

FSU vs Non-FSU Impacts for Developing European SME Firm Productivity-Links to Critical Minerals Manufacturing

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Abstract

This research contributes insights into the world scarcity and race for investment into precious minerals in every aspect of modern life, without it would return to the dark ages 2020s. Increases in investment for extraction relate to manufacturing, so lead to increasing accelerating productivity outcomes. An expanding futurist field, thought to potentially be as corrupt risky as 'big oil.' The research shows differences in control of corruption perception indices, Transparency International clean/corrupt scores, regulatory quality, exporting need to improve and highlights FDI (foreign direct investment) and productivity gaps. The third decade independence 2008/9 – 2019 reveals differences between FSU and nonFSU, surprising as after thirty years still show differences, predictive in hindsight of turbulent 2020s in economic financial destabilization with global relevance impact, where SMEs show fastest signs of growth or barriers. These are assessed here in terms of productivity outcomes (output per worker as seen in the world of labor).

Keywords: Investment, Critical Minerals, SMEs (Small Medium Enterprise) Firms, Manufacturing, Corruption, Governance, FDI, FSU (Former Soviet Union), NonFSU, Developing Europe, Eastern European, Firm Productivity, Eastern Frontier

1. Elevator Pitch

The impact of the FSU and nonFSU influence on productivity outcomes (output per worker) can be related to imperative government determinants of corruption bribery and financial constraints. This is in the context case of 27 countries in Eastern Europe (within Europe) transition economies for 9030 SMEs. Surprisingly, after 30 years of independence, there is still a negative FSU influence in Eastern Europe. This could be greater, if excluded the figures for the successful productive FSU Baltics and its high regulatory governance environment, including anti-corruptive measures.

Financial Constraints and Bribery impact upon SME Firm Productivity in Economic Crisis and Conflict. Do economic destabilization factors link to conflict even war? Only now in the explosive mid2020s are finance economists breaking the silence, raising this critical question [1,2]. The author proposed early 2022,

a 'turning point' notion of 2019 - thirty years after the Berlin Wall fell, seventy years after NATO formed; pre-covid 2020; before 'Zeitenwende' 240222 - seeking missing descriptive and empirical regression evidence beyond speculation for predictive indicators: financial constraint and bribery incidence within financialization, competitiveness and corruption from source data world bank/EBRD 2019. It has predictive implications for the 2020s, as competition and scarcity conflicts create critical crises in Europe. The author finds significant negative heterogenous effects, across 27 Eastern European countries upon SME firm productivity outcomes with co-operative alliances adding business transformation value [3].

2. Key Findings

2.1 Pros

1. Productivity fastest growth 2008/9 – 2019 in lowest third tier which is FSU (mostly) – as seen by the author's productivity gap data calculations (output per worker) from SMEs albeit off a

smaller base than nonFSU.

2. Mineral rich resources at elevated levels like lithium, titanium and others exist in both FSU and nonFSU. Increases in extraction spillover into manufacturing, accelerating productivity outcomes in Eastern Europe/ECA borders.
3. Increases in flexible lending and credit bureaus are emerging for SMEs in 2019, helping financial development and productivity outcomes that are critical for competitiveness and growth.
4. Regulatory quality is improving slowly - faster nonFSU than FSU – but still too weak in governance. CPI (Corruption Perception Indices) is improving slowly, faster in nonFSU than FSU – again still too weak.

2.2 Cons

1. Increasing corruption and Bribery Incidence in SMEs, higher in FSU than nonFSU.
2. FDI is small flat in both FSU and nonFSU, all need more FDI.
3. Exporting less relatively small flat in both FSU and nonFSU, as found in the West too.

2.3 Authors Main Message

Since the third decade turning point 2019 of independence 1991 and fall of the Berlin wall 1989, the increases in population, requirements for land, grains, minerals is leading to competition over scarcity, conflict, land grabs and war (on the eastern frontier of Europe) and not enough future resources for all.

The FSU countries and Eastern Europe are still lagging Europe in overall productivity. But notably Eastern Europe’s Poland has significantly advanced since 2019 and features alongside UK France Germany as a powerful player now from productivity to defense, as well as its strategic location and geo-economics geopolitical contributions.

Perceived barriers to productivity growth are in SMEs (90% of firms, according to the world bank in 2019) thought to be bribery corruption, scarcity lack leading to competition, weak regulation of financial support sources and generally weaker regulations in 27 countries in Eastern Europe (excluding Russia) in 2019 onwards and beyond to mid2020s crises. Furthermore, volatility

also political instability is still highest for transition economies in south- eastern European corners and parts of the Balkans.

2.4 Motivation

Historically over 400 years ago, Russia was tiny not a superpower and empires of Mongol and China vast powerful, so potentially, there is a return to these ancient times and the FSU (former soviet union) liberated alongside Russian Federation, since independence 1991, has returned to its heritage roots, such is the case for Ukraine and its longstanding European Slavic roots.

Recently, Finland’s prime minister stated Russia to put it into context is currently a smaller economic power than Italy. Apart from other world areas like South America, Greenland, the FSU is rich in unexploited vast diversity of mineral wealth deep under difficult terrain. Hidden critical resources that increase economical productivity outcomes with mining extraction manufacturing.

For example, the UK states Ukraine could provide it with 21 out of 31 critical mineral elements, critical for modern living from defence, energy, comms, transport to health, all critical to economic outcomes.

To achieve transformation, the need is to mitigate corruption bribery incidence and financial constraints for SMEs to increase financial development and competitiveness for greater productivity outcomes.

3. Discussion of Pros and Cons

3.1 Pros

3.1.1 Productivity Fastest Growth 2008/9 – 2019 in Lowest Third Tier Which is FSU (Mostly) - Seen By the Study Productivity Gap Data From SMES Albeit Off a Smaller Base Than nonFSU

The Productivity Gap for FSU vs nonFSU 2008/9 – 2019 (9030 SMEs 27 Countries) Comparison Differences in Productivity Gap for Individual Countries for FSU versus nonFSU 2008/9 – 2019 the ‘third decade’ since independence (excludes Russia) (using one measure for productivity i.e. output per worker):

Economy (FSU) N = 13	Productivity Gap Log FSU (excludes Russia) 2008/9 – 2019 third decade	Productivity Gap Log nonFSU 2008/9 – 2019 third decade for firms output per worker	Economy (nonFSU) N = 14
Armenia	0.6	0.35	Albania
Azerbaijan	0.54	0.19	Bosnia Herzog
Belarus	0.48	0.64	Bulgaria
Estonia	0.33	0.12	Croatia
Georgia	0.74	0.53	Czech Republic
Kazakhstan	0.82	0.31	Hungary
Kyrgyz Republic	1.23	N/A	Kosovo
Latvia	0.54	1.21	Montenegro

Lithuania	0.64	1.32	N. Macedonia
Moldova	2.35	0.54	Poland
Tajikistan	2.15	1.28	Romania
Ukraine	1.36	1.3	Serbia
Uzbekistan	1.98	1.01	Slovak Republic
		0.48	Slovenia
Mean productivity (log) gap	1.06 positive	0.71 positive	Mean productivity (log) gap
Author's own construct from study data			

Table 1: Productivity [Log Output per worker] FSU Versus NonFSU Economies.

Log Productivity Gap (Mean and Gap) for study SMEs in 27 economies. Although the baseline is lower for actual productivity outcomes for the FSU, it has a bigger positive productivity (output per worker) in the third decade since independence between 2008/9 to 2019. So, it has grown faster than the nonFSU which is flattening with a smaller productivity gap (apart from South-East Europe Balkans which are growing faster than Northern Central Europe). This means that the picture is very heterogenous across economies in Eastern Europe. There is a tendency to think of Eastern Europe in blocs or sub-blocs, the data charts for individual countries presented like this are unusual illuminating, so advance knowledge.

The (log) productivity gap for the third decade of independence in the author's research is +1.06 for FSU and +0.71 for nonFSU [log] drivers. This indicates that the FSU are growing faster than nonFSU over the decade 2008/9 to 2019 but from a smaller base (so many still do lag in overall productivity outcomes of output per worker) and it becomes harder to catch up with western Europe.

Notable accelerators in this manufacturing sector are surprising such as: Georgia, Kazakhstan, Kyrgyz, Montenegro, Moldova, N.Macedonia, Uzbekistan even Ukraine as are innovatively proceeding or exploiting manufacturing from mining at the turning point of 2019 (for example lithium and Kazakhstan has benefited immensely moving rapidly up the rankings of productivity or even collaborative alliances to survive and grow).

Especially, true when bearing in mind the known puzzle of Europe, productivity is flat for many countries. However, few economies go against the flow with upwards productivity increases, especially centered around mining with extraction for needed essential elements in manufacturing to increase productivity outcomes.

'Productivity is not everything, but in the long run, it is nearly everything.' Nobel Prize Winner in his book 'The Age of Diminished Expectations' which links to the framework prioritizing his New Trade Theory (NTT) over other theories presented in this review, highly relevant to the study timeframes of 2019 turning point and comparator 2008/2009 Global Financial Crisis (GFC) [4].

3.2 Mineral Rich Resources at Prominent Levels Like Lithium, Titanium in Both FSU and nonFSU Matter

This is of great interest to the world scarcity of precious minerals

for every aspect of modern life, without it would return to the dark ages 2020s – e.g. mines in Ukraine, Serbia, Kazakhstan, Azerbaijan. Increases in extraction relate to manufacturing, so leading to increasing accelerating productivity outcomes, albeit off a smaller base than biggest most productive economies in Eastern Europe/ECA borders. Where for example, in 2025 interest from the West intensifies with growing demands .

Manufacturing (such as rare precious elements, Lithium, and others) is essential for components of EV power, energy, transport, communications, mobile phones, medical equipment and more [5]. An expanding futurist field, thought to potentially be as corrupt as 'big oil.'

Competitiveness over scarcity can lead to conflict of interests beyond trade as when precious minerals are also part of military defense, which again links to expanded manufacturing economic business capabilities as well as property rights, military tools, aircraft, defense, protection of routes in outer space and land (EACES 2024 – March online Conference) [6]. For example: the re-emerging issue of Greenland in 2025, Denmark and US, related to Russia China, illustrates this as another current analogy outside of Eastern Europe study scope. This is all a geo-economics battle for acquiring mineral rights or a land grab theft, plus a fight to control outer space comms routes and imperialism in geopolitics for economic survival and prosperity.

4. Increases in Flexible Lending Strategies (Beyond Banks Regulations) and Credit Bureaus are Emerging for SMEs in 2019, Helping Financial Development And Productivity Outcomes that are Critical for Competitiveness and Growth

Means from world bank/EBRD 2019 data (excluding Russia) for SME firm bribery incidence 2008/9 FSU is 32.6% compared to 2008/9 nonFSU is 20.9%. Bribery incidence 2019 FSU is 28.8% compared to nonFSU is 9.2% - these are sizeable differences of magnitude, especially notable is bribery incidence more so than financial constraint upon productivity for 9030 SMEs.

Financial constraint 2008/9 nonFSU is 19.6% compared to 2019 nonFSU is 12.1 %. Bribery incidence 2008/9 nonFSU is 12.1% compared to 2019 nonFSU is 8.1 %. These are lesser sizeable differences of magnitude between 2019 and 2008/9, especially notable is bribery incidence more so than financial constraint upon productivity. This suggests gains are possible by cleaning up

corruption, more so than giving bank loans, the Economist 2025 suggests financial aid is not making poorer countries richer.

Financial constraints in SMEs requires further innovative solutions that add value to global value trading with financial constraint still significant though decreasing. Financial constraint in SMEs is higher in FSU than nonFSU.

5. Regulatory Quality Improving Slowly - Faster NonFSU than FSU – too Weak in Governance

CPI (Corruption Perception Indices) have small improvements,

but faster in nonFSU than FSU – again still too weak governance. For example, Finland has high governance to put in context values.

This could all well lead to highly relevant increased competition relevant to trade, complicated by lack of regulations, weak infrastructure, with weak governance effects, lacking rules leading to corruption effects related to productivity, even potential competition conflict over precious scarce resources with neighboring countries or rest of the world [5].

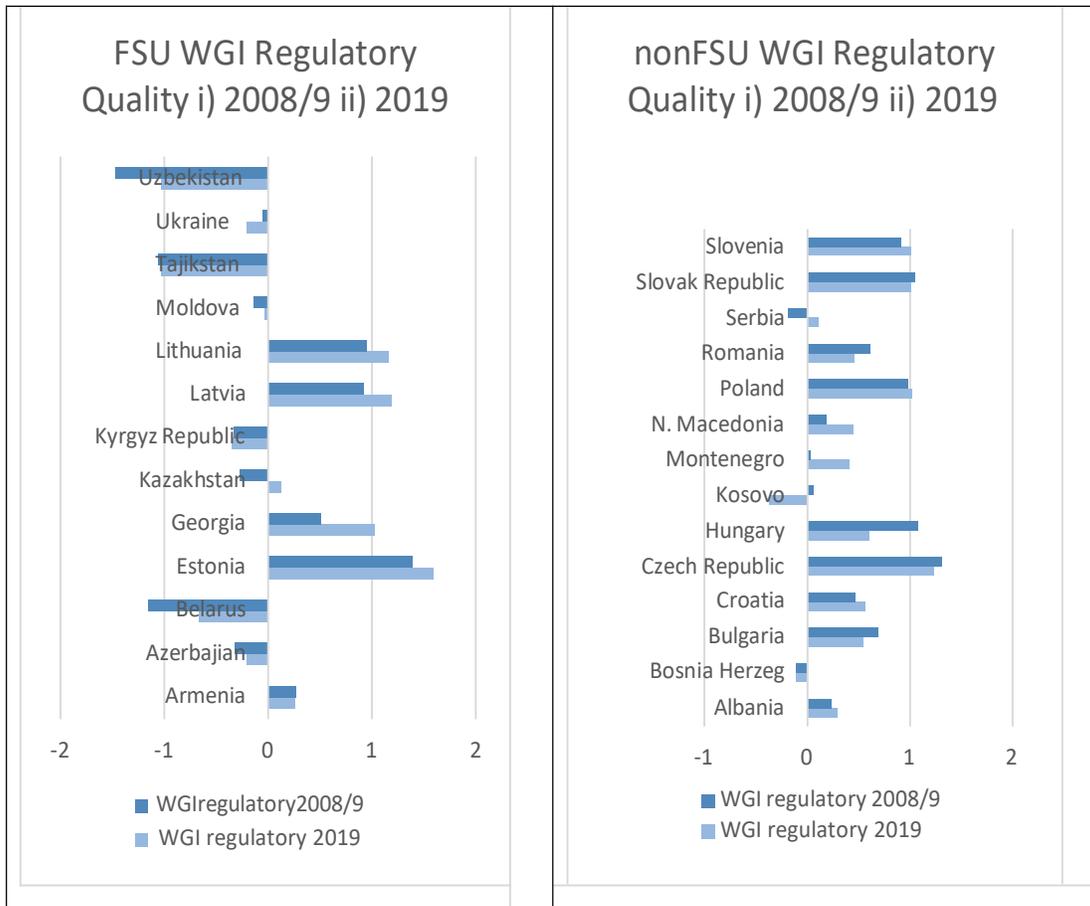


Figure 1: FSU versus nonFSU – Regulatory Quality (World Bank Governance Indicators) Author’s Own Construct – Source World Bank Data

Regulatory quality is -0.13 in 2008/9 for FSU and nonFSU is 0.49, bearing in mind these are concerningly weak when the goal is maximum positives of 2 or 2.5 like nearby Finland, which are:

desirable long term aims. Regulatory quality is also similar barely positive/neutral now 0.05 in 2019 for FSU and nonFSU is 0.59, bearing in mind maximum positives of 2 or 2.5 like Finland.

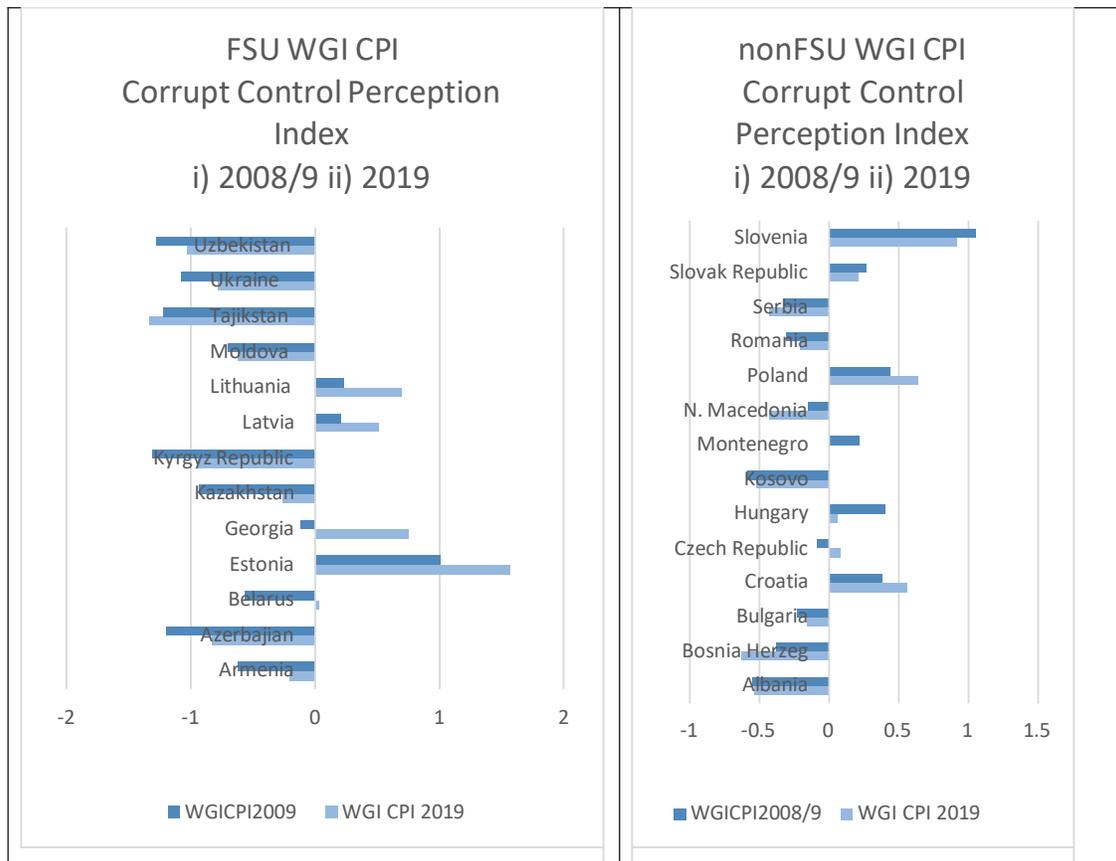


Figure 2: FSU versus nonFSU – Corrupt Control Perception Indices Author’s own construct – source World Bank Governance Indicators data

CPI control of corruption governance is also similar at -0.24 in 2019 FSU and 0.01 nonFSU where again higher scale maximums possible 2 to 2.5 like Finland are distant. It suggests in both the FSU and to a lesser similar extent nonFSU economies in Eastern Europe/ECA borders has continued over this decade of weak governance indicative of weak institutions or alternative infrastructure groupings operating and as advantages from desirable required FDI are weak diminishing too.

The figures have barely improved in a decade. So, continued lesser governance in Eastern Europe is an indicator of weaker institutions are contributing to a flattening slowing down of productivity growth in both FSU and nonFSU economies.

5.1 Cons

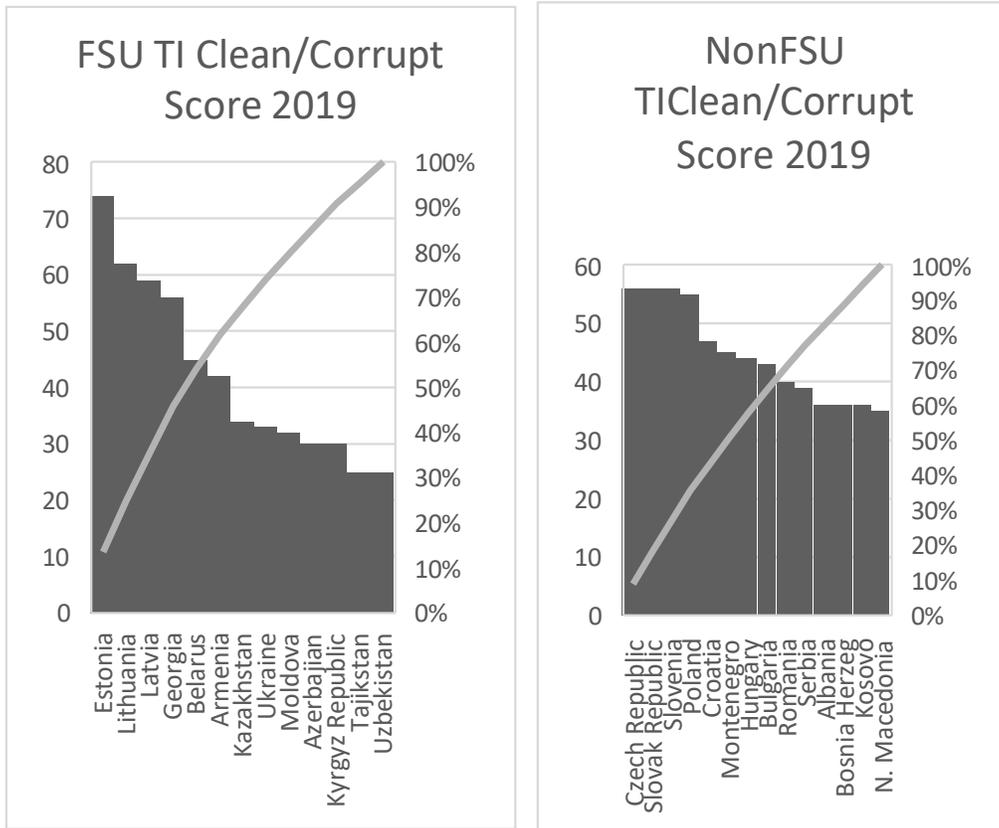
5.1.1 Increasing Corruption and Bribery Incidence Bribery Incidence in SMEs, Higher in FSU than nonFSU

Notably, the detrimental effect of corruption on a country’s economic growth is a critical issue to both academics and policy makers [7]. Few studies have found that corruption bribes initially grease the wheels theory short-term but long-term fails to serve benefits [7,8].

Debates on firm corruption are common for the macroeconomic business environment in the past, far more so than in the rarer SMEs firm finance microeconomics. In the 2020s, SMEs are over 90-95% of businesses, so finance microeconomics merges with macroeconomics.

Furthermore, to assess the economic significance of corruption alongside financial constraints in the business environment and especially of the grease the wheels vs sand in the wheels theories debate, one must focus on productivity [9]. ‘In other words, one must wonder whether corruption helps countries with faulty institutions (weak or lack of normal institutions) to better take advantage’ [9].

The traditional academic viewpoints are: “Most cross-country studies highlight the negative effect of corruption on growth” [7,10]. “A limited number of studies also show that corruption may help firms growing faster, especially within distortions caused by weak institutions that are a disincentive for investment and grease money may get around deficits in the developing world where billions of dollars are lost to corruption, especially tax-evasion processes” [7,11-14].



0= less clean i.e. corrupt, Clean is 100 (note different scales vertical). Author Construct - Source Transparency International data. % is the pareto score effect.

Figure 3: Individual Countries Clean/Corrupt Data for FSU Versus nonFSU Economies

5.1.2 FDI Small Flat in Both FSU and nonFSU-Both, Both Need More FDI

‘Under the auspices of central planning, Central and Eastern European (CEE) economies operated largely in isolation from the global economy and FDI inflows, cutting them off from many technological developments [15].

At the end of the third decade of independence, FDI overall has declined flattened and is minor compared to the past, ideally more FDI needed, including more funds for investment into financialisation and technology, so this trend continues into the 2020s today. The recent functional upgrading preceded by spillover effects from cooperation with Western partners [15,16].

The increased integration of foreign subsidiaries and the creation of local entrepreneurial ecosystems simultaneously encouraged

domestic companies to engage in more outward internationalization [17,18].

Comparatively weak institutional support and inadequate innovation capacity have long been among the barriers to international competitiveness for companies from CEE.

Nevertheless, a majority have achieved leapfrogging internationalization and solid performance in international markets [19].

The establishment of domestic multinationals is based on innovative business models in their respective market segments collaboration with foreign partners, and the use of complex internationalization strategies [17,19].

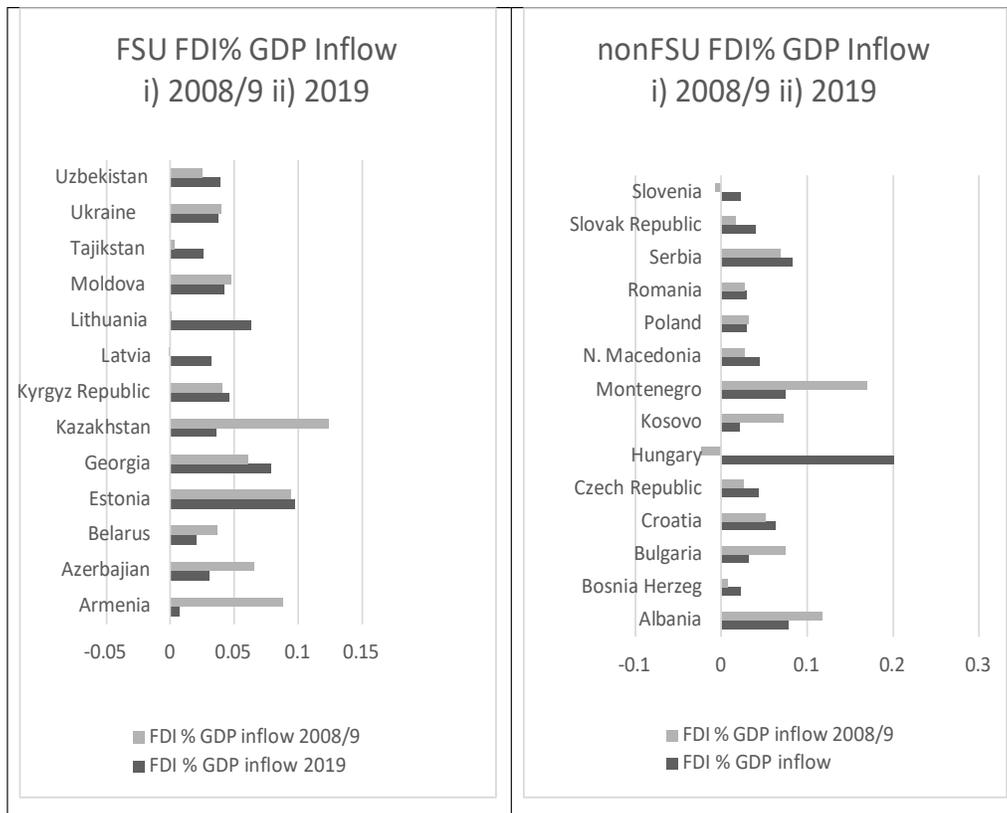


Figure 4: Foreign Direct Investment %GDP Inflow for FSU vs nonFSU Economies Author’s Own Construct – source World Bank Data

The means, FDI is similar for 2008/9 being FSU 5.1% and nonFSU 4.7%. However, FDI is similar for 2019 being 2008/9 nonFSU 4.2% and nonFSU 6.1% where for 2019 is slightly higher suggesting any tiny amounts of FDI available is going to nonFSU.

Advantages from desirable required FDI are weak diminishing too. Simply put earlier advantages of foreign investments are not happening in 2019, which has great implications on SMEs who later in 2020s create different modes of operandi, such as: complex value chains, innovative operating, and stronger domestic nearer neighbors’ development for trading growth [15].

5.1.3 Exporting Less Relatively Small Flat in both FSU and NonFSU, as Found in the West

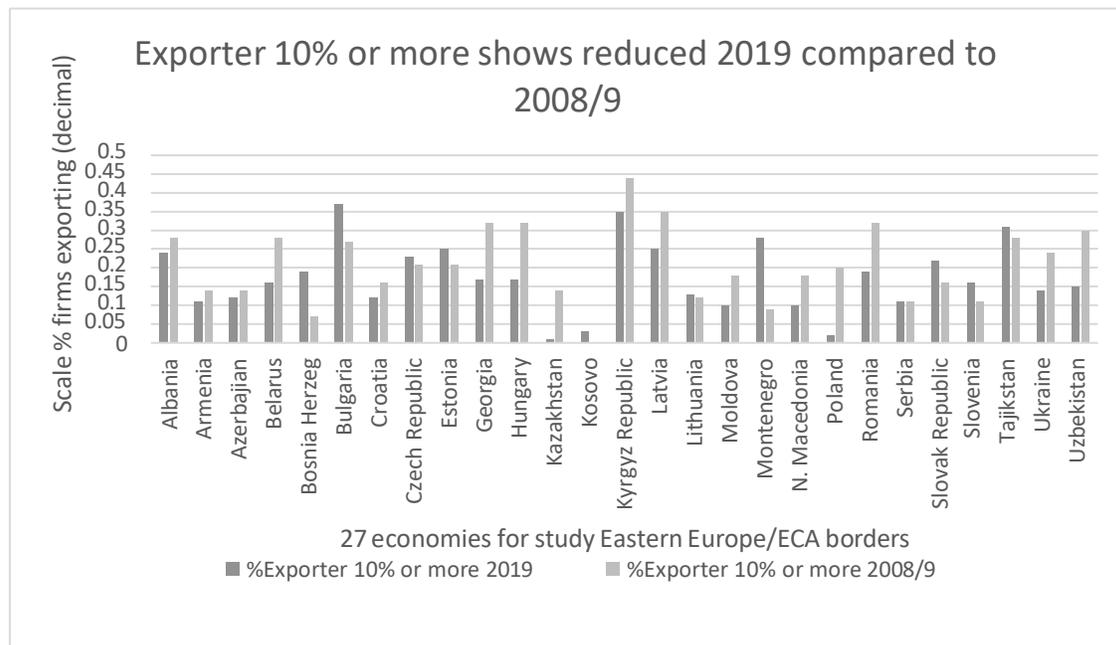
It shows slowdown and convergence (potentially more nationalism or closer to home trading than globalization of too) for this time in advanced economies but unknown for Eastern Europe, so the author advances knowledge, also not far apart for FSU and nonFSU for both 2008/9 and 2019.

An updated recent view for developed though not transition economies offers an international and comparative view. For example, the case of developed nation, The Netherlands, explores firm heterogeneity and exports, Brakman et al, show how elements of their study in relevant recent times, contradicts the conventional earlier theory, ‘business firms export once increase past a certain productivity level [20].’

Therefore, recently empirical evidence contradicts this, that as approach the 2020s, top performance firms do not export, meaning the export multiplier has decreased recently in Netherlands compared to past years [20]. Although this is a developed country, it is likely to be the picture in most of Europe including transition economies but needs analyzing with empirical evidence from the author’s research indicating is similar for Eastern Europe 2019.

The EBRD reports on slowdown in global trade growth and economic activity in the eurozone have impacted on export demand. Consequentially export growth in the EBRD investment regions has slowed to just 6.3 per cent on average in the first half of 2019, compared with 9.6 per cent for same period of 2018’ (EBRD, 2019). Further valuable empirical evidence is the gap that needs filling for the 27 transition economies in the study 2019.

Coincidentally, the descriptive data for 27 countries in Eastern Europe is illuminating, so suggests the same effect from 2008/9 over a decade to 2019 for most economies in Eastern Europe, bar odd dramatic contradictions for exporting growth in the Balkans (Bosnia, Bulgaria, Montenegro). Overall exporting appears to not be expanding and is reducing slowing down converging which could also potentially slow down productivity growth too or possibly other ways of trading doing business emerge in the manufacturing sector where growth has occurred in certain economies.



Source: Authors own construct from study data (% in decimal) – source world bank data

Figure 5: Exporter data for 27 Eastern European Countries – FSU or nonFSU economies Source: Authors own construct from study data (% in decimal) – source World Bank

This allows for contrast with macroeconomics data from other sources too. This shows only three Bosnia, Bulgaria, Montenegro i.e. Balkans exporting notably more in 2019 than 2008/9, others are similar, this can also be interpreted as growing nationalism, keeping resources to selves, or trading with close border partners or doing covert deals that are not reflected as Kazakhstan is known to increase productivity extraction of lithium ions and manufacturing for doing partnership deals worldwide for critical lithium.

5. Gaps and Limitations

The gap is to quantify the recent contemporary data from Eastern Europe, which represents the last BEEPs 2019 round of data for this target region and is unlikely to ever be so extensive in as many countries in future and has indeed been redesigned covering less countries over a rotating three years for future data collations in mid 2020s by the World Bank, due to accessibility of data collection with invasion war/tensions in Eastern Europe. Correspondence too confirms this. The limitation is that the data is all manufacturing but proves to be its forte.

A further gap is providing evidence to enhance the understanding of this new manufacturing sector transformation that involves SMEs and the novel context and revelations of 2019 implications that impacts into the 2020s different to a more stabler past [21].

There remains a gap to meet of scarcity of empirical evidence on productivity firm performance especially in rare finance microeconomics analyses for relevant SMEs [22, 23,24]. Data limitations of possibilities for collation exist. The data sources

used are the most valid and reliable for the SME level of firm outcomes.

This puts it all into perspective giving a context for SMEs and Corruption. Impacts are that if SMEs find this barrier detrimental to business, then SMEs could become less productive, so the relationship with SMEs corruption and productivity outcomes is a gap to investigate as critical to nations and economies.

6. Conclusions and Implications for Policy

The researcher chooses to concur with, where without a doubt: ‘the manufacturing strata is the most useful and significant of all the industries [25]. For example, relevance is that exports links firm finance microeconomics to macroeconomics. A theme of interest to this study as the plateau exporting effect published in Western Europe 2019 is likely to be so in lesser Eastern Europe too.

It is also important to consider why productivity in manufacturing matters and the recent economic diversification of transition economies evident in 2019. It seems lower productivity economies like Kazakhstan, Uzbekistan, Tajikistan are now moving upwards since 2019 (barely acknowledged in 2008/9) to catch up due to mineral extraction as have rich access to these commodities [5,26,27]. Critical minerals such as lithium (mobile phones EV energy critical), cobalt, copper, germanium, chromium - found in poverty, geopolitically unstable developing corners of the Eastern European/borders ECA scoped region. All needs to be part of policy making decisions: as impacts upon economic output.

It means that enabling secure supplies of minerals is imperative to global energy and its explosion in demand in the southern hemisphere with increasing needs in north too, where control of supply chains through partnerships and international aid to infrastructure is key. So as these economies can productively provide supplies and manufacturing outputs to the rest of world [26,27]. With the rest of the world including the West: US, Germany and Norway suddenly sitting up taking interest and forming partnership deals, whereas Eastern Europe and especially Asia powers will be keen to control its own all [27]. Update: fast forward post-seminar to 2025 US, Russia and China not interested in true partnership deals as aim to extort, take, or steal it from Ukraine, with geopolitics and geo-economics intertwined

Upon reflection with increasing economic destabilization, this makes the operating business environment far more volatile less stable, with firms suffering greater financial constraints again - such as experienced in GFC, where smaller firms suffer most [28]. Furthermore, with less regulation more informal practices such as corruption bribery are more prevalent [29]. Furthermore, corruption in many countries is getting worse not better with notable exceptions of Estonia has an increasingly clean score, according to Transparency International. However, the hidden shadow economy conversely is speculated to be expanding in the Baltics, outside scope, so the picture is with consequences upon outputs and productivity - which is experienced more in Eastern Europe than the west as in Eastern Europe, SMEs make up 90% of firms for 2019 onwards. SMEs need more support from policy makers to realize the transformations required.

Critical relevant academic debates revolved then and still does around why have the central Eastern Europe and Baltic economies outpaced others in the FSU? The focus is usually upon the countries in transition in Europe and the former Soviet Union (this study excludes Russia since 2402222 with its now very different principles for modus operandi which are in conflict with UN and NATO to name a few, and its increased warring conflicting stance since its historical incursive annexation of Crimea in 2014 has become long term occupation but belongs to constitution of Ukraine); with developments in China and transition economies of Southeast Asia being discussed only briefly from more westernized values of IMF, led by the US or European perspective. Governance needs to improve, as gains could disappear into shadow economies, offshore hidden sources or corruption like big oil making only the elite rich.

Whereas FSU versus nonFSU often reflects, differing speeds of economic transition from the pre1991 Russian command to free market economy.

Finally, the third decade independence 2008/9 – 2019 reveals differences between FSU and nonFSU which are surprising as after thirty years still show differences or a failure to converge, regressive analysis can be predictive in hindsight of turbulent 2020s in economic financial destabilization with global relevance impact, revealing potential indicators as drivers where SMEs often

show fastest signs of growth or barriers which can be assessed in terms of productivity outcomes (output per worker as seen in the world of labor) which is 2019 onwards likely to be a component contribution as opposed to causal effects upon economic growth which has become a more confounding conundrum and flattened in many economies [29-31].

Note: Estrin argued for FSU soviet bloc/Baltics to be treated separately from the large economy of Russia, so is excluded by Author from this analysis report on Eastern European transition economies, in addition to barbaric incursions upon Ukraine at zeitenwende 240222 and Crimea since 2014 [15].

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