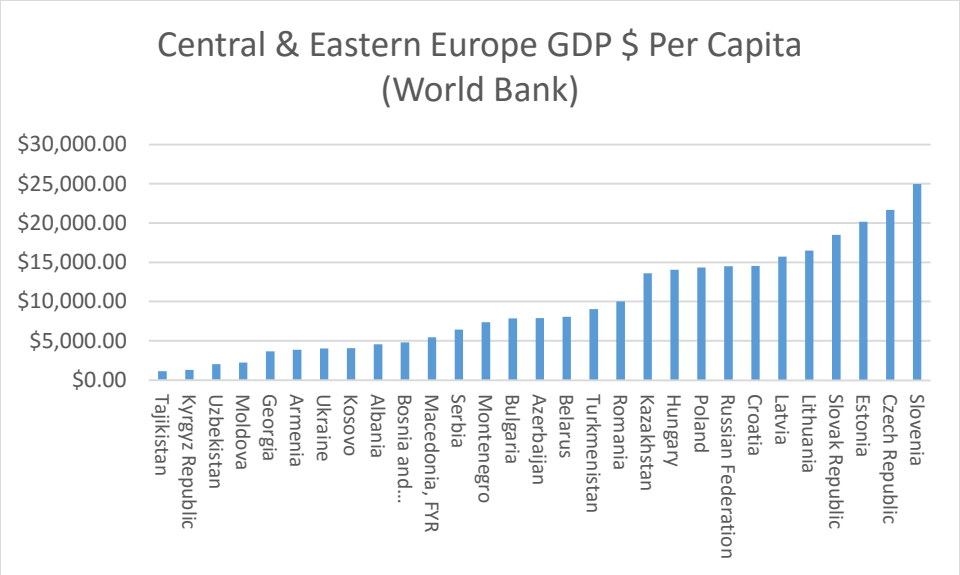
GDP Per Capita $



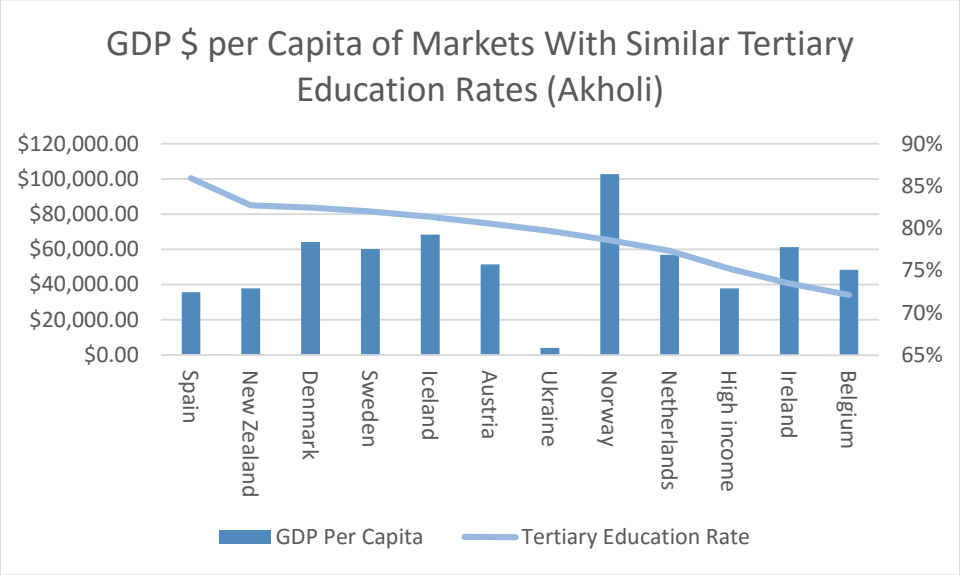
Ukraine achieved both a 5-year peak and all-time high GDP per capita $ in 2013 with $4,029.72. This drops Ukraine significantly down in terms of global ranking (#122) placing Ukraine within the 2nd lowest GDP per capita $ quintile.

This drop in rank from root metric to a significantly lower ratio per capita will be a constant theme throughout this report. While Ukraine is a large country with a reasonably large labor force and top root metrics will routinely place Ukraine within the top two quintiles, an assessment of economic performance per capita will drop Ukraine into the bottom two quintiles.

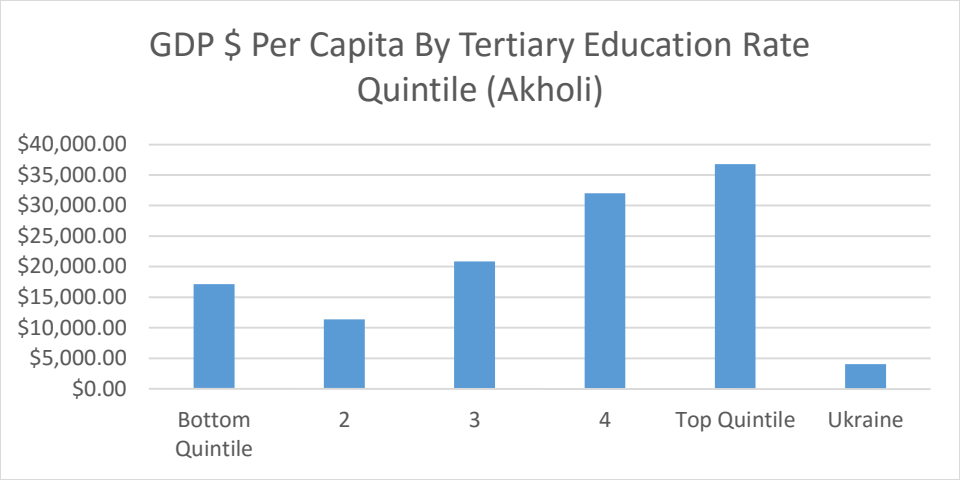
This is a strong indication that while Ukraine has a large and highly educated population, Ukraine has not been able to translate their large and highly education population into economic performance.



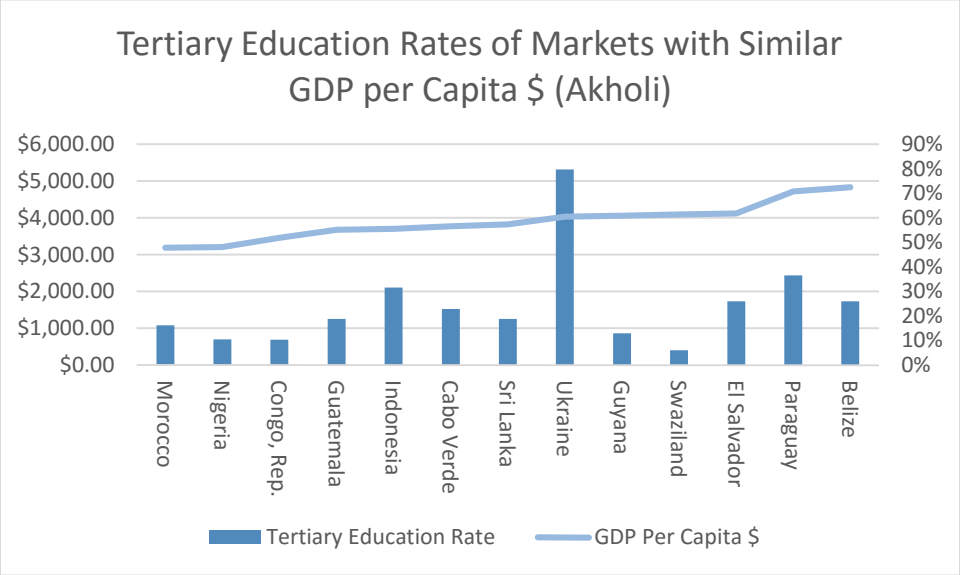
In the greater Central & Eastern Europe region, Ukraine underperforms ranking within the bottom half of all countries. Ukraine's 5-year and all-time peak of $4,029.72 is significantly lower than the regional average of $14,086.52.



Comparing Ukraine's GDP per capita $ against markets with a tertiary education rate demonstrates Ukraine's overall lack of performance.

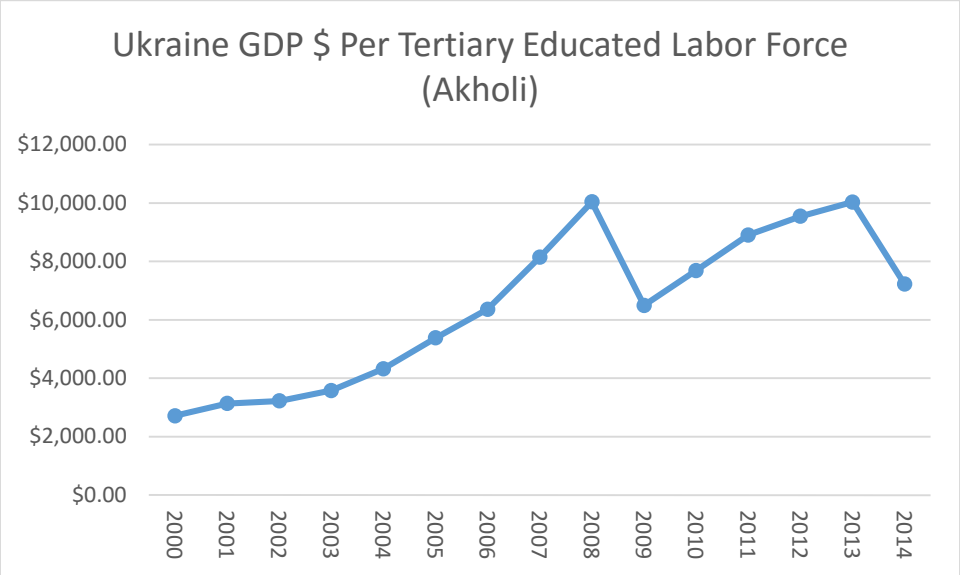


Further analysis of GDP per capita $ by tertiary education rate quintiles demonstrates Ukraine's underperformance well. Ukraine, with top quintile tertiary education rate, generates a GDP per capita $ that is 1/9th that of the average of all countries in the top tertiary education rate quintile. (quintile average of $36,792.)

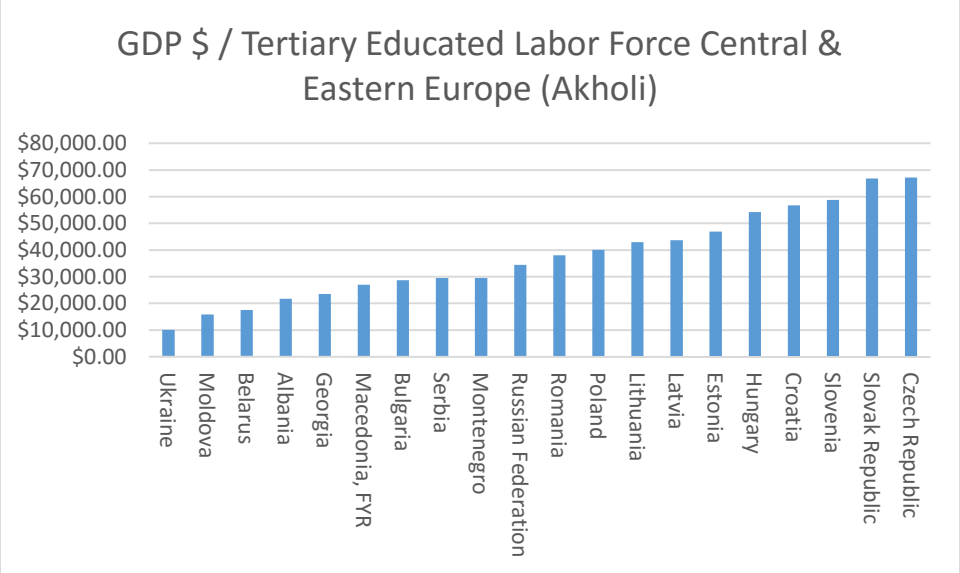


Comparing Ukraine's tertiary education rate against markets with a similar GDP per capita $ further demonstrates Ukraine's lack of ability to leverage education into economic performance. Ukraine has a significantly higher tertiary education rate compared to GDP per capita $ peer markets.

GDP $ Per Tertiary Educated Labor Force



Ukraine achieved both a 5-year peak value of $10,030.38 in 2013 ranking Ukraine #144 out of 147 countries. Only Nepal, Bolivia and Kyrgyz Republic scored lower.

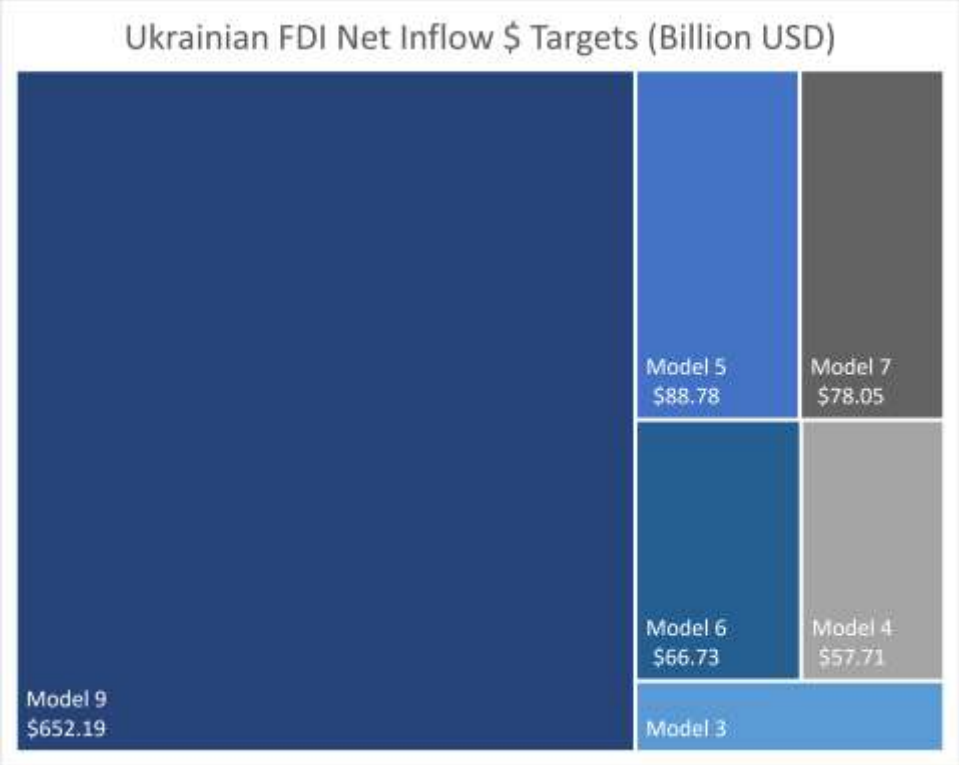


Regionally, only Kyrgyz Republic scored lower than Ukraine. Ukraine's 5-year peak value of $10,030.38 is less than 1/4 the regional average of $45,368.

To provide perspective, the chart below outlines perspective of the bottom fifteen countries assessed in our evaluation. (Ukraine ranking 4th worst in our study.)

Country	Global Rank	GDP $ Per Tertiary Educated Labor Force
Nicaragua	133	$15,807.05
Armenia	134	$15,699.52
Benin	135	$15,636.60
Congo, Dem. Rep.	136	$15,522.12
Togo	137	$13,406.10
Bangladesh	138	$13,295.36
Vietnam	139	$13,032.39
Guinea	140	$12,161.32
Tajikistan	141	$10,484.48
Liberia	142	$10,185.38
Cambodia	143	$10,115.00
Ukraine	144	$10,030.38
Nepal	145	$9,042.96
Bolivia	146	$8,033.21
Kyrgyz Republic	147	$5,827.19

FDI Net Inflow $



While Ukraine experienced a significant FDI Net Inflow YOY reduction in 2014 (likely as a direct result of the current crisis in Ukraine), Ukraine's FDI Net Inflow 5-Year Peak rates are low.

Countries that have ongoing corruption, IP protection, political and military conflict, etc. all rank low. Outside of a few countries with significant and highly valuable natural resources, no country with similar risk to Ukraine has an average to high FDI Net Inflow rates.

FDI Net Inflow rates also provides two subtle insights that are important to note:

1. FDI Net Inflow rates provide a reasonable indicator on how much of a challenge domestic firms will have in gaining working capital from global funding sources. If FDI Net Inflow rates are low, domestic firms will have a greater challenge gaining international investments.

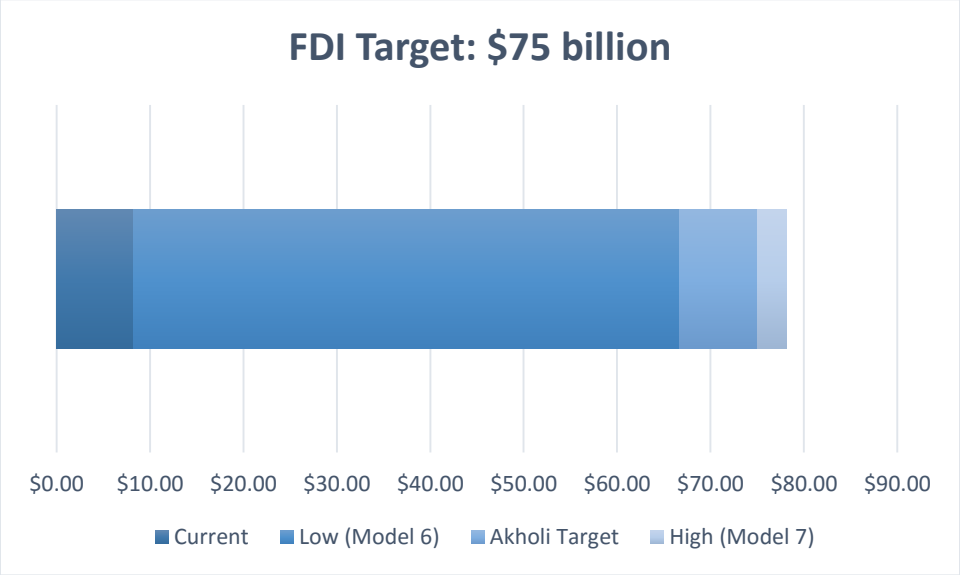
2. FDI Net Inflow rates also provide a reasonable indication of how involved the global private sector is in developing the economy within the specific country. If FDI Net Inflow rates are low, it is a strong indication the global private sector is not involved in developing the overall country.

Both of the above present concerns specific to Ukraine:

1. Ukraine must develop high value jobs and exports. Without access to global working capital, Ukrainian firms may have difficulty gaining the investments they need in order to help Ukraine achieve potential. Ukraine may need to explore options for State backed growth oriented investment funds to help domestic employers grow.

2. While we do not expect material global private sector investment into Ukraine until corruption and IP protection concerns are addressed, the lack of overall involvement from the global private sector in Ukraine is a concern. Ukraine must grow high-value exports. Ukraine must also create a high-end future state workforce consisting of skills the global marketplace will need. Both are nearly impossible to do without the involvement of the world's top companies. Ukraine will likely not be able to gain global private sector investment into Ukrainian firms and developmental programs for the time being. That said, Ukraine can and should increase the level of cooperation with the world's top companies in developing a growth strategy. This is not a theoretical. In our own involvement in Ukraine, we were able to get top global employers to work directly with Ukrainian Higher education to define and build a future state workforce. Ukraine needs more of these relationships.

After careful consideration of all data, we set Ukraine's FDI Net Inflow target as follows:



FDI Net Inflow $ Models

	Per Capita	Value	Market
Current	$179.30	$8.20	Ukraine
Model 1	$314.41	$14.30	
Model 2	$466.22	$21.30	
Model 3	$746.06	$34.00	
Model 4	$1,265.81	$57.70	
Model 5	$1,947.32	$88.80	Estonia
Model 6	$1,463.69	$66.70	United Kingdom
Model 7	$1,711.97	$78.10	
Model 9	$14,304.60	$652.20	
Model 10	$313,551.95	$14,295.90	Cayman Islands
Akholi Target	$1,639.94	$75.00	
		(Billion USD)	

Model Guide

	Model Name	Description
Current	Current Ukrainian Performance	5-year peak value for Ukraine.
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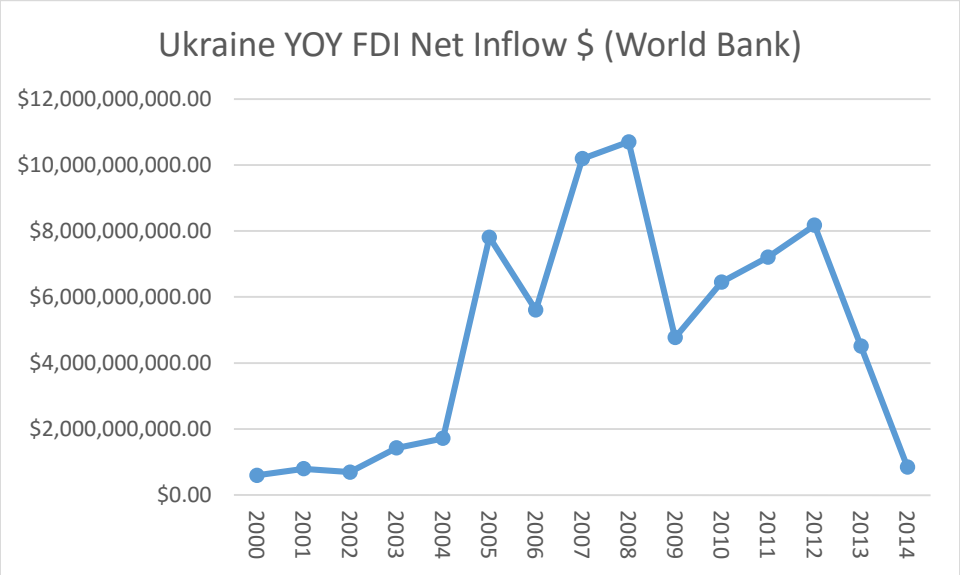
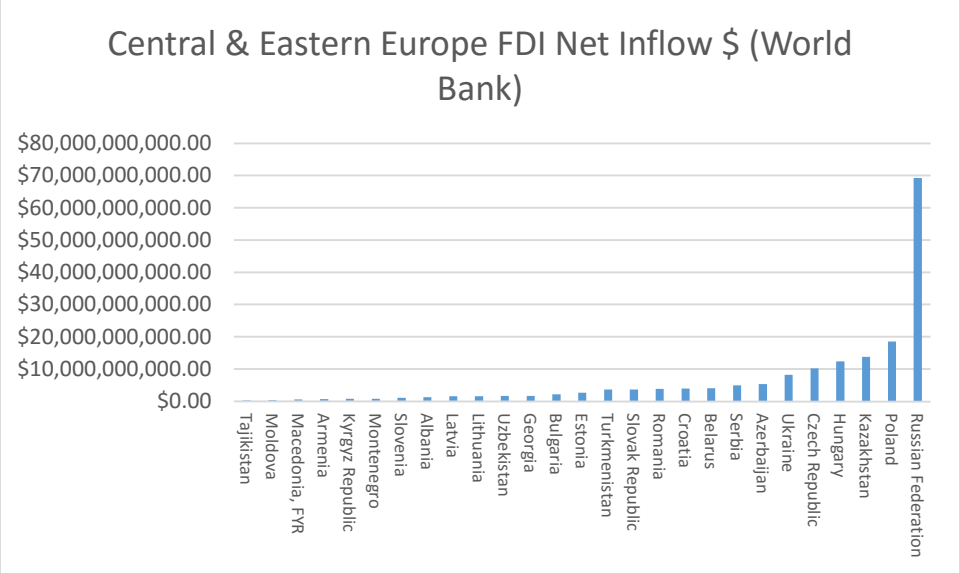
FDI Net Inflow $ Analysis



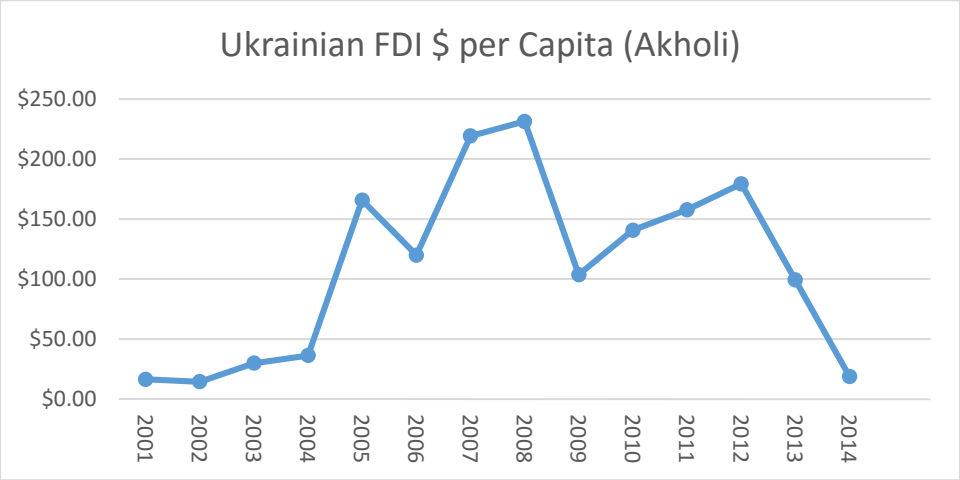
Ukraine's FDI Net Inflow is highly varied over the past 15 years with a peak in 2008. FDI Net Inflow $ has declined rapidly off the 5-year peak value of $8.2 billion in 2012. This 5-year peak ranks Ukraine #48 globally and places Ukraine within the 2nd FDI Net Inflow $ quintile.

The decline in FDI in 2014 from peak in 2012 is not surprising and reflects an anticipated hesitation by international corporations given Ukraine's current crisis.

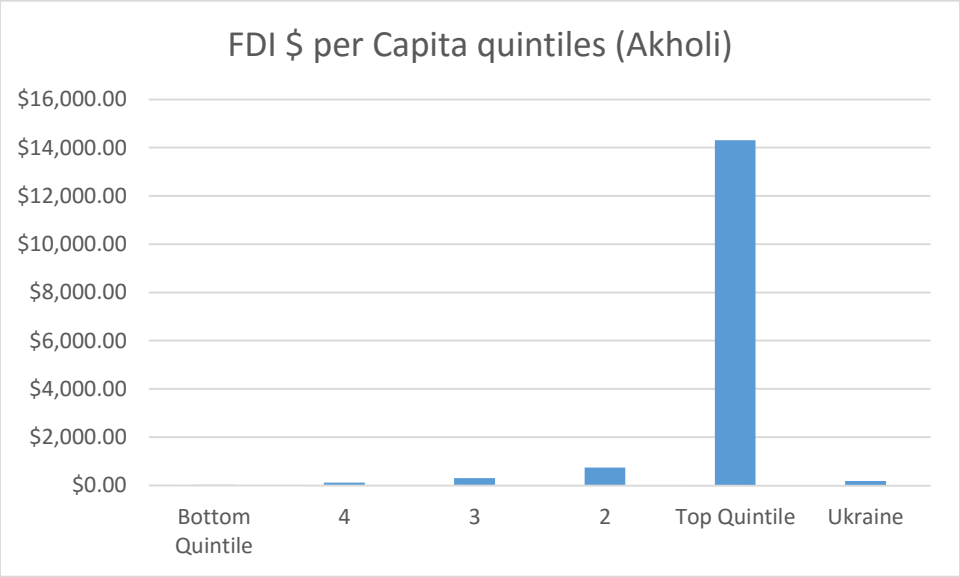


In the greater region, Ukraine's 5-year peak value of $8.2 billion places Ukraine in the top half of all countries and $1.6 billion above the regional average of $6.6 billion.

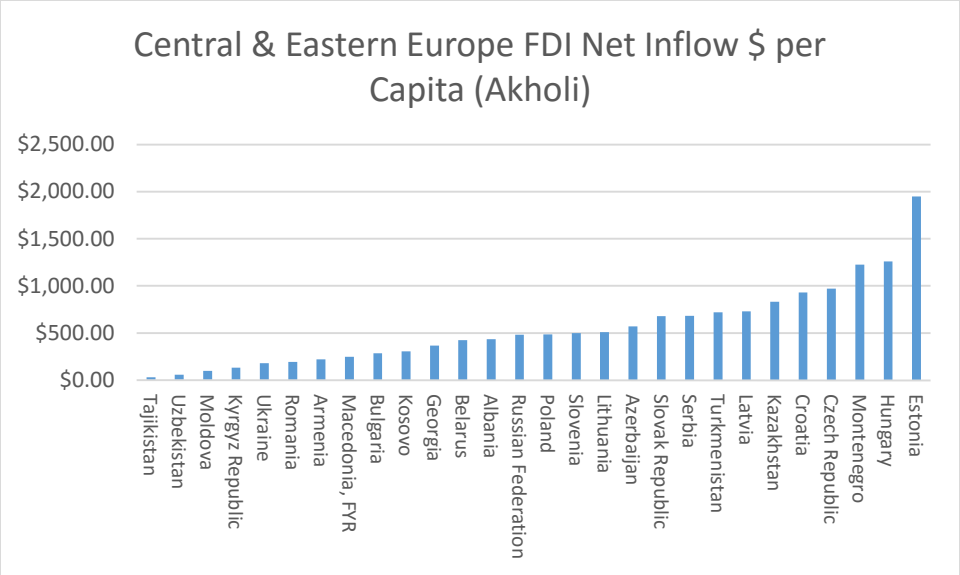
FDI Net Inflow $ Per Capita



Ukraine achieved their 5-year peak FDI Net Inflow $ per capita in 2012 with a value of $179.30 ranking Ukraine #120 globally dropping Ukraine to the 3rd quintile.

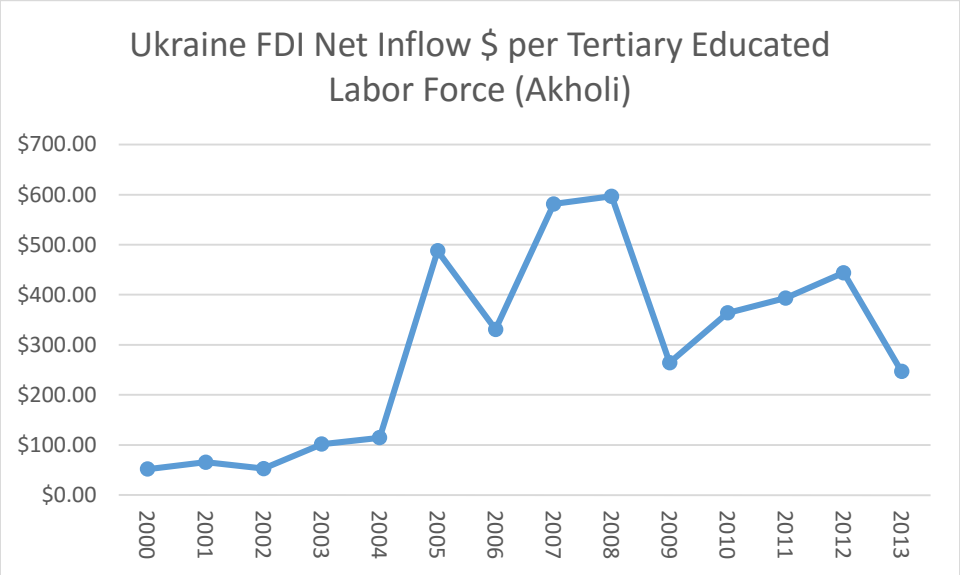


The FDI $ per capita quintile assessment is heavily top quintile weighted with the top 20% countries receiving an overwhelming majority of Net FDI $ Inflows. Ukraine's 5-year peak ranks Ukraine slightly below the 3rd quintile average.

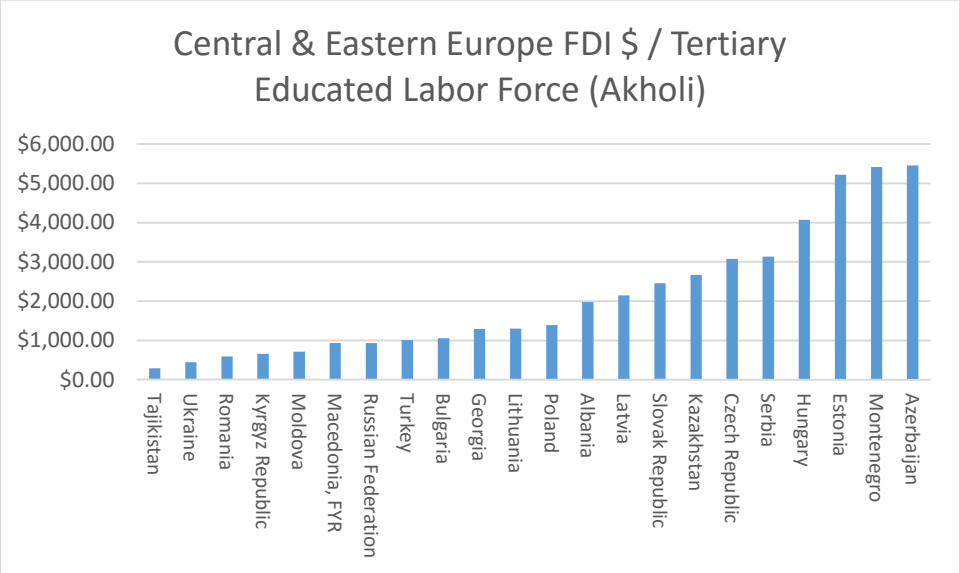


Regionally, Ukraine underperforms. The regional average rate of $466 is 2.6x larger than Ukraine's 5-year peak. Estonia (the top performer) has an FDI Net Inflow per capita rate of $1,947.32- more than 10x larger than Ukraine.

FDI $ Per Tertiary Educated Labor Force



Ukraine achieved a 5-year peak FDI Net Inflow $ per tertiary educated labor force of $443.95 in 2012 ranking Ukraine #125 out of 147 markets assessed placing Ukraine in the bottom quintile.



Comparing Ukraine to other Central and Eastern European markets, Ukraine's peak FDI Net Inflow $ / tertiary educated labor force ratio is low. Ukraine's 5-Year Peak rate of $443.95 is less than 1/3 the regional average of $1,505.44

Gross Capital Formation

Low Gross Capital Formation rates provides both an indication of domestic economic confidence as well as an indicator on the ease companies within the economy can gain access to working capital required to grow.

Top-level Gross Capital Formation for Ukraine is not large. Analysis of Gross Capital Formation per capita places Ukraine within the second lowest quintile globally. Ukraine's underperformance is a signification indication that domestic private sector leaders lack confidence in the Ukrainian economy and do not see a strong enough business case for investment to offset concerns.

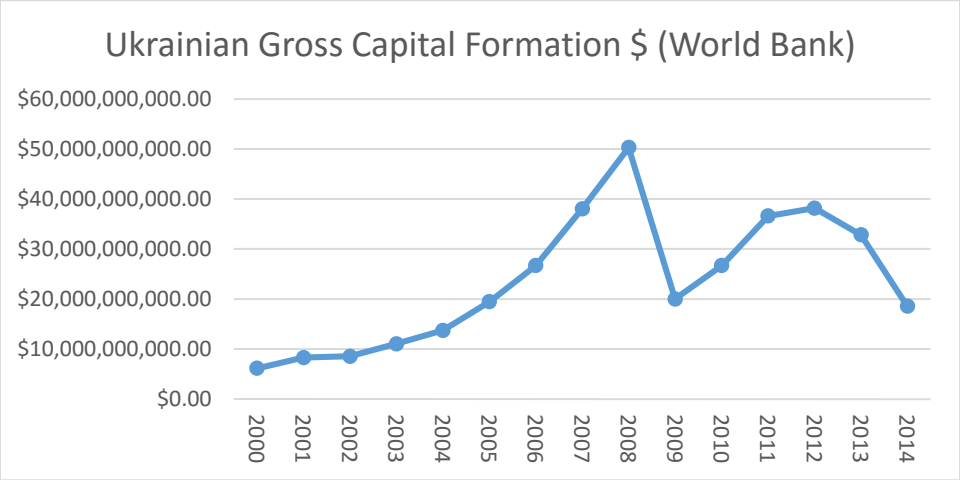
We see underperformance when countries lack long-term stability and lack a sound business case for investment. While Ukraine has an immense potential economic upside, we do not expect Gross Capital Formation to improve until Ukraine:

a. Addresses current political corruption and stability issues.
b. Address IP protection concerns.
c. Gains a degree of security and stability with the conflict in Eastern Ukraine.
d. Provides significant enough of a sound business case for domestic investment.

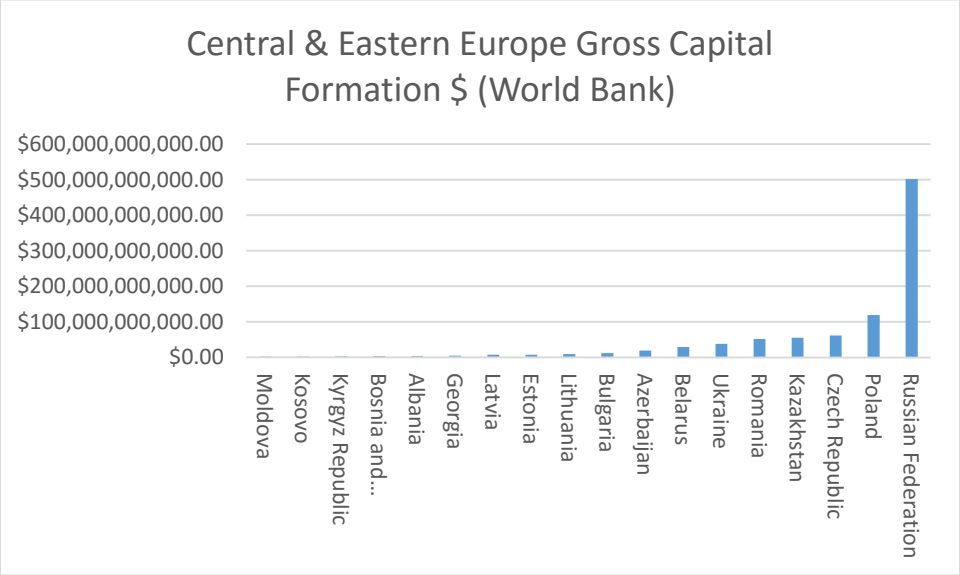
While the issues above may take time and a great deal of effort to resolve, there are reference economies globally that demonstrate Gross Capital Formation can improve given a strong enough business case that offsets risk concerns.

Secondary concern is in regards to access to capital for Ukrainian private sector firms. With poor FDI per capita rates and low Gross Capital Formation per capita rates, Ukrainian vendors will likely find it difficult to gain the working capital they need to become true global leaders. There is typically a small lag between improvement in domestic risk and growth in Gross Capital Formation. As Ukraine addresses ongoing risk, Ukraine may need to explore options for State backed investment funds to help Ukrainian vendors grow.

Gross Capital Formation

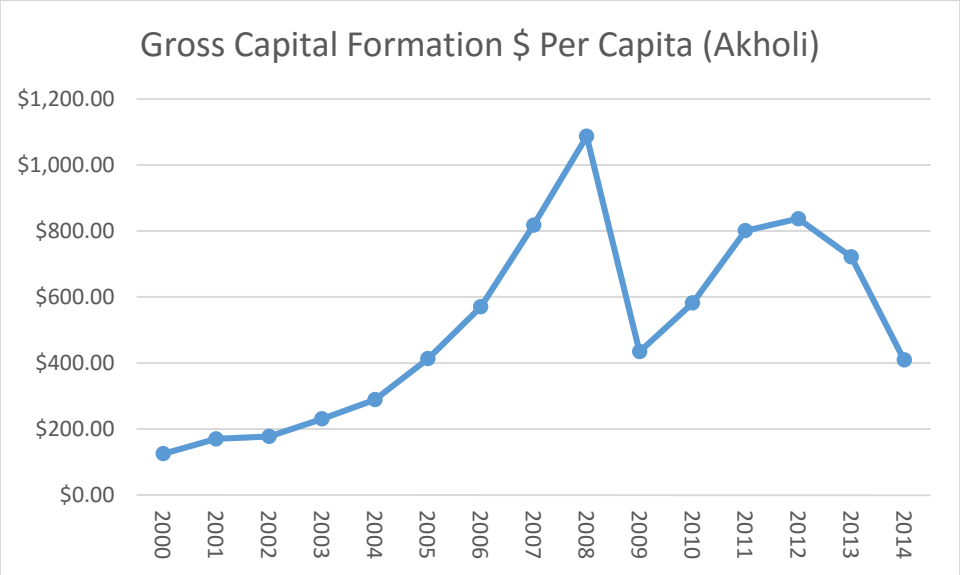


Ukraine's Gross Capital Formation $ achieved a 5-year peak in 2012 with a value of $38.1 billion. In terms of total $ value, Ukraine ranks within the second highest quintile globally.

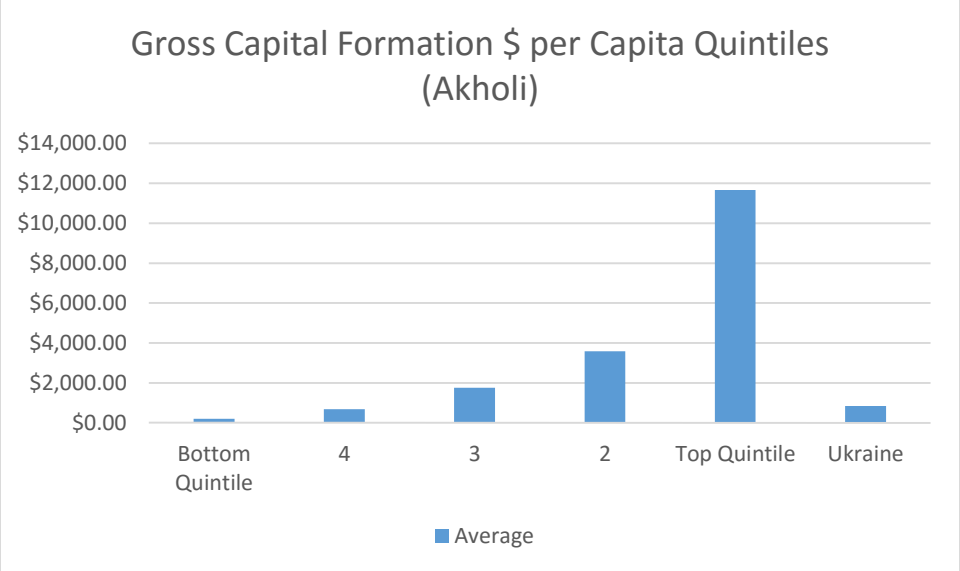


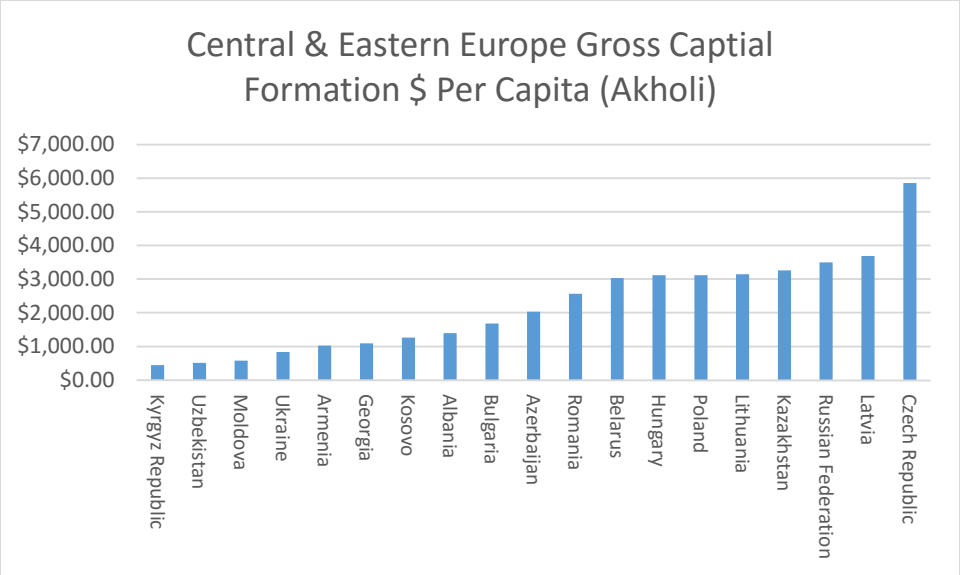
Ukraine ranks among the top half of countries within the greater Central and Eastern European region in regards to Gross Capital Formation $ although Ukraine is $13.6 billion below the regional average of $51.7 billion.

Gross Capital Formation $ Per Capita



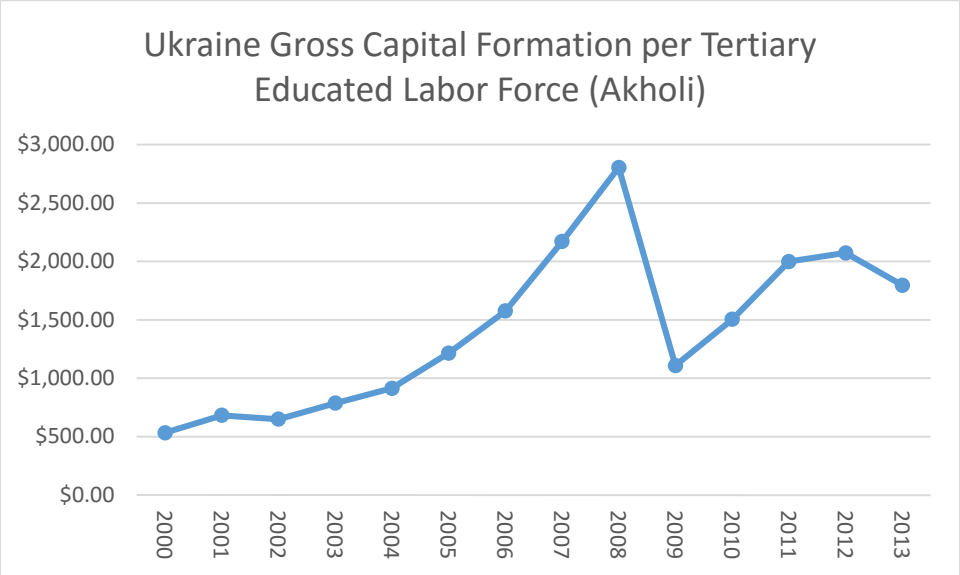
Ukraine reached gross capital formation $ per capita 5-year peak in in 2012 with a value of $837.22 dropping Ukraine to the second lowest quintile.



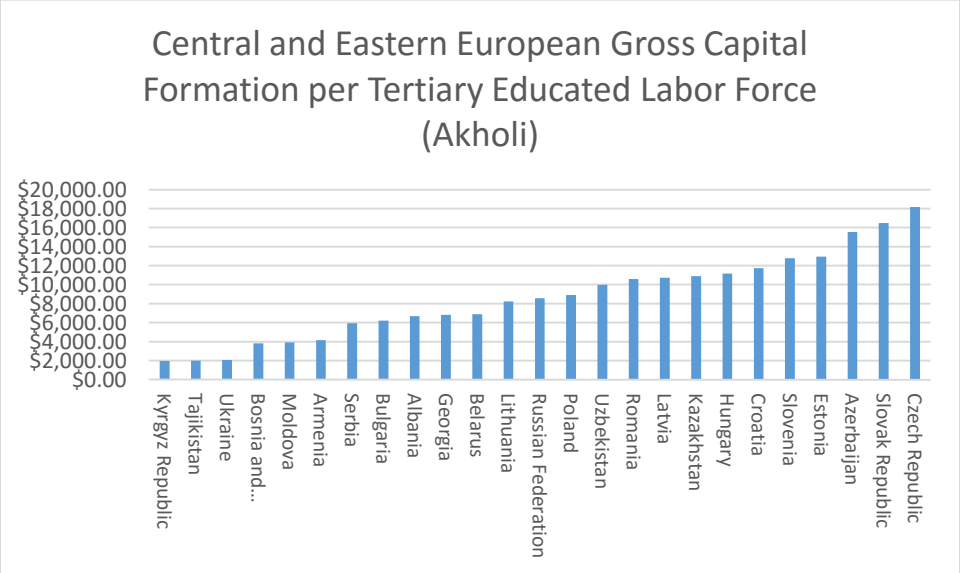


Regional comparisons indicate that Ukraine is underperforming in regards to Gross Domestic Capital Formation $ per capita. The regional average of $3,269.13 is 3.9x larger than Ukraine's 5-year peak value of $837.22

Gross Capital Formation $ Per Tertiary Educated Labor Force

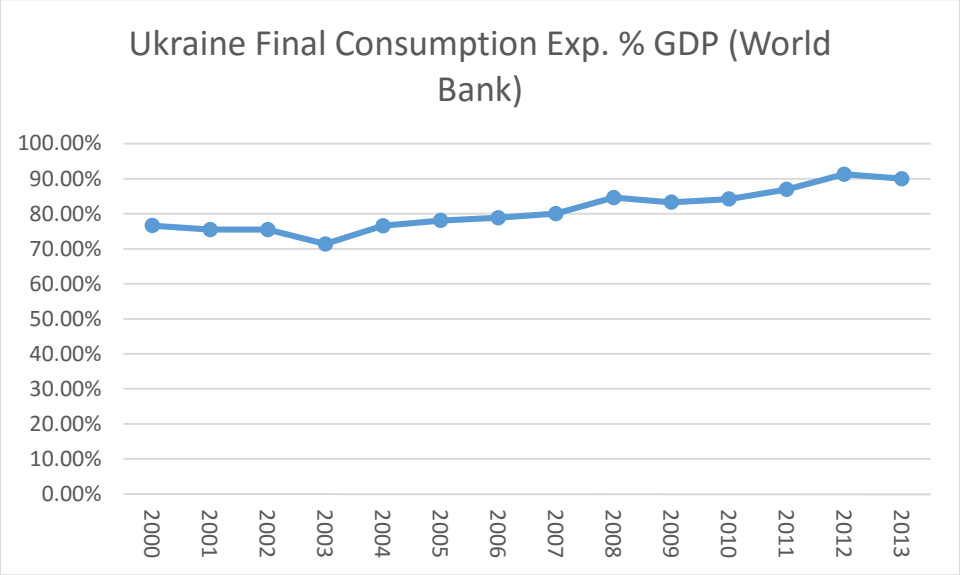


Using 5-year peak value $2,072.97 from 2012, Ukraine ranks 136th out of 147 markets assessed in regards to Gross Capital Formation $ / tertiary Educated Workforce.

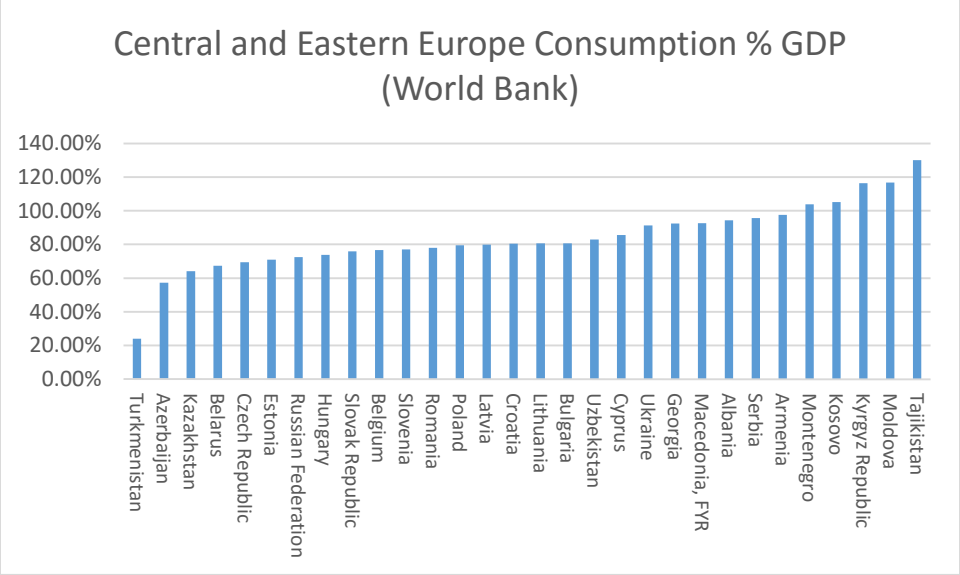


Ukraine's 5-Year Peak places near the bottom regionally and is well below the regional average of $10,693.86.

Final Consumption Expenditures % GDP



Ukraine's final consumption expenditures as percentage of GDP has been consistently high over the years with a slight YOY growth trend.

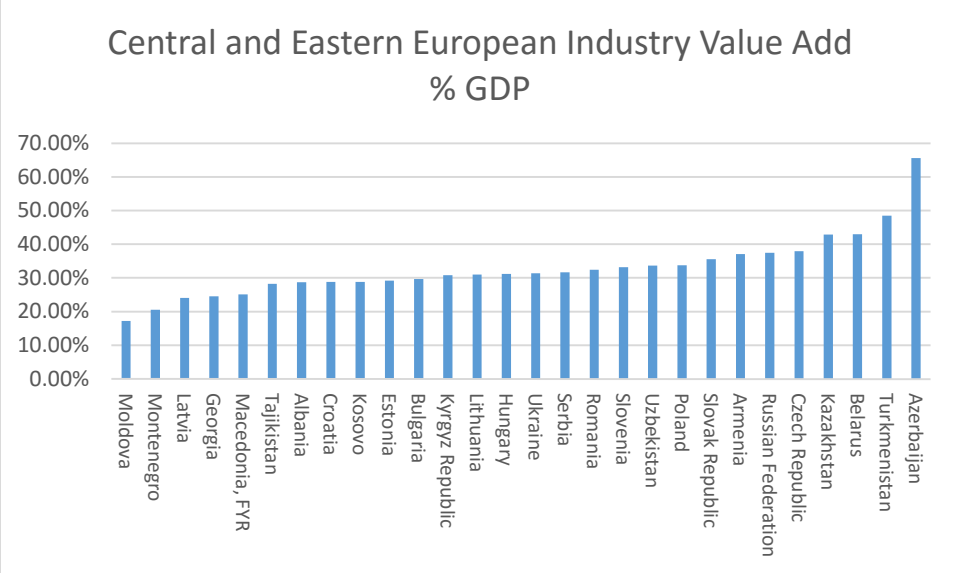


Regionally, Ukraine has a higher than average Final Consumption Expenditures % GDP than most peer countries. Ukraine's 5-Year Peak of 91.25% is noticeably higher than the regional average of 83.74%. Ukraine is significantly higher than regional markets that are considered to be high income economies (Example: Czech Republic).

Analysis of our data gives indication that Ukraine is unbalanced in regards to consumption and should take steps to grow other areas of the economy.

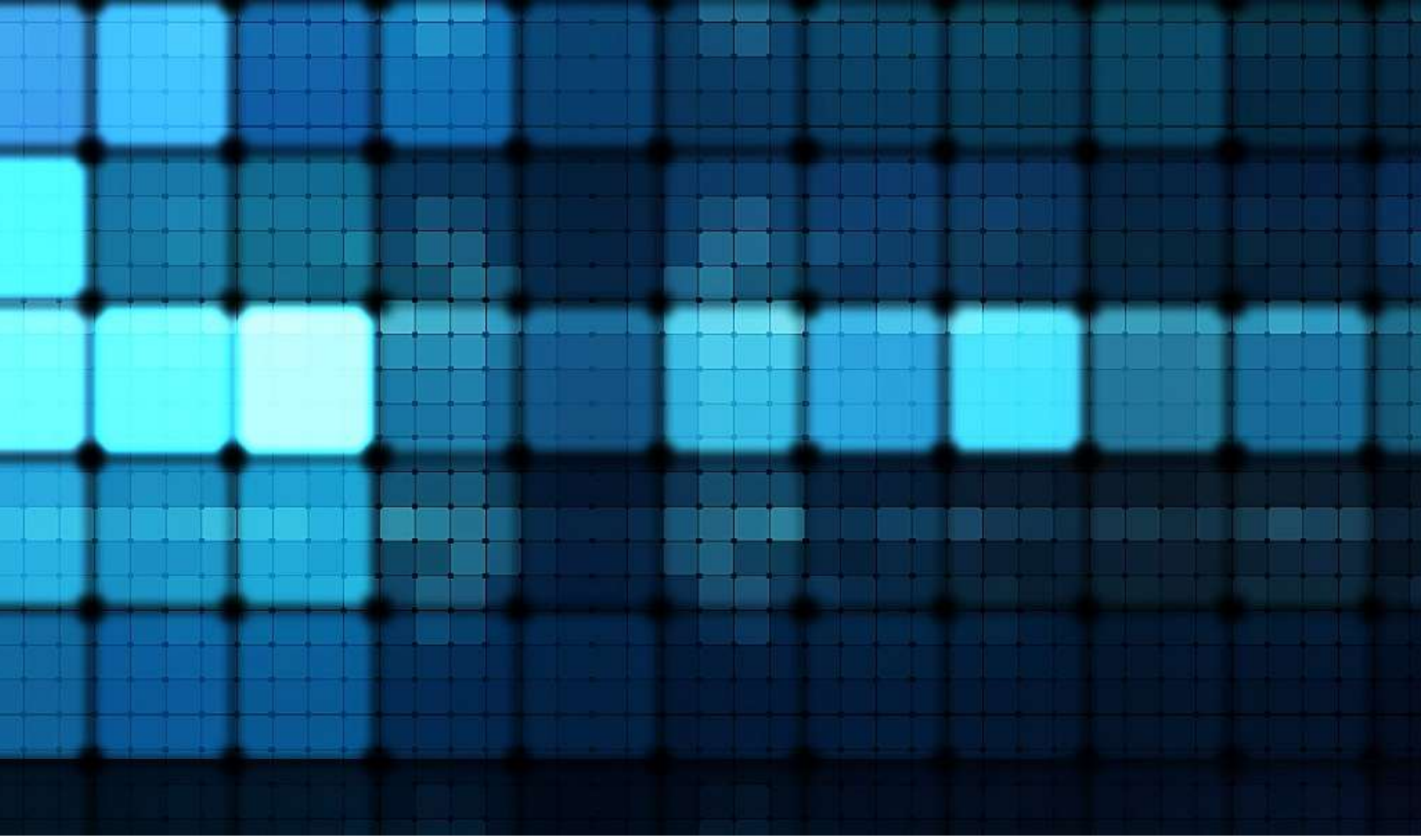
Industry Value Add

Analysis of Ukraine's industry value add rates demonstrates a fairly steady YOY decline but Ukraine still falls within regional and global ranges that are acceptable. While Ukraine can improve overall industry value add rates, artificially doing so without tying industry and manufacturing to an increase in exports will likely not generate material growth in the overall Ukrainian economy.



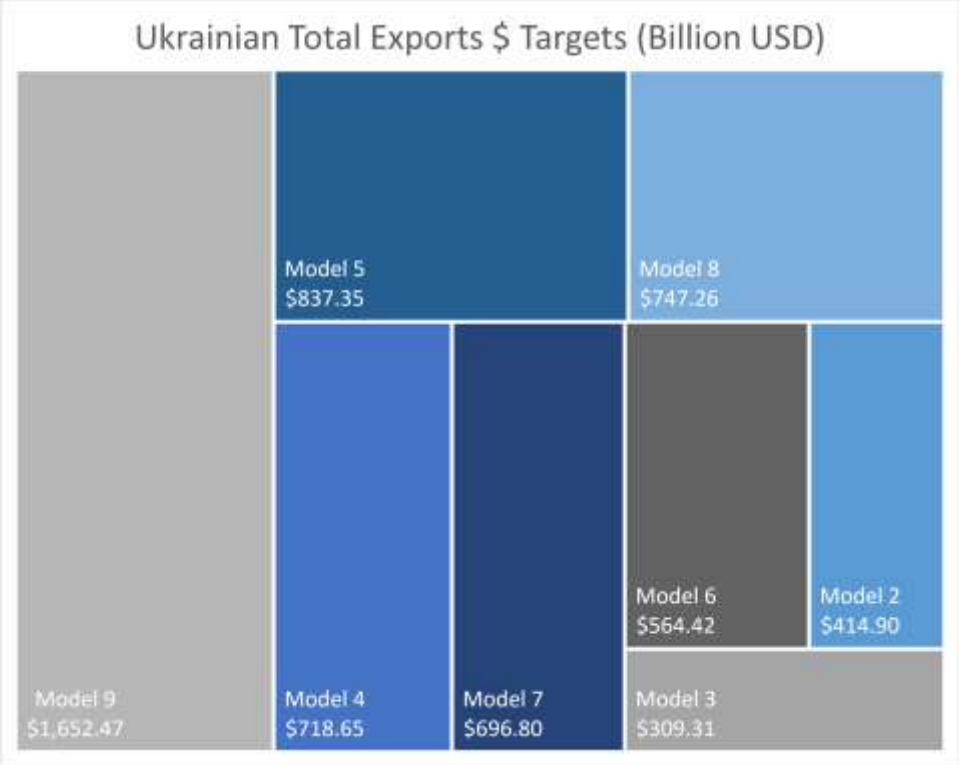
Regionally, Ukraine 5-Year Peak ranks in the middle of all countries- including high economic performing countries within region straddling Ukraine.

After consideration of all of the above, we do not believe solely focusing on increasing Ukraine's industry value add rates without addressing exports will improve Ukraine's overall economy.



Exports

Total Exports



Comparison of Ukraine's Total Exports per capita and Total Exports per tertiary educated labor force against every model we use indicate significant underperformance.

Ukraine does have established exports. However, most exports are related to various natural resources and agriculture products that do not leverage Ukraine's highly educated workforce.

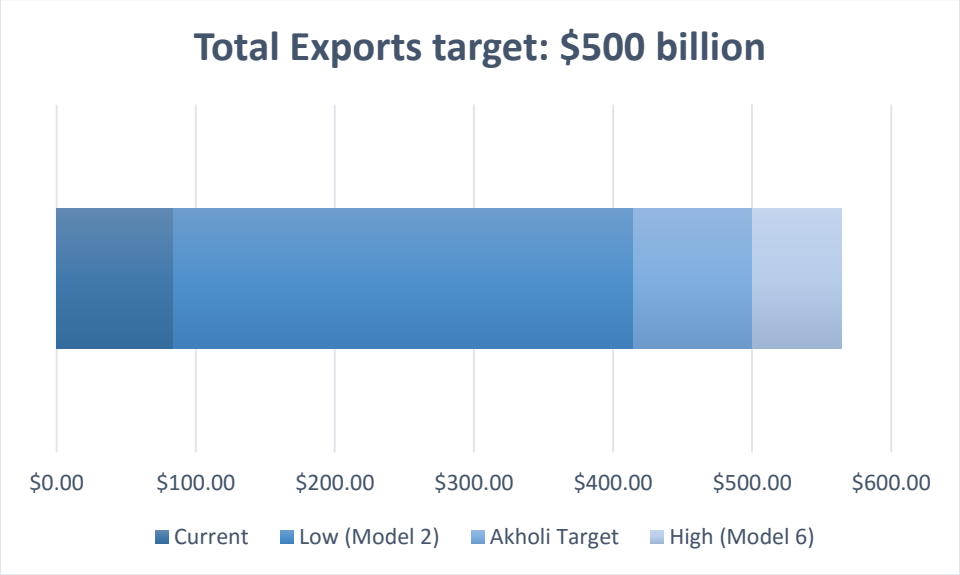
In order for Ukraine to achieve full potential economy potential, growth must be led by high-value goods and service exports.

While Ukraine will have significant challenges growing high-value goods exports until corruption and IP protection issues are addressed, Ukraine can achieve significant success growing high-value service exports. We base this on the following:

1. No country has developed high-value and technical goods exports while suffering from the same corruption and IP protection concerns Ukraine currently has. Regardless of various tax schemes, special economic zones, trade agreements, etc. no country has been successful in materially increasing these goods exports without first addressing corruption and IP protection issues.

2. There are several examples of countries with similar corruption and IP protection issues achieving significant success with high-value service exports. These concerns still hamper overall growth, but, there are reference markets with service exports per capita rates higher than our Ukrainian target values regardless of these issues.

After careful consideration of all data, we set Ukraine's target for Total Exports as follows:



Achieving our target of $500 billion will place Ukraine slightly ahead of the greater Central and Eastern European Region per capita average. The target per capita rate of $10,967.10 is noticeably lower than the average per capita rate of the top 5 Central and Eastern European markets ($15,762.27) and the per capita rate of the regions' top performer- Slovenia at $18,365.74.

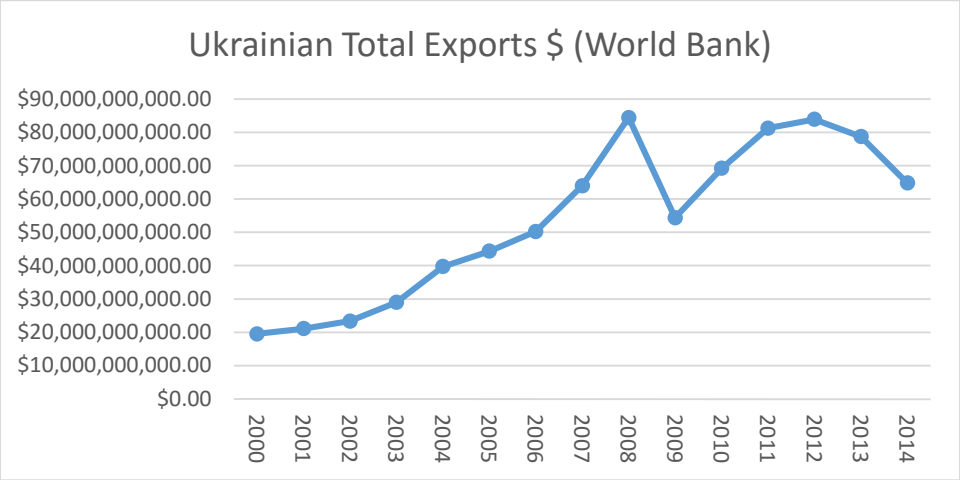
Total Exports Model Targets

	Per Capita	Value	Market
Current	$1,839.84	$83.88	
Model 1	$3,167.32	$144.41	
Model 2	$9,099.94	$414.90	
Model 3	$6,784.09	$309.31	
Model 4	$15,762.27	$718.65	
Model 5	$18,365.74	$837.35	Slovenia
Model 6	$12,379.51	$564.42	Canada
Model 7	$15,282.87	$696.80	
Model 8	$16,389.58	$747.26	
Model 9	$36,243.77	$1,652.47	
Model 10	$237,141.42	$10,812.06	Luxembourg
Akholi Target	$10,967.10	$500.00	
		(Billion USD)	

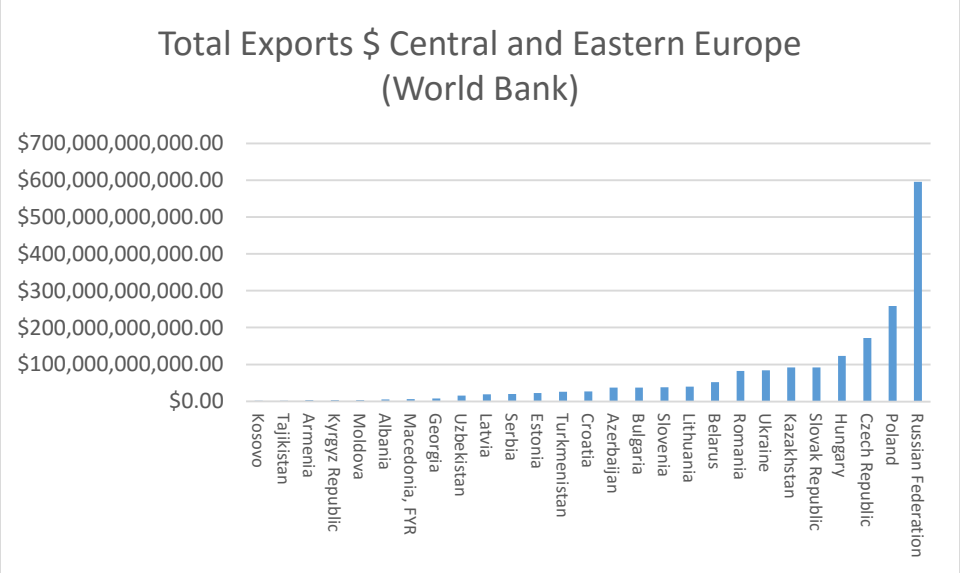
Model Guide

	Model Name	Description
Current	Current Ukrainian Performance	5-year peak value for Ukraine.
Model 1	World Average	Average per capita rate of all countries globally.
Model 2	CE Regional Average (All Countries)	Average per capita rate of all countries within the greater Central and Eastern European region.
Model 3	Metric 2nd Quintile Average	Average per capita rate of countries ranking within the metric's 2nd top quintile.
Model 4	CE Region Top 5 Country Average	Average per capita rate of the top five metric performing countries within the Central and Eastern European region.
Model 5	CE Region Top Country Rate	Average per capita rate of the single top metric performing country within the Central and Eastern European region.
Model 6	13th Ranked Country Equiv. Rate	Average per capita rate needed to achieve the 13th largest value globally representing Ukraine's rank as the 13th largest tertiary educated labor force.
Model 7	European Union Average	Average per capita rate of all countries within the European Union.
Model 8	Top tertiary Education Rate Quintile Av.	Average per capita rate for the metric by all countries ranked in the top tertiary education rate quintile.
Model 9	Top Metric Quintile Average	Average per capita rate of all countries ranked within the metric's top quintile.
Model 10	Top Metric Performer Rate	per capita rate of the country performing the best on a per capita basis to establish a theoretical metric cap.

Total Exports $

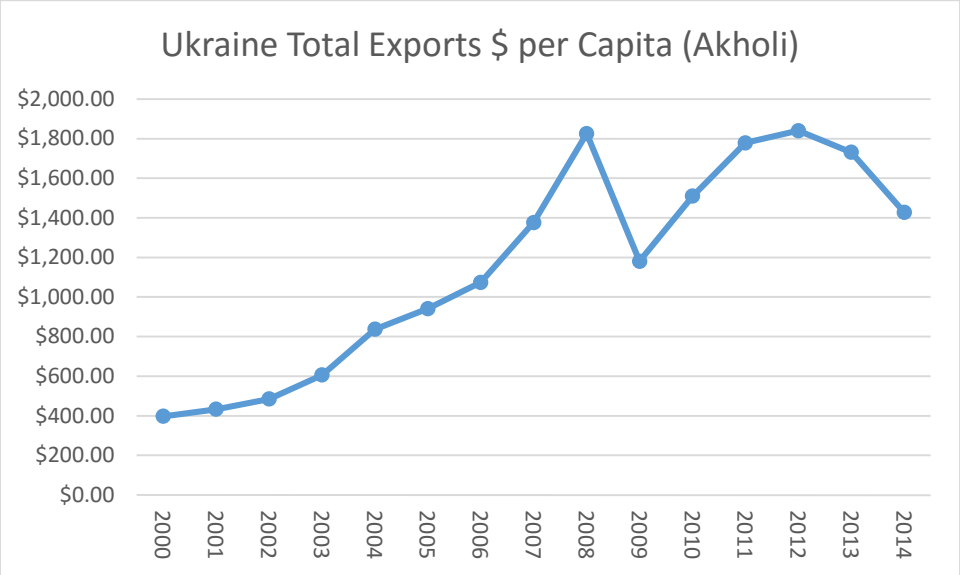


With a 5-Year Peak value of $83.9 billion in 2012, Ukraine ranks in the 2nd top Total Exports $ quintile globally.

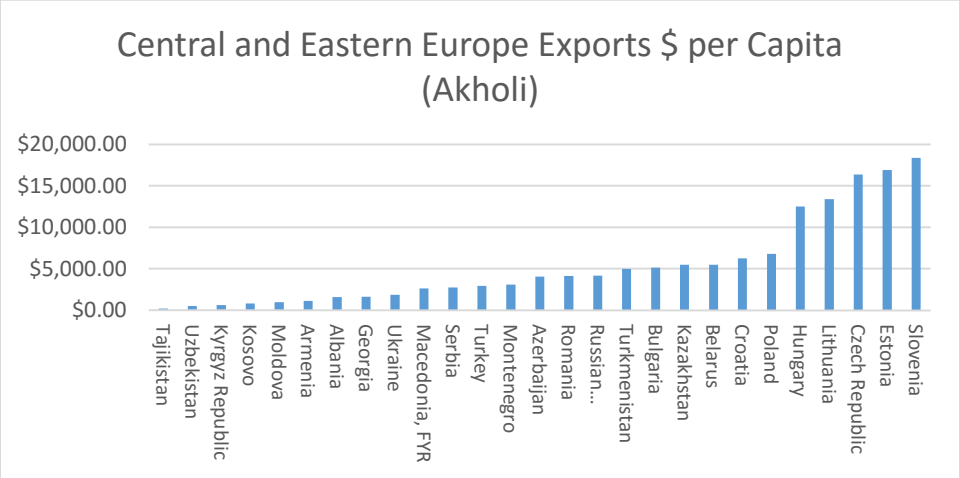


Regionally, Ukraine performs reasonably well with Total Exports ranking Ukraine as one of the larger export economies. Ukraine Total Exports are above the regional average of $68.9 billion.

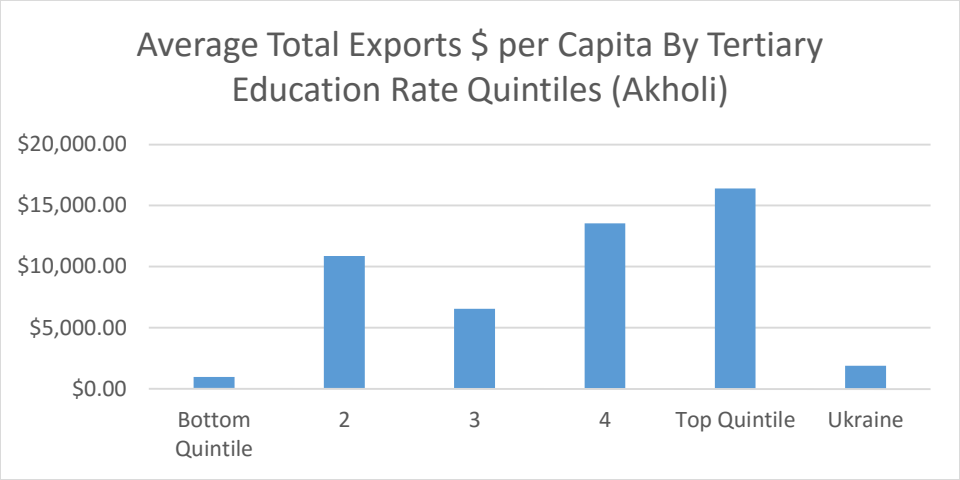
Total Exports $ Per Capita



Ukraine achieved a 5-year peak total exports per capita rate of $1,839.84 ranking Ukraine #102 globally.

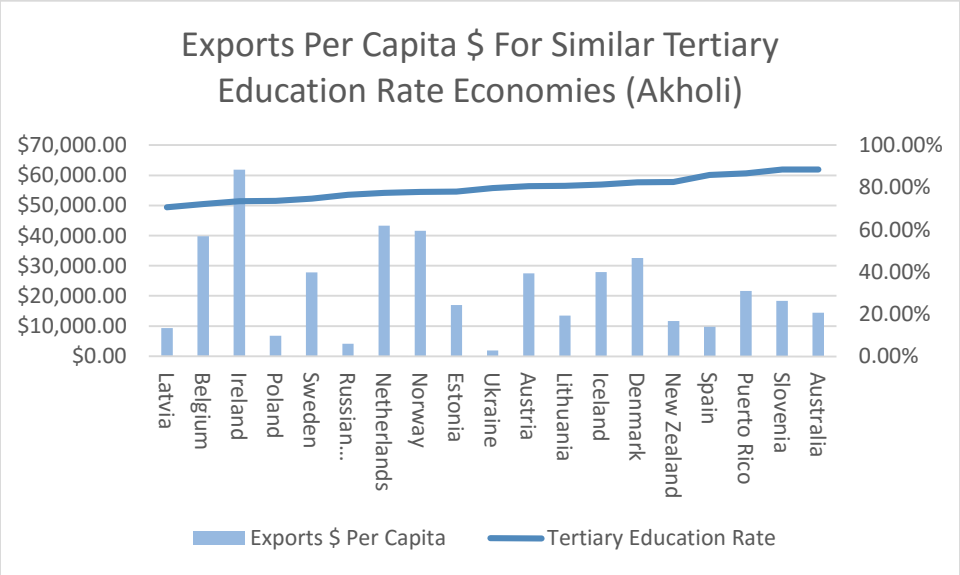


Comparing Ukraine's total exports $ per capita to the greater Central and Eastern Europe region also demonstrates Ukraine is underperforming compared to regional economies. The regional average of $9,099.94 is almost 5x larger than Ukraine's 5-Year Peak.

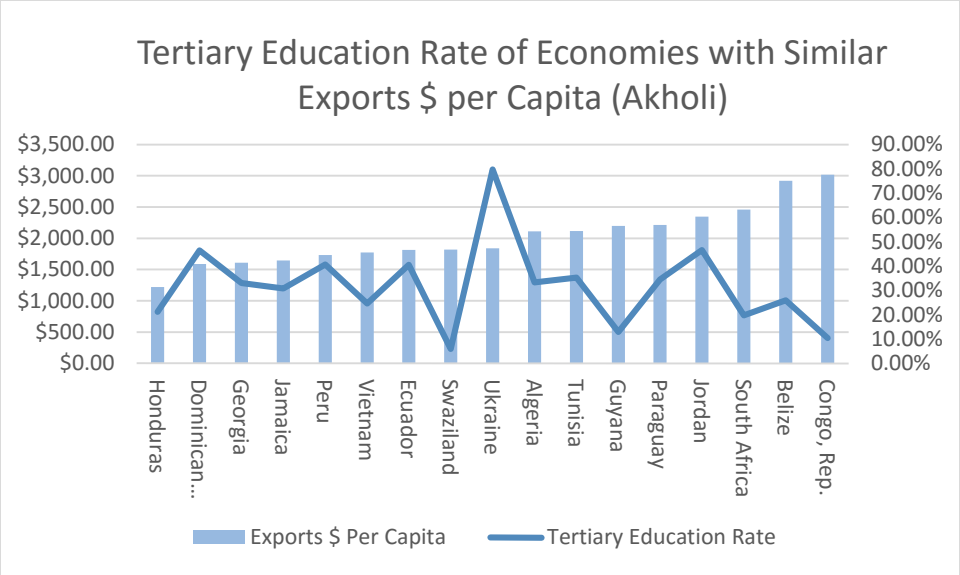


Doing a comparison of Ukraine's total exports $ per capita against countries in the top tertiary education rate quintile demonstrates a sizable underperformance. Peer countries in the top tertiary education rate quintile produce an average of $16,389.58 in exports per capita.

Please note the above chart does not exclude oil economies with relatively low tertiary education rates. The 2nd quintile is skewed high as a result.

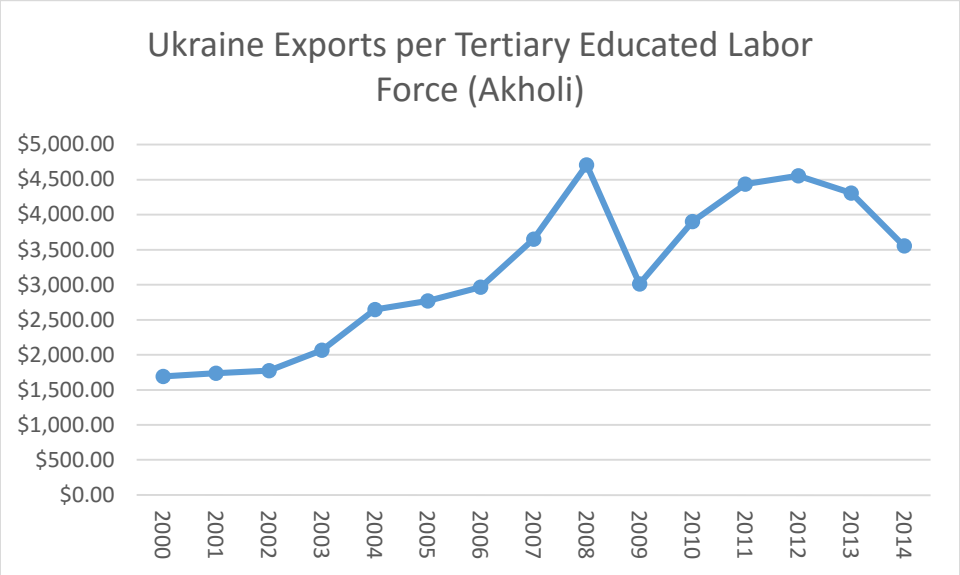


Comparing Ukraine's performance against other highly educated countries shows Ukraine's underperformance. Only Russia (with an Exports $ per capita rate of $4,158.52) and Ukraine fall below the $5,000 bar.

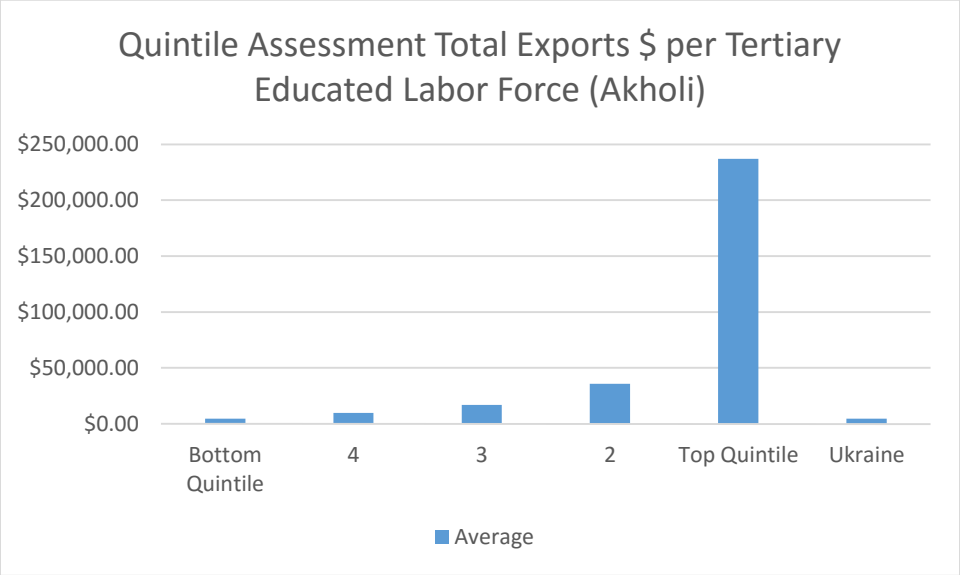


Comparing Ukraine's tertiary education rate to markets with a similar exports $ per capita more clearly calls out Ukraine's general underperformance. Ukraine has a vastly higher tertiary education rate compared to markets with a similar Exports $ per capita rate.

Total Exports $ Per Tertiary Educated Labor Force

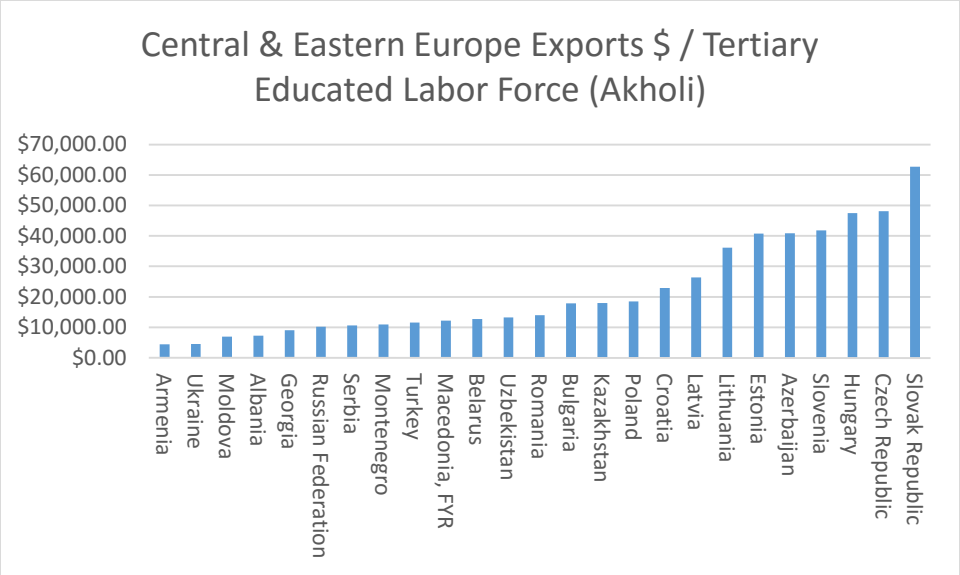


Ukraine achieved a 5-year peak Exports $ per tertiary educated labor force in 2012 with a value of $4,555.44.



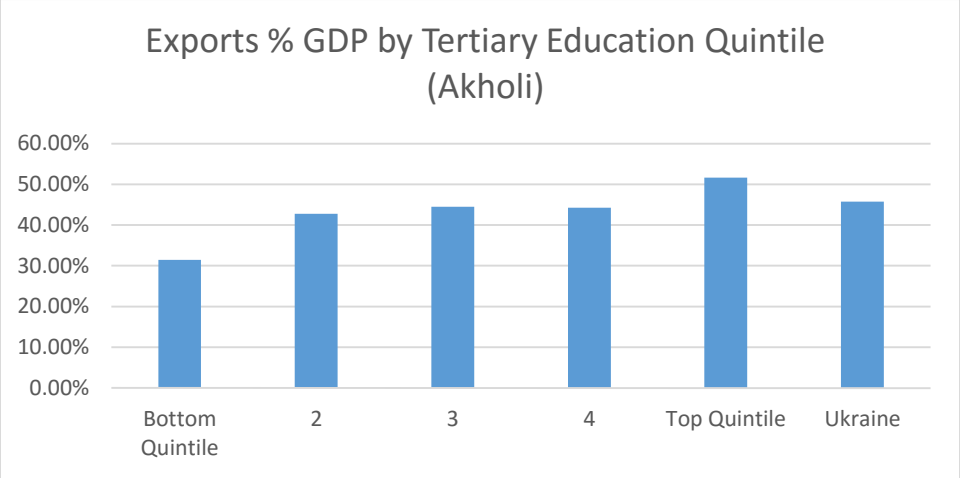
Factoring in Ukraine's large tertiary educated labor force, Ukraine dropped to 125th out of 147 markets assessed.

Please note the top quintile is skewed high with the inclusion of oil economies with relatively low tertiary education rates.



Comparing Ukraine to the greater Central and Eastern Europe region demonstrates Ukraine is greatly underperforming against most regional economies. The regional average of $28,194.55 is almost 7x Ukraine's peak 5-year rate of $4,555 achieved in 2012.

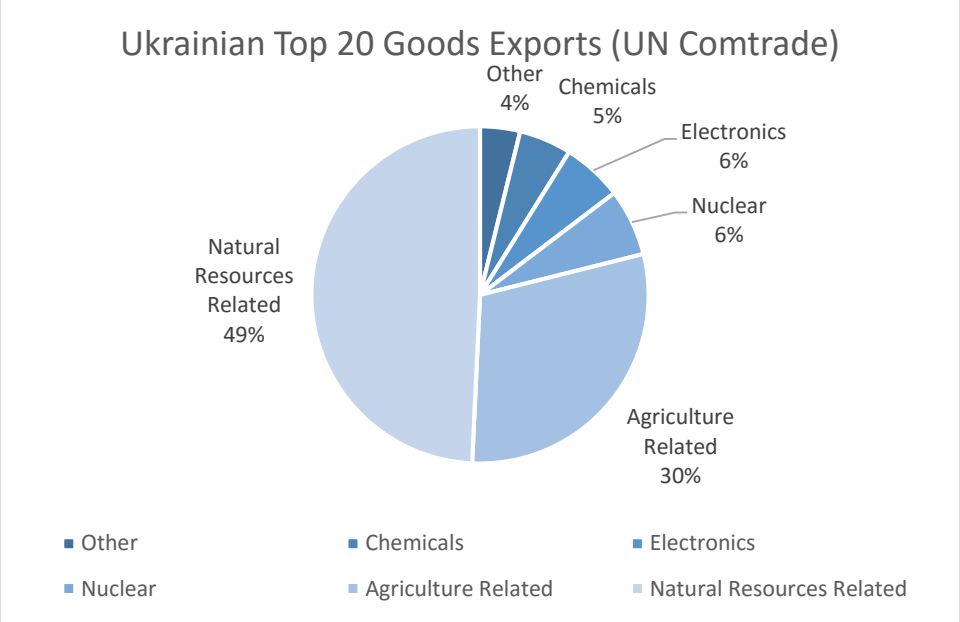
Exports as % GDP



Comparing Ukraine's Exports as a % of GDP against countries by tertiary education quintile, Ukraine has a slightly lower rate than average among the top most educated quintile.

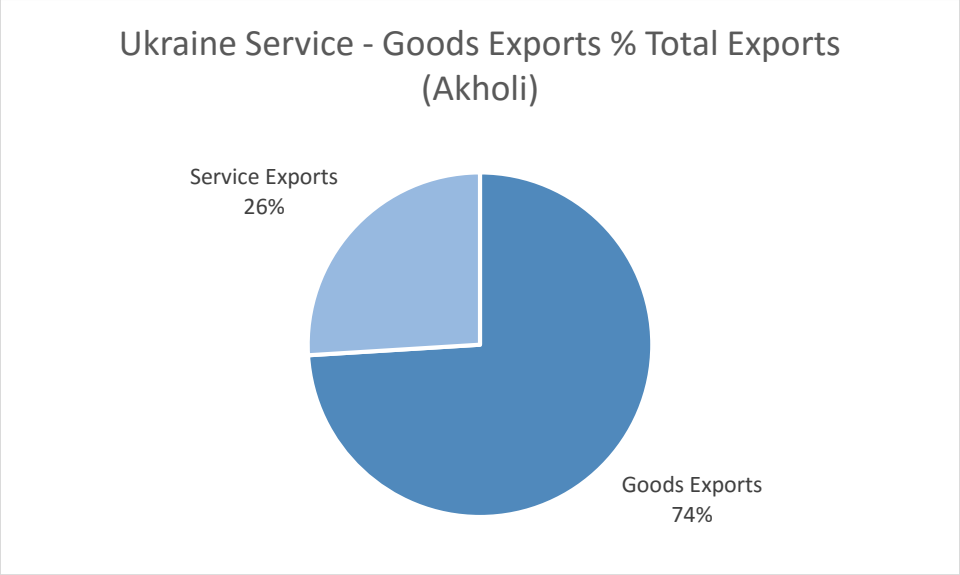
Although near the average for the top tertiary education quintile (51.62% to Ukraine's rate of 45.76%), this represents a theoretical underperformance of $10.7 billion per annum.

Ukrainian Exports by Type (UN Comtrade Database)

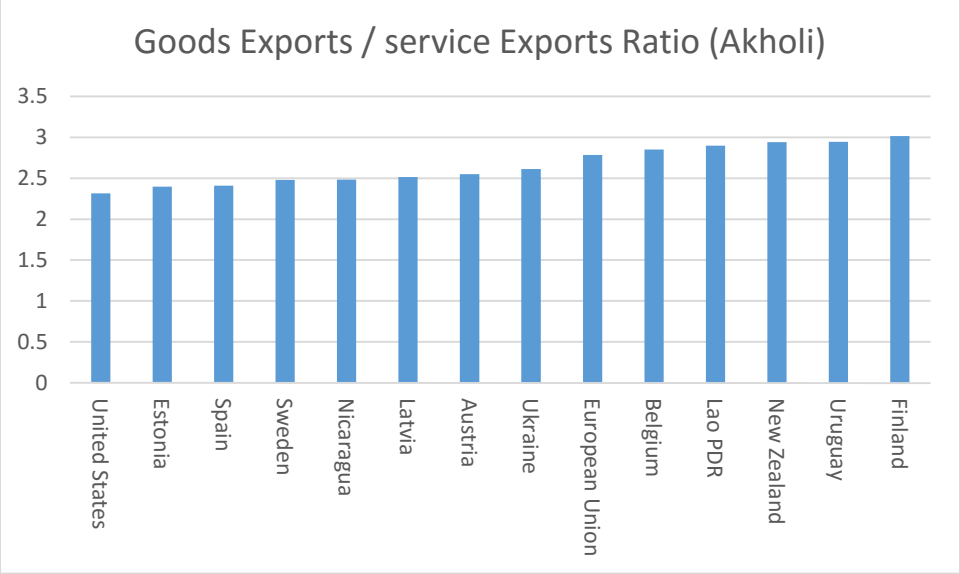


Analysis of Ukraine's top exports from the UN Comtrade database indicates a significant trend with exports related to agriculture and natural resources. Ukrainian goods exports related to agriculture and natural resources account for 79% of all Ukrainian goods exports.

Ukrainian Goods and Service Exports Ratio



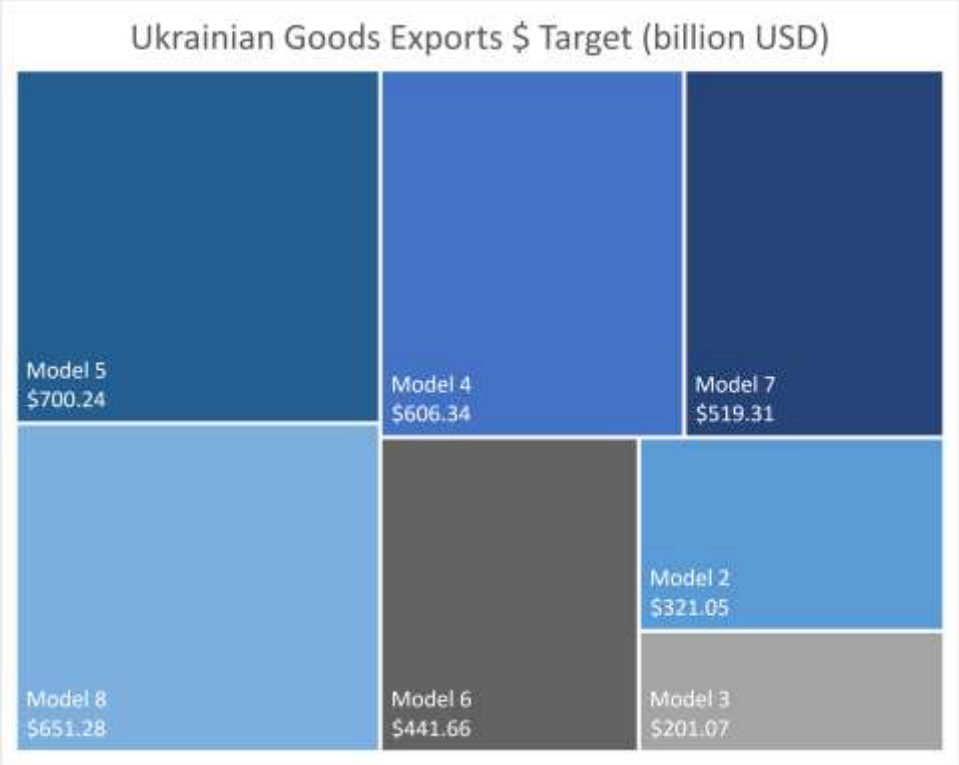
In terms of percentage of total exports for both goods and service exports, Ukrainian goods exports accounts for 74% of all exports with service exports trailing with 26%.



The ratio of goods exports to service exports for Ukraine is within boundaries set by other high performing non-oil economies.

We interpret this as strong evidence Ukraine does not need to address solely goods or service exports. Rather, Ukraine must develop total exports and improving the value of both goods and service exports.

Goods Exports

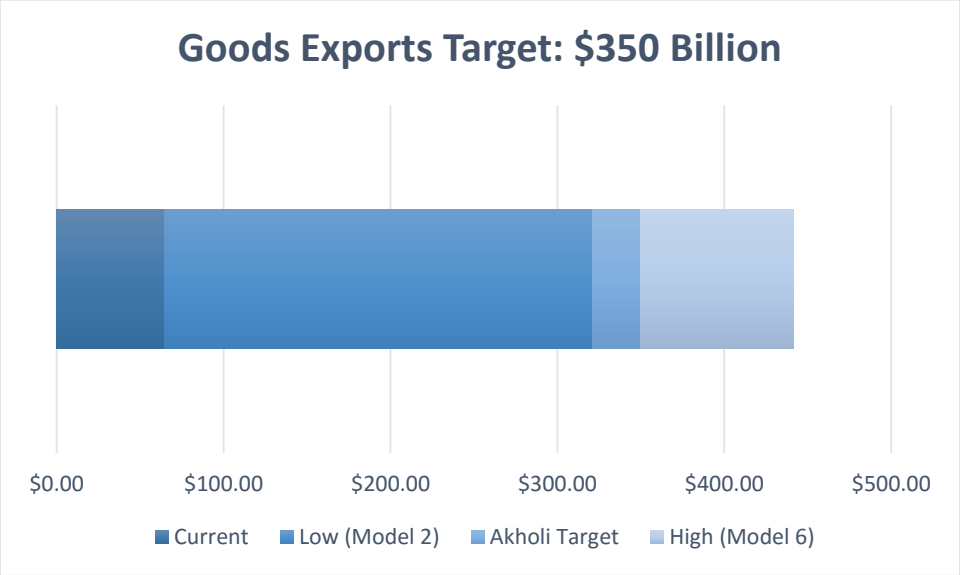


Ukraine's current goods exports per capita rate of $1,413.08 ranks Ukraine #92 globally and significantly behind in every model we developed. While Ukraine has reasonably high agriculture and natural resources related goods exports, Ukraine performs poorly in regards to high-value manufactured goods exports.

Without material high-value natural resources (gold, oil, etc.) Ukraine must find method to develop other high-value exports. Fortunately, Ukraine has one of the highest tertiary education rates globally and (as referenced often in this report) and one of the world's highest engineering graduates per capita rate. Ukraine has the raw ingredients to become a technical goods exports powerhouse.

Unfortunately, Ukraine also suffers from significant corruption and IP protection issues that will continue to prevent Ukraine from being a leading exporter of high-value manufactured goods.

As Ukraine resolves these issues, there is a significant upside for Ukraine. Development of high-value goods exports presents Ukraine with the single greatest opportunity for growing the overall economy. After consideration of all data, we place Ukraine's future goods exports Target as follows:



As with total exports, our goods exports target presents a significant growth over current rates. That said, the target goods exports per capita rate of $7,676.21 is well below the average per capita rate of $13,298.80 for the top 5 Central and Eastern European markets. This is an achievable target if Ukraine can successfully resolve corruption and IP protection concerns.

Goods Exports $ Model Comparisons

	Per Capita	Goods Exports $	Market
Current	$1,413.08	$64.43	
Model 1	$2,568.72	$117.12	
Model 2	$7,041.58	$321.05	
Model 3	$4,409.98	$201.07	
Model 4	$13,298.80	$606.34	
Model 5	$15,358.45	$700.24	Slovak Republic
Model 6	$9,686.97	$441.66	Singapore
Model 7	$11,389.99	$519.31	
Model 8	$14,284.58	$651.28	
Model 9	$22,075.19	$1,006.48	
Model 10	$84,044.22	$3,831.85	Singapore
Akholi Target	$7,676.21	$350.00	
		(Billion USD)	

Model Guide

	Model Name	Description
Current	Current Ukrainian Performance	5-year peak value for Ukraine.
Model 1	World Average	Average per capita rate of all countries globally.
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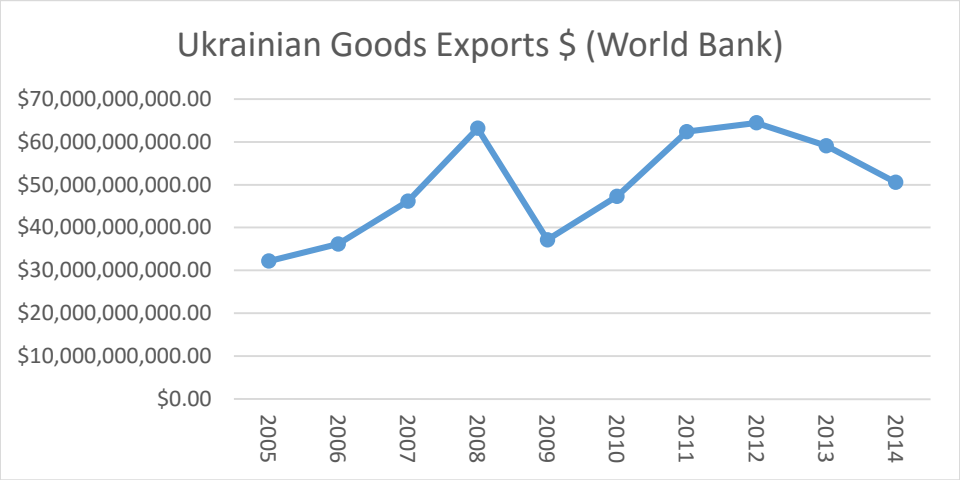
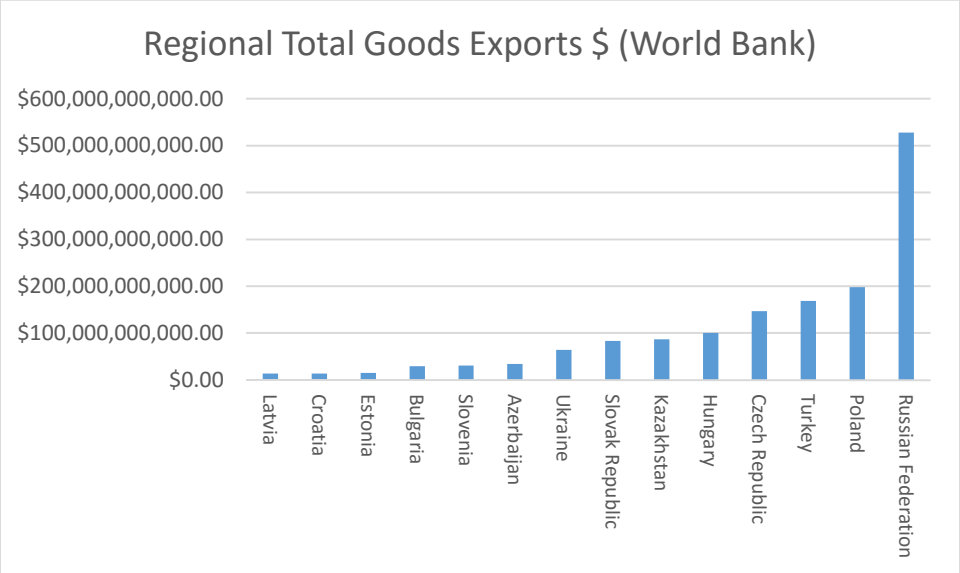
Goods Exports $

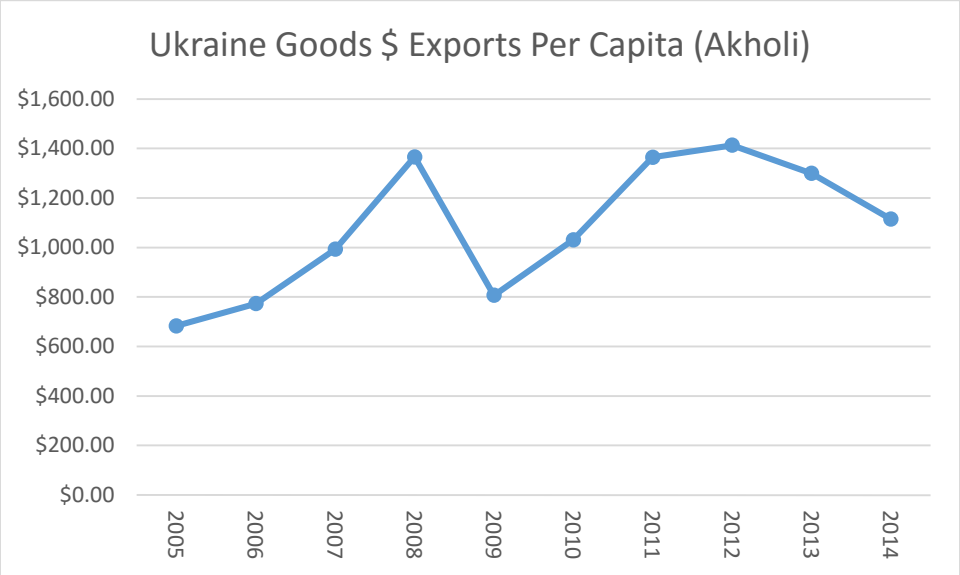


Ukraine's 5-year peak Total goods exports $ was reached in 2012 with a value of $64 billion ranking Ukraine in the second to top Total goods exports quintile globally. From a total value and growth after the global financial crisis in 2008, Ukraine's goods exports have done reasonably well. The 5-year peak in 2012 is the largest total amount ever for Ukraine.

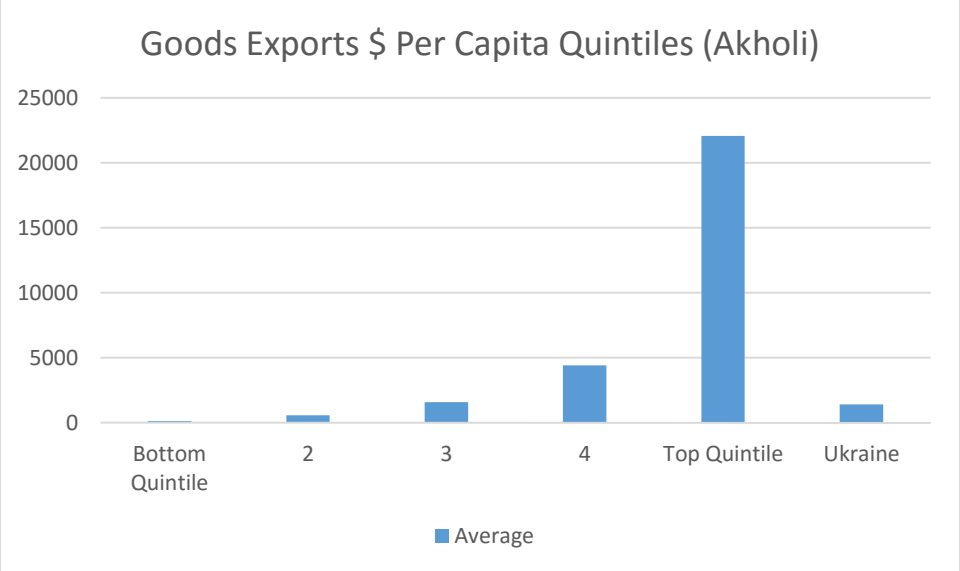


Regionally, Ukraine performs within range in regards to total goods exports $ with Russia skewing the model high. Excluding Russia from the model, Ukraine outperforms the regional average of $48.7 billion.

Goods Exports $ Per Capita

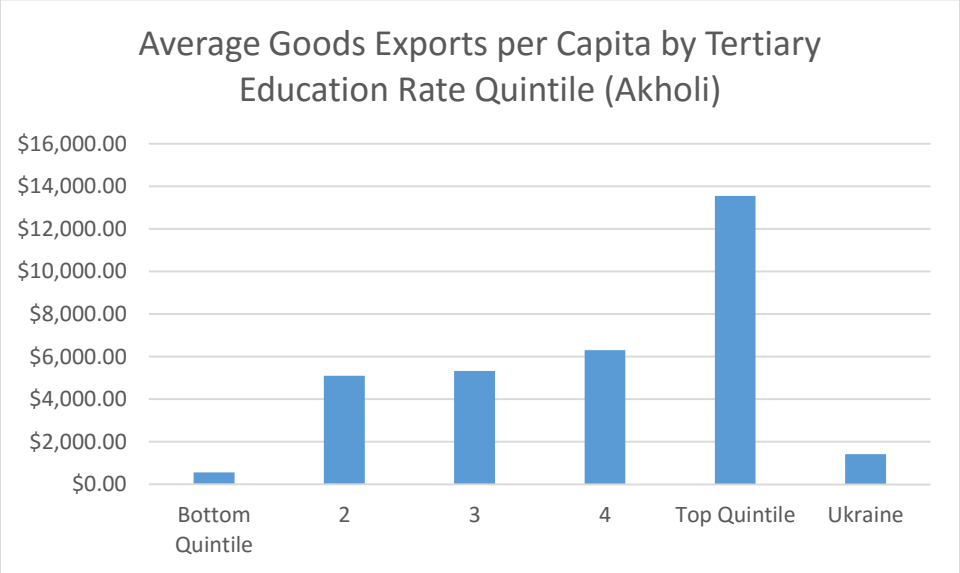


Ukraine reach both a 5-year peak and highest goods $ Exports per capita rate of $1,413.08 in 2012 ranking Ukraine 92nd globally.

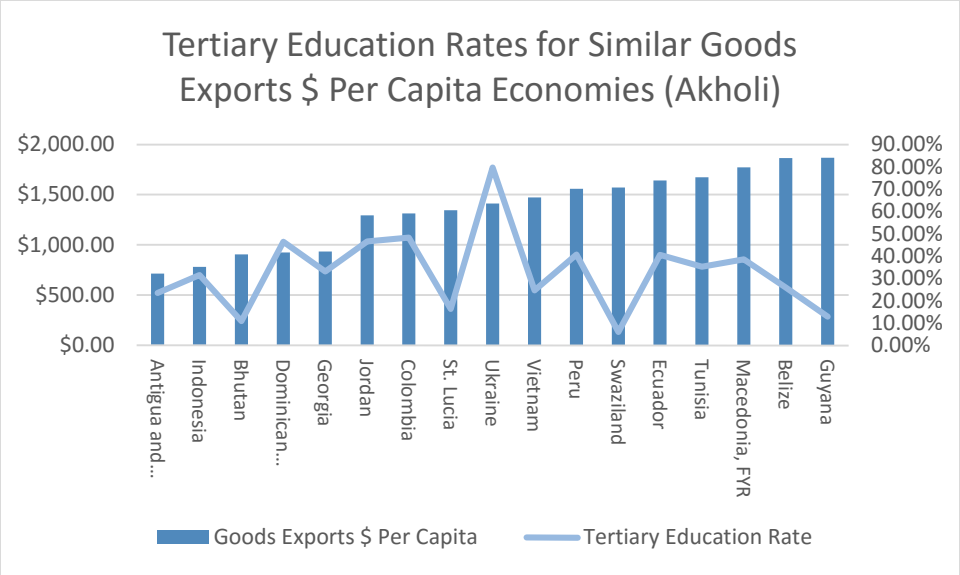


Although significantly off pace from the top economies, Ukraine's 5-year peak ranks within the 3rd quintile globally.

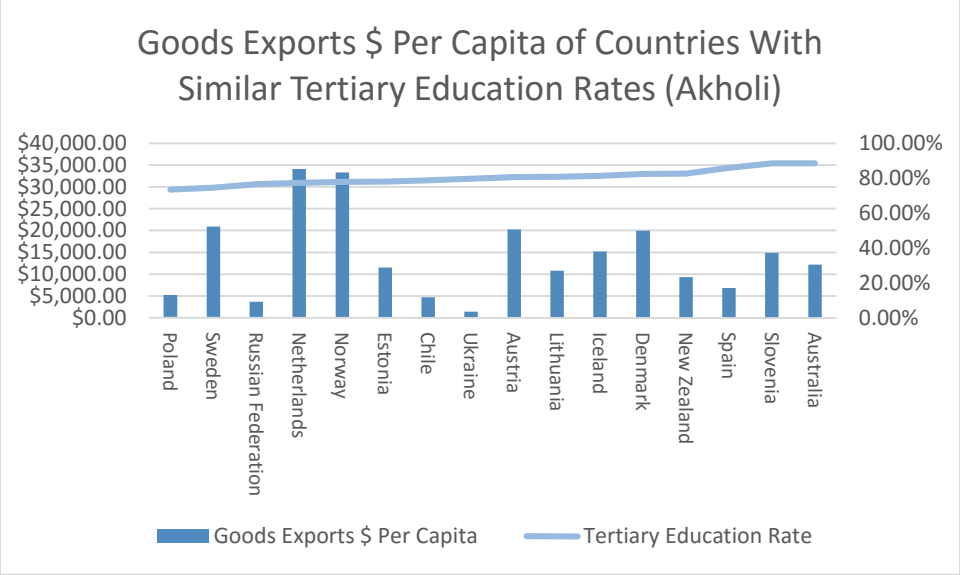
Regionally, Ukraine is underperforming. The regional average goods exports $ per capita score of $7,041.58 is significantly higher than Ukraine's 5-year peak score.



Comparing Ukraine's goods exports $ per capita 5-year peak against countries with a similar tertiary education rate, Ukraine ranks extremely low. The average goods exports $ per capita score of $13,553 is 9.8x Ukraine's score of $1,413.

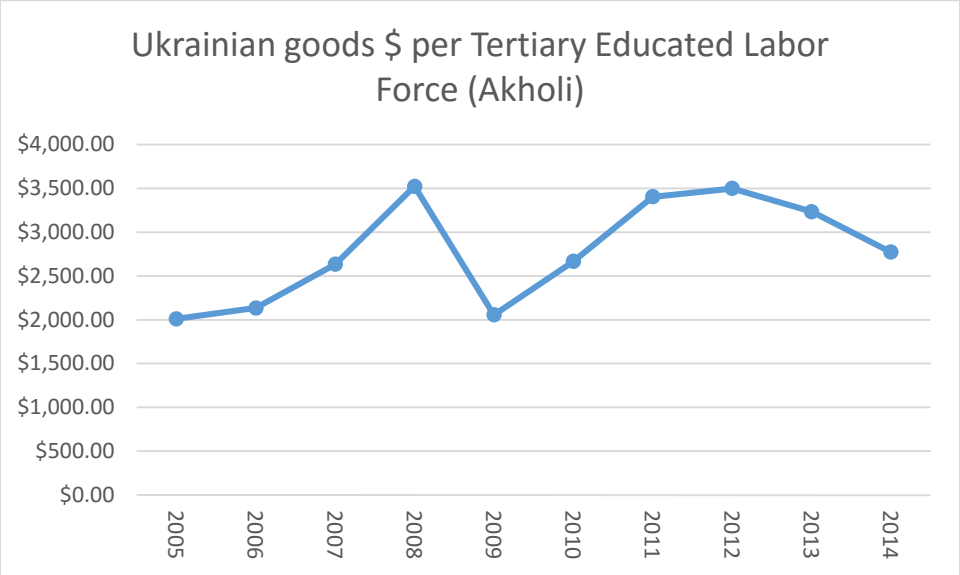


Comparing the tertiary education rate of peer countries with a similar goods exports $ per capita, Ukraine has a significantly higher tertiary education rate.



Comparing the goods exports $ per capita of countries within the top tertiary education rate quintile demonstrates Ukraine's underperformance. Only Russia (with a rate of $3,683) and Ukraine ($1,413) fall below the $5,000 rate.

Goods Exports $ Per Tertiary Educated Labor Force



Ukraine achieved their 5-year peak goods $ per tertiary educated labor force rate of $3,498.79 in 2012 placing Ukraine in the bottom goods $ per tertiary educated labor force quintile globally. (Ranking Ukraine #120 out of 147 markets assessed.)

Comparing Ukraine to the greater Central and Eastern Europe region demonstrates a significant underperformance. The regional average of $22,131 is 6.3x larger than Ukraine's rate of $3,498.79.

Manufactured Goods Exports

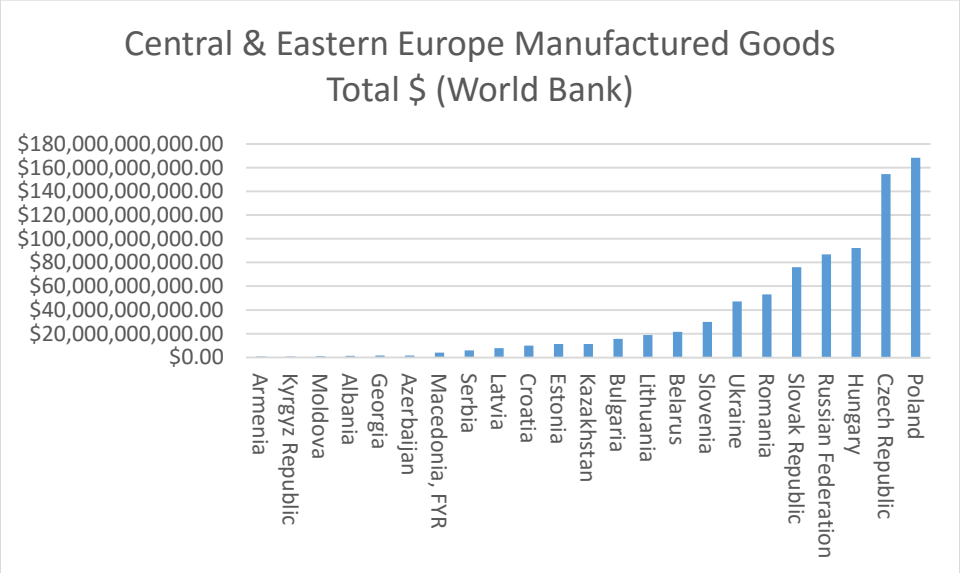
Although Ukraine's economy is very much tied to agriculture and natural resources, Ukraine's manufactured goods exports as a percentage of merchandise exports is relatively high.

In fact, Ukraine's manufactured goods as a percentage of merchandise exports places Ukraine within the same range as most developed countries that do not primarily rely upon natural resource exports or agriculture for their economy.

While Ukraine has a relatively high ratio, the total value of Ukrainian manufactured goods exports is well below peer countries in the same tertiary education rate quintile. Data indicates Ukraine must work on developing higher value manufactured goods for export.

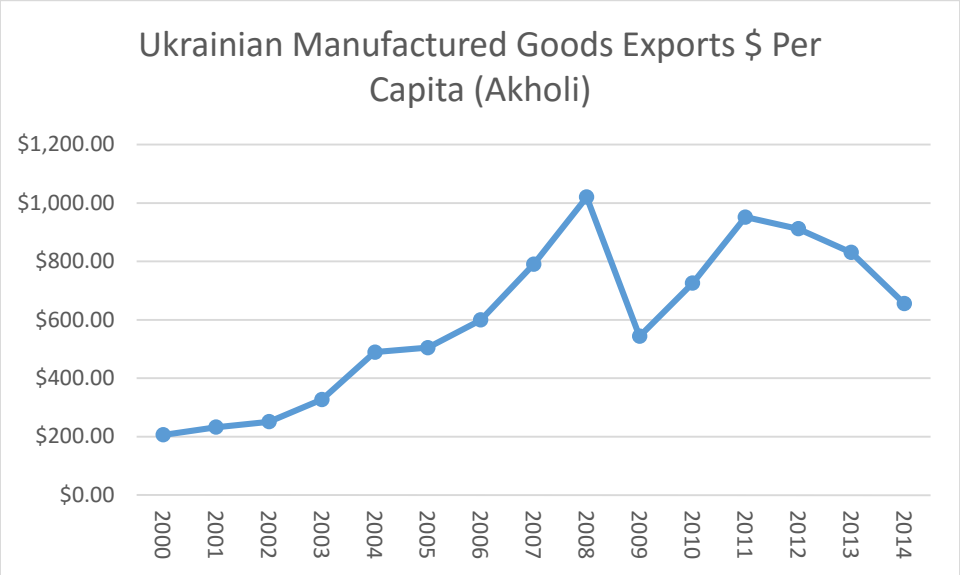
Manufactured Goods Exports $

Ukraine achieved a 5-year peak manufactured goods total $ score of $43.5 billion in 2011. This 5-year peak ranks Ukraine within the 2nd highest Manufactured goods exports $ quintile.

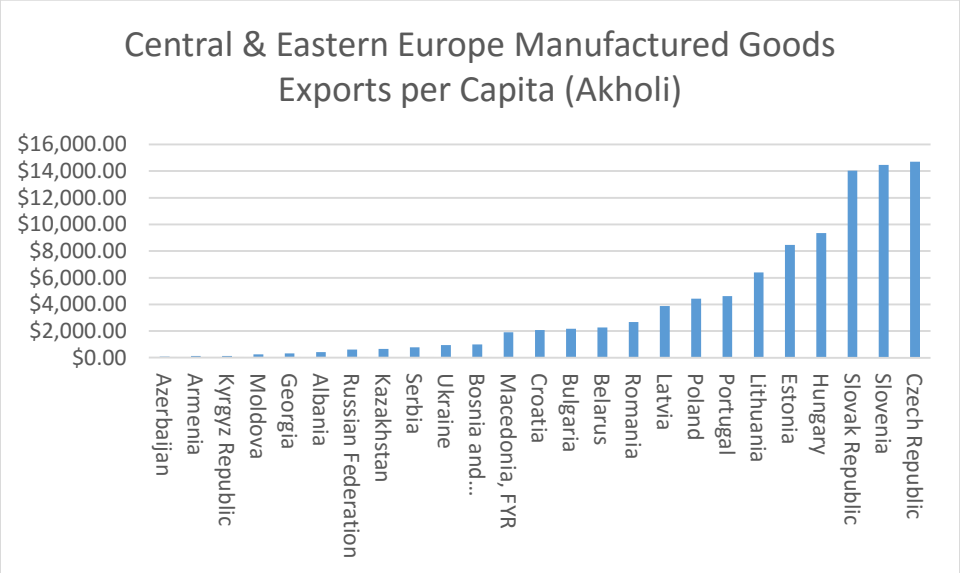


Regionally, Ukraine is within the top half of all economies in regards to manufactured goods exports $ and is well above the regional average of $35.7 billion.

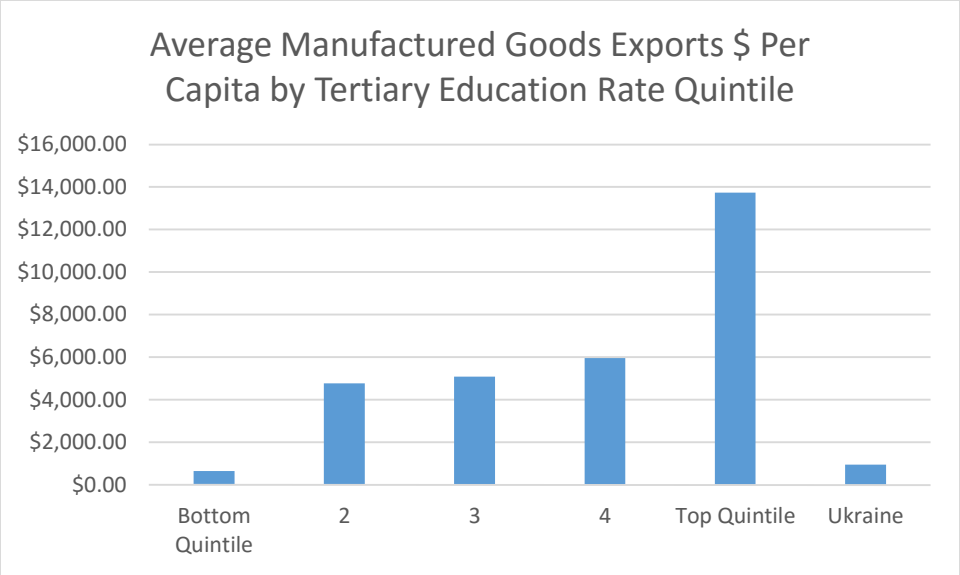
Manufactured Goods Exports $ Per Capita



Ukraine achieved a 5-year peak manufactured goods exports $ per capita value of $954.81 in 2011 dropping Ukraine to the middle quintile.

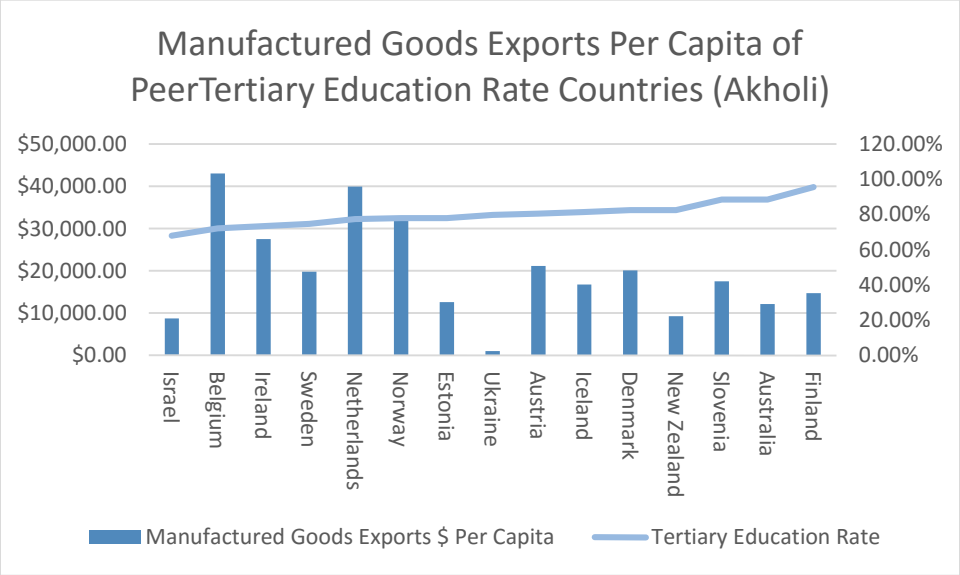


Regionally, Ukraine compares poorly ranking in the bottom half of all countries and well below the regional average of $6,168.

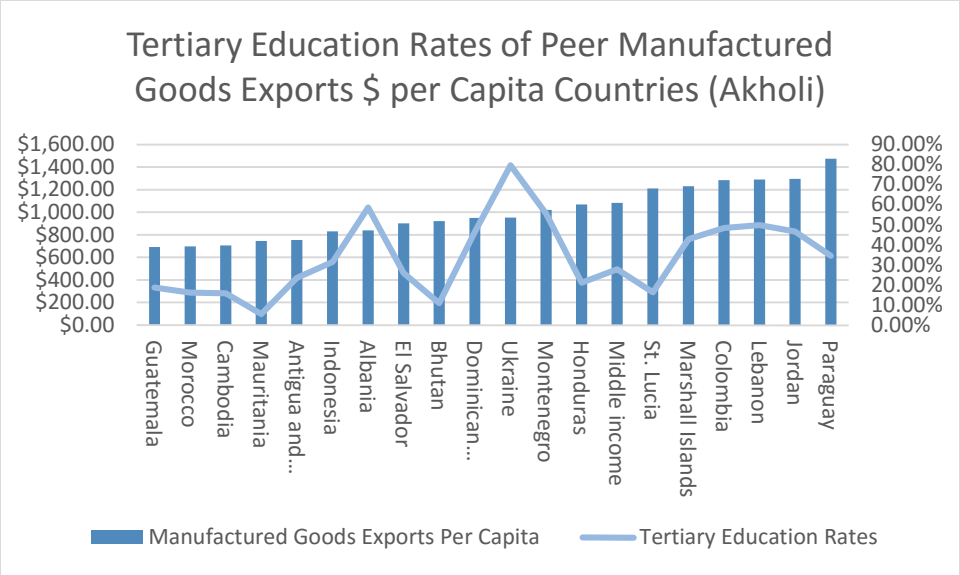


There is also a direct relationship between a country's tertiary education rate and total Manufactured goods exports $. As tertiary education rates climb, the value of their Manufactured goods exports grows.

Ukraine, one of the world's most educated countries, ranks significantly below Ukraine's peers in the top tertiary education rate quintile. The quintile average rate of $13,733 is 14.4x larger than Ukraine's 5-year peak value of $951.84.

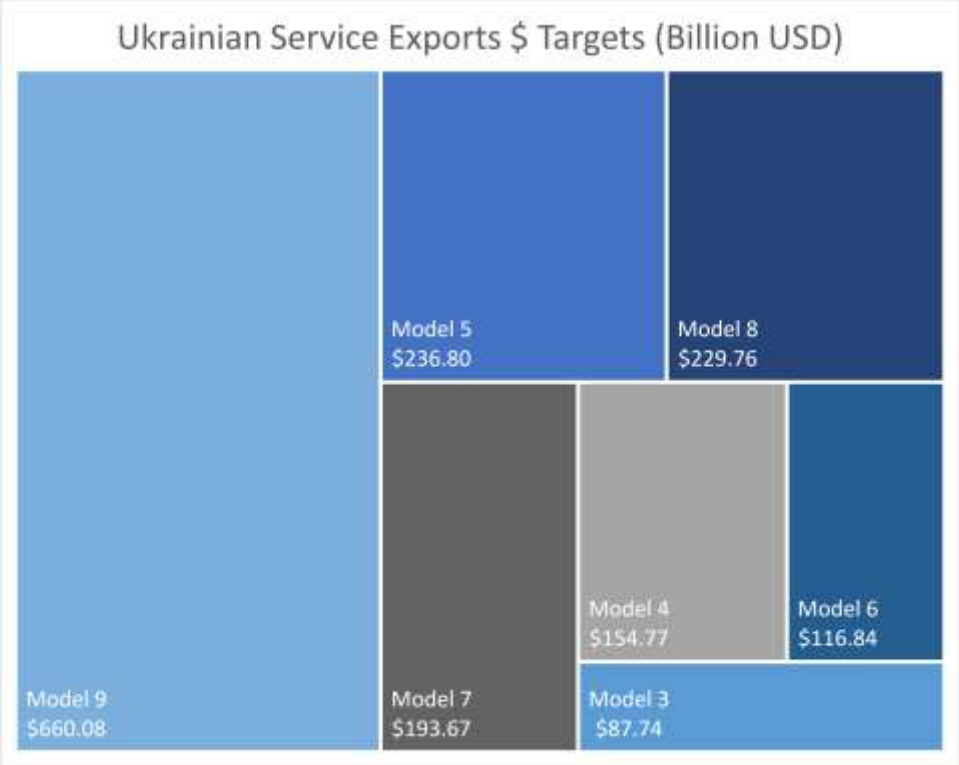


Further analysis of Ukraine's manufactured goods exports $ per capita against peer tertiary education rate quintile countries demonstrates Ukraine's general lack of performance in regards to generating economic value from manufacturing exports.



Comparing Ukraine's tertiary education rate to peer manufactured goods exports $ per capita countries also demonstrates Ukraine's underperformance.

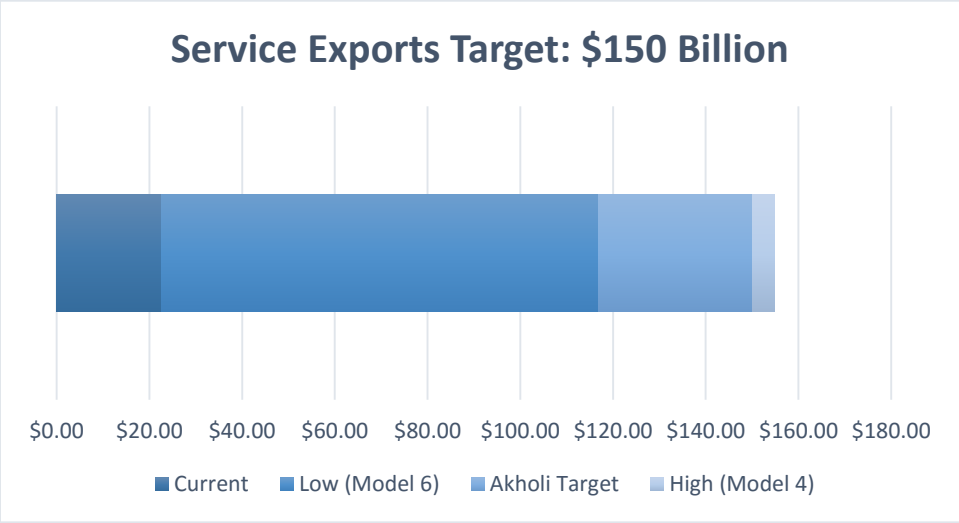
Service Exports



Unlike high-value goods exports, Ukraine can grow high-value service exports now. Our data clearly demonstrates the global marketplace will consume services from countries suffering from similar military conflict, corruption issues and fears over IP protection.

As previously outlined, countries with similar risk issues are able to achieve top quintile service exports on a per capita basis.

We set Ukraine's service exports target as follows:



While our target of $150 Billion is less than our growth target for goods exports, achieving this target can completely change the Ukrainian economy.

Without changing other exports than service exports, Ukraine would likely achieve the following:

	Current	Theoretical
GDP	$183.10	$468.08
Total Exports	$83.88	$214.43
Goods Exports	$64.43	$64.43
Service Exports	$22.61	$150.00

If Ukraine were to meet our target for service exports, Ukraine would likely grow their GDP to $468.08 Billion.

Ukraine can take steps to make this happen now. Ukraine can use tax revenues from this increase in service exports to fund resolution to ongoing corruption and IP protection issues as well as seed development of high-value goods exports in the future. There is little reason for Ukraine to delay growth in service exports.

Ukrainian Service Export Company Value Proposition

While we lack broad-base data, we have anecdotal evidence to suggest Ukrainian service export (outsourcing) firms may need additional development and maturity.

Ukraine is a highly educated, highly technical and mid-cost labor force. Our experience with outsourcing firms in Ukraine indicates Ukrainian vendors often attempt to sell a highly commoditized service offering against true low cost markets (such as India).

	Software Engineer USD	**Senior Software Engineer USD**	**IT Project Manager USD**
Ukraine	$22,200.00	$37,348.00	$42,000.00
India	$6,596.18	$10,957.06	$19,887.84

In the chart above, we compare Ukrainian and Indian salaries for common skills offered by outsourcing firms. Ukrainian salaries are substantially higher than Indian salaries.

If a Ukrainian vendor is selling a highly commoditized service offering, they do not have the ability to materially adjust bill rates up compared to other markets. These services are fairly cost sensitive.

The result is that Ukrainian outsourcing vendors often suffer from substantially lower margins than peer firms from low cost markets. Ukrainian vendors lack capital to further develop offerings, develop a more robust sales and marketing team and lack the capital to weather downturns in the economy.

If Ukraine is to achieve full service export targets, Ukraine will need to build a mechanism to help Ukrainian vendors develop and mature. Ukrainian outsourcing firms need to establish a compelling value proposition that will allow them to command a higher price for services offered.

Ukraine is a high-end talent market. Ukrainian vendors need to stop playing in the low-cost commoditized service exports game. They cannot win.

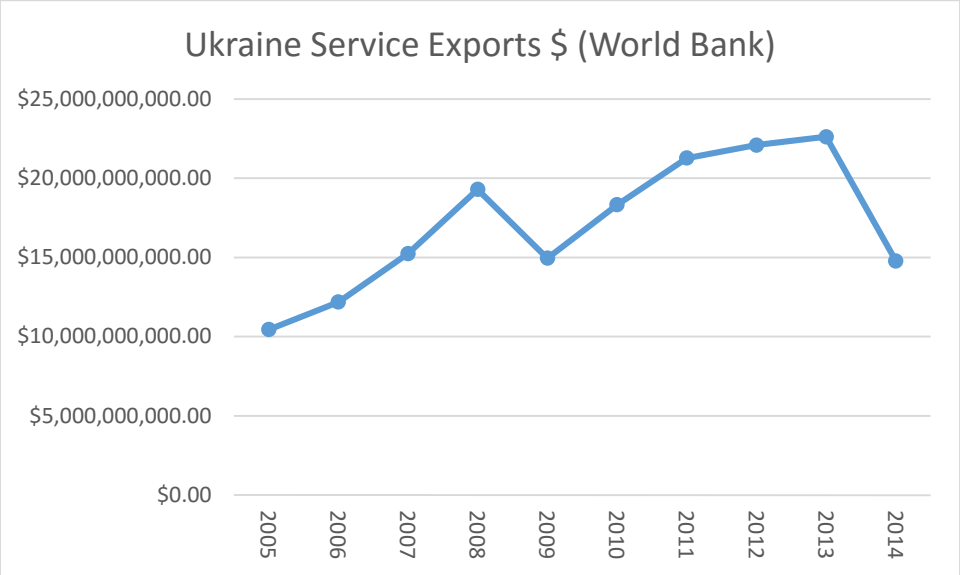
Service Exports Models

	Per Capita	Value	Market
Current	$497.10	$22.61	
Model 1	$699.23	$31.81	
Model 2	$1,719.41	$78.22	
Model 3	$1,928.87	$87.74	
Model 4	$3,402.27	$154.77	
Model 5	$5,205.66	$236.80	Estonia
Model 6	$2,568.57	$116.84	Italy
Model 7	$4,257.54	$193.67	
Model 8	$5,050.75	$229.76	
Model 9	$14,510.57	$660.08	
Model 10	$177,022.22	$8,052.67	Luxembourg
Akholi Target	$3,297.88	$150.00	
		(Billion USD)	

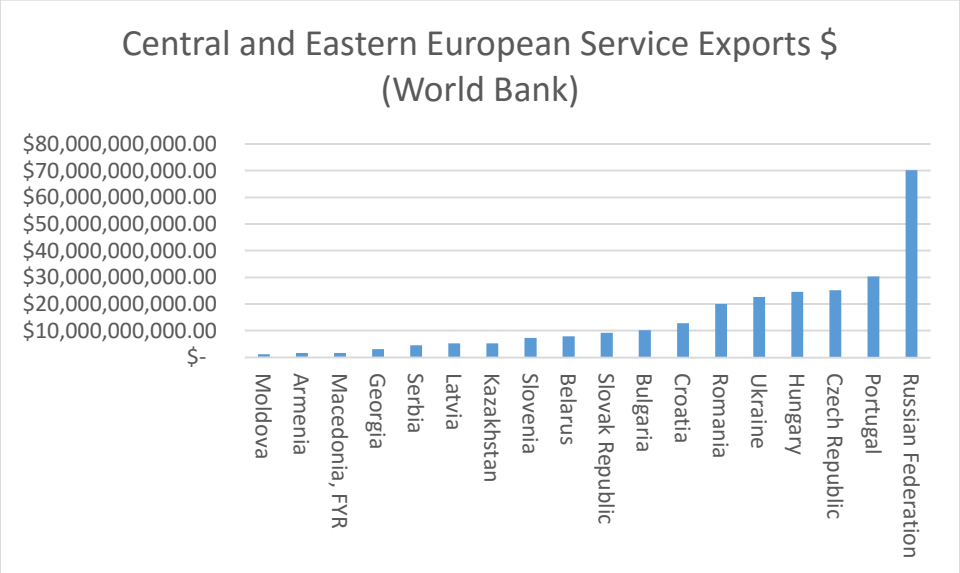
Model Guide

	Model Name	Description
Current	Current Ukrainian Performance	5-year peak value for Ukraine.
Model 1	World Average	Average per capita rate of all countries globally.
Model 2	CE Regional Average (All Countries)	Average per capita rate of all countries within the greater Central and Eastern European region.
Model 3	Metric 2nd Quintile Average	Average per capita rate of countries ranking within the metric's 2nd top quintile.
Model 4	CE Region Top 5 Country Average	Average per capita rate of the top five metric performing countries within the Central and Eastern European region.
Model 5	CE Region Top Country Rate	Average per capita rate of the single top metric performing country within the Central and Eastern European region.
Model 6	13th Ranked Country Equiv. Rate	Average per capita rate needed to achieve the 13th largest value globally representing Ukraine's rank as the 13th largest tertiary educated labor force.
Model 7	European Union Average	Average per capita rate of all countries within the European Union.
Model 8	Top tertiary Education Rate Quintile Av.	Average per capita rate for the metric by all countries ranked in the top tertiary education rate quintile.
Model 9	Top Metric Quintile Average	Average per capita rate of all countries ranked within the metric's top quintile.
Model 10	Top Metric Performer Rate	per capita rate of the country performing the best on a per capita basis to establish a theoretical metric cap.

Service Exports $

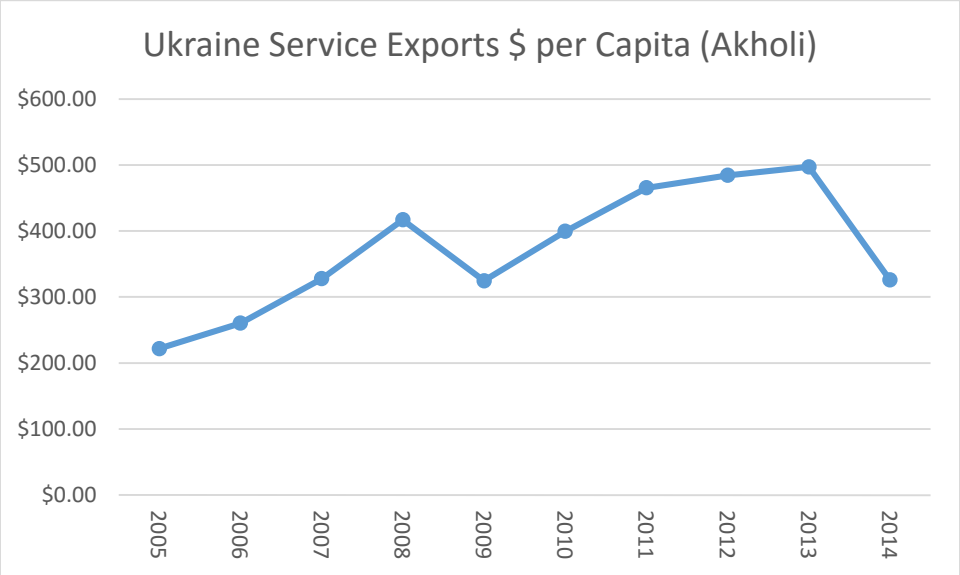


Ukraine's 5-year peak and all time higher service exports $ occurred in 2013 with $22.6 billion in total exports ranking Ukraine in the second highest service exports $ quintile globally.

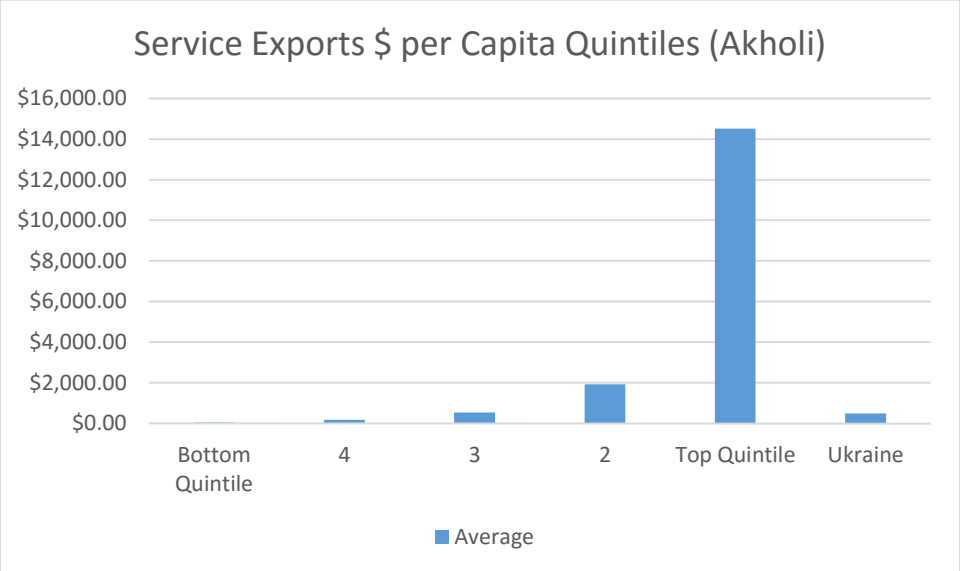


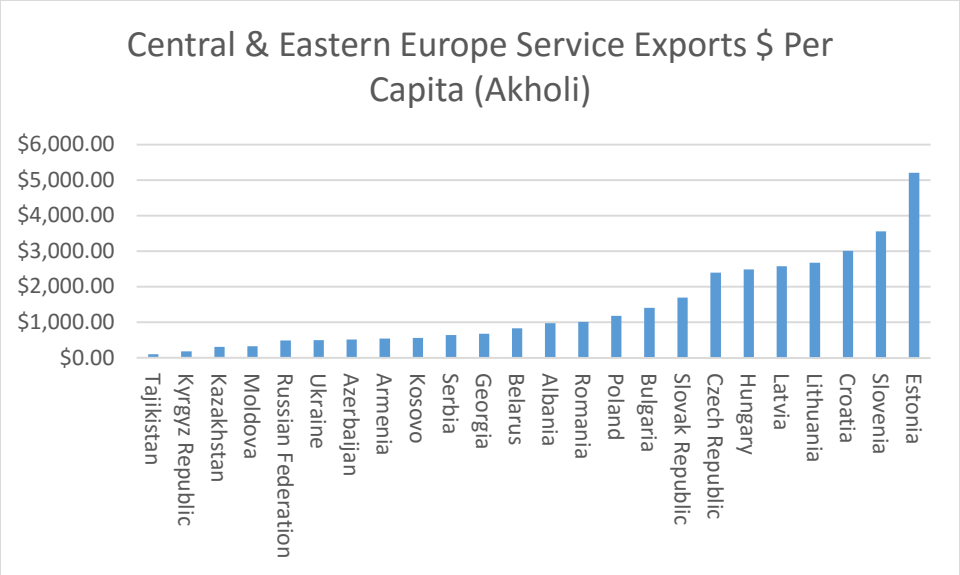
Regionally, Ukraine performs well with over $9.8 billion total service exports $ above the regional average of $12.8 billion.

Service Exports $ Per Capita

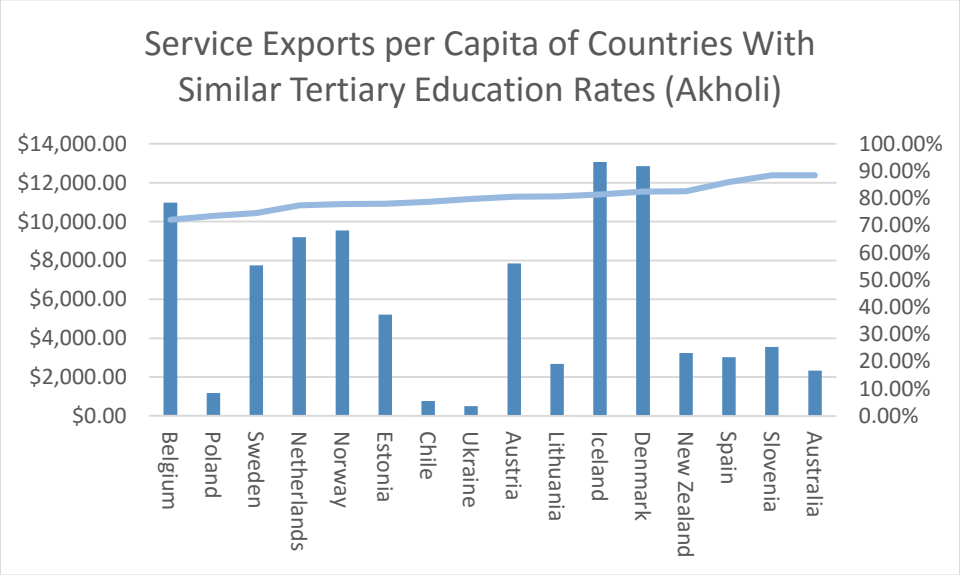


Ukraine achieved both a 5-year peak and top all time service exports $ per capita rate in 2013 of $497.10 dropping Ukraine ranking Ukraine within the 3rd service exports $ per capita quintile globally.

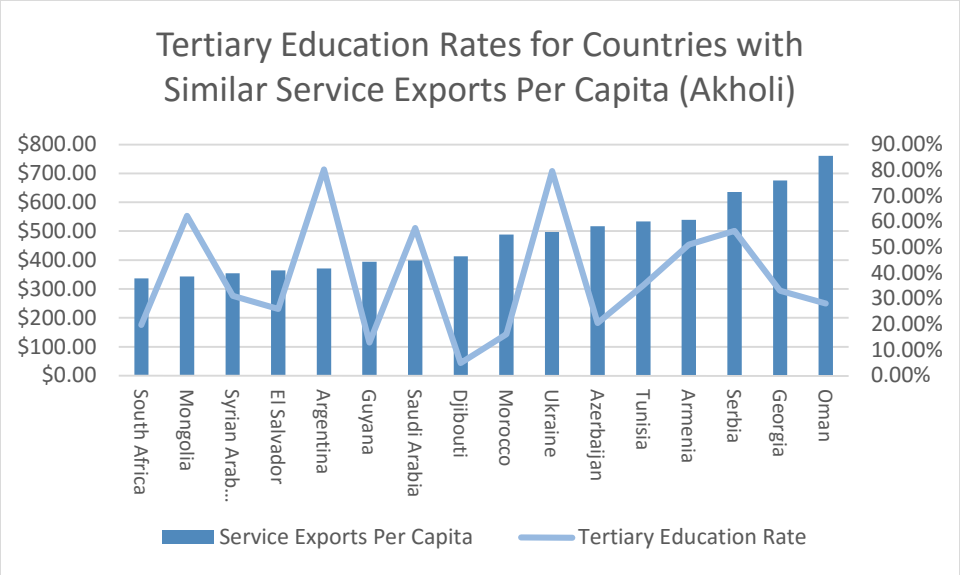




Comparing Ukraine's service exports $ per capita demonstrates that Ukraine is underperforming regionally. The regional average of $1,719 is more than 3x larger than Ukraine's $487.10.



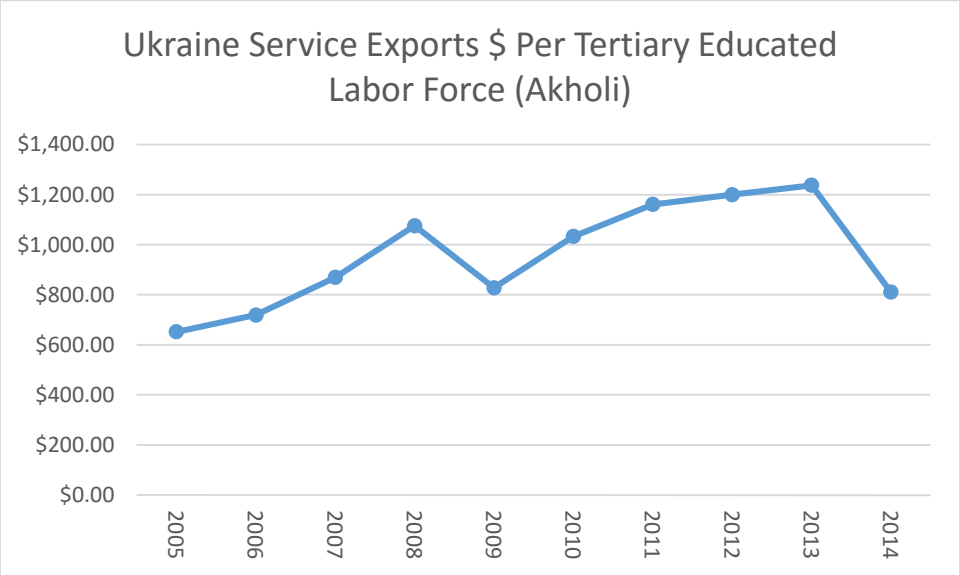
Comparison of Ukraine's service exports per capita against other countries with a similar tertiary education rate does demonstrate Ukraine's overall underperformance. While service exports per capita within the top tertiary education rate quintile are highly varied, Ukraine ranks at the bottom.



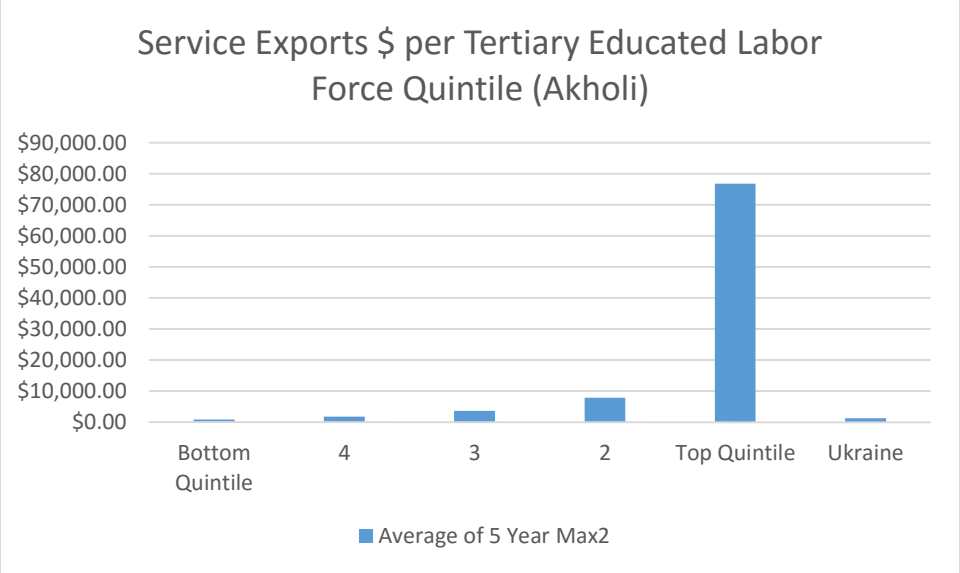
Comparing Ukraine's tertiary education rate against countries with similar service exports per capita also demonstrates Ukraine to be an anomaly. While Ukraine doesn't stand out as much as previous models, Ukraine has a significantly higher tertiary education rate than the average across peer countries with a similar service exports per capita rate.

Our modeling also demonstrates a significant underperformance by Argentina as well.

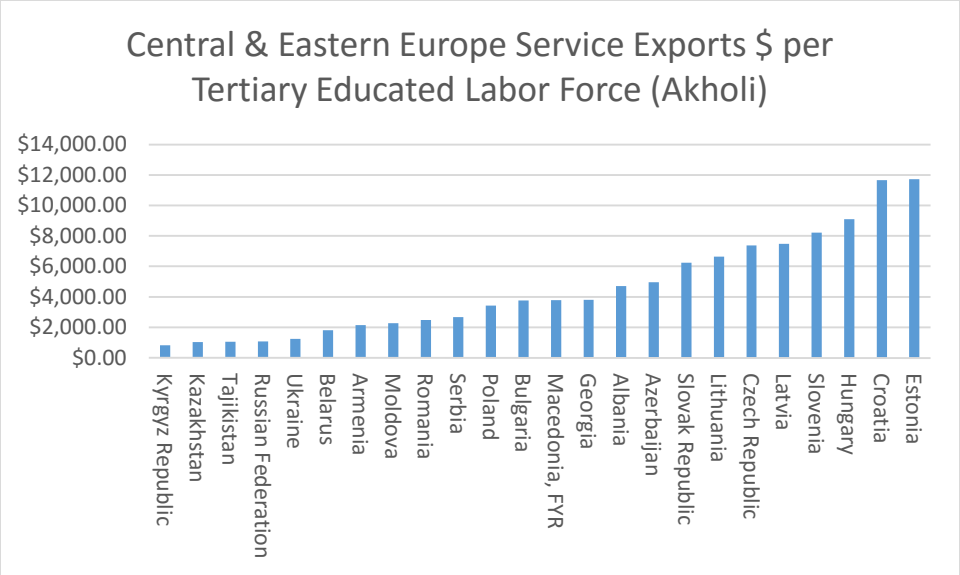
Service Exports $ Per Tertiary Educated Labor Force



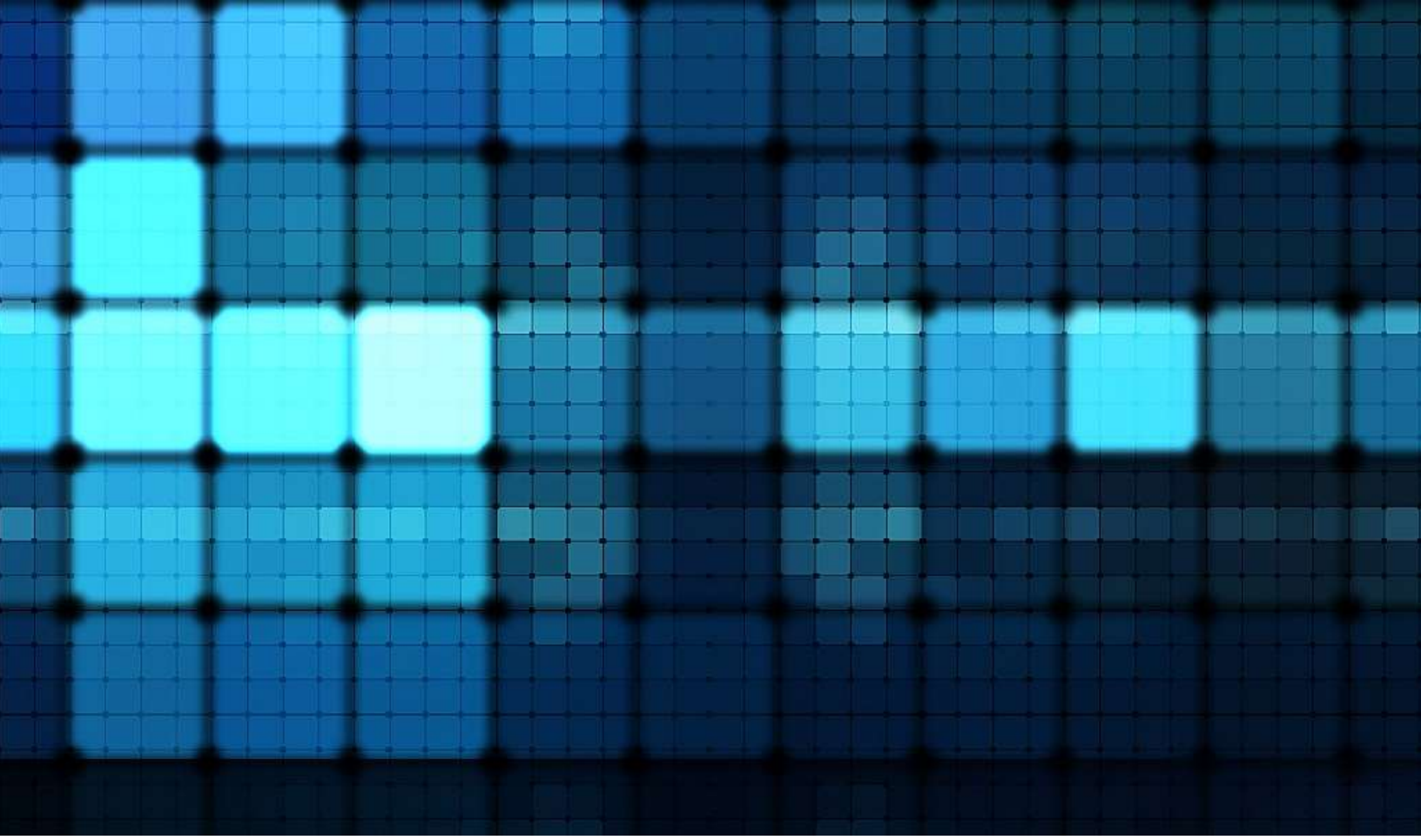
Ukraine's 5-year peak of $1,237.34 was achieved in 2013 followed by a precipitous drop in 2014 to $810.24- a value lower than Ukraine's score in 2009 at the height of the global financial crisis. Ukraine's 5-year peak score drops Ukraine to 109th globally.



Ukraine's 5-year peak rankings Ukraine within the 2nd lowest quintile.



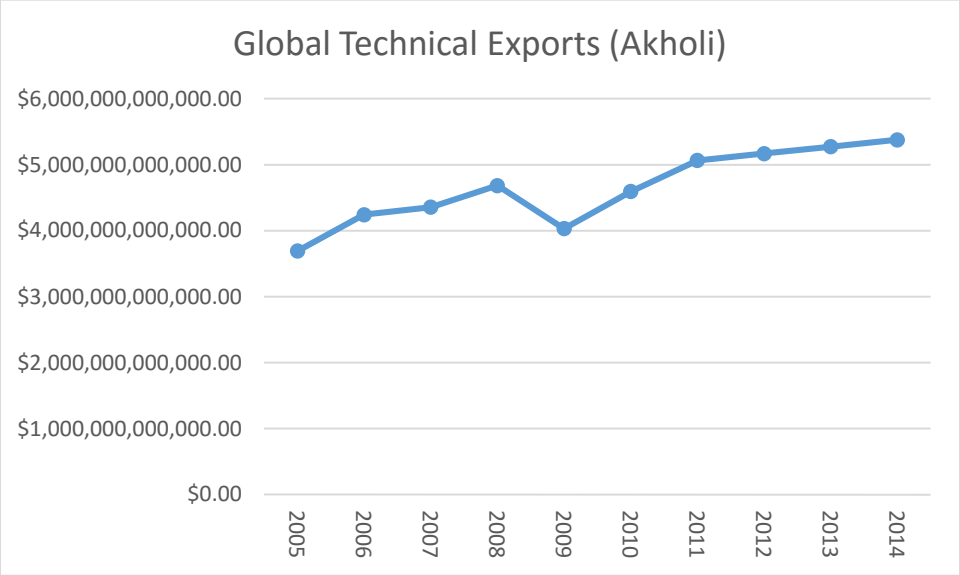
Regionally, Ukraine under performs. The regional average of $5,188.00 is more than 4x Ukraine's 5-year peak rate of $1,237.34.



Technology Exports

Global Technical Exports Leader Challenge

Ukraine's most valuable and underleveraged asset is its highly educated and extremely technical workforce.



Over the past 10 years, global technical exports have grown by $1.7 trillion to an estimated value of $5.4 trillion in 2014. Although there have been occasional downturns in the overall market, this growth will continue well into the future as the we transition into an even more technical and automated world.

Success in technical exports on a per country basis is difficult to model but there are direct relationships between the total value of a country's technical exports with a combination of total tertiary educated labor force size, technical graduates (STEM) density and CPI scores.

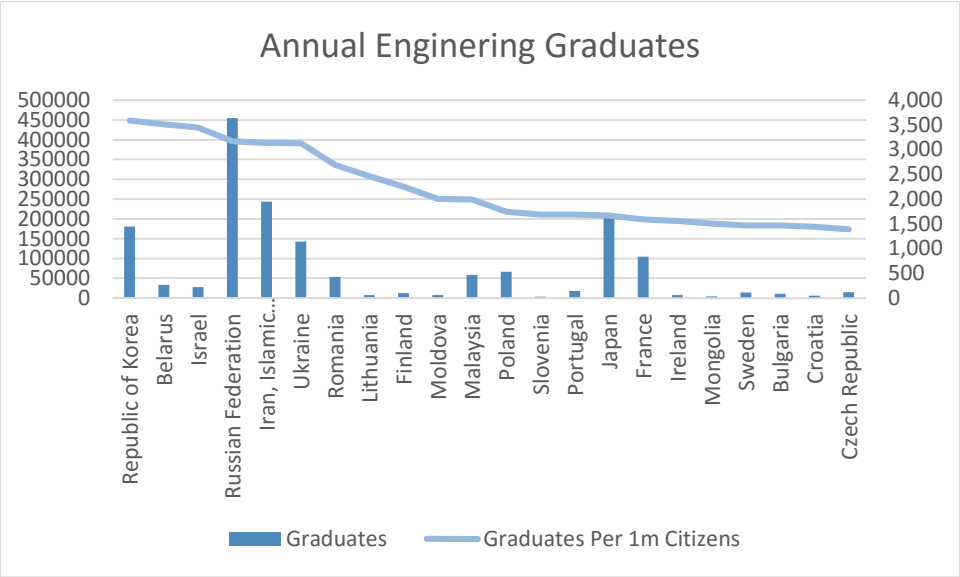
Out of the three primary indicators for technical exports success:

1. Ukraine consistently ranks in the top of all countries on an engineering graduate per capita basis.
2. Ukraine has the 13th largest tertiary educated labor force
3. But, Ukraine ranks poorly in regards to corruption and IP protection concerns.

We reiterate our challenge to Ukraine: Become a global technical exports leader.

Challenge Substantiation

Argument 1: STEM education Rates



In the graph above, we chart out both total engineering graduates per year (columns) and the total number of annual engineering graduates per 1m citizens.

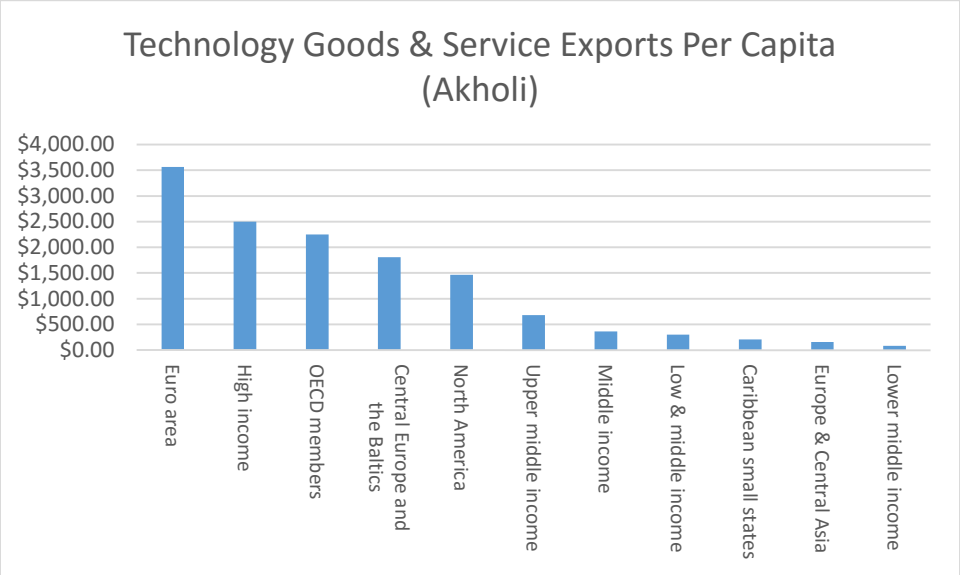
Ukraine ranks 8th in regards to the total number of engineering graduates each year (in addition those in the chart above, the United States, China and India produce more annual graduates) and ranks 6th in regards to engineering graduate density.

The data above was largely pulled from UNESCO. Some datasets place Ukraine at the top globally in regards to annual engineering graduates per population.

For our models, the engineering graduate density and total number of engineering graduates are both positive indicators that boost Ukraine's technology related export targets.

Of special note: Ukraine has both higher STEM total graduate rates and a higher STEM graduate per capita rate than Czech Republic, Estonia, Latvia, Lithuania, Slovakia and Slovenia. All of which are used as either a member of a regional top 5 model or set the high standard within the Central and Eastern European region in regards to technology goods and service exports.

Argument 2: Global Demand for Regional Technology Goods and Services



Central and Eastern Europe ranks only behind the EU in regards to geographic Total Technology Exports per capita. Central and Eastern Europe exports more technology on a per capita basis than North America, Asia and Latin America. If we exclude those countries in Central and Eastern Europe that significantly trail the regional average (Ukraine being one of them), the region moves into the top spot. There is clearly both global demand for and capability to produce technology within region.

Ukrainian Opportunity

After consideration of both arguments above, there is little reason why Ukraine should not be a global technology leader.

	Current ($ billion)	Future ($ billion)
GDP Market Price $	$183	$850
Total Exports	$84	$400
Goods Exports	$64	$310
Service Exports	$23	$90
Technology Goods Export	$3	$200
Technology Service Exports	$5	$75

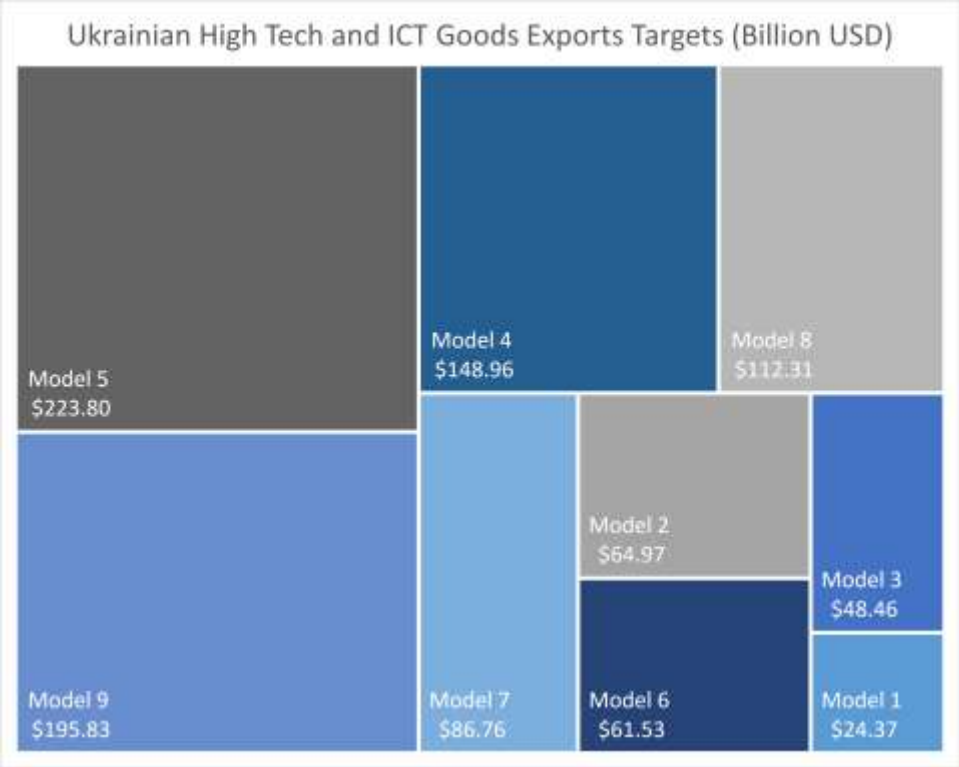
As outlined earlier in this report, converting Ukraine into a true global technology leader will have a profound impact on the overall economy. The above chart illustrates a likely future state if Ukraine achieves technical export targets while keeping all other exports flat.

Doing so will not be easy, but, it is possible. In order for Ukraine to achieve this, Ukraine will need to do the following:

1. Immediate
    a. Grow technology related service exports now. Use tax revenues from these exports to fund further reform and development.
    b. Resolve corruption and IP protection issues.
    c. Potentially implement some form of a state backed funding method to help capitalize new Ukrainian vendors.
    d. Implement a method to help mature Ukrainian vendors in order for them to become globally competitive.
2. Future
    a. As corruption and IP protection issues subside, aggressively push technology goods exports.

This challenge is ambitious. That said, it is possible if Ukraine aggressively moves to both resolve risk issues and develop overall technical exports. No other area of the Ukrainian economy has the same potential for growth or ability to transform the overall economy.

High-Tech and ICT Goods Exports



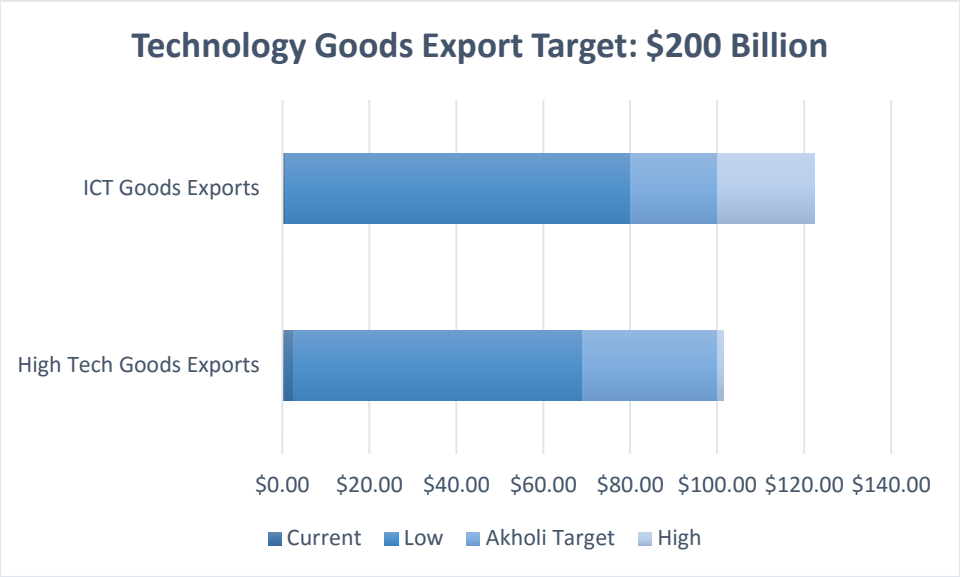
Both Ukrainian ICT goods exports and high-tech goods exports are greatly underperforming when comparing per capita rates against every model we use.

No other area has as significant of an opportunity for Ukraine. At the same time (and continuing a theme throughout this report), no other area will be as difficult as technology goods exports until Ukraine resolves corruption and IP protection concerns.

When Ukraine resolves these risks, Ukraine is uniquely poised to aggressively grow. In addition to Ukraine's large and highly technical tertiary educated labor force, Ukraine has sizable State assets to leverage in regards to growth of technical goods exports.

Ukraine should begin to seed partnerships with top higher education Institutions that have compelling stories within the technical goods exports space and leading global private sector firms. While Ukraine will likely not be able to gain material investment from these global firms, Ukraine can leverage their insight into aligning these institutions and facilities with the needs of top global employers. In addition to seeding a future state workforce, Ukraine can find future opportunities to leverage facilities inside these institutions to grow technical goods exports.

Based on data, we set Ukraine's targets for technical goods exports as follows:



Both ICT goods and high-tech goods exports targets of $100 Billion (for a combined $200 Billion) are aggressive. That said, the resulting per capita rate for both will place Ukraine below the top performer in the greater Central and Eastern European region.

High-tech Goods Exports Per Capita		***ICT Goods Exports Per Capita***	
Czech Republic	$2,226.15	Slovak Republic	$2,682.50
Akholi Target	$2,195.42	Akholi Target	$2,195.42

Again, this is an aggressive target. If Ukraine resolves corruption and IP protection concerns- and makes a concerted effort to become a global technical exports leader, Ukraine can achieve these targets. Ukraine has the labor force size, tertiary education rates, STEM skill densities and compelling State assets necessary to achieve them.

High-Tech Goods Exports Models

	Per Capita	Value	Market
Current	$57.52	$2.62	
Model 1	$281.01	$12.80	
Model 2	$663.24	$30.21	
Model 3	$338.31	$15.41	
Model 4	$1,515.06	$69.01	
Model 5	$2,226.15	$101.50	Czech Republic
Model 6	$801.33	$36.50	Belgium
Model 7	$1,289.59	$58.74	
Model 8	$1,000.45	$45.57	
Model 9	$1,889.82	$86.08	
Model 10	$25,115.12	$1,145.08	Singapore
Akholi Target	$2,195.42	$100.00	
		($ Billion)	

Model Guide

	Model Name	Description
Current	Current Ukrainian Performance	5-year peak value for Ukraine.
Model 1	World Average	Average per capita rate of all countries globally.
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Model 5	CE Region Top Country Rate	Average per capita rate of the single top metric performing country within the Central and Eastern European region.
Model 6	13th Ranked Country Equiv. Rate	Average per capita rate needed to achieve the 13th largest value globally representing Ukraine's rank as the 13th largest tertiary educated labor force.
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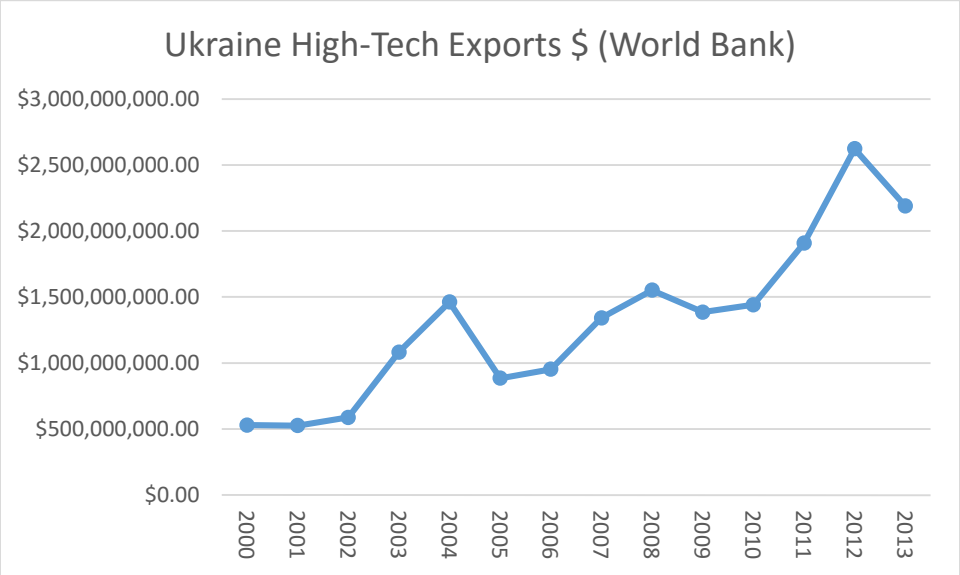
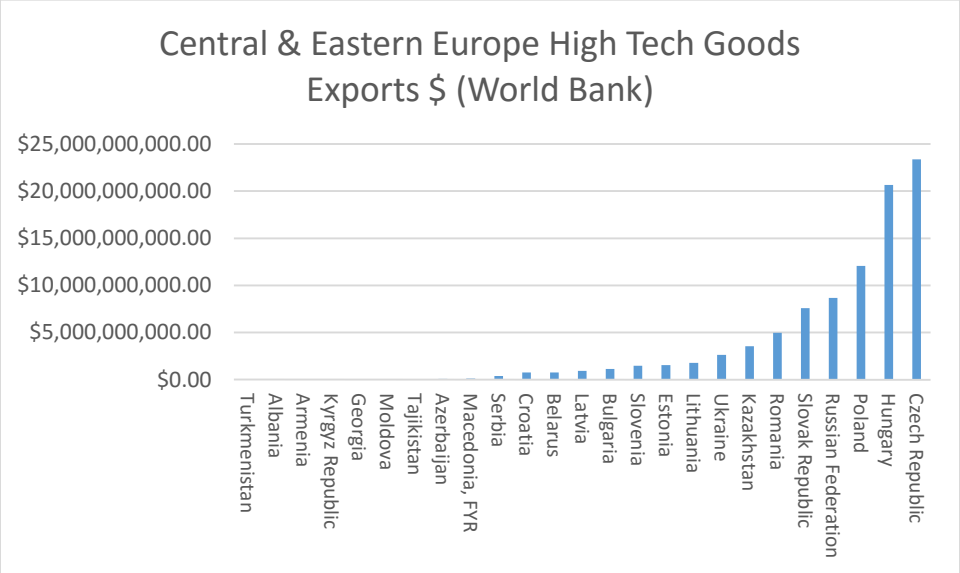
Model 10	Top Metric Performer Rate	per capita rate of the country performing the best on a per capita basis to establish a theoretical metric cap.

High-Tech Goods Exports

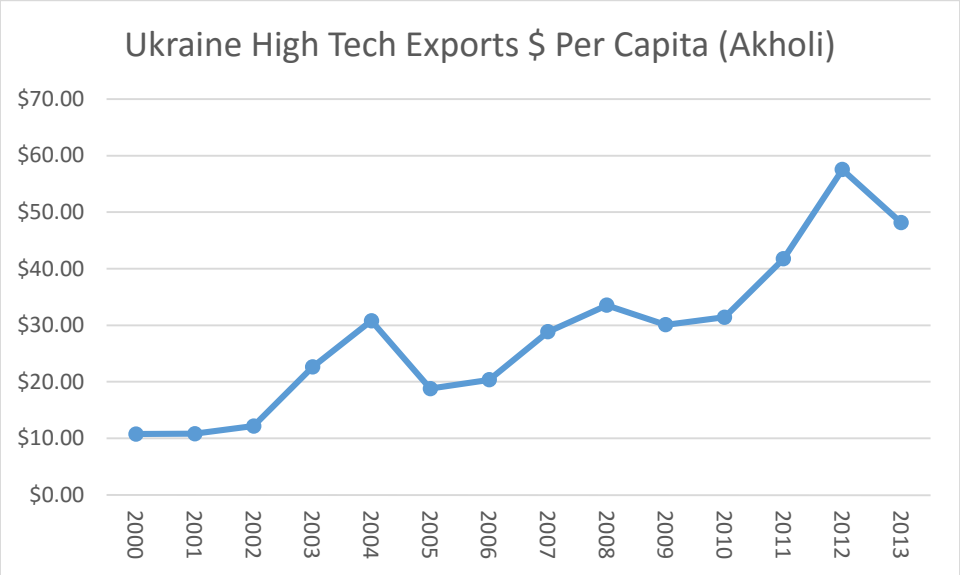


Ukraine's total high-technology goods exports $ reached both a 5-year peak and all time high value of $2.6 billion in 2012. This ranks Ukraine within the second top quintile of high-tech exporters with a global rank of #40.

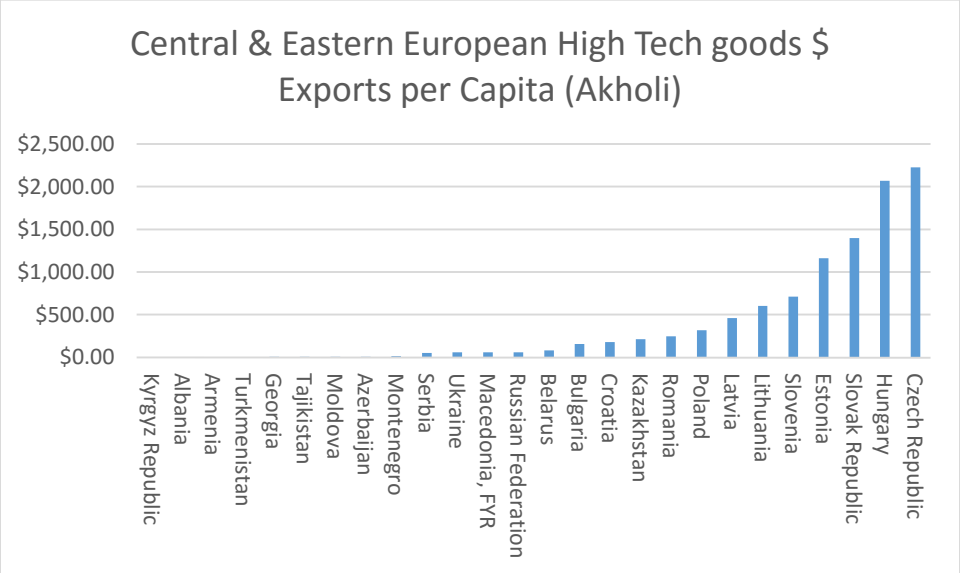


Regionally, Ukraine ranks in the top half of high-tech Exports $ although Ukraine's 5-year peak of $2.6 billion is slightly over $1 billion less than the regional average of $3.7 billion

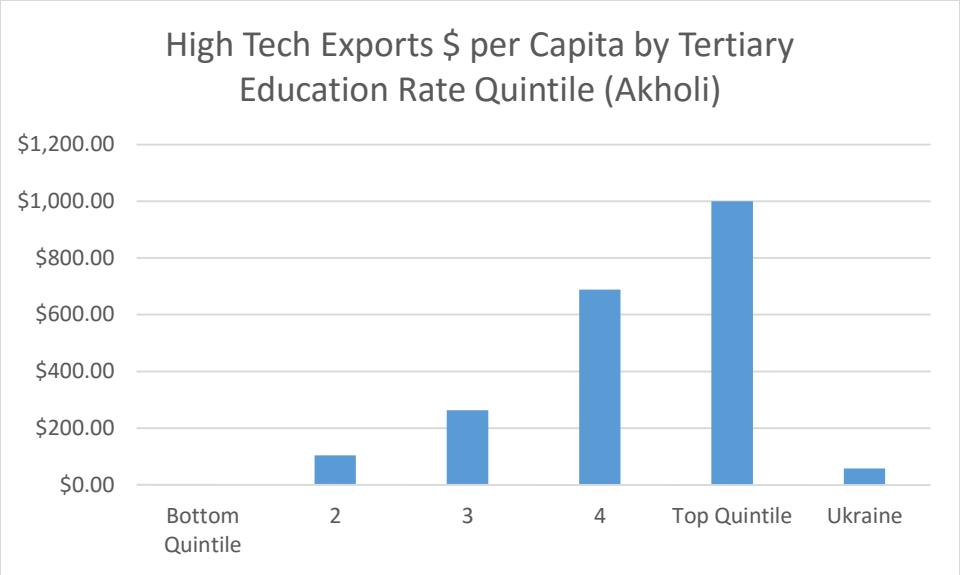
High-Tech Exports $ Per Capita



Ukraine's 5-year peak and all-time best high-tech goods exports $ per capita score of $57.52 was achieved in 2012. This score drops Ukraine's global rank to #60 keeping Ukraine within the second top quintile globally.

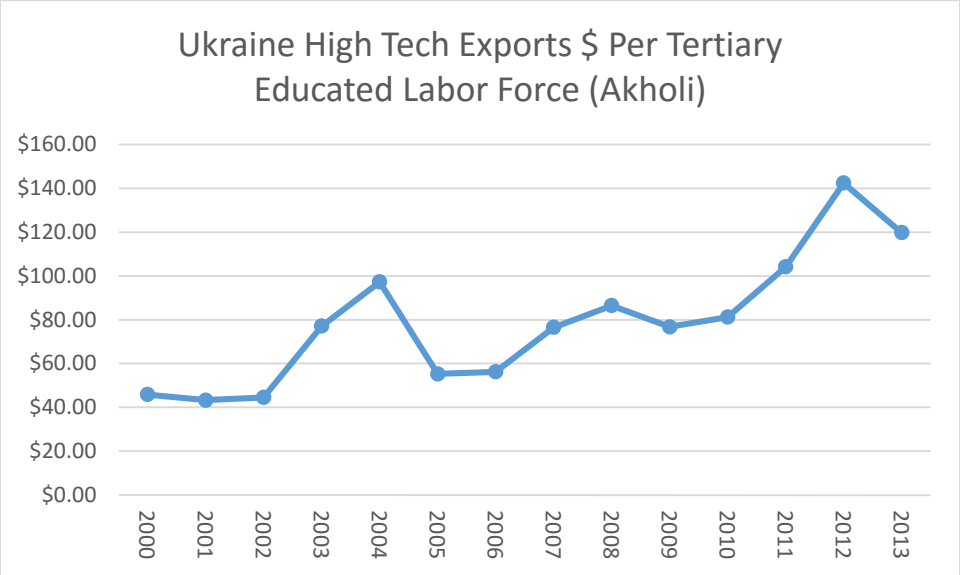


Ukraine's 5-year peak ranks Ukraine in the bottom half within the Central and Eastern European region. The regional average high-tech goods exports $ per capita of $662 is over $600 larger than Ukraine's 5-year peak of $57.52.

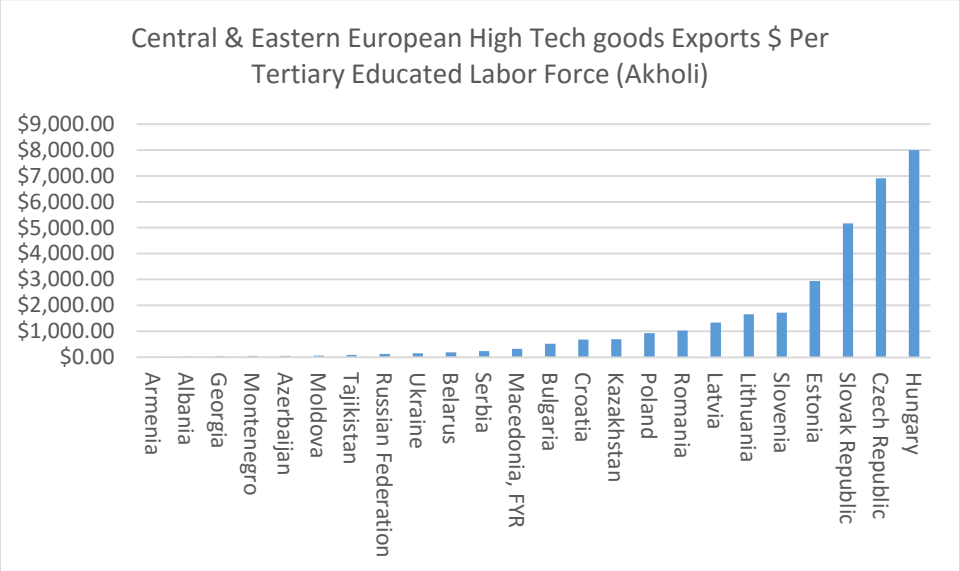


Comparing Ukraine's high-tech goods exports $ per capita against other countries within the top tertiary education rate quintile demonstrates a sizable underperformance. Countries within the top tertiary education rate quintile average $999.44- or 17.9x Ukraine's 5-year peak of $57.52

High-Tech Goods Exports $ Per Tertiary Educated Labor Force



Ukraine's 5-year peak and all-time high rate of $142.43 occurred in 2012.



Ukraine ranks within the bottom half of all countries within the greater Central & Eastern European region in regards to high-tech Exports $ per tertiary educated labor force. The regional average of $2,167 is 15x larger than Ukraine's 5-year peak of $142.43 achieved in 2012.

ICT Goods Exports Target Models

	Per Capita	Value	Market
Current	$15.49	$0.71	
Model 1	$253.86	$11.57	
Model 2	$762.37	$34.76	
Model 3	$721.09	$33.05	
Model 4	$1,744.36	$79.95	
Model 5	$2,682.50	$122.30	Slovak Republic
Model 6	$546.11	$25.03	France
Model 7	$611.34	$28.02	
Model 8	$1,456.14	$66.74	
Model 9	$2,394.54	$109.75	
Model 10	$29,258.96	$1,334.01	Hong Kong
Akholi Target	$2,195.42	$100.00	
		($ Billion)	

Model Guide

	Model Name	Description
Current	Current Ukrainian Performance	5-year peak value for Ukraine.
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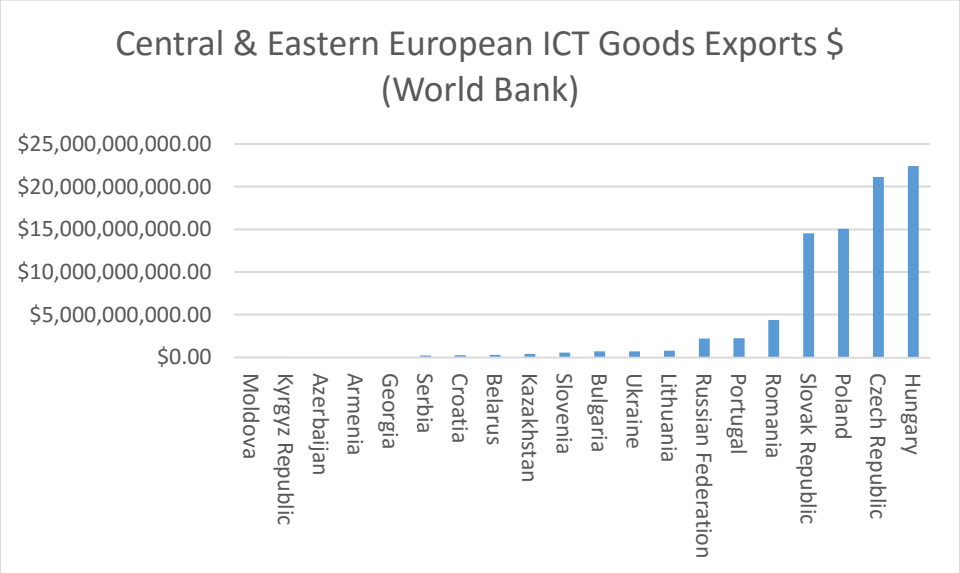
Model 9	Top Metric Quintile Average	Average per capita rate of all countries ranked within the metric's top quintile.
Model 10	Top Metric Performer Rate	per capita rate of the country performing the best on a per capita basis to establish a theoretical metric cap.

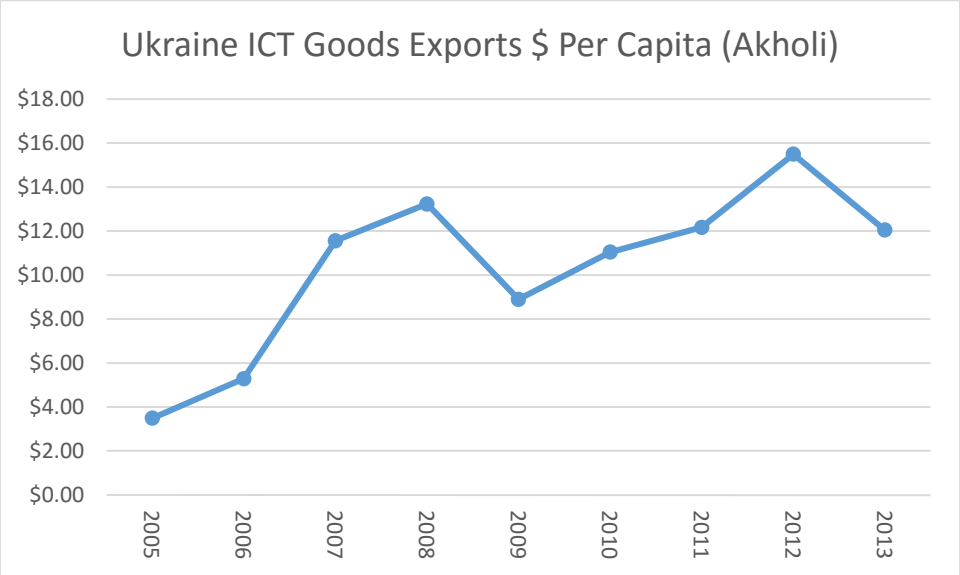
ICT Goods Exports $

Ukraine achieved a 5-year peak and all-time high ICT goods exports $ in 2012 with a value of $706,278,759.74 in 2012. This value ranks Ukraine #55 globally and places Ukraine within the world's second top ICT goods exports $ quintile.

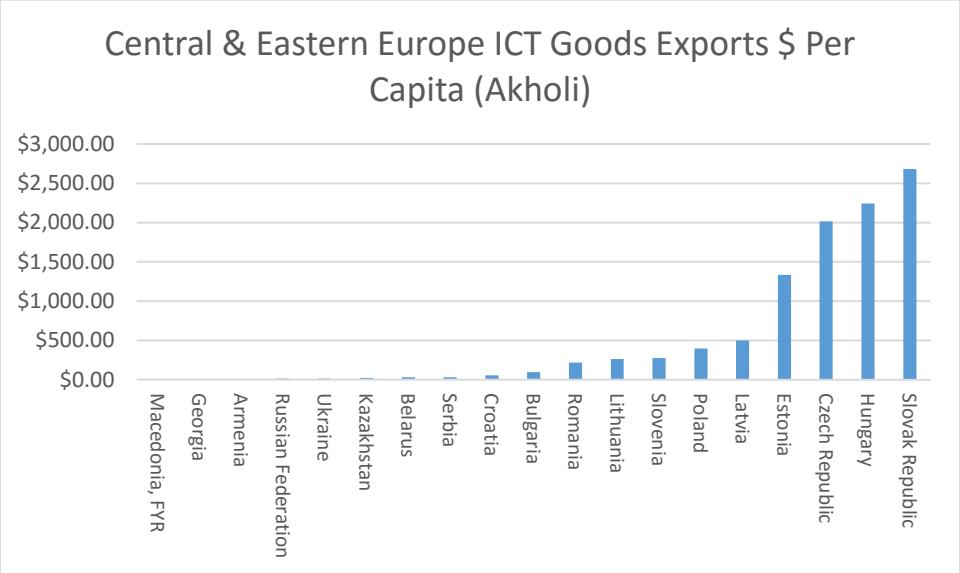


Regionally, Ukraine is in the top half of all countries in regards to total ICT goods exports $. However, the region's average per country of $4 billion is 5.7x larger than Ukraine's 5-year peak score of $706 million.

ICT Goods Exports $ Per Capita



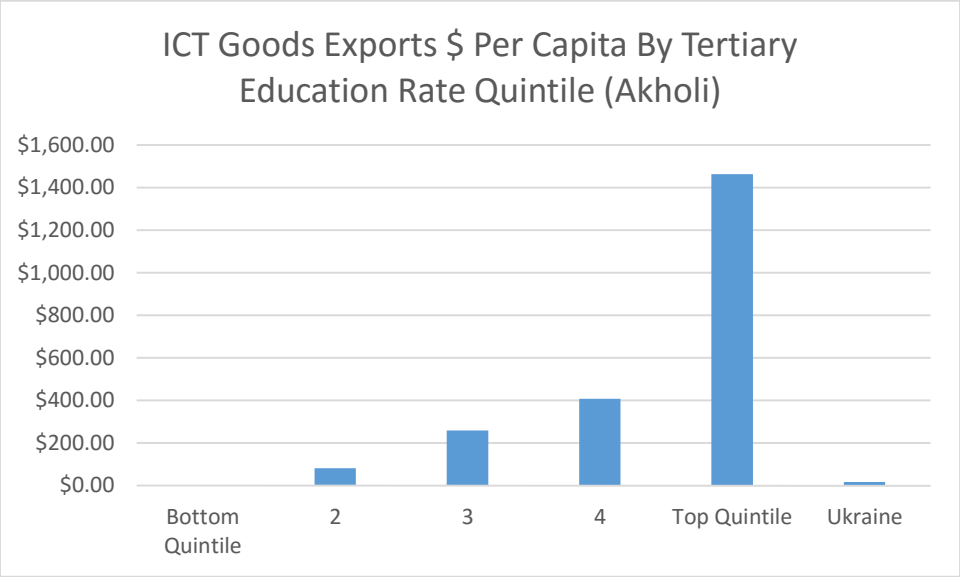
Ukraine achieved both a 5-year peak and all-time high ICT goods exports $ per capita in 2012 with $15.49. This places Ukraine within the 3rd ICT goods exports $ per capita quintile and ranks Ukraine #101 out of all countries assessed.



Ukraine ranks within the bottom half of all countries within the greater Central and Eastern European region in regards to ICT goods exports $ per capita. Ukraine's 5-year peak value of $15.49 is almost 50x lower than the regional average of $762.

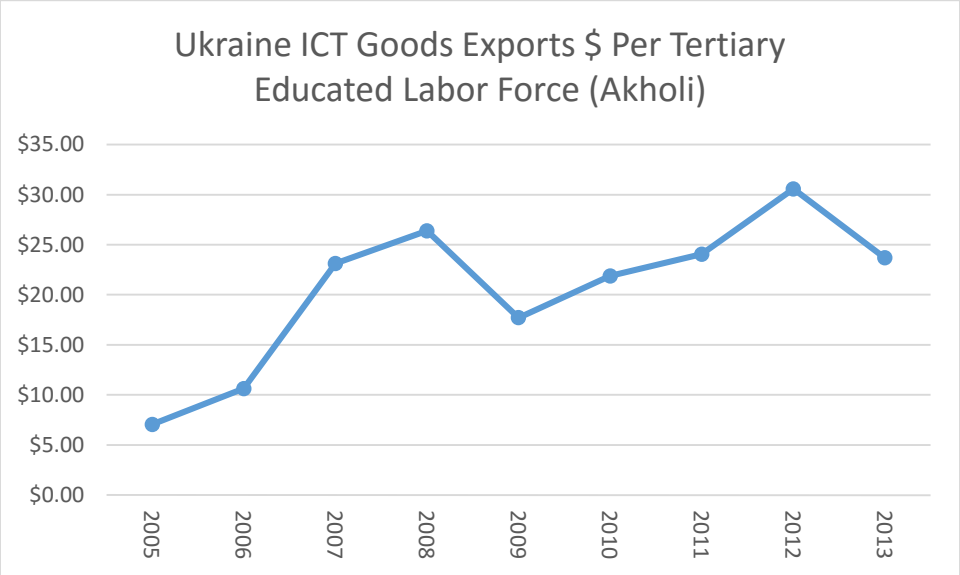
Of special note, the Central and Eastern European region has the single highest ICT goods exports per capita rate of any geographic area in the world. There is a

very real and material global demand for ICT goods exports from the greater region. Ukraine has not capitalized on the demand for regional ICT goods.

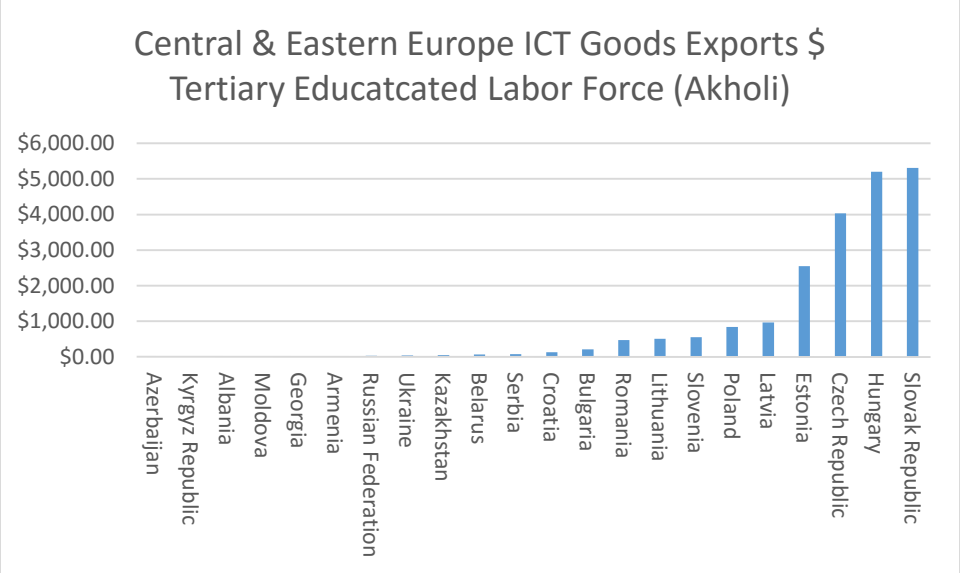


Comparing Ukraine's ICT goods exports $ per capita against other countries within the top tertiary education rate quintile demonstrates a massive underperformance. The average ICT goods exports $ per capita of the world's top tertiary education rate quintile is $41,463.78- or 94x larger than Ukraine's 5-year peak.

ICT Goods Exports $ Per Tertiary Educated Labor Force



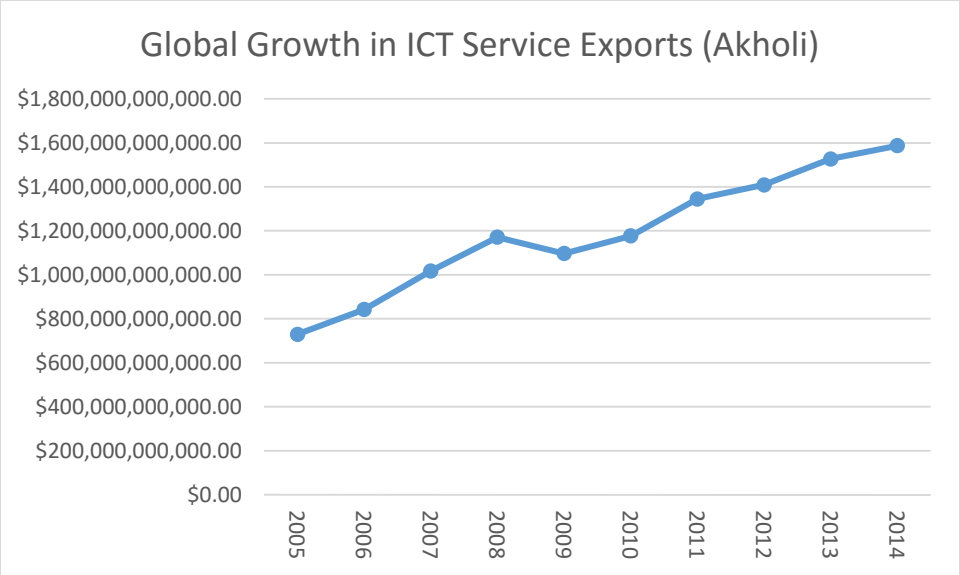
In 2012, Ukraine achieved both a 5-year peak and all-time high ICT goods exports $ per tertiary educated labor force rate of $30.57



Regionally, Ukraine underperforms in regards to ICT goods exports $ per tertiary educated labor force. The regional average of $1,607.78 is 52.6x larger than Ukraine's 5-year peak of $30.57

ICT Service Exports

ICT service exports present a significant opportunity for Ukraine immediately. As previously noted, Ukraine will have difficulty growing both high-tech goods and ICT goods exports until corruption and IP protection issues are resolved. However, there is ample evidence in the global market to support material growth in ICT service exports now. Ukraine has a very real opportunity to grow this valuable export while addressing the greater corruption and IP theft problem.

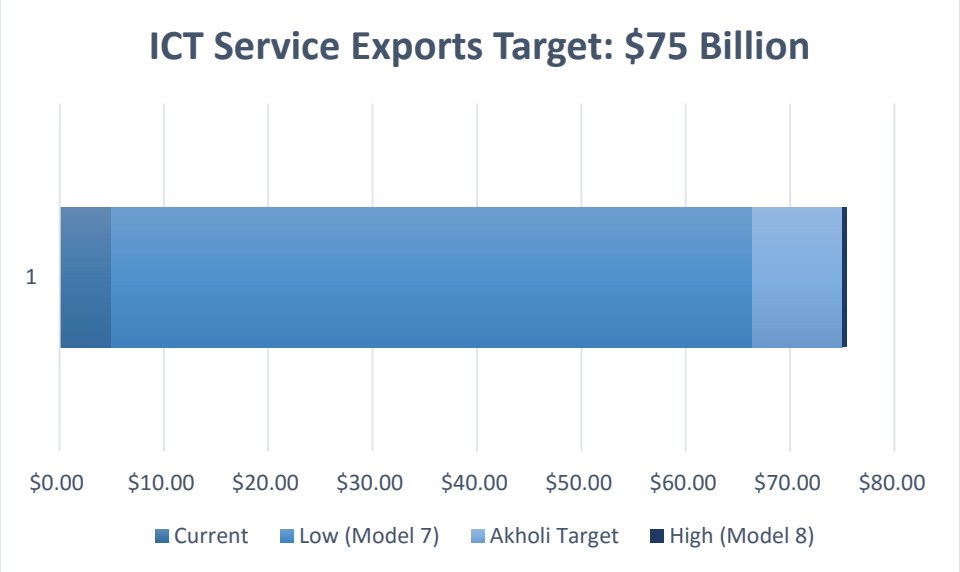


The ICT service exports industry is growing at an average rate of $85.8 billion per year over the past 10 years. This is a global growth area.

As a result of global growth (and expected ongoing growth), a tightening labor market in some of the top ICT service exports markets in the years ahead and Ukraine's ability to grow ICT service exports now, we set targets for Ukraine using higher models.

Our challenge to Ukraine is to become the Central and Eastern Europe ICT service exports leader within the next decade.

Our targets based on modeling are as follows:



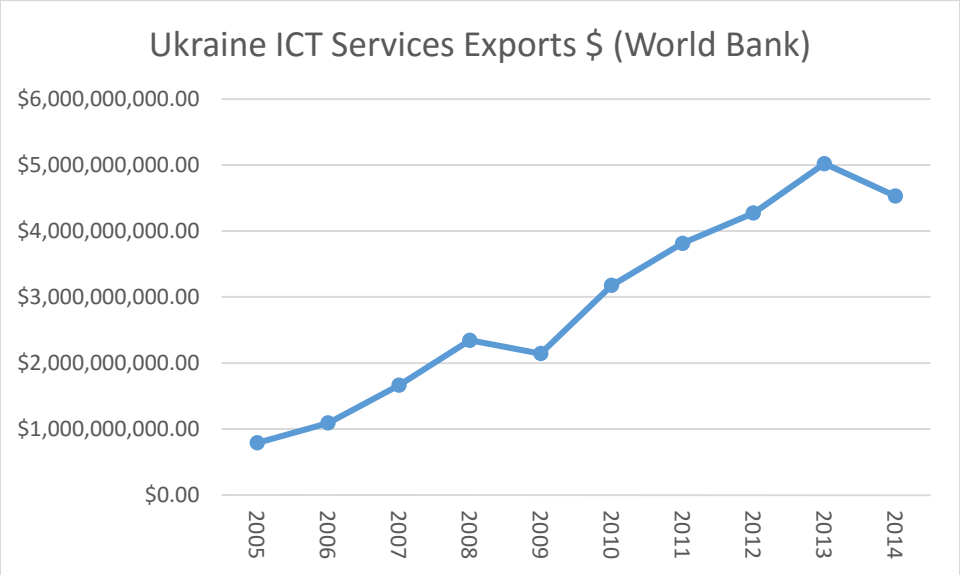
ICT Service Exports $ Target Models

	Per Capita	Value	Market
Current	$110.38	$5.02	
Model 1	$218.57	$9.94	
Model 2	$481.90	$21.92	
Model 3	$428.53	$19.49	
Model 4	$846.30	$38.49	
Model 5	$1,392.58	$63.35	Estonia
Model 6	$507.69	$23.09	Singapore
Model 7	$1,459.53	$66.38	
Model 8	$1,657.41	$75.38	
Model 9	$3,727.53	$169.53	
Model 10	$37,784.88	$1,718.82	Luxembourg
Akholi Target	$1,649.06	$75.00	
		($ Billion)	

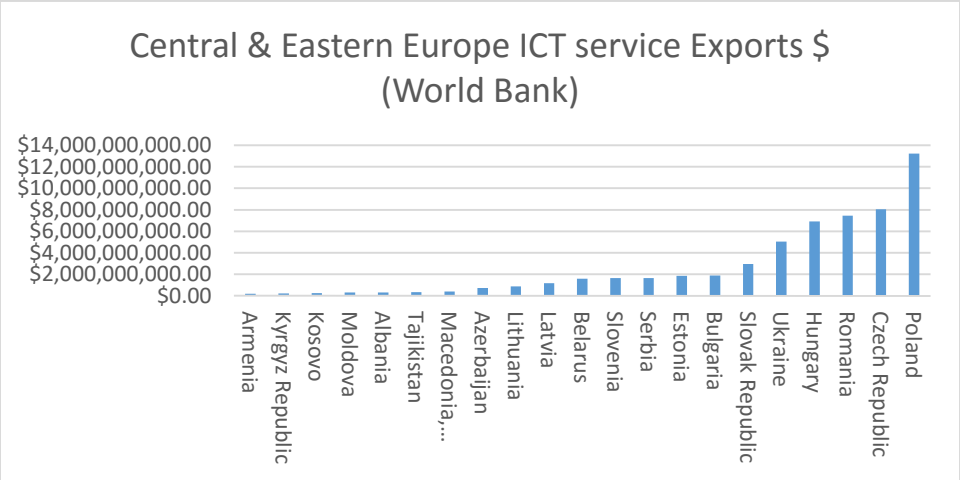
Model Guide

	Model Name	Description
Current	Current Ukrainian Performance	5-year peak value for Ukraine.
Model 1	World Average	Average per capita rate of all countries globally.
Model 2	CE Regional Average (All Countries)	Average per capita rate of all countries within the greater Central and Eastern European region.
Model 3	Metric 2nd Quintile Average	Average per capita rate of countries ranking within the metric's 2nd top quintile.
Model 4	CE Region Top 5 Country Average	Average per capita rate of the top five metric performing countries within the Central and Eastern European region.
Model 5	CE Region Top Country Rate	Average per capita rate of the single top metric performing country within the Central and Eastern European region.
Model 6	13th Ranked Country Equiv. Rate	Average per capita rate needed to achieve the 13th largest value globally representing Ukraine's rank as the 13th largest tertiary educated labor force.
Model 7	European Union Average	Average per capita rate of all countries within the European Union.
Model 8	Top tertiary Education Rate Quintile Av.	Average per capita rate for the metric by all countries ranked in the top tertiary education rate quintile.
Model 9	Top Metric Quintile Average	Average per capita rate of all countries ranked within the metric's top quintile.
Model 10	Top Metric Performer Rate	per capita rate of the country performing the best on a per capita basis to establish a theoretical metric cap.

ICT Service Exports $

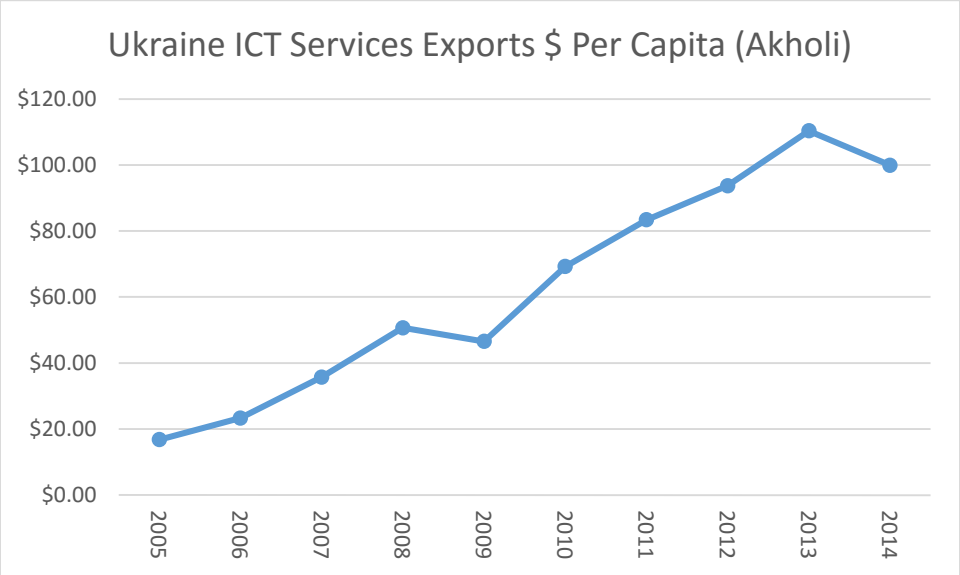


Ukraine achieved both a 5-year peak and all-time high ICT service exports $ rate of $5.021 billion in 2013 ranking Ukraine #43 in the world.

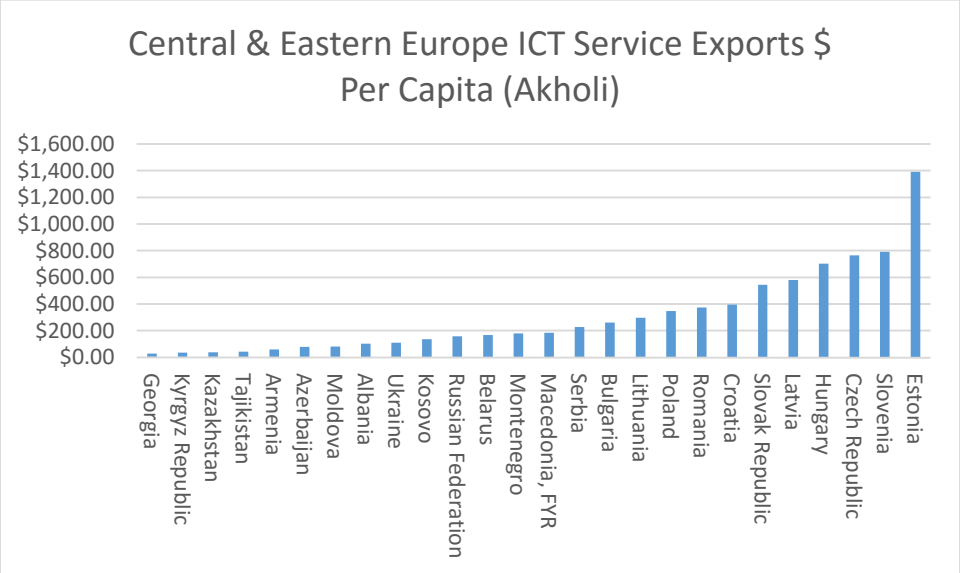


Regionally, Ukraine ranks among the top half of countries in the Central & Eastern Europe region in regards to ICT service exports $ although Ukraine's 5-year peak of $5.021 billion is $3.9 billion lower than the regional average of $8.9 billion.

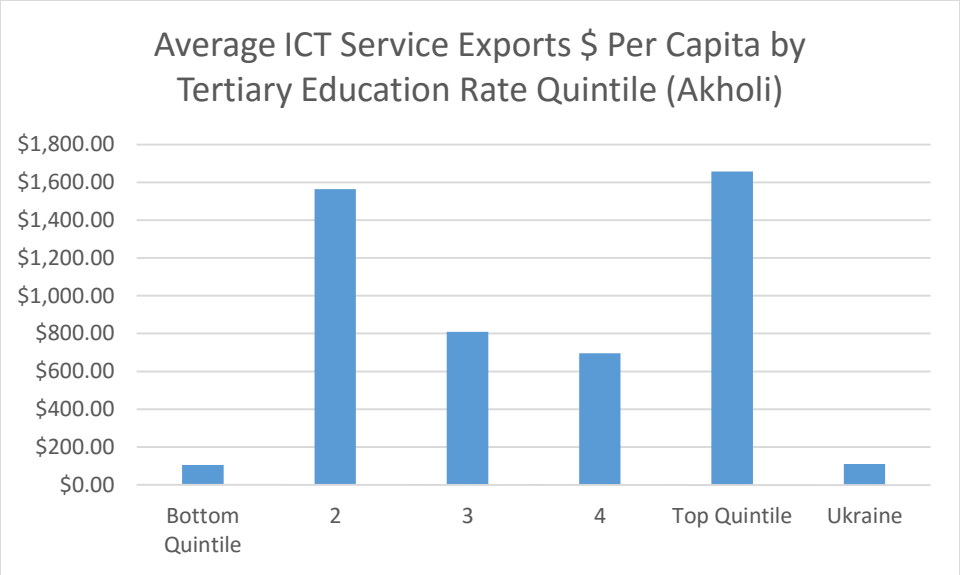
ICT Service Exports $ Per Capita



Ukraine's 5-year peak and all-time high ICT service exports $ per capita rate of $110.38 was achieved in 2013 ranking Ukraine within the 3rd ICT service exports $ per capita quintile globally.

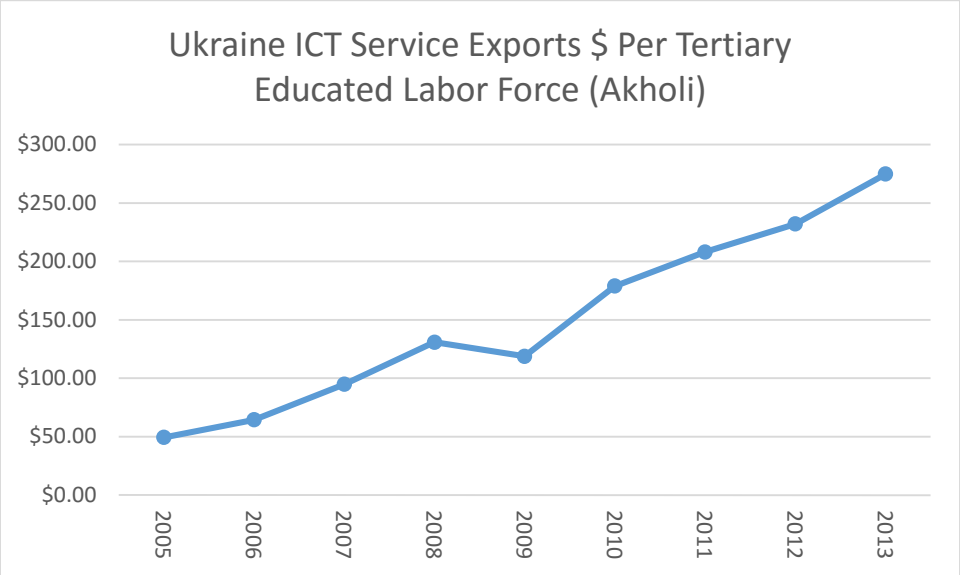


With a regional average of $481.90, Ukraine underperforms with Ukraine ranking in the bottom half of all regional countries. The regional average is 4.8x larger than Ukraine's 5-year peak of $110.38.

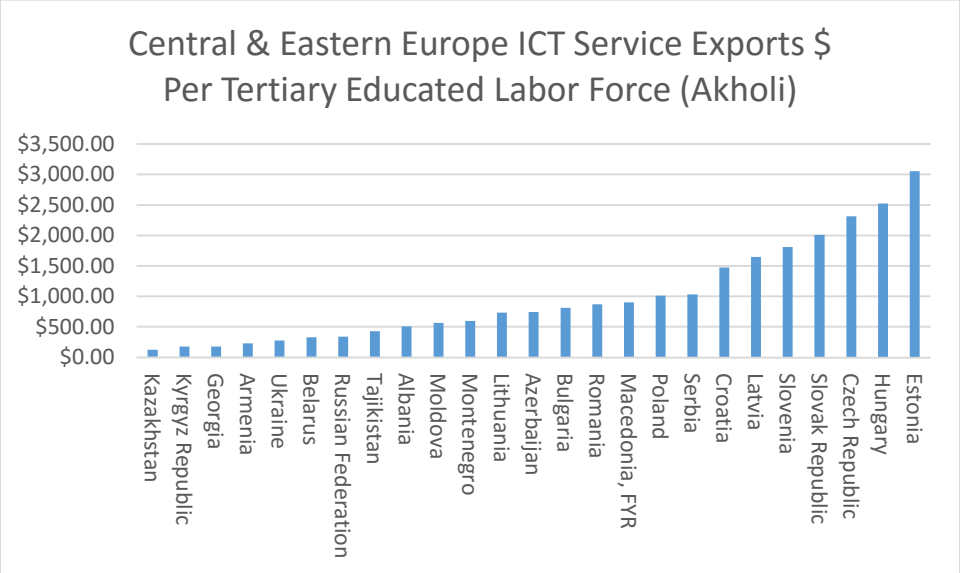


Comparing Ukraine to other countries within the top tertiary education rate quintile demonstrates Ukraine's underperformance. With an average ICT service exports $ per capita of $1,657, countries with a similar tertiary education rate to Ukraine produce an average of 15x the total ICT service exports $ per capita.

ICT Service Exports $ Per Tertiary Educated Labor Force



Ukraine achieved both a 5-year peak and all-time high ICT service exports $ per tertiary educated labor force in 2013 with a value of $274.74. This rank places Ukraine within the second lowest quintile globally ranking Ukraine #113.



Regionally, Ukraine ranks within the bottom half of countries in the greater Central and Eastern European region in regards to ICT service exports $ per tertiary educated labor force. The regional average of $1,420.48 is 5.8x larger than Ukraine's 5-year peak.

Statistics

GDP Per Capita

Market	GDP Per Capita
North America	$54,195.10
High income: OECD	$43,654.25
Euro area	$40,429.67
OECD members	$38,388.24
High income	$37,755.82
European Union	$36,422.64
Europe & Central Asia (all income levels)	$25,681.22
High income: non-OECD	$19,531.32
Central Europe and the Baltics	$14,086.52
World	$10,721.42
Caribbean small states	$10,164.32
Latin America & Caribbean (all income levels)	$10,121.07
East Asia & Pacific (all income levels)	$9,475.35
Latin America & Caribbean (developing only)	$9,361.45
Middle East & North Africa (all income levels)	$8,815.43
Upper middle income	$8,000.32
Arab World	$7,498.23
Europe & Central Asia (developing only)	$7,162.83
East Asia & Pacific (developing only)	$6,240.40
Small states	$5,965.71
Other small states	$5,023.35
Middle East & North Africa (developing only)	$4,912.35
Middle income	$4,706.61
Low & middle income	$4,275.58
Ukraine	$4,029.72
Pacific island small states	$3,760.71
Lower middle income	$2,002.64
Sub-Saharan Africa (all income levels)	$1,792.17
Sub-Saharan Africa (developing only)	$1,776.46
Fragile and conflict affected situations	$1,603.85
South Asia	$1,504.16
Least developed countries: UN classification	$952.89
Heavily indebted poor countries (HIPC)	$899.16
Low income	$640.81

GDP Per Tertiary Educated Labor Force

Market	GDP $ Per Tertiary Educated Labor Force
Euro area	$125,959.28
North America	$120,340.45
European Union	$114,045.41
High income: OECD	$113,219.59
OECD members	$112,574.94
Other small states	$106,514.34
Small states	$105,484.91
High income	$103,345.59
Caribbean small states	$96,813.32
Arab World	$86,051.10
Europe & Central Asia (all income levels)	$85,835.14
Middle East & North Africa (all income levels)	$77,022.02
World	$72,100.16
East Asia & Pacific (all income levels)	$54,738.14
Latin America & Caribbean (developing only)	$53,531.03
Sub-Saharan Africa (all income levels)	$52,725.31
Sub-Saharan Africa (developing only)	$52,112.87
Latin America & Caribbean (all income levels)	$49,650.45
Middle East & North Africa (developing only)	$46,307.00
Central Europe and the Baltics	$45,368.56
Upper middle income	$43,068.91
Fragile and conflict affected situations	$37,581.92
Middle income	$35,906.14
Low & middle income	$35,423.05
East Asia & Pacific (developing only)	$34,477.49
Europe & Central Asia (developing only)	$30,702.76
Heavily indebted poor countries (HIPC)	$26,818.73
Least developed countries: UN classification	$23,056.50
Lower middle income	$22,767.75
South Asia	$20,723.80
Low income	$18,432.21
Ukraine	$10,030.38

FDI Per Capita

Market	FDI Per Capita
Euro area	$2,307.91
European Union	$1,711.97
High income: OECD	$1,221.64
High income	$1,142.89
Europe & Central Asia (all income levels)	$1,132.83
OECD members	$1,063.97
North America	$1,017.77
High income: non-OECD	$883.44
Caribbean small states	$705.43
Central Europe and the Baltics	$466.22
Small states	$391.18
Latin America & Caribbean (all income levels)	$359.00
Other small states	$332.51
Latin America & Caribbean (developing only)	$324.79
World	$314.41
Pacific island small states	$275.67
East Asia & Pacific (all income levels)	$270.15
Europe & Central Asia (developing only)	$255.04
Upper middle income	$231.75
Middle East & North Africa (all income levels)	$214.99
Arab World	$189.05
East Asia & Pacific (developing only)	$179.85
Ukraine	$179.30
Middle income	$126.17
Low & middle income	$116.07
Middle East & North Africa (developing only)	$78.12
Sub-Saharan Africa (all income levels)	$47.29
Heavily indebted poor countries (HIPC)	$47.12
Sub-Saharan Africa (developing only)	$45.24
Lower middle income	$41.35
Fragile and conflict affected situations	$39.36
Least developed countries: UN classification	$29.85
Low income	$29.69
South Asia	$24.60

FDI Per Tertiary Educated Labor Force

Market	FDI $ Per Tertiary Educated Labor Force
Pacific island small states	$7,846.26
Other small states	$7,239.08
Euro area	$7,190.32
Caribbean small states	$6,733.03
Small states	$6,525.13
European Union	$5,386.83
Europe & Central Asia (all income levels)	$3,786.28
High income: OECD	$3,158.96
OECD members	$3,147.01
High income	$3,111.40
High income: non OECD	$2,825.84
North America	$2,314.47
Arab World	$2,297.01
World	$2,186.25
Middle East & North Africa (all income levels)	$2,056.27
Latin America & Caribbean (developing only)	$1,753.58
Latin America & Caribbean (all income levels)	$1,683.24
East Asia & Pacific (all income levels)	$1,586.98
Central Europe and the Baltics	$1,505.44
Heavily indebted poor countries (HIPC)	$1,440.76
Sub-Saharan Africa (all income levels)	$1,438.05
Sub-Saharan Africa (developing only)	$1,365.03
Upper middle income	$1,357.57
Europe & Central Asia (developing only)	$1,183.45
East Asia & Pacific (developing only)	$1,179.81
Middle income	$1,048.50
Low & middle income	$1,045.88
Fragile and conflict affected situations	$942.32
Low income	$890.68
Middle East & North Africa (developing only)	$794.68
Least developed countries: UN classification	$712.55
Lower middle income	$481.93
Ukraine	$443.95
South Asia	$319.13

Industry Value Add % GDP

Region or Country Grouping	Industry Value add % GDP
Pacific island small states	17.81%
North America	20.88%
High income: OECD	24.09%
Least developed countries: UN classification	24.18%
OECD members	24.37%
European Union	24.81%
High income	24.96%
Euro area	25.07%
World	27.05%
Europe & Central Asia (developing only)	30.25%
South Asia	31.02%
Ukraine	31.34%
Latin America & Caribbean (developing only)	32.16%
Central Europe and the Baltics	32.80%
Lower middle income	32.88%
East Asia & Pacific (all income levels)	33.18%
Latin America & Caribbean (all income levels)	34.86%
Low & middle income	36.77%
Other small states	36.85%
Middle income	37.01%
Upper middle income	38.43%
High income: non OECD	39.95%
Middle East & North Africa (developing only)	40.77%
East Asia & Pacific (developing only)	44.54%
Middle East & North Africa (all income levels)	52.49%
Arab World	53.08%

Total Exports Per Capita

Market	Total Exports Per Capita
Euro area	$17,210.86
European Union	$15,282.87
High income: non-OECD	$13,798.27
High income: OECD	$11,821.19
High income	$11,364.38
Europe & Central Asia (all income levels)	$10,695.20
OECD members	$10,443.25
Central Europe and the Baltics	$9,099.94
North America	$7,812.42
Middle East & North Africa (all income levels)	$4,569.08
Caribbean small states	$4,450.71
Arab World	$4,331.67
World	$3,167.32
Small states	$2,987.11
East Asia & Pacific (all income levels)	$2,935.06
Other small states	$2,648.83
Latin America & Caribbean (all income levels)	$2,574.88
Europe & Central Asia (developing only)	$2,418.87
Upper middle income	$2,215.51
Latin America & Caribbean (developing only)	$2,202.51
Pacific island small states	$1,885.11
Ukraine	$1,839.84
East Asia & Pacific (developing only)	$1,816.22
Middle East & North Africa (developing only)	$1,614.34
Middle income	$1,280.08
Low & middle income	$1,160.96
Fragile and conflict affected situations	$650.15
Sub-Saharan Africa (all income levels)	$547.18
Sub-Saharan Africa (developing only)	$533.82
Lower middle income	$515.47
South Asia	$325.16
Heavily indebted poor countries (HIPC)	$248.74
Least developed countries: UN classification	$227.94
Low income	$155.98

Total Exports Per Tertiary Educated Labor Force

Market	Total Exports Per Tertiary Educated Labor Force
Other small states	$56,165.39
Small states	$53,081.19
Euro area	$51,898.35
Arab World	$49,931.39
European Union	$46,135.65
Caribbean small states	$45,557.41
High income: non-OECD	$44,053.17
Middle East & North Africa (all income levels)	$39,223.78
Pacific island small states	$35,609.13
Europe & Central Asia (all income levels)	$34,693.10
High income	$31,252.99
High income: OECD	$31,019.02
OECD members	$30,528.43
Central Europe and the Baltics	$28,194.55
World	$21,403.42
North America	$17,765.94
East Asia & Pacific (all income levels)	$17,680.89
Sub-Saharan Africa (all income levels)	$17,120.57
Sub-Saharan Africa (developing only)	$16,696.53
Middle East & North Africa (developing only)	$15,280.82
Fragile and conflict affected situations	$15,234.61
Latin America & Caribbean (all income levels)	$12,717.42
Upper middle income	$12,673.14
Latin America & Caribbean (developing only)	$12,594.50
East Asia & Pacific (developing only)	$10,724.79
Europe & Central Asia (developing only)	$10,522.24
Middle income	$10,434.61
Low & middle income	$10,271.22
Heavily indebted poor countries (HIPC)	$7,723.50
Lower middle income	$6,150.49
Least developed countries: UN classification	$6,088.71
Ukraine	$4,555.55
Low income	$4,437.97
South Asia	$4,256.57

Goods Exports Per Capita

Market	Goods exports Per Capita
Euro area	$13,190.88
European Union	$11,389.99
High income: non-OECD	$9,409.92
High income: OECD	$9,335.76
High income	$9,245.22
OECD members	$8,290.85
Europe & Central Asia (all income levels)	$7,983.62
Central Europe and the Baltics	$7,041.58
North America	$5,955.50
Middle East & North Africa (all income levels)	$3,506.41
Arab World	$3,343.41
Caribbean small states	$3,276.59
East Asia & Pacific (all income levels)	$2,605.40
World	$2,568.72
Small states	$2,194.60
Latin America & Caribbean (all income levels)	$2,048.02
Other small states	$2,013.47
Europe & Central Asia (developing only)	$1,986.75
Upper middle income	$1,880.93
Latin America & Caribbean (developing only)	$1,635.94
East Asia & Pacific (developing only)	$1,488.38
Ukraine	$1,413.08
Middle East & North Africa (developing only)	$1,286.67
Middle income	$1,066.24
Low & middle income	$966.86
Pacific island small states	$889.14
Fragile and conflict affected situations	$546.63
Sub-Saharan Africa (all income levels)	$483.50
Sub-Saharan Africa (developing only)	$466.28
Lower middle income	$393.79
Least developed countries: UN classification	$243.01
South Asia	$231.40
Heavily indebted poor countries (HIPC)	$202.88
Low income	$125.16

Goods Exports Per Tertiary Educated Labor Force

Market	Goods exports Per Tertiary Educated Labor Force
Other small states	$41,947.56
Euro area	$40,366.07
Small states	$38,998.14
Arab World	$38,539.63
European Union	$35,410.43
Caribbean small states	$33,539.10
High income: non-OECD	$30,042.68
Middle East & North Africa (all income levels)	$29,825.56
Europe & Central Asia (all income levels)	$26,683.90
High income	$25,425.11
OECD members	$24,500.51
High income: OECD	$24,318.18
Central Europe and the Baltics	$22,131.10
World	$17,678.85
East Asia & Pacific (all income levels)	$15,600.57
Sub-Saharan Africa (all income levels)	$15,128.17
Sub-Saharan Africa (developing only)	$14,583.96
Pacific island small states	$13,642.52
North America	$13,302.55
Fragile and conflict affected situations	$12,808.73
Middle East & North Africa (developing only)	$11,964.81
Upper middle income	$10,765.87
Latin America & Caribbean (all income levels)	$10,111.04
Latin America & Caribbean (developing only)	$9,250.22
East Asia & Pacific (developing only)	$9,159.94
Europe & Central Asia (developing only)	$8,941.53
Middle income	$8,628.28
Low & middle income	$8,484.11
Least developed countries: UN classification	$6,400.87
Heavily indebted poor countries (HIPC)	$6,318.11
Lower middle income	$4,622.33
Low income	$3,754.41
Ukraine	$3,498.79
South Asia	$2,919.69

Service Exports Per Capita

Market	Service Exports Per Capita
Euro area	$4,490.48
European Union	$4,257.54
High income: OECD	$3,211.60
High income	$2,923.87
Europe & Central Asia (all income levels)	$2,762.46
OECD members	$2,759.42
Caribbean small states	$2,383.86
North America	$2,251.99
High income: non-OECD	$1,913.82
Central Europe and the Baltics	$1,719.41
Small states	$1,191.83
Pacific island small states	$901.31
Other small states	$738.82
World	$699.23
Middle East & North Africa (all income levels)	$553.19
Europe & Central Asia (developing only)	$514.45
Ukraine	$497.10
East Asia & Pacific (all income levels)	$485.28
Arab World	$416.28
Middle East & North Africa (developing only)	$339.66
Latin America & Caribbean (all income levels)	$286.68
Upper middle income	$253.03
Latin America & Caribbean (developing only)	$223.18
East Asia & Pacific (developing only)	$189.77
Middle income	$178.61
Low & middle income	$164.11
Lower middle income	$117.55
Fragile and conflict affected situations	$109.24
South Asia	$102.80
Sub-Saharan Africa (all income levels)	$64.10
Sub-Saharan Africa (developing only)	$61.13
Heavily indebted poor countries (HIPC)	$49.16
Low income	$47.91
Least developed countries: UN classification	$44.32

Service Exports Per Tertiary Educated Labor Force

Market	Service Exports Per Tertiary Educated Labor Force
Caribbean small states	$23,552.59
Small states	$20,048.21
Pacific island small states	$20,024.30
Other small states	$14,312.35
Euro area	$13,012.19
European Union	$12,536.85
Europe & Central Asia (all income levels)	$8,639.60
High income: OECD	$8,050.97
High income	$7,717.84
OECD members	$7,713.55
High income: non-OECD	$6,041.76
Central Europe and the Baltics	$5,188.00
Middle East & North Africa (all income levels)	$5,146.22
Arab World	$5,057.90
North America	$5,037.39
World	$4,423.80
Middle East & North Africa (developing only)	$3,455.02
East Asia & Pacific (all income levels)	$2,608.07
Fragile and conflict affected situations	$2,585.67
Europe & Central Asia (developing only)	$2,125.19
Sub-Saharan Africa (all income levels)	$1,970.64
Sub-Saharan Africa (developing only)	$1,878.56
Heavily indebted poor countries (HIPC)	$1,547.74
Low income	$1,437.24
Middle income	$1,419.14
Low & middle income	$1,416.74
Upper middle income	$1,403.70
Lower middle income	$1,353.28
Latin America & Caribbean (all income levels)	$1,342.70
South Asia	$1,319.94
Ukraine	$1,237.34
East Asia & Pacific (developing only)	$1,173.43
Latin America & Caribbean (developing only)	$1,168.69
Least developed countries: UN classification	$1,138.32

High-Tech Goods Exports Per Capita

Market	High-Tech Goods Exports Per Capita
Euro area	$1,468.00
European Union	$1,288.45
High income: OECD	$1,070.07
OECD members	$938.46
High income	$922.39
Europe & Central Asia (all income levels)	$803.69
High income: non-OECD	$752.74
Central Europe and the Baltics	$662.59
North America	$503.16
East Asia & Pacific (all income levels)	$303.15
Upper middle income	$288.73
World	$280.68
Middle income	$142.70
Low & middle income	$118.93
Latin America & Caribbean (developing only)	$113.93
Latin America & Caribbean (all income levels)	$99.94
Ukraine	$57.52
Europe & Central Asia (developing only)	$52.01
Middle East & North Africa (all income levels)	$33.31
Other small states	$31.23
Small states	$23.50
Lower middle income	$16.38
South Asia	$8.05
Middle East & North Africa (developing only)	$7.95
Arab World	$6.60
Caribbean small states	$4.53
Sub-Saharan Africa (developing only)	$3.74
Sub-Saharan Africa (all income levels)	$3.74
Heavily indebted poor countries (HIPC)	$1.41

High-Tech Goods Exports Per Tertiary Educated Labor Force

Market	High-Tech Goods Exports Per Tertiary Educated Labor Force
Euro area	$4,573.57
European Union	$4,054.18
OECD members	$2,775.77
High income: OECD	$2,767.03
High income: non-OECD	$2,710.39
Europe & Central Asia (all income levels)	$2,686.20
East Asia & Pacific (all income levels)	$2,567.25
High income	$2,511.10
Central Europe and the Baltics	$2,167.42
World	$1,924.09
Upper middle income	$1,684.14
Middle income	$1,157.92
North America	$1,144.22
Low & middle income	$1,110.99
Other small states	$1,065.56
Latin America & Caribbean (developing only)	$651.48
Small states	$589.38
Latin America & Caribbean (all income levels)	$493.62
Middle East & North Africa (all income levels)	$307.41
Europe & Central Asia (developing only)	$241.35
Lower middle income	$198.72
Sub-Saharan Africa (developing only)	$150.59
Sub-Saharan Africa (all income levels)	$150.52
Ukraine	$142.43
South Asia	$104.40
Middle East & North Africa (developing only)	$80.82
Arab World	$80.13
Caribbean small states	$46.34
Heavily indebted poor countries (HIPC)	$45.42
Low income	$7.13

ICT Goods Exports Per Capita

Market	ICT Goods Exports Per Capita
High income: non-OECD	$1,856.18
High income	$803.18
Central Europe and the Baltics	$762.37
Euro area	$629.47
European Union	$614.55
High income: OECD	$606.11
East Asia & Pacific (all income levels)	$586.95
OECD members	$560.56
North America	$424.52
Europe & Central Asia (all income levels)	$383.81
East Asia & Pacific (developing only)	$366.11
Upper middle income	$338.74
World	$253.86
Middle income	$166.79
Latin America & Caribbean (developing only)	$150.94
Low & middle income	$150.23
Latin America & Caribbean (all income levels)	$143.13
Middle East & North Africa (all income levels)	$43.65
Europe & Central Asia (developing only)	$37.52
Arab World	$24.48
Lower middle income	$24.44
Small states	$22.09
Ukraine	$15.49
Middle East & North Africa (developing only)	$9.21
Pacific island small states	$6.08
Caribbean small states	$5.21
South Asia	$3.88
Sub-Saharan Africa (all income levels)	$2.27
Sub-Saharan Africa (developing only)	$2.19
Heavily indebted poor countries (HIPC)	$0.42

ICT Goods Exports Per Tertiary Educated Labor Force

Market	ICT Goods Exports Per Tertiary Educated Labor Force
High income: non-OECD	$4,005.61
High income	$1,635.06
Central Europe and the Baltics	$1,607.78
Euro area	$1,308.46
European Union	$1,269.91
High income: OECD	$1,212.29
OECD members	$1,156.37
East Asia & Pacific (all income levels)	$1,056.43
North America	$829.95
Europe & Central Asia (all income levels)	$797.48
East Asia & Pacific (developing only)	$646.81
Upper middle income	$638.49
World	$548.02
Middle income	$361.55
Low & middle income	$327.69
Latin America & Caribbean (developing only)	$310.89
Latin America & Caribbean (all income levels)	$299.16
Middle East & North Africa (all income levels)	$129.83
Europe & Central Asia (developing only)	$85.40
Arab World	$77.77
Lower middle income	$60.48
Small states	$54.64
Ukraine	$30.57
Middle East & North Africa (developing only)	$28.79
Pacific island small states	$18.08
Caribbean small states	$11.63
South Asia	$10.01
Sub-Saharan Africa (all income levels)	$5.80
Sub-Saharan Africa (developing only)	$5.59
Heavily indebted poor countries (HIPC)	$1.02

ICT Service Exports Per Capita

Market	ICT Service Exports Per Capita
Euro area	$1,573.48
European Union	$1,459.28
Caribbean small states	$1,189.31
High income: OECD	$986.48
Europe & Central Asia (all income levels)	$907.15
High income	$886.07
OECD members	$836.89
North America	$570.90
Central Europe and the Baltics	$481.90
High income: non-OECD	$399.34
World	$218.57
East Asia & Pacific (all income levels)	$112.36
Ukraine	$110.38
Small states	$85.85
Europe & Central Asia (developing only)	$77.64
Arab World	$72.43
Upper middle income	$69.20
South Asia	$63.92
Middle income	$61.88
East Asia & Pacific (developing only)	$61.85
Lower middle income	$60.07
Low & middle income	$56.60
Other small states	$52.31
Pacific island small states	$50.78
Heavily indebted poor countries (HIPC)	$11.66
Sub-Saharan Africa (all income levels)	$11.12
Sub-Saharan Africa (developing only)	$10.56
Least developed countries: UN classification	$10.52
Low income	$9.77

ICT Service Exports Per Tertiary Educated Labor Force

Market	ICT Service Exports Per Tertiary Educated Labor Force
Caribbean small states	$12,173.72
Euro area	$4,791.08
European Union	$4,538.70
Europe & Central Asia (all income levels)	$2,963.47
High income: OECD	$2,588.55
OECD members	$2,446.47
High income	$2,375.41
Small states	$2,222.14
Other small states	$1,893.65
Pacific island small states	$1,600.67
Central Europe and the Baltics	$1,420.48
World	$1,391.67
High income: non-OECD	$1,274.95
North America	$1,266.99
Arab World	$880.09
South Asia	$787.20
East Asia & Pacific (all income levels)	$624.83
Lower middle income	$623.71
Middle income	$481.30
Low & middle income	$479.85
Upper middle income	$377.85
East Asia & Pacific (developing only)	$364.69
Heavily indebted poor countries (HIPC)	$356.41
Sub-Saharan Africa (all income levels)	$341.72
Sub-Saharan Africa (developing only)	$324.43
Europe & Central Asia (developing only)	$320.82
Low income	$291.19
Ukraine	$274.74
Least developed countries: UN classification	$270.31

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