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Violence and Truth in 2022's Epoch End: COVID-19 and Russia's Invasion of Ukraine in the World Historical Context[1]

Abstract

Objective: In this research article, I seek to explain the cultural logics and practices of narratives of global transformations and thereby demonstrate the significance of articulation and rearticulation in their constitution. I focus on cultural politics from within narratives – through the fall of 2022 – organising our sense of the COVID-19 pandemic on the one hand, and Russia's invasion of Ukraine on the other.

Research Design & Methods: This is a theoretical paper, with references to numerous Web articles, newspapaer articles, and some research volumes.

Findings: I conclude by reflecting on the ways in which these narratives can be rearticulated in order to develop a more global solidarity in the epoch end's policy and practice.

Implications/Recommendations: This paper is relevant to the research into further interactions between wars and epidemics, as well as for researching the consequences of the Russian invasion into Ukraine.

Contribution/Value Added: This paper is original in presenting an insight into the connection between the COVID-19 pandemic and the violence taking place in Ukraine as of February 24th, 2022.

Keywords: solidarity; pandemic; COVID-19; war; Russia; Ukraine; sociology

Type of article: theoretical article

JEL classification: I1 and Z1

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[1] This article was prepared for the conference titled *The Shifting Limits of State Action: The World after Pandemics and War in Ukraine*, organised by the Malopolska School of Public Administration, Cracow University of Economics, which was held in Kraków on 22–24 September, 2022. The article was written between July 25th and August 5th, 2022. See: https://statelimits.uek.krakow.pl.

Introduction

The end of an epoch is upon us, but its meaning is not entirely clear. Its manifestations, depending on one's location in the world are, however, obvious.

For those in Ukraine, Russia's invasion defines the end of an era, and those affected by that assault fight to define the terms of its conclusion and its successor states. The violence of that confrontation radiates outwards, however. While the conflict is clearly bounded, at least for now, its implications spread globally with effects on food security, the displacement of populations, disturbances in the prior global energy system, and consequent environmental outcomes with specific concentrations of harm. It even seems to legitimate threats of invasion elsewhere. There is no inherently transcendent truth in this conflict, but truth does become an object of contest. This is as much an information war as a kinetic one, with the qualities of its violence determining, in the end, what meaning this war will be assigned if it ever concludes. It is clear, however, that the world will not remain the same regardless of any conclusion.

The COVID-19 pandemic, by contrast, is not defined by violence, although its disruption of the world is, at least at the time of my writing, far greater. That disruption is more consequential, because try as humans might, the pandemic cannot be contained by an information war, even while the truth of the virus may be hard to recognise. It can be approached, however. We know now that it travels in certain fashions rather than others, and we know better how to minimise its spread among its mobile human carriers. We also know that denying its truth is harmful, and that we may not be able to keep up with its evolution. Where the truth is the hardest to render resides in who should suffer, and why. Here, machinations of all sorts emerge to justify why the rich and powerful should be first in line to be inoculated and the least inconvenienced by pandemic regulations. While the world will be changed regardless of the conclusion of Russia's war in Ukraine, those with power and privilege do all they can to restore the order that had existed prior to the assault of COVID-19. In this, it could very well be that COVID-19 is less eventful, less epoch-ending, than Ukraine, even while its consequences are greater.

In each case, solidarity has been an ethos that animates the struggle against violence and disruption on the one hand, and for truth on the other. Because these solidarities commingle in epoch end, they are informing one another even if they are emerging from different eventful logics. In this paper, I seek to, first, reveal these contrasting logics and, second, consider their rearticulation in the spirit of solidarity.

Although I focus on the war and the pandemic, this knowledge extends into the cultural sociology (Kennedy, 2015) and its emphasis on cultural logics and practices, as well as eventful sociology and the significance of articulation and rearticulation in shaping global social change. I propose we explore any event's distinctive cultural politics from within its action rather than interpret it from some superior perch showing how an event illustrates an *apriori* standpoint. I do, however, rely substantially on contemporary global publications, in English, to access elements of the world's hegemonic discourses. I conclude by reflecting on the narratives that might guide the rearticulation of these two events into a story whose resolution, with proper focus, could yield greater global solidarity.

Narratives of epoch end

We have quite a range of those who not only see but conjure into existence epoch end with their words and actions. Putin is, perhaps, the most significant example here with his declarations that Ukraine is no nation (Putin, 2021), that Russia's invasion is only a military operation to de-Nazify a place properly understood as an extension of Russian civilisation, even while his actions, and Ukraine's response, illuminate the lie that organises the war. Putin's solution to a problem he divines rests in coercion and violence which, in turn, only inspire more violence in response. This war is locked in a spiral of conflict ending only in cataclysm or in absolute defeat of one or another side.

One of my favourite clarifications of this chaos came from Ivan Krastev (2022), who drew on another intellectual to name our era.

> "In 1993 the great German poet and essayist Hans Magnus Enzensberger predicted that the Cold War would be followed by an age of chaos, violence and conflict. Reflecting on what he observed in Yugoslavia and the urban riots in the United States, he saw a world defined by an "inability to distinguish between destruction and self-destruction." In this world, "there is no longer any need to legitimise your actions. Violence has freed itself from ideology." Mr. Enzensberger was right. He was just too early."

Although it was Putin's invasion of Ukraine that prompted Krastev to signal that violence has been freed from ideology, it has set into motion the prospect of its spread. On August 3, 2022, US Senator Bob Menendez (2022), in the wake of US House Speaker Pelosi's visit to Taiwan, declared that "the clear lesson of Ukraine is that authoritarian leaders have been emboldened in recent years by dysfunctional democracies and hesitant international relations". As I write, China encircles Taiwan in military exercises.

Of course, the crisis in Ukraine and its extensions are not the only issue motivating talk of epoch end. Pundits are, however, especially inclined to identify epoch end when they go beyond one area and link subjects, for instance how Putin's invasion and COVID-19 lead nations to attempt to withdraw from globalization as such (Wong & Sampson, 2022). David Brooks (2022) exemplifies in arguing that globalisation's failure to integrate the world has led to culture wars that threaten to ruin it. The process's apologists overreached, he writes, and did not rein in the surging inequalities and globalisation's assaults on non-Western cultural traditions, taking down the West's (genuine?) claims to universal rights and reason in the process.

Brooks exemplifies the presumptive power against what I write, where from a particular perch of insight and illumination one can explain the logics of social change everywhere. He is far from alone.

When COVID-19 or Russia's invasion of Ukraine define the life concerns of a particular place in our world, then epoch end inflected by pandemic or war is likely to organise one's account of the present and its alternative futures. Not every place puts these issues at the heart of prospects. As we were reminded in discussions of global famine, prohibited deliveries of grain from Ukraine, and Russia, are only part of the story, and only an extension of suffering too long endured and overlooked (Walsh, 2022).

Moreover, it is hard not to consider climate catastrophe as the central feature defining epoch end. Scholars in various fields, from economics (Galbraith, 2021) to sociology (Galvin, 2020; Stuart et al., 2020) and beyond have increasingly framed their work in that epoch ending mode. Sloterdijk (2018) notes that even naming the Anthropocene anticipates its apocalyptic end. Here,

then, we also find the rhetorical point associated with the empirical – the need to convince those who live beyond heat waves and floods that this is a sign of things to come. Ghosh (2016, p. 30) takes his literary skills to the task of explaining the "great derangement", finding that the climate catastrophe is not merely strange, given our history, but it is "uncanny" as it is something "we recognise we have turned away from".

Climate catastrophe is unlikely to realise its horror alone. For example, Wolf-Meyer (2019, p. 4) marks the coming apocalypse as multiple, for epoch ends are never singularly caused and, rather combine with other disasters, which in their articulation become unimaginable. That may be why we look away, at least until the disaster is in our face, in our home, or in what was left of that home.

The epidemic and the war are neither so uncanny nor unimaginable, and on their own terms they are understandable within their own logics. But if we are not touched by them, we can put them aside to focus on our own traumas.

For example, if we do not live in Ukraine, and rather Taiwan, we might rather focus on the prospect of China's invasion rather than Russia's actual one. If we are at risk of starvation, to focus on COVID-19 feels like a distraction. But that is the point: there are so many pressing moments creating a global sense of epoch end that we are at risk of figuring them singly to make them manageable, and subject to our own knowledgeability. But that is not how epoch end works, for it occurs in combination, creating a disastrous reality that emerges beyond anyone's ken. We might anticipate, however, that fusion by articulating catastrophes in their own terms, and then in rearticulation along lines that might address them both, or them all. At least we can start with this war and this pandemic.

In this paper's conclusion, I will return to what I mean by epoch end, but for clarity's sake at the start, I recognise its appearance when discourses of consequence define an event as so meaningful that previously existing rules and distributions of resources for a given set of social, economic, political, and cultural relations must be transformed in order to take into account the new circumstances issuing from the event. The greater that transformation in scale and time, the more it approaches the end of an epoch. In this, I extend eventful sociology.

Eventful sociology

William Sewell's (2005) eventful sociology contrasts with most social science distrustful of historical particularities; those social sciences seek more generalisable accounts of social change. Sewell acknowledges the possibility that there are temporally heterogeneous causalities that can change over time, embracing the possibility of global or radical contingency, one that might undo or alter the most apparently durable trends of history (Sewell, 2005, pp. 100–103). Developments become eventful only with cultural sociological work, however. As Sewell (2005, pp. 225–270) emphasises, the storming of the Bastille in 1789 only became eventful when particular intellectuals and political figures sought to name the riot an expression of the public's sovereignty over the divine right of kings.

While we need narratives and symbols to recognise and elevate the meaning and consequence of developments, we also need their importance to transcend their most immediate context. For example, were the French Revolution to have failed, and were successors among world revolutionary movements not to have declared that they are following in a revolutionary tradition established in 1789, the eventfulness of that riot would likely be confined to French history textbooks, if

there. We could never have recognised, as Eric Hobsbawm (1996), the Age of Revolution. Nor would we have, as many did after 1989, to have declared the Age of Revolution over with 1989's revolution, begun in Poland in 1980, against the tradition of revolution (Kennedy, 2002).

Epoch ends also need their narratives to be recognised. I was reminded of this as Dr. Anthony Fauci retired from his scientific leadership in the USA where, for over 50 years, he led the struggle against infectious disease (Gonsalves, 2022). While his career's conclusion is noteworthy, it began in the wake of a real epoch end, where the "age of hubris" around eradicating infectious disease crashed before the onslaught of AIDS, Ebola, and other viruses (Snowden, 2008). To recall the sense of triumph as the war to end all wars concluded in 1918 might have also been called hubristic, but its achievement was far too brief to be even recalled now other than as an example of folly.

In short, to figure the eventfulness of any development, and especially their contribution to the recognition of epochal change, we need to think about several things well beyond the event itself: its narrative embeddedness, the qualities of resources moving a story to be told, the immediate resonance of those tales and their measure of surprise, and the actual and virtual range of identifying their consequence for subsequent changes alongside their complementarities with other developments in epoch end. We need to figure their articulations (Kennedy, 2015, pp. 13–14).

The eventfulness of COVID-19 and its implication in epoch end

The eventfulness of COVID-19 is extraordinary for the swiftness and surprise of its consequence, its global spread, and its implications not only for public health but also its political and economic effects. It sparked other kinds of transformations that added to its epoch-ending qualities.

Health, well-being, and politics

In sheerly personal terms, COVID-19 was powerfully eventful. So many families across the world lost loved ones and suffered all sorts of emotional trauma as a consequence. At least in my own home's locale, one feature of the local public sphere was, upon reaching a round number, to count the number of people who died and try to figure the meaning of their deaths (Miller, 2021).

For those responsible for global sensibilities, they were likely in 2020's end to describe COVID-19 in terms similar to these: a "global crisis of unprecedented reach and proportion". The United Nations (2020) declared then that 2 million people died from COVID-19; by August 1, 2022, that number approached 7 million (Our World, 2022). One might have sensed, especially in parts of the world relatively unaccustomed to collective catastrophe, that grief defined culture in ways with which we still reckon.

Well beyond public health and its personal consequences, we can readily recognise that COVID-19 was exceptionally eventful for its politics too.

Like mass shootings, debates about the pandemic's actual danger were fierce, especially in its first 15 months in the USA. Mortality rates were politicised. Even I, no demographer, had to settle into teaching and public discussion to elaborate the meaning of "excess deaths" to explain how we could best estimate COVID-19's effects on mortality.

However, that contest over the reality of COVID-19 made sense in political terms. After all, even Trump's own pollster concluded that he lost the 2020 election because of how badly he managed the pandemic (Dawsey, 2021). After a brief appearance of success, the pandemic, and the ethical scandals it facilitated, also brought down Boris Johnson in the United Kingdom

(Seymour, 2022). It has not brought Modi down in India, even though "senior officials forced scientists at elite institutions to downplay the (Covid-19) threat to prioritise Mr. Modi's political goals" (Singh, 2021). Some thought it could contribute to Bolsonaro's end in Brazil, but a recent court verdict makes that likelihood less certain (Downie, 2022).

COVID-19 has made it hard for governments to appear efficacious, and even truthful. Certainly, the latter is the case for authoritarians, especially those working in polarised political contexts where they manage presentations of data on the pandemic as just another piece of public relations or propaganda. But this is not always the case. Other nations, especially those with experience managing pandemics, fared much better, and more truthfully (Lo, 2020).

A rigorous comparative study of COVID-19's effects on incumbents' popularity across democratic nations, and even authoritarians' hegemony, could be illuminating, especially when considering how truthfulness shapes the effects of governance.

While each nation has needed to figure how to address COVID in national terms, this was also, clearly, a global phenomenon, and must be addressed in its terms too.

Our World in Data (2022) reported on August 1, 2022, that approximately 2/3 of the world's population had received at least one dose of the vaccine; in February 2022, over half of the world had been vaccinated and won one of the more optimistic statements I saw in this pandemic: "a logistical feat without precedence in human history" (Timsit, 2022). But it was the vaccine inequity that drew the critical response: rates of inoculation are far worse in poorer countries. Even as vaccinations are now being more widely distributed, that the wealthy were inoculated first has not been lost on those concerned about how fares those who live their lives in the Global South.

It is remarkable how the global public sphere in the middle of 2022 moved away from debates that overwhelmed it in the spring of 2021. Many worked to turn the global pandemic's inequity into an indictment of capitalist privilege (Bello, 2021). This was not only a matter, they argued, of the poor being last to receive vaccines, but, rather, that vaccine inequity reflected a concern for how property rights over the vaccine seemed to take precedence over getting the pandemic under control. The West's reputation more generally fared poorly in this epoch-ending event when it came to expressing global solidarity. Nationalism seemed to triumph.

One might also, however, have approached this question of global solidarity in more nationalist terms. Authorities could have argued that, especially when it comes to pandemics, global solidarity is in the national interest. For example, Emily Bass (2022) compared HIV and Covid-19. She contrasted their enabling factors, but emphasised US relative failures around the latter, with this searing indictment: „doing more than others is not the same as doing enough."

If inequalities and inequities assumed substantial presence in assessing COVID-19's earlier effects, both within and across nations, it also stimulated recognition of kin injustices. Within the USA, the recognition of systemic racism grew dramatically.

The twin pandemic

Protests in the USA associated with Black Lives Matter surged in the summer of 2021 following the murder of George Floyd. These protests were the largest ever in US history (Morris, 2021). And this was at a time people were cautious to assemble beyond primary groups. In fact, it was common during the pandemic in the USA to hear discussion of the twin pandemic of COVID-19 and systemic racism. Some worked to fuse their sensibilities about injustice and death, apparent, also on social media (Davis & Love, 2021).

> "The BLM movement is premised on the social fact that Blackness can be fatal. Arising after high-profile extrajudicial killings of Black Americans by vigilantes and police, BLM works to highlight and dismantle the systemic conditions that render Blackness deadly. Within the dataset, racism in general, and Black mortality in particular, were situated alongside COVID-19 as dual pandemics, with COVID-19 operating as both a metaphor and a scale for expressions of racial violence."

The very sensibilities the COVID-19 pandemic inspired – an attention to health and well-being, a quest to understand how to interpret data properly, all the while confronting inequalities in the delivery of vaccines, among other qualities – might also have disposed the American public to consider the measures of systemic or structural racism defining their society. It certainly stimulated discussion about how to understand the pandemic.

Over the course of the COVID-19 pandemic, we saw a new kind of public social science emerge. Two exemplars stand out in the USA: Ashish Jha, whose own communicative capacity made him one of the most trusted experts beyond government for explaining the pandemic and what individuals ought to do (Garde, 2021). He became President Biden's coordinator of COVID-19 response in March 2022. Sociologist Zeynep Tufekci was also remarkably effective for explaining how government communications and data analysis were themselves problematic, contributing to poorer policy and practice. As she wrote, „Science's ability to understand our cells & airways cannot save us if we don't also understand our society and how we can be led astray" (Tufekci, 2021). In fact, the head of the Center for Disease Control and Prevention (CDC) announced a major reform of the organisation in light of its failures to address both COVID-19 and Monkey Pox properly (Bokat-Lindell, 2022).

As the anticipated reform of the CDC suggests, the problem is not just a bureaucratic one, but also a matter of cultural imagination. Drawing from the age of hubris when we figured Science could eradicate epidemics, we remain stuck in knowledge cultural silos thinking that particular kinds of expertise are the foundation on which to address crises. But just as epoch end brings together multiple crises, their elements, like a pandemic, can be made worse by the visions that articulate them.

We are at a crossroads when it comes to public health, science, and political authority, resonating with the climate crisis and its own articulations of expertise and governance. There is a full scale cultural war being waged between those who diminish cries of environmental apocalypse and those "science denialists" (Brulle, 2020). With Biden's defeat of Trump in 2020, many anticipated a new era with slogans like "trust the science". It's not clear, however, whether that affirmation is enough given the need to move science's understandings of the virus as quickly as the virus itself mutates (Quammen, 2022). One might argue that we need to insulate science from politics so that its truth might be rendered without interference, but the fragmentation of science itself can lead to the rendering of partial truths that cannot render the full articulation of the calamity facing us.

Indeed, when thinking of COVID-19, we know that its crisis is not just a matter of public health, but also a matter of economics.

Economics

In its 2020 year-end review of COVID-19, the World Bank identified poorer health, greater poverty and economic inequality, lost educational opportunities, and overall economic decline, among other negative effects, as part of the pandemic's cost (Blake & Wadwha, 2020). In its 2022 report, the World Bank declared something similar while praising the initial response

of governments to the crisis in their "decisive economic policy response" (World Bank, 2022). Of course, the pandemic as such is still not over in any nation, an endurance even more true for the world as such.

Already in the middle of 2020, the United Nations forecast the following transformations as a result of COVID: a severe economic contraction of 3.2% as a consequence of lockdowns, disrupted supply chains, unemployment, and depressed demand. They estimated that more than 34 million people would fall into poverty. Governments, as a consequence, would have to introduce major stimulus packages to protect social, and economic, well-being. There was also, however, a concern for international cooperation and global solidarity.

> "Stronger global cooperation is critical, especially to contain the pandemic and extend financial assistance to countries hardest hit by the crisis…The report underscores a window of opportunity for "recovering better", with renewed global solidarity enhancing public health systems, building resilience to withstand economic shocks, improving social protection systems worldwide, greening of economies and addressing climate change."

In 2022, while the United Nations offered concern for the continued pandemic, Ukraine's effects took central stage.

> "Global growth prospects have weakened significantly amid the war in Ukraine, rising energy, food and commodity prices, soaring inflation and tightening monetary policy stances by major central banks. … The broad-based slowdown of the global economy will undermine a full, inclusive and sustainable recovery from the pandemic. This slowdown, and the war in Ukraine – triggering sharp increases in food and fertiliser prices – will hit the developing countries particularly hard, exacerbating food insecurity and increasing poverty. Monetary tightening by the developed countries will increase borrowing costs, undermine debt sustainability, and further constrain the fiscal space to support a full recovery of developing country economies."

Much as experts and agencies beyond public health previously focused on the pandemic now turn their attention to the effects of the war on Ukraine, so shall I. But before I do, one concluding reflection.

The pandemic's consequence for the world has been tremendous. It has invited a global solidarity, given the quality of the challenge, but that has been met mostly on the terms of the rich and powerful. The pandemic has also, however, clarified the importance of science in figuring the virus's pathways and mutations, and truthfulness in figuring the communication of those understandings to global publics. Its implications for public policy and the practice of publics continue to roll out, whether in public health, economic policy, communications, or social welfare. Its effects can generate additional conflict, however, as sacrifices and harms are born unequally and likely graft onto already existing injuries and injustices. There is space, in this contest, for generating a more just society where the precarity of life and of social institutions comes to be recognised, even if too many of those with authority focus more on building back better rather than venturing into new forms of governance and association.

In short, we need not only foster a greater imagination, without hubris, of how to address pandemics and other threats to well-being, but also develop a new approach to knowledge that depends less on defending expert turf and, rather, moves a more flexible articulation of learnedness in the address of crisis.

That challenge becomes even greater when we add Russia's invasion of Ukraine to our imagination of epoch end.

Russian invasion of Ukraine

Analysing the eventfulness of Russia's invasion of Ukraine is both simple and enormously complex, and certainly more challenging that assessing COVID's contribution to epoch end.

First, was the invasion on February 24, 2022, unexpected? On the days, even weeks, immediately preceding, the Ukrainian authorities emphasised things to be normal while the Biden administration underlined the likelihood of full-scale invasion given Russia's encirclement of Ukraine and military entry into Belarus. At the same time, because Russia had *had already* invaded Ukraine in 2014 and occupied parts of its territory in Crimea and the Donbas, Ukrainians knew it possible. It was like living on the edge of a volcano. Those from Poland, Estonia, Latvia, and Lithuania, among others, were also historically primed to expect such aggression (Żaryn, 2022).

What was surprising, however, was the initial trajectory of the war and its months of endurance. Whether Putin himself expected a blitzkrieg-like success is hard to say, but the Russian troops' preparation was certainly not consistent with any anticipation of a long drawn-out conflict, much less subsequent retreat from conquering Kyiv and Kharkiv. Although earlier anticipations emphasised Ukrainian resilience in resisting a Russian occupation, few if any discussed what months of conventional war would look like.

That endurance is realised first and foremost by the courage and military accomplishments of the Ukrainians themselves, but significantly and meaningfully by the solidarity they have received from a remarkably united West. That is first and most meaningfully tangible in terms of the weapons the Ukrainians have received, and the efficacy of their use in this conflict. Putin likely expected Western solidarity to collapse, especially in the face of economic difficulties, and must have anticipated that past military tactics associated with brutal, criminal warfare would realise similar effects as Russians found in Chechnya and Syria. They have not been triumphant in the first six months of this war, however.

Solidarity not only endured but was meaningfully extended as Finland and Sweden dropped their ambitions for neutrality and sought entry into NATO. Too, with this experience and new weaponry supplied, the Ukrainian military itself becomes an invaluable future member of the alliance. More remarkable, perhaps, is the new willingness of the European Union to offer Ukraine and Moldova candidate status, even if that remains more of a promise than a real institutional transformation. Anticipated futures can matter, however.

As of this writing, however, the war trajectory itself is hard to interpret. Can Ukraine force Russia out? Will Russia sever Donbas from Ukraine? And what about Kherson even as Ukrainians launch a counter-offensive to retake the city? By now, daily tales of what happens in particular places across Ukraine not only overwhelm the Ukrainian public imagination but shape global publics, too.

Who could have imagined, for example, that general publics, or at least reporters, in the USA would be familiar with not only Odesa, L'viv, and Kharkiv, but also be likely to say Kyiv, the Ukrainian pronunciation, instead of Kiev, the Russian one more familiar in the English-speaking world? We even discuss now how what has happened in Mariupol, Bucha, and Kherson matters. In all of this, Ukraine has become a prominent actor in the world historical imagination, and what happens there, and what Ukrainians do, can shape global futures in the end of an epoch. But it is not just a matter, important as it is, of winning a war.

In this, the Ukrainian struggle is much different than a relatively focused one on COVID-19 and its distribution. Consider these different issues emanating from the war as such.

Institutionally-distant consequences

One can begin with war's effects by considering those most immediate, but I begin with what I call institutionally-distant consequences. At the least, this war has terrific bearings on those who must manage and engage policies and practices around refugees, energy, and famine.

Refugees

On August 3, 2022, the New York Times (Santoro et al, 2022) featured the story of Ukrainian loss this way, with the fate of refugees leading:

> "The merciless accounting that measures the losses from Russia's invasion now includes about 6.2 million Ukrainian refugees elsewhere in Europe, according to the United Nations, and another 6.3 million "internally displaced."
>
> That means that about 30 percent of the country's estimated prewar population of 41 million has been forced from their homes, amounting to by far the largest migration crisis in Europe since the aftermath of World War II."

Displacement overwhelms the people of Ukraine, rather evenly distributed within Ukraine and in other parts of Europe, most notably Poland. Russia has taken in a similar number as Poland even as some accuse the invader of relocating some of this population to Russia against the wishes of those displaced.

Some have cautioned that Ukrainian refugees from a war fought on behalf of European freedom could realise the same destabilising effects that previous more explicit weaponisations of migrants sought (Editorial Board, 2022). Especially within Poland, the complexity, and challenge, of managing this across different levels of government, and within civil society itself, is understood by the well-informed within and beyond Europe.

However, many also recall the ways in which previous migrations were themselves weaponised, increasing international tensions and polarising domestic politics, all with authoritarians' desired wish to undermine European solidarity itself (Harlan & Zakowiecki, 2022). Those associated with Poland's current government justify its earlier decisions, declaring that "neutralising the dangers stemming from illegal migration" and "providing logistical support as befits the armed forces of a frontline country" are categorical alternatives. I am not so sure, but I agree: one might speculate that "Lukashenko's hybrid efforts were a kind of prelude to or exercise ahead of the 24 February attack" (Żaryn, 2022).

The contradictions facing Poland and other countries, including my own, around politics, justice, and security in managing global migration flows are substantial. It is too easy to interpret these dilemmas solely through a national(ist) lens. Scholars, and public figures, must work more seriously in addressing these matters, engaging the most critical works (e.g. Besteman, 2020) in addition to those which more readily come to the desks of those managing policy. We must embrace contradictions here rather than bury them. Consider this case in point.

When Professor/Ambassador Krzysztof Szczerski (2022) spoke before the United Nations on February 28, 2022, about the solidarity his nation expresses not only with Ukrainians, but with all refugees from this war, regardless of national origin, he did much to extend the meaning of "for your solidarity and ours" [Pol. "*za wolność naszą i waszą*"]. That was a good moment for the spirit of solidarity and challenge to those who manage, and are responsible for, global flows

of refugees and other migrants. That expression, however, has not come to dominate the world's interpretation of aid for refugees of colour across Europe, and even in Poland.

To the extent this war continues and displaced Ukrainians stress the social infrastructures of those offering solidarity in this and other ways, the greater the likelihood that the measures of virtuous mutuality realised in this war will dissipate, much as it is already risked by charges of racism in migrant reception.

Energy

Again, those who have experienced Soviet domination were right to call out the dangers of energy dependency on Russia. Kennedy (2015) noted the challenge, on a global scale, of getting those who would critique carbon dependencies to recognise more immediately the dangers of Russian energy power.

One of the great effects of this war has been to solidify those critiques of Russian energy powers. At the same time, despite the terrific proclamations of weaning Europe from that dependency, there is a real waiting game in play: who can suffer more longest? Will Russia, especially as it makes money from the growing price of energy, outlast European democracies' comfort with increasing energy insecurity, especially as winter approaches? Recent accounts issue dire predictions of the coming winter not only in Europe but across the world (Wallace-Wells, 2022a).

There is a genuinely transformational solidarity in the air, and in proposal, if US allies could agree to adopt price caps on how much they pay for Russian oil and thus limit the profits Putin's Russia has to fund its assault on Ukraine. This policy promises brilliance (Editorial Board, 2022a). But this is only a plan to weaken the Russian war machine within this energy complex.

Overriding that promise is this kind of stark warning from Fatih Birol, the leader of the International Energy Agency: "The world has never witnessed such a major energy crisis in terms of its depth and its complexity. We might not have seen the worst of it yet -- this is affecting the entire world" (Stringer, 2022). This is, to the say the least, an ominous warning without even centring the climate crisis itself, something to which I turn in the end of this paper.

Famine

The global food crisis does not have its origins in Russia's invasion of Ukraine; other factors have already brought the world, and some regions in particular, to the brink of catastrophe. Russia's assault on Ukraine and blockade of Ukrainian food shipments does, however, make it all worse. The World Food Programme (2022) puts it succinctly:

> "A global food crisis, fuelled by conflict, climate shocks and the COVID-19 pandemic is growing because of the ripple effects of the war in Ukraine driving rising prices of food, fuel and fertiliser. Millions of people across the world are at risk of being driven into starvation unless action is taken now to respond together and at scale."

Nonetheless, Ukrainians have been relatively effective in making the argument, together with Americans and other allies, that Russia is, in this context of war, solely at fault (RFE/RL 2022). In that context, Turkey has positioned itself as ever more central, where its role in assuring safe passage of grain exports from Ukraine, past Russian warships, seemed promising already in June 2022. While there is considerable effort focused on that resolution, there is an abiding recognition:

„When the history of the Ukraine war is written, Russia's reckless action in weaponising food & deliberately disrupting global supplies… may be counted a bigger crime than even its unprovoked attack on its neighbour" (Tisdall, 2022a).

Acknowledging that the global famine is not caused by Russia's invasion of Ukraine is necessary (Walsh, 2022) but at the same time, one needs to attend to how Russia's weaponising food is part of a larger argument about Russian criminality in this war.

Ramifications of the war's prosecution

Beyond the question of who wins this war, regardless of its outcomes, the criminality of Russia's prosecution of this war must be, and will be, recognised. We do not know how it will, but we need to keep it foregrounded, for it frames the interpretation of this conflict and its repercussions.

War crimes

The invasion itself, experts argue, was illegal. Already on March 23, 2022, one month after Russia's invasion, US Secretary of State Blinken (2022) identified the targeting of innocent civilians alongside indiscriminate attacks in population dense areas, with disproportionate harm caused by some of the weapons used, notably cluster bombs, as war crimes.

Russian soldiers have looted the homes of, and raped, tortured, and massacred the defenceless, most notoriously in Bucha, where evidence has been gathered after Ukrainian military resistance forced the Russians to retreat. Russian military forces, it is charged, have also forcefully deported Ukrainian citizens, including children, to Russia.

Criminal treatment of prisoners of war have been noted on both sides, but Russian claims that the bombing of a detention facility holding Ukrainian soldiers was committed by Ukrainians is ludicrous. Murder of prisoners of war like that is another instance of brutal, criminal, behaviour.

Charges of genocide itself have been levelled (Hook, 2022), with Putin not even trying to hide that he wished to eliminate the Ukrainian nation as such. Days before the 2022 invasion he declared, again, that Ukraine, as a nation, was a fiction (Schwirtz et al., 2022). His invasion seeks to confirm that historical academic argument with Ukraine's military destruction.

Weapons of mass destruction and information warfare

Putin has himself warned in a variety of ways that he could use nuclear weapons in the event of danger to Russian security. Chemical and biological weapons are also possible, and, in fact, have already been used by Russian forces in Syria. Some argue that the effects of these weapons' discharge might even happen accidentally and are of much more critical concern (Sokov, 2022).

On Twitter, I have termed this the "escalation debate", because it has become so familiar. Fearing nuclear or other cataclysmic weapons, its publicists reference escalation, because they fear that by arming Ukraine, having it push "too far", could lead Putin to use, by design, such weapons. Their argument's opponents rather declare that Russia has already crossed the threshold of feared cataclysmic response, and that conceding to his demands bears great analogy to Chamberlain's response to Hitler. Fear of the Other leads to domination by that Other, they argue.

It is in this context that we see extensive discussion of what Putin really wants, whether he is mad, whether he might be contained with compromise. It represents a complex set of signals

that diplomats and experts use to influence their own authorities, and, together, to influence others in information warfare.

These debates about escalation are also closely tied to concerns that the fight within Ukraine could become a World War as NATO countries supplying weapons to Ukraine could be accidentally, or even purposely, attacked, which, in turn, could lead to fall scale NATO response.

These debates proliferate, with an effect of containing the contest about the war into a 'too much vs too little' support for Ukraine debate. It is a smooth extension of the past into the present and future, where echoes of the Cold War logic reverberate in a cage of militarist logic that seems impossible to escape.

Militarism

In the end of the 1950s, one of my intellectual forbearers, C. Wright Mills (1958), wrote about the causes of World War III. He declared that its most immediate cause was preparation for it. He anticipated a series of public interventions that sought nuclear disarmament and reduction of weapons more generally in the pursuit of peace. Gonzales et al. (2019) extend that work along a number of dimensions, including distinctions between militarisation and militarism, where the first refers to the process, and the second to the military's dominance in defining problems and solutions.

The public case for de-nuclearisation and nuclear non-proliferation has been severely weakened by Russia's invasion of Ukraine. Too, the importance and value of continued investment in weapons technologies for countering assaults by larger and more massively armed neighbours have been extraordinary. The names of weapons and their utility in fighting the Russian army has become part of a global public discourse: Javelins, Neptune Missiles, and HIMARS rocket launchers illustrate.

I find all of this convincing, but I also find terribly under-attended the results of this growing belief in the power and value of weapons technology for securing peace and justice. As weapons manufacturers make ever more profits, as nations who support them depend ever more for their reputations and influence on their production and trade, and while Ukraine's defence can rely only on Ukrainians willing to fight and die with ever more powerful and precise weapons supplied from without, the movement towards diplomacy in lieu of violence is likely to be strained. I do not know where it is going, but it is going to reshape the next epoch.

The concluding narrative of this war, should Ukraine win or at least defend its sovereignty and join the NATO, will be organised around the value of militaries and their technologies to assure independence, peace, and democracy. The precarity of diplomacy and negotiations when weapons become ever more consequential in deciding futures is something to attend.

Militarisation, or militarism, in the world will escalate even more, regardless of this war's outcome. For now, however, it appears to be the least threatening of the number of global consequences heralding epoch end.

Global military, colonial, and environmental contexts

Here I move beyond the immediate consequences of the war, and its institutionally-distant but socially-proximate effects, to consider global military, colonial, and environmental contexts with varying distances from the war.

There are a number of publications that work to figure the geopolitical effects of this war on different places and relationships (e.g. ORF, 2022). However, when Western scholars and policy-makers articulate those ramifications, they focus first on international security regimes while considering the need for Western powers to refigure the NATO while putting the transformation of its force posture towards China on relative hold. China had dominated the geopolitical intellectual imagination before the invasion (e.g. Economy, 2022), but now those interpreting global crisis through military powers must figure what China's alliance with Russia means.

It could solidify and make it a critical element in the definition of European, and US, security (e.g. Polyakova et al., 2022). But this is a matter of great debate. Bobo Lo (2022), for example, doubts the "axis of authoritarians" argument that democratic powers are likely to foreground as a basis for their own solidarity; instead, he sees their relationship as one based on "strategic calculus" itself strained by the war. Goldstein (2022) by contrast sees the relationship as more durable, notably by the institutional coordination of their military forces even beyond Xi's Russian affinity. Regardless, Westad (2022) typifies Western policy debates by encouraging the West to watch for the cracks in that authoritarian alliance and magnify them.

Taiwan's status in this conjuncture is increasingly apparent. Western experts on the Chinese military present evidence that the Chinese are paying close attention to what Russia's failures have been in its Ukraine operation with an eye towards an amphibious assault, with close air cover, on Taiwan, even while they state their concern that such a conflict could result in nuclear war (e.g. Goldstein, 2022a). It is clear, however, that the results of Russia's invasion of Ukraine will shape Taiwan's fate.

Far closer to the conflict, the situation in Belarus is deeply implicated in the war in Ukraine. Russian ground troops and missiles are stationed in Belarus, with the country's dictator increasingly dependent on Putin for staying in power. The opposition to Lukashenko identifies very much with a sovereign Ukraine. Belarusian volunteers have mobilised and joined other international fighters in the struggle against Russia. For Belarusian civil society, however, this is a much more proximate solidarity than for Taiwan, since Belarusians see a Ukrainian victory as one that takes one critical peg out of the support on which their own dictator relies.

These concerns for global consequences are, however, framed by those ruling the global order through their historical, and emerging, imperial legacies.

One of the most striking outcomes of this war has been Ukraine's identification with anti-colonial struggles and decolonising knowledge. This is not just a matter of sovereignty, but, rather, a framework that seeks to link Ukraine's own struggle for cultural recognition over and above and in opposition to Russian declarations that they are merely a part of Russian history and/or Soviet anti-Western practice.

This is of terrific consequence, because Russia has long been able to rely on its Soviet past and claims to have been an anti-colonial, anti-imperial, force. One of Russia's persistent messages mobilising support not only from its explicit ally, China, but also from ostensibly democratic India and other nations in the Global South has been that Russia fights in this war against Ukraine also against the NATO and Western hegemony. That continues to resonate in ways too many in the West overlook (Shryock, 2022).

Russia's anti-imperialist stance is an old story, and one that does not recognise new forms of Russian imperialism in Africa (Harshe, n.d.). Likewise, not all decolonising efforts recognise forms of Russian colonialism in Ukraine and other parts of the former Soviet Union. Indeed, some propose that decolonising Russian political discourse & culture "will debunk the myth

of Russian imperial innocence & victimhood & restore dignity of the colonised" (Kassymbekova & Marat, 2022).

This broader effort to reframe global cultural and power relations so that the USA and the West are not the only imperial agents worth resisting is a critical step in undermining the cultural frames that allow, for example, India to retain its ties to Russia under a lens of the Global South solidarity.

Finally, the most obvious global context to consider in this world historic conjuncture is the environmental one. During the summer of 2022, David Wallace-Wells (2022) wrote that "one disaster often seemed layered over the last, with newspaper front pages almost identical across the Northern Hemisphere. In July, Carbon Brief's Simon Evans began compiling them on Twitter, running out of steam when he got past 100. Climate segments of newscasts cut quickly from one part of the world to another, telling almost identical stories, day after day". This is the biophysical environment in which the War in Ukraine is prosecuted, and the effort to recover from the pandemic pursued.

The eventfulness of COVID-19 did not translate into a greater environmental consciousness about the climate crisis surrounding us now, and even more, into the future. Some have also argued that COVID-19 had a relatively positive impact on the environment, and was so named with "anthropause" to indicate the reduction in environmentally-harmful human activity with reductions in consumption, consequent production, and mobility across various distances (Rutz et al., 2020). With stimulus packages as a means of restoring economic activity following the pandemic, many nations have introduced green economic policies, too. The range of effects from the pandemic and its policies and practices in response, both positive and dangerous for environmental well-being, is considerable and deserves wider attention.

By contrast, the environmental catastrophe unleashed by the war in Ukraine is evident and disastrous, even if regionally-focused. Ukrainians are fully aware of the climate crisis happening in their lands, in their water, in their air. "The shelling of forests, land and marine ecosystems, industrial facilities, transport infrastructure and houses, as well as water, sanitation and waste management infrastructure, has caused widespread and severe damage, with immediate and longer-term consequences for human health and eco-systems " (OECD, 2022). The methods of war that Russians deploy might themselves be considered environmental war crimes (Jones, 2022).

Optimists argue that this crisis could be the spark that moves not only Ukraine, in reconstruction, but also Europe, towards renewable energy (Larsson, 2022). It is hard to predict, and there is dissensus within the European Union, but the war has broken Europe's ideological if not actual reliance on cheap Russian energy to relatively green effect. But that is in the long run. There is some danger, then, that the focus on energy transition might become an after-thought to the war in Ukraine and its energy and economic consequences (Wallace-Wells, 2022a).

The environmental catastrophe associated with global warming, with floods and heat waves as among their most obvious manifestations in 2022 summer, is its own event, its own epoch end.

What narrative of epoch end might complement that sense of climate crisis alongside cataclysmic war and deadly pandemic with all of *their* consequences?

Rearticulations of crisis in epoch end

Actually existing democracy is not the answer. Global solidarity is the start.

One of the initiatives undertaken in 2021's end by the Biden administration was to work to establish an Alliance of Democracies in order to "support independent news media overseas,

combat corruption, aid activists, advance technology, defend fair elections, combat digital authoritarianism…" (Crowley & Kanno-Youngs, 2021). That, even then, hardly seemed enough, and was made even worse by the realities of geopolitical alliance with allied dictatorships. Saudi Arabia stands out in the summer of 2022, but it was just as obviously problematic then.

Democracies may claim to share certain values, but one value to avoid is to instrumentalise democracy's principles through the definition of alliances. Open Society Foundations organised a panel to discuss Biden's initiative, where the problems readily anticipated were reproduced (Abramowitz et al., 2021). Joe Asunka's contribution was particularly important: he declared that violations of democratic principles need to be challenged regardless of where they take place. Although his reference was to Africa, it deserves wider application.

OSF President Mark Malloch-Brown was part of that discussion, and rather seemed to affirm the value of Biden's approach pitting the world's democracies in solidarity against the world's autocracies. In an era where Ukraine defends itself from a Russia (what Timothy Snyder has helped to popularise) defined by *#Рашизм*, where Taiwan's distinction rests in declarations to be at the heart of global democracy's defence (Chen, 2022), claiming democracy's value seems to articulate global solidarity as such. But it must be more than words, it must be more than military defence, and it must be more than an alliance of actually existing democracies.

As Mark Malloch Brown himself offered on July 4, 2022, "By treating the global food, energy and debt pressures as secondary to the war in Ukraine, the Group of 7 missed a golden opportunity to help the world's hungry and disprove Vladimir Putin's narrative of the liberal world order as a spent force that cares nothing for the poor. Rich countries may already be losing that battle for hearts and minds."

Malloch-Brown's concern might also be found in the treatment of the global pandemic, and the priority given to the rich and powerful in the pandemic's treatment. Some called that vaccine nationalism, but one might extend that concern, especially in epoch end's rearticulation, especially in the redefinition of nationalism in Russia's war on Ukraine.

Nationalism in this world is the trump card of all identities (Calhoun, 1997). Indeed, it figures powerfully in Ukraine's defence from Russian invasion – Ukraine fights for a sovereign nation, one defined by its own self-determination and invitation for broad and inclusive redefinition. *Слава Україні*, easily associated with a fascist past by those familiar with Polish and Jewish suffering, has been redefined by a Ukrainian Jewish president in defence of Western democracy. Poles have transformed lingering suspicions of Ukrainian otherness into an embrace, manifest in refugees' welcome and diplomatic and material support. Abandoning pretences of neutrality in a Europe, and the world, at risk of barbaric assault and criminal invasion, Finland and Sweden redefine their nations and their neighbourhoods to join an alliance organised around the military defence of democracy and freedom.

This is a world transformed, or at least a Global North transformed. But if it remains within that regional reference, the epoch end we see will be the continuation of injustice for those in the Global South.

The global transformation intimations of epoch end's promise cannot be limited by reliance on the generosity of those most powerful and privileged in it. If anything, the repercussions of global famine, energy crisis, unprecedented migration, and environmental catastrophe reveal that sovereign democracies are no solution, especially when it becomes a fortress for the defence of existing rules organising the distribution of power and privilege. If anything, the COVID-19 pandemic should remind us of the futility of those boundaries, especially with growing catastrophes on

epoch end's horizon. Solidarity must be recast in order to develop policies and practices suitable to the next epoch.

Ukraine's example in this, then, is key. It could very readily inspire us to extend the "rule-based order" that the West is so eager to defend from Putin's disruption of it to include more of Europe. That *would be* the beginning of a great new epoch for some. But it is hardly sufficient to address the injustices apparent in the global pandemic, militarism, energy, food, migration, and environmental crisis that, no matter how you look at them, articulate epoch end in 2022.

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Europe's Green Deal: Is the Middle Class Left Behind?

Abstract:

Objective: In this paper, we fundamentally question the Fit for 55 starting assumption that reducing household energy consumption is beneficial or even neutral (i.e. not detrimental) for households in all Member States in the short period up to 2030. This article identifies the plight of households unable to improve their well-being without increasing the consumption of fossil fuels. Tackling energy poverty and addressing social inequality issues is a cornerstone. Around 35 million people live in energy poverty in the European Union (European Commission, 2023), and tens of millions more are at high risk of energy poverty. However, ensuring the well-being of EU citizens requires a broader awareness of the implications of reducing fossil fuel use.

Research Design and Methods: The research methodology relies on a range of quantitative methods: Gini coefficient, Hoover index, Decomposition adjusted Hoover index, rank correlation coefficient, path analysis, and decoupling factors are presented. We also analyze from different perspectives highlighting inequalities and the direct and indirect relationship between residential energy use and HDI and decoupling.

Findings: Based on projected policy impacts, consumers will need to pay more for using fossil fuels. Higher energy taxes will likely impact middle-class families who are not the EU's Climate Fund targets. Based on our previous projections, at least the bottom two-thirds of the middle class (which roughly represents the 2nd, 3rd, and 4th quintiles) also need support. There is a risk that in countries where HDI and per capita household energy use are still tightly connected, the growth in household energy use (driven mainly by higher incomes and increasing human welfare) will be strongly constrained by higher energy costs. In the EU energy convergence will slow down, or even stop, so that the current spatial disparities in HDI and in residential energy use will persist.

Implications: Decreasing the differences in HDI and residential energy use is necessary to achieve social and economic convergence and reduce the inequalities in living standards across the EU Member States. Changes in household energy use in the EU have both direct and indirect impacts on HDI; any increase or decrease in energy use will be immediately reflected in human well-being.

Contribution/Value Added: This article highlighted those countries most exposed to a reduction in well-being. Member States below the saturation point are at a much higher risk of negative impacts of residential energy use on human development. Tackling energy poverty is a very important issue, but in this case, at least the bottom two-thirds of the middle class (which roughly represents the 2nd, 3rd, 4th quintiles) also need support. This could include preferential loans, grants, and technical assistance to enable them to make the necessary energy efficiency improvements and deep renovations that will bring real energy savings.

Article classification: theoretical/review paper

Keywords: residential energy consumption, human development, Fit for 55, energy poverty

JEL classification: *Q43, Q48*

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Introduction

In December 2019, the European Commission presented the European Green Deal, the long-term strategic agenda for integration. It builds on more than ten policy initiatives, such as the 'Fit for 55', 'Circular economy action plan,' and the 'Farm to fork' strategies. One of the three priorities is to 'leave no one behind' in the energy transition. Tackling energy poverty and addressing social inequality issues is a cornerstone. However, ensuring the well-being of EU citizens requires a broader awareness of the implications of reducing fossil fuel use. This article identifies the plight of households unable to improve their well-being without increasing the consumption of fossil fuels. Decoupling household well-being from energy consumption requires refining current EU policies in the Fit for 55 policy package.

The policy goals for Fit for 55 are: 1) Reduce greenhouse gas emissions to net zero by 2050; 2) Decouple economic growth from resource use; 3) Leave no one behind (European Commission, 2021a). The European Green Deal is about ensuring a green, sustainable, fair, transparent, affordable, fast, and comprehensive energy transition that benefits all EU citizens and businesses. The Fit for 55 package aims to achieve a net 55% reduction in greenhouse gas emissions by 2030 through energy efficiency improvements, an increasing share of renewable energy, and energy conservation. In response to Russia's invasion of Ukraine, the European Commission in May 2022 created the REPowerEU plan to accelerate Fit for 55 outcomes to reduce natural gas (Arthur Cox LLP, 2022).

One of its main pillars is the Emissions Trading System (ETS) and the Energy Taxation Directive (ETD) extension feeding the EU's Social Climate Fund. The extension of the ETS to road transport and buildings and the amendment of the Energy Taxation Directive (introducing new ETD minimum taxes) will likely increase household energy expenditure in the long term (European Climate Foundation & Cambridge Econometrics, 2021). This will affect all EU households to varying degrees.

Based on projected policy impacts, consumers will need to pay more for using fossil fuels. The EU's Social Climate Fund contains €87 billion from a carbon tax on petrol, diesel, and heating. Money raised will be directed at vulnerable households. However, as this article shows, human well-being in some EU Member States may decrease in social groups not deemed vulnerable. The 2022 rapid rise in electricity and gas prices prompted governments to deliver aid to households. Higher energy taxes will likely impact middle-class families who are not the EU's Climate Fund targets. Based on our previous projections (Szép et al., 2023; Weiner & Szép, 2022), at least the bottom two-thirds of the middle class (which roughly represents the 2nd, 3rd, and 4th quintiles) also need support not only in Hungary but probably in many other Member States too. It is also confirmed by Steckel et al. (2022), who focus on the regressive impact of soaring energy prices. They conclude that "energy prices increases affect low- and middle-income households more than high-income households relative to their total expenditures" (Steckel et al., 2022, p. 2).

In practice, a minimum tax will double France's gas heating cost by 2030. In Poland, it will increase by 70% (compared to the level before the adoption of Fit for 55), with 17% of the population in the latter country currently living in energy poverty (European Climate Foundation & Cambridge Econometrics, 2021). Even if Polish households choose a heating fuel not covered by the ETS, minimum taxes would still increase their energy expenditure on heating by 25%, significantly reducing disposable income (European Climate Foundation & Cambridge Econometrics, 2021).

There is a dramatic need to deliver effective policy responses. It is envisaged that the most vulnerable households, those living in energy and mobility poverty, will benefit from support based on the 'Social Climate Fund' (European Commission, 2021b). The current energy crisis (2021–2022) illustrates that even developed Western European countries (e.g. the Netherlands, Germany, or the former EU member UK) need to make considerable efforts to support households, improve energy efficiency, and reduce energy use. The burden is proportionally even greater in post-communist countries due to lower incomes.

In this paper, we fundamentally question the Fit for 55 starting assumption that reducing household energy consumption is beneficial or even neutral (i.e. not detrimental) to households in all Member States in the short period up to 2030. The aim is to show that higher energy use in the household sector is closely linked to higher human development in the European Union (in this case HDI), which, as defined by the UN, is about expanding people's freedom and opportunities as well as improving their well-being, and about the real freedom that people may choose who they want to be, what they want to do, and how they want to live (United Nations, 2015). There is a risk that in countries where HDI and per capita household energy use are still tightly connected, the growth in household energy use (driven mainly by higher incomes and increasing human welfare) will be strongly constrained by higher energy costs associated with expanded ETS and ETD schemes. Thus, compared to those countries where decoupling has already taken place, residential energy use will stabilise at a lower level. In the EU energy convergence will slow down, or even stop, so that the current spatial disparities in HDI and in residential energy use will persist.

The rest of this paper is organised as follows. The literature review section summarises the main research findings. The research methodology section introduces the applied data and methodology: Gini coefficient, Hoover index, Decomposition adjusted Hoover index, rank correlation coefficient, path analysis, and decoupling factor are presented. The following section shows the results, including our main finding on inequalities, direct and indirect relationship between residential energy use and HDI, and decoupling. Broad policy options are provided in the conclusion section to address those countries most disproportionally affected by Fit for 55. The hypotheses tested in this study are:

- H1: There are major inequalities in residential energy use between Member States.
- H2: There is still a strong link between residential energy use and human development in the European Union. However, the east-west divide between Member States is also evident here, with the old Member States showing a much weaker relationship between energy use and human development than the post-communist countries.
- H3: Fit for 55 neglects the impact of residential energy use on human development and jeopardises the social and economic convergence of the European Union.

Literature review

There is a void in the current energy policy, which recognises regional differences in energy use in the European Union. Convergence of residential energy use is not included in the Fit for 55 objectives, and the impact of measures on human development is not examined. These factors are not taken into account in the 2050 Carbon Neutrality Plan. Yet, social and economic convergence has always been a significant vision of the European Communities and later of the European Union. In what follows, we will put energy inequalities in a broader context, show the relationship

between residential energy use and human development, and identify those Member States where these two factors are still closely linked.

As the World Bank points out, after the impact of the 2008 financial crisis, the 'convergence machine' in the post-socialist region has accelerated (Ridao-Cano & Bodewig, 2018, p. 18). If one of the main benefits of EU membership is convergence to higher living standards (and human development), which obviously translates into higher GDP and disposable income, higher quality of education, health, housing and living conditions, then it is to be expected that inequalities in other areas will also be reduced. For example, research in Poland demonstrates the benefits of energy efficiency renovations for employment, the economy, and the wellbeing of society (Urge-Vorsatz, Wójcik-Gront, and Tirado Herrero 2012). More broadly an awareness of the co-benefits of energy consumption and energy efficiency on living conditions can also deliver rapid benefits to society (Pachauri, Urge Vorsatz, and LaBelle 2012). In other words, there may be a need to minimise differences in household energy consumption (adjusted for climate) with an awareness of the benefits of policy implementation. Overall, the distributional effects of climate and energy policies are regressive, so they increase the existing inequalities (Vona, 2023).

Practical experience shows that human well-being is closely linked to final energy consumption. However, in parallel with economic development, this strong positive correlation weakens over time, and the importance of energy use declines, removing the 'push' or incentive effect (Wu et al., 2012). Energy use and human well-being decoupling is called the saturation point (Arto et al., 2016; Martínez & Ebenhack, 2008) or a plateau point (e.g. (Mazur, 2011; Nadimi & Tokimatsu, 2018; Pasternak, 2000). Beyond this point, the correlation becomes weak. Increasing energy use does not contributes to human development beyond this saturation point. Therefore, higher human well-being is sustainable even with decreasing energy use (Martínez & Ebenhack, 2008; Mazur, 2011; Steinberger & Roberts, 2010, p. 425; Tran et al., 2019).

The theory of the relationship between energy use and human development is well established, with six main approaches:

1. decoupling analysis aiming to determine the saturation points (e.g. Akizu-Gardoki et al., 2018; Arto et al., 2016; Brecha, 2019; Dias et al., 2006; Krugmann & Goldemberg, 1983; Martínez & Ebenhack, 2008; Pasternak, 2000; Steinberger & Roberts, 2009, 2010; Tran et al., 2019);
2. social inequality studies (e.g. Gaye, 2007; Jacmart et al., 1979; Jacobson et al., 2005; Pachauri & Spreng, 2004; Wu et al., 2012);
3. energy convergence and other spatial inequality studies (e.g. Gaye, 2007; Jacmart et al., 1979; Jacobson et al., 2005; Pachauri & Spreng, 2004; Wu et al., 2012);
4. causality analysis (e.g. Assadzadeh & Nategh, 2015; Jorgenson et al., 2014; Kanagawa & Nakata, 2008; Mazur, 2011; Nadimi & Tokimatsu, 2018; Ouedraogo, 2013; Pasten & Santamarina, 2012; Ray et al., 2016; Sušnik & Zaag, 2017; Sweidan & Alwaked, 2016);
5. studies estimating the minimum level of energy use (thresholds level) required to achieve a certain level of human well-being (e.g. Brecha, 2019; Dutta et al., 2018; Krugmann & Goldemberg, 1983; Leung & Meisen, 2005; Martínez & Ebenhack, 2008; Pasternak, 2000; Steinberger & Roberts, 2009, 2010);
6. empirical research estimating the distributional effect and establishing offsetting policies (Steckel et al., 2022; Vona, 2023).

Research methodology

The analysis of the relationship can be carried out at the level of the national economy, but also for individual sectors or consumers (households, companies). This study focuses on households that play a key role in meeting environmental, energy, and climate targets (both 2030 and 2050). Households accounted for 28.03% of final energy consumption in 2020, making them the second largest energy user in the European Union after the transport sector (Eurostat, 2022). The study of households, focusing on inequalities and disconnection in household energy use, is an underrepresented research area in energy economics (Wu et al., 2012). The main objective of this study is to fill at least a part of this gap due to investigate the distribution of household energy use and identify saturation points in the European Union, 2000–2020. To make the analysis more structured and in-depth, the 27 EU Member States are divided into two main broad groups and 7 sub-groups based on energy cultures (LaBelle, 2020):

1. 14 old member states plus Cyprus and Malta (OMS):
   - Scandinavia (Denmark, Finland, Sweden),
   - West (Austria, Belgium, France, Germany, Ireland, Luxembourg, the Netherlands),
   - Mediterranean (Cyprus, Greece, Italy, Cyprus, Malta, Portugal, Spain, Portugal);
2. 11 post-communist member states (PCMS):
   - Baltic States (Estonia, Latvia, Lithuania),
   - Visegrád Four (the Czech Republic, Hungary, Poland, Slovakia),
   - Former Yugoslavia (Croatia, Slovenia),
   - Later joiners (Bulgaria, Romania).

Several factors, including different development paths and economic characteristics, justify the separate analysis of each group of countries. In the post-communist Member States (as a result of major political and economic changes), a transition from planned to market economies has taken place and is still ongoing. Most of these countries have inherited an energy-intensive industrial sector, long dominated by heavy industry, and which still struggle with a high dependence on primary energy sources and other raw materials. The economic structure has changed significantly over the last three decades, and energy intensity has improved due to de-industrialisation processes coupled with technological progress. However, PCMS countries have lower energy efficiency in end-use sectors compared to the OMS group. This is especially true for the household sector, where energy poverty is still an existing problem, which can be explained by poor (technically-obsolete) buildings, relatively high energy prices and low disposable income (LaBelle & Georgiev, 2016; Weiner & Szép, 2022).

The quantitative analysis can be divided into three main parts. First, the territorial differences and inequalities are examined regarding the residential energy use per capita in the EU member states. In order to do that, we apply the Gini coefficient, the Hoover index, the Decomposition adjusted Hoover index, and the rank correlation coefficient. Secondly, a path analysis is conducted to reveal the relationship between the residential energy use per capita and the HDI. Thirdly, the decoupling factor is calculated with a double purpose: a) identifying the EU member states that have already reached the saturation points (delinking of residential energy use per capita from HDI can be observed); and b) describing these saturation points.

Table 2 shows the applied tools for measuring inequalities. A Gini coefficient of zero expresses perfect equality, while a Gini coefficient of 1 refers to maximal inequality among values (Nemes Nagy, 2005). The Hoover index ranges from 0 to 100%. It shows what percent

of the examined attribution should be redeployed among the examined territorial units to make its spatial distribution exactly the same as that of the other attribution examined Nemes Nagy, 2005). Furthermore, the Hoover index can be decomposed into components based on different country groups (so-called decomposition adjusted Hoover index). The rank correlation coefficient measures the degree of similarity between two rankings, and it may highlight the changes of rank over time. The coefficient is high (but the maximum value is 1) when observations have a similar rank (Kincses, 2015; Nemes Nagy, 2005).

Table 1 presents the applied data and its sources. The sample period is from 2000–2020. For the cross-sectional analysis, three years are highlighted: 2000, 2010, and 2020.

Table 1. Applied data and their abbreviations

Abbreviation	Indicator	Source
HDI	Human development index	(UNDP, 2020)
POP	Population on 1 January – total [persons]	(Eurostat, 2022)
RES	Final energy consumption in households per capita (Final consumption – other sectors – households – energy use/ Population on 1 January – total) [toe]	own calculation based on (Eurostat, 2021)
SHE	Share of households in final energy consumption (Final energy consumption in households/Final consumption for energy use) [%]	own calculation based on (Eurostat, 2021)
DIST	Inequality of income distribution [%]	(Eurostat, 2022)
HEX	Final consumption expenditure of households per capita (current prices, EUR per capita)	(Eurostat, 2022)
URB	Urbanisation [urban population, % of total population]	(World Bank, 2022)
MAN	Manufacturing, value added [% of GDP]	(World Bank, 2022)
GDP	GDP growth [Gross domestic product at market prices, 2010=100%]	(Eurostat, 2022)
GDPCAP	GDP per capita (current prices, million EUR)	(Eurostat, 2022)
FDI	Foreign direct investment, net inflows [% of GDP]	(World Bank, 2022)
CO_2	Carbon dioxide emission per capita [tonne]	(Eurostat, 2022)
MET	Methane emission per capita [tonne]	(Eurostat, 2022)
NIT	Nitrous oxide emission per capita [tonne]	(Eurostat, 2022)
REN	Share of renewable energy in gross final energy consumption [%]	(Eurostat, 2022)
HDD	Heating degree days [number]	(Eurostat, 2022)
CDD	Cooling degree days [number]	(Eurostat, 2022)

Source: developed by the authors.

In the path models, the zero-order linear correlation between the independent and dependent variables is divided into two parts. One part is the effect that our independent variables (primary and secondary explanatory factors) have directly on the dependent variable (HDI), and the other part is the effect that the independent variables exert through other intermediate variables (indirect effect). The primary explanatory factor is the residential energy use per capita, and the secondary explanatory factors are selected variables listed in Table 1. The main purpose is to determine

the direct and indirect effect of the primary explanatory factor on the dependent variable. It means that the relationship between residential energy use and the HDI is broken down into indirect and direct parts in an additive way. In this paper, we will refrain from presenting the methodology in detail, as our main aim here is to put the analyses carried out earlier (LaBelle et al., 2022) in a broader context.

Table 2. Applied indicators to measure the territorial differences and inequalities

Indicator	Formula	
Gini	$$G = \frac{1}{2 * x * n^2} \sum_i \sum_j \left\lvert x_i - x_j \right\rvert$$	(1)
	where n is the number of observations (it is the sample of size), is the average of x_i, x_i is a distribution rate of a territorially related characteristic in ith country, and x_j is the distribution rate of a territorially related characteristic in jth country.	
Hoover index	$$H = \frac{1}{2} * \sum_{i=1}^{n} \left\lvert x_i - f_i \right\rvert$$	(2)
	$$\sum x_i = 100$$	(3)
	$$\sum f_i = 100$$	(4)
	where x_i and f_i are distribution rates.	
Decomposition adjusted Hoover index	$$H = \frac{1}{2} * \sum_{i=1}^{n} \left\lvert x_i - f_i \right\rvert = \frac{1}{2} \left(\sum_{j=Scandinavian} \left\lvert x_j - f_j \right\rvert + \sum_{k=Western} \left\lvert x_i - f_i \right\rvert + \sum_{l=Baltics} \left\lvert x_l - f_l \right\rvert + \sum_{m=Mediterranean} \left\lvert x_m - f_m \right\rvert + \right.$$ $$\left. + \sum_{n=V4} \left\lvert x_n - f_n \right\rvert + \sum_{o=formerYugoslavia} \left\lvert x_o - f_o \right\rvert + \sum_{p=laterjoiners} \left\lvert x_p - f_p \right\rvert \right)$$	(5)
Rank correlation coefficient	$$r_s = 1 - \frac{6 * \sum_{i=1}^{n} d_i^2}{n * \left(n^2 - 1 \right)}$$	(6)
	where n is the number of observations (it is the sample of size), d_i is the difference between the two ranks of each observation.	

Source: Nemes Nagy (2005).

To measure the decoupling, two indicators are introduced, the decoupling ratio and decoupling factor (D). Following the pioneering work of the OECD (2002), here the decoupling factor is determined as follows (OECD, 2002, p. 19):

$$D = 1 - decouplingratio = 1 - \frac{RES_t}{HDI_t} \Big/ \frac{RES_{t-1}}{HDI_{t-1}} \tag{7}$$

where RES is the residential energy use per capita, HDI is the Human Development Index, t is the current year.

If $D > 0$, the trends of the examined indicators are separated (the intensity decreases, which means that the growth rate of the residential energy use per capita is lower than the growth rate of HDI) so the decoupling is fulfilled. The maximum value of D is 1. If $D \leq 0$, the decoupling does not occur (the growth rate of residential energy use per capita exceeds the growth rate

of HDI), and this is a case of non-decoupling (Szép et al., 2022). We assume that the year in which the decoupling occurs (and becomes permanent) also marks the saturation point.

Results

For starting, bivariate linear regression models are calculated (Figure 1). The residential energy use per capita is plotted against HDI for European Union member states (the conventional way is followed, with the explanatory variable being plotted on the *x* or horizontal axis and the dependent variable plotted on the *y* or vertical axis). The R^2 value decreases from 2000 to 2020 (it was 0.49 in 2000 and 0.28 in 2020), which refers to a weakening (but still positive) relationship and to the decoupling process. R^2 indicates the percentage of the variance in the dependent variable (residential energy use per capita) that the HDI (as an independent variable) explains collectively.

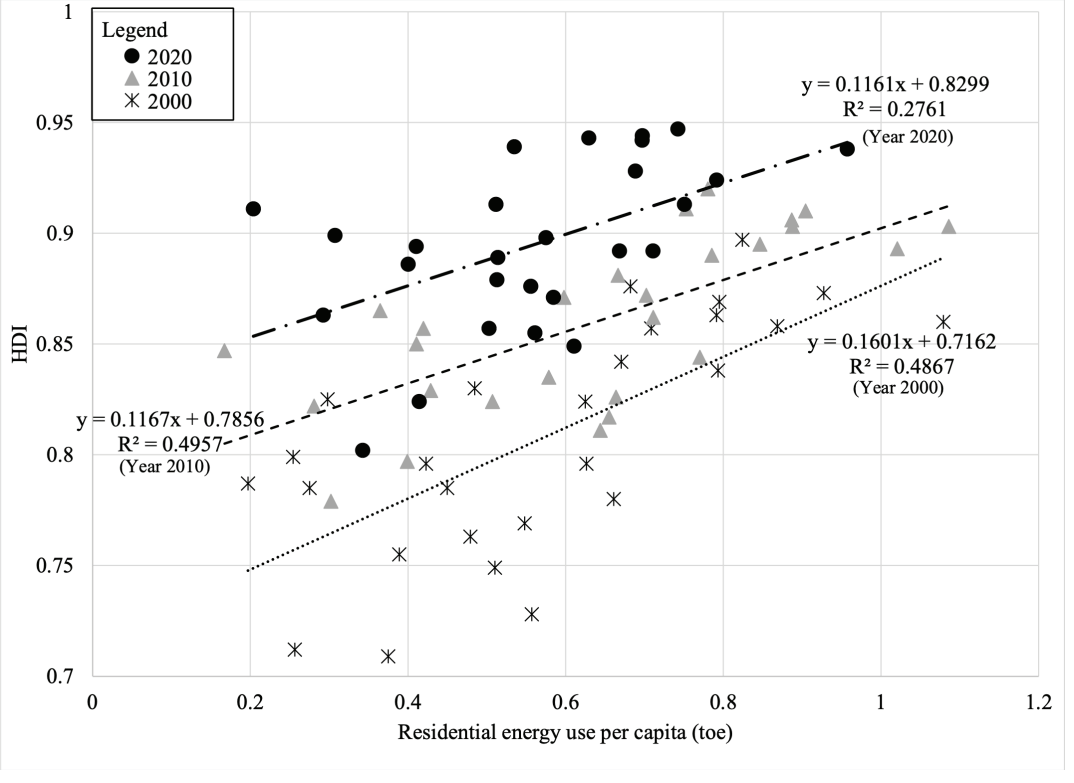

Figure 1. Data and regressions of HDI vs. residential energy use per capita (toe) in the EU member states, 2000, 2010, 2020

Source: developed by the authors

Our results (Table 3) show significant regional differences in household energy use among the nations in the European Union, and this is true for different country groups and within these groups. However, the Gini coefficients on residential energy use per capita basis for GDP per capita and the residential final consumption expenditure per capita are similar and show lower concentration levels. Thus, the territorial distribution and spatial inequalities of residential energy

consumption per capita represent the differences in economic development (GDP per capita and residential final consumption expenditure per capita), and a strong relationship is identified between them. This also shows that per capita household energy use remains primarily a function of development (and income). For a detailed discussion, see LaBelle et al. (2022); Szép et al. (2022).

Table 3. Gini coefficients and Hoover index results in the EU Member States (2000, 2010, 2020)

	2000		2010		2020	
Index compared to the residential energy use per capita	**Gini**	**Hoover (%)**	**Gini**	**Hoover (%)**	**Gini**	**Hoover (%)**
POP	0.621	51.329	0.627	51.429	0.626	50.903
GDPCAP	0.332	23.468	0.275	20.041	0.287	20.585
HEX	0.291	22.977	0.256	18.122	0.212	15.870

Source: developed by the authors.

The Hoover index (Table 3) shows that in 2000, 51.33% of the residential energy use per capita would have to have been redeployed among the European Union member states in order to be equal to the characteristics of the population and thus to create territorial equality. This relatively high number on the Hoover index highlights significant territorial inequality.

Examining the territorial distribution of the residential energy use per capita compared to the GDP per capita and to the final consumption expenditure of households per capita, the Hoover index is no higher than 24%; moreover, it shows a decreasing tendency from 2000 to 2010. This means that the energy use of the households mainly depends on their final consumption expenditure (and eventually on their income situation), although the territorial distribution of the two indices (i.e. residential energy use per capita and the final consumption expenditure of households per capita) is slightly different. Results confirm that the energy use of the households is in line with their economic development.

In the following, the inequalities related to residential energy use are analysed in detail, highlighting which country groups have distorted most of the territorial distribution of indicators related to the household sector (Table 4). In the case of the residential energy use per capita compared to population, the difference in the distribution was two times higher in OMS than in PCMS. In the other two cases (GDP per capita and final consumption expenditure of households per capita), the explanatory power of the two main country groups is nearly similar. The Hoover index in all cases show the dominance of the Western countries and the V4 in inequality, followed by the Mediterranean and the Baltic States.

The rank correlation coefficients (Table 5) in all years and in all cases are close to 1, which refers to small changes in the rank (the observations have a similar rank). Only minor changes in the rank of the European Union member states can be identified. Considering the Hoover index and the rank correlation results, it can be stated that most of the redistribution (declining inequalities) has occurred among predefined country groups, not within groups.

Household energy use per capita shows a significant, moderately strong relationship with human development between 2000 and 2020, but the strength of the relationship decreases over time. It can be demonstrated that household energy use plays an essential role in the evolution of human well-being (i.e. the spatial distribution of the dependent variable), directly affecting

the HDI significantly in all three years (2000, 2010, 2020). In general, it can be concluded that residential energy use is not only indirectly influenced through indicators describing the socio-economic-environmental situation, but also directly (Table 6). HDI improves in parallel with

Table 4: Decomposition results of Hoover index

Index compared to the residential energy use per capita	Country groups	2000	2010	2020
POP	**old member states plus Cyprus and Malta**	37.260	37.367	36.234
	Scandinavian	5.728	6.058	5.478
	Western	20.945	20.148	19.331
	Mediterranean	10.588	11.161	11.425
	post-communist member states	14.069	14.062	14.669
	Baltics	4.316	4.862	5.287
	V4	5.313	4.937	5.387
	former Yugoslavia	2.894	3.084	2.848
	later joiners	1.546	1.179	1.148
	Hoover index (European Union member states)	51.329	51.429	50.903
GDPCAP	**old member states plus Cyprus and Malta**	12.284	10.495	11.271
	Scandinavian	2.362	1.695	1.827
	Western	5.954	5.552	7.467
	Mediterranean	3.968	3.248	1.976
	post-communist member states	11.185	9.546	9.314
	Baltics	3.867	3.445	2.779
	V4	4.444	3.306	3.807
	former Yugoslavia	1.042	1.626	1.447
	later joiners	1.831	1.170	1.281
	Hoover index (European Union member states)	23.468	20.041	20.585
HEX	**old member states plus Cyprus and Malta**	12.366	9.756	8.342
	Scandinavian	1.338	1.020	1.359
	Western	4.414	3.055	3.646
	Mediterranean	6.614	5.680	3.337
	post-communist member states	10.611	8.366	7.528
	Baltics	3.673	3.126	2.236
	V4	4.301	3.103	3.363
	former Yugoslavia	0.868	1.193	1.001
	later joiners	1.769	0.945	0.928
	Hoover index (European Union member states)	22.977	18.122	15.870

Source: developed by the authors.

an increase in per capita energy use and vice versa, with a decrease in per capita energy use associated with a deterioration in HDI. Therefore, if there were an increase in residential energy use in the European Union, the impact on countries' HDI would be realised in a relatively short period, as it is not only indirectly through other factors but also directly.

Table 5. Rank correlation coefficients

	2000-2010	2010-2020	2000-2020
RES	0.976	0.910	0.908
POP	0.996	0.985	0.990
GDPCAP	0.986	0.937	0.917
HEX	0.965	0.949	0.962
HDI	0.969	0.897	0.916

Source: developed by the authors.

Table 6. The role of direct and indirect paths in explaining the HDI (standardised β coefficients)

	HDI, 2000	HDI, 2008	HDI, 2018
Indirect	0.152	0.027	0.255
Direct	0.539	0.687	0.319
Total	0.691	0.715	0.574

Source: LaBelle et al. (2022, p. 12).

However, rising energy prices and overheads due to the Russian-Ukrainian war and, in the long term, the Fit for 55 (based on the ETS expansion and the ETD plan) will strongly restrain residential energy use, which, due to the mechanism described above, could put at risk the human welfare achieved and lead to its decline. Inappropriate distribution of energy use (existing inequalities of the residential energy use), the violation of the well-known dimensions of energy security (such as availability, affordability, accessibility, and acceptability – the so-called 4A concept) can cause severe social, environmental, and economic inequalities between different social groups and territorial units (Jacobson et al., 2005; Wu et al., 2012), further jeopardising social and economic convergence.

Of course, these risks are manifested differently at the level of each Member State due to inequalities in household energy use. It is expected to be much lower in countries where the household sector has already reached saturation point. However, for Member States consuming below the saturation point, a reduction in household energy use could have a serious impact on human welfare, reducing it. The next important step is to identify which countries have already decoupled their household energy use from their HDI, i.e. where the risk of a decline in human well-being is lower.

An examination of decoupling should give cause for optimism, as most Member States had achieved absolute or relative decoupling by the end of the period under review. Once separation has occurred, this positive trend has not been reversed, i.e. in most cases, separation has become permanent. In the European Union, 20 countries have reached the saturation point with an average HDI of 0.85. No separation occurred below an HDI of 0.794, but at the latest an HDI of 0.922

(Table 7). The following countries, however, have not yet reached the saturation point: Bulgaria, Cyprus, Finland, Hungary, Italy, Lithuania, and Poland (Figure 2).

It can be seen that the link between residential energy use and human well-being is still stronger in the former Eastern Bloc countries. This legacy has a strong impact on their national and sectoral energy use. In the European Union, countries with a lower HDI have the right to be on a par with countries with a high HDI. In this context, there are only two options to reach the same higher human development levels as Western Europe: 1) further increase the use of fossil fuels, or 2) launch comprehensive energy efficiency programmes, with the incremental increase being covered by renewable energy sources.

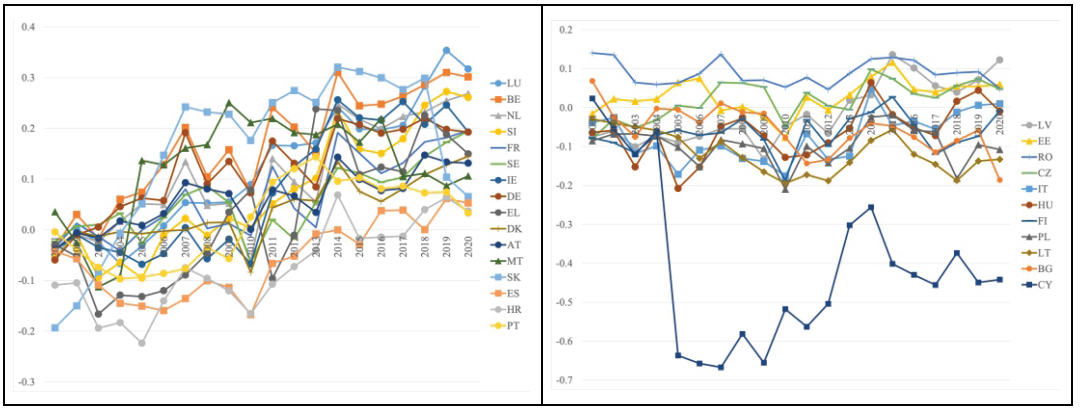

Figure 2. Decoupling factor (D, 2000–2020) for EU member states

Source: developed by the authors

Table 7. Saturation points

	year	HDI	GDPCAP [Current prices, EUR per capita]	HEX [Current prices, EUR per capita]	RES		
					[TOE]	[GJ]	[GJ] Climate corrected
Austria	2004	0.849	29 670	15 440	0.790	33.076	30.560
Belgium	2004	0.885	28 480	13 850	0.884	37.011	41.395
Croatia	2018	0.856	12 880	9 170	0.560	23.446	29.826
the Czech Republic	2007	0.850	13 470	6 430	0.626	26.209	26.820
Denmark	2011	0.922	44 500	20 630	0.809	33.871	34.783
Estonia	2002	0.799	5 660	3 050	0.662	27.717	23.228
France	2006	0.865	29 050	15 230	0.670	28.052	34.010
Germany	2003	0.889	27 120	14 860	0.809	33.871	34.371
Greece	2013	0.858	16 480	11 210	0.347	14.528	19.993
Ireland	2011	0.894	37 310	16 980	0.606	25.372	27.906
Latvia	2013	0.834	11 350	6 890	0.626	26.209	23.152
Luxembourg	2006	0.884	71 490	23 420	1.101	46.097	51.650

Table 7 – continued

	year	HDI	GDPCAP [Current prices, EUR per capita]	HEX [Current prices, EUR per capita]	RES		
					[TOE]	[GJ]	[GJ] Climate corrected
Malta	2005	0.828	12 730	7 810	0.179	7.494	8.734
the Netherlands	2004	0.886	32 510	15 820	0.679	28.428	31.295
Portugal	2010	0.822	16 990	10 890	0.281	11.765	13.815
Romania	2001	0.715	N/A	N/A	0.325	13.607	14.276
Slovakia	2005	0.794	7 310	3 950	0.473	19.804	18.970
Slovenia	2009	0.877	17 760	10 090	0.650	27.214	29.816
Spain	2016	0.888	23 990	14 460	0.309	12.937	15.844
Sweden	2002	0.903	31 600	14 380	0.824	34.499	26.844

Source: developed by the authors.

Conclusions

Our analyses highlight inequalities in residential energy use in the EU; we thus accept hypothesis H1. However, the differences in energy use follow development differentials, showing a lower, decreasing concentration. Beyond the disparities, the strong relationship between per capita energy use and human well-being in the European Union is also confirmed (so does hypothesis H2, too). But the strength of this relationship also weakens over time.

Throughout our research, we assumed that convergence remains a long-term goal of the European Union and that policymakers do not intend the Fit for 55 package to preserve the lower levels of human development in the PCMS countries. Decreasing the differences in HDI and residential energy use is necessary to achieve social and economic convergence as well as reduce the inequalities in living standards across the EU Member States. Changes in household energy use in the EU have both direct and indirect impacts on HDI; any increase or decrease in energy use will be immediately reflected in human well-being. This is very marked in countries below the saturation point (Bulgaria, Cyprus, Finland, Hungary, Italy, Lithuania, and Poland): increasing household energy use is needed to improve human development, which runs counter to the Fit for 55 objectives.

An essential commitment of the strategy is to reduce both primary and final energy use. Two critical instruments for this are the extension of the ETS and the ETD restructuring, which foresee an increase in energy prices. This will curb residential energy use, which can only be achieved at the expense of human development without accelerating the decoupling process. In the long term, without broader consideration and support policies, Fit for 55 may contribute to household inequalities in some countries rather than support a rise in human development.

Policy recommendations

In reducing residential energy use, particular attention must be paid to human development. Until the decoupling of the two indicators occurs, i.e. the strong positive correlation between them is weakened, households will have to increase their energy consumption in order not only

to maintain but also to increase the level of human development achieved as well as to achieve social and economic convergence in the European Union.

After the turn of the millennium, most EU Member States have reached a saturation point, which is a cause for optimism. At least 20 countries seem to be moving away from HDI in their per capita energy use. In the long term, this will allow economic and social development by decreasing energy use in the household sector, contributing to a sustainable energy transition. Technological development, climate change mitigation policies, and changing attitudes will help meet the population's needs in a less energy-intensive way.

This article highlighted those countries which are most exposed to a reduction in well-being. Member States below the saturation point are at a much higher risk of negative impacts of residential energy use on human development. However, given energy and climate objectives, there is certainly no scope for households to increase their energy use intensively in the hope that decoupling can be achieved sooner. Taking a practical approach to the observed correlation (that any increase – or decrease – in energy use is immediately reflected in human welfare), we break this down to highlight the importance of policy intervention to prevent a rise in energy consumption.

Around 35 million people live in energy poverty in the European Union (European Commission, 2023), and tens of millions more are at high risk of energy poverty. In their case, increasing their energy use (e.g. increasing heating temperatures – keeping to the WHO recommended 21°C, heating a higher proportion of the inhabited area) would have obvious short-term benefits and would also lead to an increase in the quality of life (reduction or even elimination of mould and damp, health improvement), with a positive impact on HDI.

For the other deciles (mainly middle class), households have also not yet reached the saturation point, at least in the seven countries indicated. This has many components, and the list may vary from country to country: families do not have as many electronic appliances as those in the other 20 countries, buildings are energy inefficient, the heated living space per capita is smaller, etc. So, there would be scope for further increasing energy use (and thus human development) in the household sector, which contradicts energy and climate goals.

On the one hand, households in these seven Member States should be allowed to engage in more energy-intensive household activities, i.e., to increase energy use. These activities could be heating, cooking, water heating, cooling, lighting, and electrical appliances, according to the purpose of the energy use. But increasing household energy use in absolute terms is not the answer. So, on the other hand, energy intensity of these activities should be improved through appropriate investments in energy efficiency, and if energy use were to increase, it should be provided by renewable energy sources.

Energy poverty is also a challenge to be addressed. A further problem is that the average annual renewal rate of the housing stock in these countries is also low, pointing to a lack of investment in energy efficiency. Reducing residential energy use without comprehensive energy efficiency programmes is not feasible in the lowest income deciles. Assuming, of course, that the property can be renovated. However, some of the properties cannot be saved or only so at a steep price. In the absence of such programmes, and with rising energy prices and an increase in the proportion of people living in energy poverty, the problem is likely to worsen.

European Union policymakers have sensed the social dangers of energy price rises, with some calling the plan itself 'political suicide', which will lead to an increase in anti-EU voices. The Social Climate Fund, worth €87 billion (Kurmayer, 2022), is intended to prevent this, in effect recycling part of the carbon tax paid by the public through subsidies. The bulk of this will be

used for energy efficiency investments, with two priority target groups: the most vulnerable (i.e. the poorest) households and micro-enterprises. We believe that who the most vulnerable households are, those most exposed to price rises, is grossly underestimated.

Tackling energy poverty is a very important issue, but in this case, at least the bottom two-thirds of the middle class (which roughly represents the 2nd, 3rd, 4th quintiles) also need support. This could include preferential loans, grants, and technical assistance to enable them to make the necessary energy efficiency improvements and deep renovations that will bring real energy savings. Information centres should be established, and one-stop shops should be promoted. This is confirmed by the IEECP (2022), which calculates that even for low-income households, this resource will not be sufficient to make the necessary energy efficiency improvements by 2040. On this basis, we also accept hypothesis H3. The main challenge of Fit for 55 is to reduce residential energy use while increasing human development and achieving the saturation point for all Member States by achieving decoupling and energy convergence.

Failing this, stagnation or an increase in territorial disparities can be expected. From a policy point of view, the implementation of Fit for 55, if it does not include complex energy efficiency programmes and intensive support for renewable energy sources, works against economic and social convergence, which is one of the main objectives and visions of the European Union. This could amplify anti-European voices, increasing the sense of social injustice and exclusion. Taking human welfare into account is essential when making responsible energy decisions.

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Performance Audit Effectiveness Indicators: Evidence from Poland

Abstract

Objective: Performance audits, conducted by both internal and external auditors in public administration, play a crucial role in assessing effectiveness. This research focuses on the experiences of the Supreme Audit Institution (SAI) in Poland, delving into the effects of performance audits. Previous studies from selected developed countries shed light on performance audit impact, categorised as instrumental, conceptual, interactive, and political-legitimating. However, the generalisability of these findings is constrained by limited research, varying institutional and social contexts, and country-specific factors. To address these gaps, the authors of his study aim to expand knowledge on performance audit effectiveness indicators.

Research Design & Methods: The research combines a literature review, analytical induction through interviews with SAI executives, and analysis of SAI activity reports from 2019–2021.

Findings: The study reveals diverse interpretations of performance audit effectiveness among SAI delegation directors, encompassing process, results, and effects. Additionally, the research identifies indicators relevant to assessing performance auditing effectiveness in the Polish context. It emphasises the need for context-specific evaluations due to differing institutional and social conditions across countries.

Implications/Recommendations: While acknowledging limitations, including the small sample size, this pilot study paves the way for future research to validate its hypotheses, explore factors influencing performance audit effectiveness, and compare practices across countries. Ultimately, it aims to enhance the effectiveness of performance audits in public administration.

Contribution / Value Added: This research contributes to academia and practice by offering comprehensive performance audit effectiveness indicators. It introduces a novel indicator related to reporting infringements in public finance law and discipline.

Article classification: research article

Keywords: performance audit, effectiveness, public administration

JEL classification: M42

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Introduction

Effectiveness is a term often used in the context of public administration. It refers to the so-called new public management, which consists of transitioning from administration based on rigid procedures and political influences to management based on market mechanisms and the economic evaluation of efficiency and effectiveness (Diefenbach, 2009; Stroińska, 2020). However, it is not always possible to specify what is meant precisely by effectiveness. How should it manifest itself? What proves that a given activity is effective?

The Oxford Dictionary of English defines effectiveness as the degree to which something successfully produces a desired result (Stevenson, 2010). The adjective 'effective' and the noun 'effectiveness' refer to acting (or ways of acting). As praxeology indicates, effective acting leads to an assumed and planned result, i.e. before the acting started, an aim had been defined (Makowski, 2016). Acting can be defined as effective when an aim is fully achieved or is achieved to an extent that satisfies the doer, or when it brings the doer closer to achieving it in the future (Zieleniewski, 1965, p. 242). This definition demonstrates that effectiveness can be gradable. Therefore, an earlier specification of goals is necessary to evaluate the effectiveness of actions.

Internal auditors employed in entities in the public administration sector and external auditors employed by an institution independent of the audited entity can conduct performance audits. Poland has two audit institutions: the Supreme Audit Institution (SAI) and Regional Audit Institutions (RAI). The study included all types of audit institutions and auditors, but considering the limitations on the article's length, only the SAI experiences are presented here.

In the context of a performance audit, the term effectiveness refers to the auditing process, whose indirect effects will be called products, and its final effects – impacts. Studies conducted in several developed countries have shown that a performance audit's impact is instrumental, conceptual, interactive, and political-legitimating (Etverk, 2002; Morin, 2008; Van Der Meer, 1999)[1]. However, due to many limitations, the results of these studies cannot be generalised to all the countries in the world.

Firstly, a limited amount of research has been conducted in this area, with most of it being carried out over ten years ago (e.g. Pollitt et al., 1999; Van Loocke & Put, 2011; Torres et al., 2016)[2].

[1] Etverk (2002) conducted a survey and interviews of auditors and auditees based on three reports from 2001. The impact is defined in terms of the auditee's perception of the auditor (satisfaction, collaboration, auditors' credibility), the auditee's perception of the impact on the audited entity (added value, acceptance of recommendations), and in terms of contribution to the public debate (within the entity, in parliament, in the press). Morin (2008) surveyed 99 (top and medium) managers and professionals from administrations audited by the Quebec Provincial Audit Office. The study covered audits implemented between 1995–2002. The impact was operationalised in 10 indicators (audit added value, relevance of the recommendation, action taken following the audit, and personal effects). Van Der Meer (1999) studied two reports from the Netherlands dating back to 1987 and 1988. The author saw the impact as the genesis of a learning effect.

[2] Pollitt et al. (1999) studied the work of five national audit offices – France, Finland, the Netherlands, Sweden, and the UK. The findings reveal that performance audits have led to changes in government activities. The responses to audit report recommendations often resulted in substantial public fund savings. Van Loocke and Put (2011) conducted a literature review on the impact of performance auditing. Based on a conceptual framework, the authors reviewed 14 empirical studies and discussed the information on impact derived from the performance measurement systems of Supreme Audit Institutions. Torres, Yetano, and Pina (2016) assessed the impact of the performance audits carried out by EU Supreme and Regional Audit Institutions based on a survey conducted in 2012. They analysed whether the recommendations of audit reports were implemented in practice.

Secondly, the institutional and social conditions of performance auditing differ according to country (i.e. the authority of SAIs, parliamentary systems, media status, and the role of civil society) (see, e.g., Weihrich, 2018)[3]. Prior studies were not global but related only to certain countries, such as Australia, Estonia, Germany, the Netherlands, Israel, Canada, Sweden, the USA, and the United Kingdom.

Thirdly, according to standards (INTOSAI, 2022, p. 10), the objectives of performance auditing can include contributing to holding to account those responsible for managing public funds and transparency in public life. Performance audits achieve such objectives when they provide new information, analyses, and insight into the audited area and, in relevant cases, indicate how improvements can be made. The second paragraph of the Act on the Supreme Audit Office of 23rd December, 1994 (Journal of Laws 2022 item 623) and the institution's motto (NIK, 2022a) state that the SAI should focus on public accountability more than consulting. In the literature on policy evaluation, considerably less attention is paid to the former objective. The only exception is the research of Bemelmans-Videc, Lonsdale, and Perrin (2007)[4]. Therefore, a hypothesis can be formulated that the concept of impacts suggested by Van Loocke & Put (2011, p. 190) only considers some of the dimensions in which performance auditing should be evaluated.

This study aims to broaden knowledge on performance audit effectiveness indicators. For research purposes, two research questions were also formulated. What does it mean when a performance audit is described as effective? Have the performance audits conducted by the SAI been effective? The answers to these questions are presented based on the experiences of five members of SAI management collected in 2020.

For the needs of the article, the literature was reviewed, analytic induction based on partly structured interviews was used, and the contents of SAI activity reports in the years 2019–2021 were analysed.

The rest of the article is organised as follows: in the next section, the meaning of performance auditing effectiveness is presented in the light of the literature, followed by a description of the study's methodology and its results. The article ends with conclusions and directions for further research.

Literature review

A performance audit can be understood as a systematic and objective evaluation of the performance of an organisation, its programme implementation, and its functions and activities conducted by an independent auditor, who communicates their observations, conclusions, and recommendations to a person or a group of people who, according to applicable law, are responsible for the supervision of the organisation or taking corrective actions (Ciak & Bednarek, 2021). According to INTOSAI (2022, p. 12) Auditing Standards for SAIs, performance audits

[3] Weihrich's (2018) study comprises a general discussion of the goals and boundaries of performance auditing with an environmental perspective based on a literature study. The text also describes the theoretical, legal, and methodological background of performance audits in Germany. Findings concerning the *status quo* of performance auditing in Germany are based on an analysis of audits conducted by public audit institutions. The findings were compared with findings from other current international studies.

[4] Bemelmans-Videc, Lonsdale, and Perrin (2007) examine evaluation and audit as critical elements in democratic accountability processes. Twelve authors from seven countries present detailed case studies and synthesis of empirical evidence.

often include an analysis of the conditions needed to ensure that the rules are followed relating to the efficient acquisition and use of resources as well as the effectiveness of operations. Therefore, the primary objective of performance auditing is contributing to more effective acquisition and use of funds and more effective activities in the audited entities by influencing their organisational culture, procedures, and practices.

Performance auditing has developed over several decades in many parts of the world to assess various aspects of the functioning of public sector organisations, including the use of funds entrusted to them. In the 1970s and 1980s, it was practised in democratic countries in Europe, Australia, Asia, and North America at the national level by the Supreme Audit Institutions and, to varying degrees, at the regional and local levels (Lonsdale, 2011, p. 4). The SAIs sometimes carried it out. For example, in Norway, performance audits were carried out by internal auditors, and in Finland – by external auditors – both public and private (Pollitt et al., 1999). The scope of this audit initially included only the assessment of how public funds were spent in accordance with their intended purpose. However, over time, it also included the assessment of the effectiveness of public spending and, even more challenging, assessing whether public spending contributed to achieving good results (Reichborn-Kjennerud, 2015).

Nobles, Brown, Ferris, and Fountain (1993) claim that a performance audit is a systematic and objective assessment of an organisation's functioning, programme implementation, function, or activity by an independent auditor. The auditor forwards his/her observations, conclusions, and recommendations to the person or group of persons who, in accordance with applicable law, are responsible for supervision or taking corrective actions. The authors of this definition recognised that a performance audit differs from an assessment, review, or audit in three respects. First, auditors should have neither organisational nor personal relationships with the auditees. Secondly, the primary purpose of an audit must be to hold auditees accountable for their obligations, not just to inform. Third, the audit results must be reported to the third party, who, under applicable law, must oversee the programme or implementing agency in question as well as initiate corrective actions.

J. Lonsdale (2011, p. 14) suggests that a performance audit is one of the many forms of policy analysis and evaluation developed in the last 30 years. Considering that the concept of performance auditing has yet to be defined, the impact of policy evaluation has been taken as the starting point for its formulation. The information resulting from auditing and intended for audit stakeholders can be called audit products (Pollitt et al., 1999, p. 149). Audit reports constitute audit products. SAI specifies them as post-audit statements and information on audit results. The former concerns only the audited entity, while the latter constitutes a synthetic summary of individual audits conducted in different entities. They present an evaluation of the auditee that includes essential findings and conclusions resulting from planned and ad-hoc audits (NIK, 2022b, pp. 148–150). Different types of direct and indirect wanted and unwanted effects of policy evaluation are called influence (Van Loocke & Put, 2011, p. 176). Weiss (1979) as well as Nutley and Webb (2000) concluded that policy evaluation could impact stakeholders in instrumental, conceptual, interactive, political-legitimising, and tactical ways.

The instrumental use of the results of policy evaluation is understood as a situation in which, as a result of the evaluation, knowledge is created that is used for pursuing a policy. The conceptual impact of evaluation lies in knowledge gradually permeating pursued policy through different channels. For instance, views change slowly and theories are modified. The concept of the interactive influence of policy evaluation assumes that evaluators constitute one of many

groups of stakeholders in the decision-making process. Using evaluation in policy is an element of a complex decision-making process in which other sources of information, including the decision-makers' existing perceptions and prejudices, are also considered. The political-legitimising use of policy evaluation results assumes that knowledge is an asset in a political debate. For instance, the opposition in parliament can use an evaluation report to assess a policy's effectiveness. The tactical application of policy evaluation results lies in knowledge being used to influence decision-making. For example, political decisions can be postponed till auditors conduct additional evaluations.

Research methodology

This study aims to broaden knowledge on performance audit effectiveness indicators. For research purposes, two research questions were formulated:

1. What does it mean when a performance audit is described as effective?
2. Have the performance audits conducted by the SAI been effective?

The empirical research consisted of analytical induction based on the opinions of selected SAI executives collected through interviews, and a comparison between them and the content of SAI activity reports in 2019–1021. The used research strategy systematically develops causal explanations of types of phenomena. The method involves collecting data until no more cases are inconsistent with the hypothesised answer to the research question (Bryman & Bell, 2011, p. 575; Sagan, 2007).

The selection of the respondents for the study was purposeful. The researchers intended to identify SAI delegations with the most significant experience in conducting performance audits. In the search engine for information on audit results and post-audit reports available on the SAI website, the authors searched for reports that included the words ‚efficiency', 'economy', or ‚effectiveness' in their titles. Then, based on the analysis of the reports, the SAI delegations that had produced these documents were identified. As a result, four out of 16 SAI delegations and one out of 14 departments of the head office of the SAI took part in the research. One director from each department or delegation was invited to the interview, all of whom agreed. Ultimately, there were five respondents, as in one of the delegations, two persons (the director and his deputy) participated in the interview.

The research tool was a partly-structured interview questionnaire with four open questions. This form of research was chosen in order to enable the respondents to share their experiences and views on indicators and factors determining the effectiveness of performance audits. The open questions were designed to explore the provided answers, especially those which were original and surprising.

The interviews were conducted remotely using MS Teams between the 10th and 30th of November, 2020, and the average duration was 40 minutes. The shortest interview lasted 32 minutes, and the longest one – 57 minutes. Both researchers participated in all interviews. Each interview was recorded, and transcriptions were made. After the transcription, the content of the interviews was subject to authorisation. After the research content was obtained, identification, coding, and selection with data analysis were conducted using the NVivo software.

Since the respondents wished to remain anonymous study group members, the names and surnames were coded as [Rx], where x is a number assigned to a given respondent. The assigned respondent number is used in all statements in the paper.

Results and discussion

Performance audit effectiveness indicators as perceived by SAI directors

The complexity of the concept of performance audit effectiveness described in point 2 is also confirmed by the answers given by SAI directors to the question: ‚What does it mean when a performance audit is described as effective?'. Based on the respondents' individual experiences and considerations, the answers manifest a broad spectrum of different approaches and understandings of this concept. In order to illustrate this, Table 1 includes the responses of the SAI directors given in the course of the conducted interviews.

The analysis of the statements in Table 1 shows that respondents generally perceived three basic dimensions of performance audit effectiveness. Based on their experience, they pointed out that the effectiveness of a performance audit should refer to its impact, processes, and results. The impact should be instrumental, conceptual, and interactive. Most often, a performance audit is perceived as effective when the audited entities have accepted and implemented the recommendations, and as a consequence, expected changes in their performance can be observed. Interestingly, the indicators of the effectiveness of performance auditing, consultations, and negotiations between stakeholders, as well as the process of learning, increasing knowledge, and changing the way of thinking were much less frequently noted among the SAI directors taking part in the study. One of the respondents stated that a performance audit might result in reporting a breach of the law or public finance discipline to the relevant authorities.

The above-cited definitions of effective performance audit identify the objective as the intended outcome of the audit process, which is manifested when audit results are communicated to auditees. However, a significant proportion of the respondents relate the effectiveness of a performance audit to its process or products. An effective audit process should include the adequate construction of the audit, i.e. the right choice of the audit topic and determination of the appropriate objectives, criteria, subject scope, and audit methods. The respondents also noted the audit's method and credible sources of findings. Some respondents emphasised that the audit results express a performance audit's effectiveness. In particular, they were seen as providing answers to the audit programme questions and identifying areas for improvement, if any.

Before presenting the following sample of the participants' views on the effectiveness of performance audits, it is worth adding that based on the respondents' statements, the fundamental indicators of performance audit effectiveness described above are broadly consistent with the literature on the impact of policy evaluation and performance auditing. However, it is worth noting that the respondents' perception of the effectiveness of performance audits differs from the literature in a few respects. The respondents perceive audit processes and audit results as indicators of performance audit effectiveness. In the literature, they are considered factors determining the performance audit's effectiveness. It is also worth noting that the respondents overlooked the political and legitimising impact and the impact on other knowledge generators. These opinions are inconsistent with the 2019 report on the activities of the SAI, which showed the results of the SAI's work in cooperation with the Lower and Upper Houses of Parliament and the scientific journal *Kontrola Państwowa* (NIK, 2020, p. 4). In addition, studies in other countries have shown that media and parliamentary attention contribute significantly to the effectiveness of performance audits. The respondents did not mention such indicators of performance audit effectiveness as anticipating audit results, tactical influence, or the side effects of the audit, which

Table 1. Performance audit effectiveness indicators – responses of SAI directors in Poland in 2020

Type of indicator	Definition of effective performance audit
Method of constructing the audit	[R1] ‚Firstly, it is the way of constructing the audit, that is, whether we will find the topic we want to audit, whether the audit assumptions, that is the selected goal, objectives, criteria and audit methodology are relevant to the topic. This (audit plan) is the first indicator of effectiveness'. [R2] ‚The effectiveness of the performance audit is demonstrated by defining the public task being audited (…) when there is a performance audit of a given program – then we comprehend a wider reality'.
Method of conducting the audit	[R1] ‚Another issue is how the audit is conducted, that is, the whole process'. [R2] ‚If we conduct performance auditing properly, it is effective within our organisation'.
Reliable sources of findings	[R2] ‚A proper analysis of the findings concerning the possibility of formulating conclusions to correct existing unwanted states also manifests effectiveness'.
Audit results	[R4] ‚When is it effective? When we achieve the assumed aims for the audit recipients, the information on whether the auditees acted economically and effectively is the most important. Moreover, if we can answer this question indicating areas that need improvement, there is a certain reservoir of improvements, and then we conclude that the performance audit is effective'. [R5] ‚Generally, effectiveness is the implementation of the objectives of the audit, and these objectives are formulated as the main, detailed questions in the work engagement program. Effectiveness is the formulation of audit results'.
Acceptance of recommendations	[R1] ‚The third thing is the effects of the audit after the results are published (…) whether the auditee agrees and implements the post-audit recommendations or not, and exercises the right to appeal (as an objection) within the adversarial system of the audit process'.
Implementation of recommendations	[R2] ‚Effectiveness is measured to some degree by the issue of implementing post-audit recommendations'. [R3] ‚Performance auditing is effective if (…) the auditee has taken action on our recommendations'. [R4] 'The measure of effectiveness is based on implementing all the recommendations included in post-audit statements or later in more systemic, general ones included in the general audit document called information of audit results.'
Changes in audited entities observed directly after the issuance of recommendations by auditors and side effects of auditing	[R2] 'the improvement in the effect of implemented recommendations in the activity of audited entities.' [R3] '(…) activities which brought the effect expected by us.' [R4] 'We believe it is effective when the change we expect happens.'
Consultations and negotiations between stakeholders	[R1] '(…) confrontation as early as during a panel with experts organised before the audit, when all main entities met and listened to their opinions and then a confrontation with the results of the audit showed that contrary to what the entities claimed, the system did not work.' [R5] 'Stakeholders have this possibility and they usually use (…) the right for the position for information on the audit results. The position of ministers (…) constituted an argument with the audit's findings (…). The final say belongs to the Chairman of the Supreme Audit Institution, who can include his opinion.'
Learning process, growth of knowledge, and change in the way of thinking	[R2] 'If we show how to implement a program from the given area properly because they are mostly activities fitting into some European, social, infrastructural axes, apart from a given auditee, others can also benefit from good practices and good examples.'
Reporting of infringements in the public finance law and discipline	[R1] 'There are audit models whose findings justify referrals to law enforcement bodies and prosecutors for the public finance discipline. We can see it as an effect because something worked.'

Source: own elaboration.

is not a big surprise; however, there is also a lack of substantial empirical evidence in the literature on the occurrence of this form of influence in other countries (Van Loocke & Put 2011, p. 189). It is worth emphasising, however, that while they may not be noticed, this does not mean that these effects of performance audits do not occur in the Polish practice. The analysis of the responses of the SAI directors to the question on the effectiveness of performance audits conducted by their SAI delegations showed that all of the effects described in the literature occurred, with one exception. The respondents did not see the impact of performance audit results on other knowledge generators.

There may be several reasons for such a narrow definition of performance audit effectiveness. Firstly, the respondents may have mentioned only those indicators that are currently the subject of measurement. The SAI activity report for 2019 does not contain information on the tactical impact of the audit and the audit's side effects. The audit's anticipatory role is indicated not while it is in progress but after completion. Another explanation could be that the respondents mentioned only those indicators from the perspective of which their delegations carry out effective audits. However, as it stands, this is a topic for another study.

The collected evidence also allows the perspective of perceiving the effectiveness of the performance audit to be broadened. It is worth emphasising the thread in one respondent's statement [R1] concerning reporting violations of the law and public finance discipline. This idea is consistent with the statement of respondent R2, who suggested that even when audits are aimed at assessing the purposefulness and efficiency of operations, the legality of activities is also checked: *'Performance auditing is effective because it does not focus separately on legality, efficiency or purposefulness, but more on combining these criteria (...)'*. A similar claim was made by respondent R3, who said:

> *'performance auditing requires, from its assumptions, the establishment of a certain pattern or reference point to which we refer our findings. If such a pattern does not result from any regulations, then at best, we can adopt one; for example, if we audit the implementation of an investment, let us say we can look for such reference points, for example, in the contract or schedules'*.

These statements suggest that when setting audit criteria, SAI auditors try to verify whether the level of effectiveness of activities is specified in any legal regulation or contract. Supposing it can be demonstrated that the auditees, acting ineffectively, violate the law or public finance discipline. In that case, the recommendations are more measurable and indisputable than those indicating the possibility of improving operation efficiency.

Potential notification of law enforcement agencies due to a performance audit shows that ensuring compliance with prescribed rules, procedures, and codes of conduct is as important as the economy, efficiency, effectiveness, and equity are. Waele and Polzer's (2021) framework for measuring performance in hybrid public sector organisations is regarded as the context in which they operate, which is part of the „4E model".

This rule may also be related to the SAI's motto: ‚Whoever collects a public penny for their use should justify the expenditure' (NIK, 2022a). This role of a performance audit is also confirmed by the report on the activities of the SAI, which states that ‚the basic task of the SAI is to provide parliamentarians and the public with objective knowledge about the functioning of the state and the implementation of public tasks' (NIK, 2020, p. 150). Similarly to the United Kingdom, the primary goal of the SAI is to hold to account people responsible for the management of funds

entrusted to them (Lonsdale & Bechberger, 2011, p. 268[5]). However, for some (Lehtonen, 2005[6]), reconciling these two audit objectives may be problematic, hence the conclusion that in Poland, as in other countries (Van Loocke & Put 2011, p. 203), there is also a need to understand better how these two roles of the SAI affect the effectiveness of performance audits.

The effectiveness of performance audits as perceived by SAI directors

An exciting addition to the perception of performance audit effectiveness indicators is the presentation of the respondents' opinions on their assessment as members of the SAI delegations in 2020. These make it possible to explore the performance audit in practice, seen through the eyes of the study participants. Despite the risk of the subjectivity of these opinions, an attempt to build a picture of the activities of contemporary SAI auditors makes it possible to learn what auditors are currently facing. The value of this sample is also determined by the fact that the data was collected through interviews, owing to which a broad spectrum of views and opinions was obtained. Furthermore, despite the specific threat of the respondents' lack of objectivity, the data allows us to peek behind the curtain behind which the directors of SAI departments and delegations usually remain.

The analysis of the respondents' opinions revealed that assessing performance audit effectiveness is problematic, because it depends on the adopted effectiveness indicator. In general, the respondents assessed that performance audits are effective. However, the picture is mixed, as some audits are effective, while others are not at all or only partially.

The respondents generally agreed that performance audits are effective when looking through the prism of achieving the audit results intended by the auditors. This conclusion is confirmed by the statement of respondent R4, who states that *'inspections are effective because they end with post-audit reports'*.

The acceptance of the findings of a performance audit is taken as an indicator of its effectiveness. In this case, performance audits are only sometimes effective, because the auditees sometimes question the auditors' assessments and raise their reservations. As respondent R3 notes, *'the answer is often: we agree with the SAI's conclusions, and we will take all necessary actions to implement them.'* However, respondent R2 adds that *'when (the auditees) do not agree (with the SAI's conclusions) – the appeal procedure begins. Each entity manager has the right to raise objections to the findings, assessments and conclusions. Most often, objections are raised to the assessments of the audited matter, rarely to the conclusions and the actual state of affairs. (...) If there is an objection to the conclusion, it is an objection to the assessment. There are usually no objections to the facts.'*

From the point of view of implementing the recommendations, performance audits in entities audited by the SAI are mainly effective. The analysis of the report's content on the SAI's activities

[5] Lonsdale & Bechberger (2011) examined how performance auditors seek to reconcile the demands of helping the government learn their role in an accountability setting in the context of the specific case of the National Audit Office in the United Kingdom. The authors found that the advice and guidance that NAO generates is a spin-off from its primary accountability role. The learning role will always be secondary.

[6] Lehtonen (2005) examined to what extent the OECD Environmental Performance Review (EPR) programme has succeeded in combining the objectives of learning and accountability within a single evaluation framework. The EPRs have been relatively successful in avoiding the harmful side effects often associated with traditional performance measurement but have usually failed to generate broad debate.

also confirms the respondents' opinions. In 2019, 75.6% (84.7% in 2021) of recommendations were implemented, including 44.3% in the same year, while the remaining 31.38% were in progress. Another 24.4% have yet to be implemented for various reasons (e.g. change of government after the elections) (NIK, 2020, p. 28; NIK, 2022b, p. 151). The respondents' statements revealed that the recommendation implementation rate depends on the SAI delegation and the addressee of the recommendation. Interestingly, written responses from auditees addressing recommendations are sometimes very general and wishful, which may indicate the apparent implementation of the recommendations. This conclusion is evidenced by the following statement by respondent R3: *'Often the answer is: we agree with the SAI's conclusions, we will take all necessary actions to implement them, or sometimes it is more precise, irregularities were found somewhere in some department, so the head of the department writes back that he carried out and ordered employee training and conducted some discussions, for example disciplinary discussions, so that the processes about which we had doubts were carried out correctly or brought the intended effect on time and legally'*.

From the perspective of auditees' achieving the expected changes as a result of taking actions contributing to the implementation of the recommendations, one of the respondents assessed that performance audits are not always effective and additionally pointed out the difficulty of measuring this effect by saying that: *'we are not always effective or we are not able to confirm this effectiveness, which does not rule out that maybe we were, we just will not find out about it (...) there are no exact statistics here'* [R3]. In turn, respondent R2 indicates that *'sometimes it is necessary to check the truthfulness of people signing letters containing a description of the implementation of the recommendations. It happens that false information is provided. (...) Auditors conduct ad hoc inspections, so-called follow-up audits, to check this. Then, we verify the implementation of the recommendations. These are effective audits, especially when we know from press articles, for example, that the probability of repairing a given area is low.'*

Based on the statements of the study respondents, it is difficult to determine the effectiveness of performance audits measured by the parliament's interest in the audit results. Due to the statutory powers of the SAI to demand detailed information from the Prime Minister on how to implement the recommendations, the SAI does not monitor other manifestations of parliamentary interest, such as those related to the introduction of expected changes in the law. Based on the statistics quoted by the respondents, over the last two years, only a dozen or so percent of these recommendations have been implemented, which was assessed as insufficient by the SAI. This opinion is confirmed by the statement of respondent R2, who states that (…) *'as to the conclusions and comments in the audit reports – it is a longer conversation because this is parliament. Moreover, the recommendations are poorly implemented. (...) In my opinion, parliament does not respond to recommendations. We say that there is a legal loophole somewhere, that some criteria for granting subsidies need to be clarified, that debt collection is poor – and these recommendations have not been implemented for years'*.

In addition, the respondents pointed out that the results of performance audits are sometimes used by government administration, the President of the Republic of Poland, and mayors. This observation is evidenced by the statement of respondent R2, who notes that *'it happens that, for example, a proud mayor will make the results of the audit available due to the positive assessment of his actions, e.g. at a session of the City Council. (...) The President of the Republic of Poland took advantage of our audit (specifically, the audit report), even thanked us and wrote a new project on this free legal aid system. The new law takes into account many of our comments.'*

There are cases when the results of a performance audit are an incentive for notifying law enforcement authorities of violations of the law or public finance discipline or for commissioning internal analysis to make decisions about changing the law or specific practices in public administration. However, it is interesting that although the committees of the lower and upper houses of parliament can submit requests for an audit in a specific area, the respondents should have mentioned this. This respondent's opinions may indicate that the SAI acts as an accountant for persons responsible for managing public funds, but mainly on its initiative rather than at parliament's request. The exception is European programmes. Respondent R2 stated: *'In the case of European programmes, our country reacts. Generally – we try to act as auditors, i.e. correct things on the spot and during the audit (...). As we know, countries try not to return funds to the EU'*.

The statements of three respondents indicate that performance audits are effective, because the results of the audits attract media attention. Respondent R1's statement confirms this conclusion: *'I have never had a situation where (...) audits were unsuccessful. However, there is always an effect because the noticed problem is alive; for example, it reaches the media'*. At the same time, one of the respondents drew attention to the media's tendency to abuse audit results.

Several respondents noted such manifestations of the effectiveness of performance audits as the introduction of expected changes by the auditee during the audit because of the anticipation of negative audit results, other entities learning from the mistakes of auditees revealed as a result of an audit, or the auditees raising objections to the assessments formulated in the audit report.

One respondent noted that due to the performance audit, a new audit was commissioned to postpone the decision. This opinion is evidenced by the statement of respondent R4, who states that *'when it comes to recommendations addressed to the legislator, to the Minister of Finance, there were several such recommendations. The minister informed that he must carry out appropriate analyses. If these analyses confirm what the SAI has shown, he will launch the legislative process to change the regulations or the practice. Furthermore, this is a longer period'*.

Concluding remarks

Searching for an answer to the question posed in this article – namely ‚What does it mean when a performance audit is described as effective?' – turned out to be a difficult task. In general, the directors of SAI delegations had varied understandings of the effectiveness of performance audits. They referred in their statements to the process, results, and effects. Although their understanding of the examined concept largely coincides with the literature and the content of reports on the SAI's activities, several aspects are understood differently; the respondents have noted some, and one did not appear in the literature. The research also indicates that the effectiveness of performance audits perceived by the respondents depends on the adopted indicator. This study identifies the indicators relevant to assessing performance auditing effectiveness. Thus, the conducted research is a supplement to previous studies, which have focused primarily on understanding the impact of performance auditing in countries such as Australia, Estonia, the Netherlands, Israel, Canada, Sweden, the USA, and the UK (Pollitt et al., 1999; Van Loocke & Put, 2011). To the authors' knowledge, this is the first empirical study into the conducting of performance audits by the SAI in Poland. This study also shows that knowledge about performance audit effectiveness indicators cannot be uncritically transferred from one country to another due to different institutional and social conditions in different countries. This conclusion is consistent with the research conducted in other countries (Van Loocke & Put, 2011, p. 195). This study also suggests that it is possible

to measure the effectiveness of a performance audit using the concept of impact proposed by Van Loocke & Put (2011, p. 203), even if the primary goal of the supreme audit institution in the state is accountability, not learning how to increase the performance of public entities.

This study offers contributions both for research and practice. SAI directors who want to improve the effectiveness of performance audits can use the identified indicators to assess and monitor the effectiveness of the audits they supervise. Researchers may view this study as allowing to expand the existing understanding of the effectiveness of a performance audit with a new indicator, which is reporting of infringements in the public finance law and discipline. This study may also be considered a comprehensive source of indicators of performance audit effectiveness in Poland, which will be a basis for future research in this field.

The conclusions based on the research have some limitations. The selected research sample could have been more representative and sufficiently numerous, and, therefore, the authors treated the research as a pilot study. Nevertheless, future research could confirm the hypotheses put forward in this article with more extensive qualitative and quantitative research. It would be interesting to identify which factors impact the effectiveness of performance auditing in a country with different public administration traditions than Western Europe, Canada, the USA, or Australia.

Future comparative research in various countries could explain under what conditions a performance audit may have tactical and political-legitimising impacts. Our study also indicates the need for a more detailed examination of how informing law enforcement agencies about violations of the law and public finance discipline as a result of a performance audit affects the effectiveness of public funds management in the audited entity. It would also be interesting to verify what factors determine the effectiveness of a performance audit, which, on the one hand, is aimed at detecting violations of the law and public finance discipline and, on the other, provides advice on improving the efficiency of public funds management. Since the study was a pilot study, it can already be seen that subsequent studies on a larger group of external auditors could bring specific changes that could be applied in audit practice to increase its effectiveness. Moreover, they can formulate policy recommendations and contribute to further research. At the current stage of the study, the authors cannot formulate specific changes. Supplementing this study with a comparison of internal and external audit practices, which is the second part of the research of the authors of this study, should bring tangible benefits.

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Differences in Perceptions of the Quality of Education and Employment Effectiveness of Schools in a Non-Skills-Focused Education System

Abstract

Objectives: This paper is an attempt to identify differences between schools within the same education system in terms of how to improve students' chances of success in the labour market. The main objective is to identify differences between schools and between students' attitudes and views. In doing so, the authors take the first step in analysing the quality of education in a non-skills-focused education system.

Research Design & Methods: The research was conducted in 2022 in 3 different schools in the Małopolska region. Pupils in the final classes of primary schools were surveyed. The questionnaire was completed by all students in the class (sample size: 156). The results of a survey conducted in 3 types of schools – urban public school, urban private school, and rural school – are presented.

Findings: The results of the research show that there are clear differences in opinions about the quality of the education system in schools, and differences in statements about training for future development, actual involvement in training, or perceptions of entrepreneurship or attitudes towards money. The school for which these factors develop differently than for the other schools is the private school. Pupils there rate the quality of education and its employability much higher than in public schools. Pupils in private schools are much less likely to seek opportunities to acquire skills outside the education system. The analyses show that the differences between a rural public school and an urban private school are greater than those between an urban public school and a rural public school.

Implications/Recommendations: The article diagnoses and shows that despite operating within an education system, one school is able to operate more efficiently and in a more employment-friendly way than others. The article suggests that a key aspect of finding solutions to the poor evaluation of the quality of education in the case of public schools is to answer the question of what characteristics of a private school influence its better perception by students. For example, it could be that private schools are more likely to encourage students to think about their future careers, that teachers provide more career-related content as part of the educational process, or that the school is generally rated significantly better than others in preparing students for working life.

Contribution/Value Added: The article provides evidence that different organisations can influence the quality of the educational process, particularly in the context of students' transition to the labour market and future employment.

Keywords: private and public school; rural and urban school, labour market transition, employment, entrepreneurship, entrepreneurial attitudes, non-skills-focused education system; education system; education policy

Article classification: research article

JEL classification codes: I21; I28: J24; J48

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Introduction

The quality of the education system undeniably plays a crucial role in shaping students' attitudes, aspirations, and skills, influencing their future personal and professional development. Education policies currently being shaped emphasise the need to analyse and understand how differences in the quality of the education system in different types of schools affect students, shaping their attitudes to learning or career aspirations (Cochran-Smith, 2003; Hill et al., 2003; Rowe, 2012). Therefore, an essential aspect of our research was to show that the schools we studied differed in what the surveyed students emphasised, among other things, in developing skills needed for the future labour market. It is important to note that we did not focus on specific subjects and courses, but, rather, on the atmosphere, the teachers' attitudes, and the students' opinions about the school and the educational path it followed.

In this article, we present the results of a study whose aim was to analyse and interpret various factors objectively, considering both positive aspects and potential limitations that may affect the accuracy and reliability of our conclusions. The study, the results of which we present, focused on students in three different schools: an urban public school, an urban private school, and a rural public school. The analysis of the data was aimed at identifying ascending differences between students from different schools.

It is worth noting that the approach to the research topic was multifaceted, taking into account the variety of issues affecting the students' educational experience.

The first analysed aspect was students' willingness and self-identification to seek extracurricular activities. A series of questions were designed to understand whether students in urban public schools, urban private schools, and rural schools differed in their initiative to seek extracurricular opportunities. Learning how the design of the education system affects students' motivation to participate in extracurricular activities is essential in the context of today's labour market, where additional skills and interests are becoming increasingly important (Acar & Gündüz, 2017; Denault & Guay, 2017). Going beyond the traditional learning framework can foster the development of students' skills and passions, contributing to success in future careers. On the other hand, the shortcomings and inadequacies of the functioning education system may force students to seek skills and qualifications outside formal education (Mugabi et al., 2021).

Another aspect of the analysis was students' attitudes towards money. The study aimed to understand whether the place of residence or education and the type of teaching influence students' perceptions and attitudes towards money as an essential factor influencing career decisions (Zhan, 2015). The critical question was – are there differences between the students of the schools included in the study in their assessment of the value of money and its role in their lives? Young people's perceptions about money are crucial in shaping their consumer attitudes, their ability to manage their finances, and their preparation for the challenges of adult life. Understanding these differences can provide valuable insights for, among other things, financial education and supporting students in managing their own resources.

The issue of self-identification in shaping students' career aspirations was also an important question we explored. Can the quality of the education system influence their career aspirations? Do students from different types of schools have different career goals and visions for the future? In the context of the dynamically-changing labour market, choosing the right career path is crucial for success in life (McWhirter et al., 2000). Choosing the right course of study can influence acquiring the skills and competencies needed for future work. Analysing students' career aspirations

from different types of schools can provide vital information for adapting curricula and supporting their careers. How education influences students' career development in terms of specific skills and awareness of labour market challenges remains a fundamental question.

In the next section, we present the detailed results of our survey and take a critical approach to their interpretation. We point to the strengths of the study as well as its limitations. Our survey is, on the one hand, a first step towards analysing the different types of education within a homogeneous – not skills-focused – education system and, on the other hand, an attempt to answer the question of how, in a given education system, the pathways for the development of professional skills needed for future transition to the labour market are shaped.

The main aim of our study is to provide valuable insights for policymakers developing the education system and to stimulate further research into the quality of the education system and the impact of system structure on students' career paths. Understanding this complex issue is essential for developing education systems, adapting curricula, and supporting students in their succeeding in both school and work.

Literature review

A vital aspect of the analysis is the differences between schools, which is due to the school's location (rural-urban) and the ownership and management (private-public). However, the most crucial element for later advantage in the labour market is professional qualifications and employable skills.

Modern societies face the challenge of adapting education systems to the ever-changing labour market. In today's economy, professional qualifications are key to career success (Coffield, 2004; Payne, 2008; Payne & Keep, 2011). Research shows how crucial professional qualifications are in terms of both entering the labour market and pursuing a designated career path (Jackson, 2014, 2016). In the rapidly changing labour market, having the right qualifications, as well as the ability to adapt them to changing job requirements, is a key requirement for employment (Cunningham & Villaseñor, 2016; Mayhew, 1999; Payne & Keep, 2011; Wolf, 2004).

Increasingly, governments appear to be handing over responsibility for providing skills from the education system to the market and businesses within it (Cunningham & Villaseñor, 2016). The state often forgoes the opportunity to shape the education system and specific educational pathways in such a way as to shape students' skills and qualifications in line with the demands of the future (Parkes, 2012). By failing to change the education system, the market sets standards in the area of expected qualifications, responding to current shortages (Busso et al., 2017; Pujol-Jover et al., 2015). In this way, the state allows for the inertial creation of skills and professional qualifications that are the product of current market needs, and is thus not directed towards future changes and needs of the labour market and the economy (Dalitz & Toner, 2015; Parkes, 2012).

By not changing the education system, the state is moving away from the possibility of strategically shaping qualifications for the labour market. In doing so, the state faces the challenge of future management of the structural problems resulting from the mismatch between qualifications and skills and market needs (Pujol-Jover et al., 2015). Nevertheless, the formal education system still plays a crucial role in laying the right foundations to enable students to adapt successfully to the labour market (Lloyd & Payne, 2003). In recent years, we have seen a slow change in governments' approach to the role of education in providing relevant qualifications. The concept

of new education is most often integrated into the overall social and economic environment (Radermacher & Walia, 2013)

Research shows unequivocally that the lack of appropriate vocational skills is a significant barrier for graduates, making it difficult for them to transition smoothly into the labour market and remain in it (Radermacher et al., 2014). Efforts are being made to introduce, among other things, soft skills into the education system, with no single and consistently implemented pathway for planned change (Graham et al., 2019). The problem is often rooted in insufficient funding, insufficient teacher training, and the lack of resources. Suggestions for solutions include increasing funding, improving teacher training, and making resources more accessible.

In an era of dynamic economic and labour market changes, adaptation to new technologies and the capacity for lifelong learning become crucial. In this context, education should target the creation of skills and competencies as well as the ability to develop or change them during working life (Busso et al., 2017). Understanding the changing demands of the market is crucial to practical skills development in students. Changing the education system and orienting it towards skills and competency development will increase the match between labour supply and future challenges.

Urban and rural schools

When comparing students' skills and opinions about school made by students in rural and urban schools, there are significant differences between the two (Mbagaya, 2021). Research shows that residents and students in smaller population centres and rural areas show lower skills than their urban counterparts, and this proportion increases with distance from more robust urban centres (Alasia & Magnusson, 2005). Researchers question where this disparity might come from. The determinants of such variation come from different areas; for this article, we would like to show only those relating directly to education.

As a first step, it is worth noting that the educational expectations of students from urban areas are higher than those of rural and migrant students (Li & Hou, 2022). The key influencing factor is family environment, cognitive ability, and the environment. However, these differences are not limited to educational skills and expectations. Studies of executive functions and abilities, as well as cognitive abilities, have shown that they are different between rural and urban areas (Mbagaya, 2021). For example, what is particularly relevant in today's economy are the apparent differences in integrating new technologies or in students' preferences for using technology for learning (Wang, 2013). However, to better understand the differences between social groups with different social and territorial statuses, further investigation of their experiences is needed.

Although parents' expectations of their children's education are similar in both rural and urban areas, graduation rates, for example, tend to be lower in rural areas (Li & Hou, 2022). Moreover, rural youth have lower aspirations for university completion than their urban peers, even if the level of socioeconomic status is similar (Echazarra & Radinger, 2019; Tieken, 2016). It is noteworthy that despite school and parental support for continuing education, some rural families still resist the idea, even though a specific educational pathway increases the possibility of success in the labour market (Li & Hou, 2022).

Nevertheless, the difficulties in providing adequate rural education, such as the lack of infrastructure or quality teachers, do not affect all areas equally intensely (Looker & Bollman, 2020). Therefore, the facts about rural areas themselves cannot be ignored. Their differences are

significant, especially for those far from urban centres (Alasia & Magnusson, 2005; Echazarra & Radinger, 2019). In these regions, greater teacher mobility is observed (Li & Hou, 2022; Looker & Bollman, 2020). The management of educational institutions, the atmosphere, the support of students, and the values conveyed significantly impact students' continuation of their education at subsequent levels. From this perspective, rural out-migration is a factor in the poorer educational outcomes of rural youth (Griffin et al., 2011). Notably, part of the difference in secondary school dropout rates between rural and urban areas is due to unequal distribution and the complex situation of those identifying themselves locally or culturally.

Given today's educational trends, an important aspect is the growing emphasis on pursuing the STEM pathway in the education process (education in the fields of science, technology, engineering, and mathematics). STEM translates into higher employability (Grimes et al., 2019). However, local circumstances often make it difficult for teachers or guidance counsellors to guide students towards STEM-related careers. Place-based changes are needed to raise awareness among rural students and their families about STEM-related career opportunities.

In the labour market context, employability is becoming an increasingly important factor affecting the career prospects of school leavers, especially in countries with market-based employment mechanisms (Cunningham & Villaseñor, 2016). Analyses and studies show that closing the gap between rural and urban graduates is needed to build a sustainable school system and equalise employability (Lai et al., 2011). Investment in early childhood development and education is necessary. This support should come from local and governmental authorities, helping close the school readiness gap (Gan et al., 2016).

Private and public schools

An analysis of the available research indicates essential differences between public and private educational institutions. These differences are often presented through educational outcomes and student development (Crespo-Cebada et al., 2014; Mancebón & Muñiz, 2008). Considering educational outcomes, research shows that students in private schools often score better on educational achievement tests (Marilou et al., 2020). In many cases, higher levels of knowledge and skills can be observed in private school students (Crespo-Cebada et al., 2014). Opinions about private schools are primarily positive, as they are associated with better education, a conducive environment, a variety of extracurricular activities, and convenience for working parents (Doğan, 2020; Khan, Chandio, & Farooqi, 2014).

Public schools are rated higher on both objective indicators and subjective opinions (Crespo-Cebada et al., 2014). Educational efficiency often varies according to the type of school, but also according to other factors, e.g. location; research shows that the impact of location can be even greater than the method of funding (Yi-Gean Chen, 2017). However, research also reveals that private schools, even those that partly depend on government support, also show higher efficiency than public schools, although regional inequalities affect their efficiency scores (Mancebón & Muñiz, 2008). In this context, private schools are an important alternative to public schools, because they can provide high-quality learning and thus can provide a reference for the public education system (Marilou et al., 2020). In terms of future employment, private schools have similar employment efficiency to public schools, but private schools outperform comparable public schools in terms of further career pathway efficiency, as indicated by studies in the OECD countries (Dronkers & Robert, 2008).

However, it is noted that a significant proportion of the achievement gap between private and public school students can be attributed to variation in average student characteristics (78%), of which 45% is due to family background and 26% to school quality (Dronkers & Robert, 2008). Those numbers suggest that external factors play a significant role in shaping educational outcomes, and this research demonstrates the significant impact of parental involvement in shaping students' career paths (Xiao et al., 2016).

An important factor influencing the quality of learning is teacher satisfaction. In this context, it can be seen that private schools often stand out with better results (Henderson et al., 2020). It seems that teachers working in private schools show more satisfaction and a positive attitude towards their work. Positive aspects include a positive working atmosphere, greater pedagogical autonomy, and more opportunity to implement innovative teaching methods (Crespo-Cebada et al., 2014; Henderson et al., 2020; Khan, Chandio, & Farooqi, 2014).

It is also important to emphasise that each type of school has its characteristics, advantages, and limitations (Peterson & Llaudet, 2006). Public schools play an essential role in providing access to education for all students, regardless of their background or financial situation (Crespo-Cebada et al., 2014; Goyal, 2009). Private schools, on the other hand, often emphasise individualised learning, specialisation, and the provision of additional learning activities. However, the cost of education in private schools could be a barrier for many families, leading to inequalities in access to better-quality education (Goyal, 2009). In addition, some studies suggest that once socioeconomic factors are considered, the achievement gap between private and public school students may narrow (Doğan, 2020).

Methodology

The research focused on social and economic (including entrepreneurial) attitudes and behaviour among final-year primary school students. The research questions referred to future employment and the propensity to choose a specific career path. In this article, we present the research results and the analysis developed concerning students' attitudes and their evaluation of the school and the education system in the context of future employment and careers.

The research in question was conducted in 2022 in three primary schools. The schools selected for the study participated in the non-formal education development project implemented by the Cracow University of Economics. The selected schools differed from each other by a combination of two characteristics, i.e. place of location (urban-rural) and form of ownership (private-public); The schools in the study group were:

1. Public School from an urban municipality,
2. Public School from a rural municipality,
3. Private School from an urban municipality.

The research was conducted as an anonymised questionnaire delivered to the students in their last classes. All project participants completed the questionnaire. The analysed alternatives were developed based on questions based on a 5-point Likert scale.

The surveys focused on students' needs and expectations as expressed in relation to questions about the school, but also about their professional vision for the future. The study examined viewpoints concerning the educational establishment, the educators' role, the nature of teaching, the quality of education, and how it matched pupils' expectations. The investigation analysed the matter of promoting the advancement of students, the atmosphere, or the extra-curricular activities.

In the analysis presented here, in the first step, a cluster analysis was performed to find similarities between variables representing similar opinions and attitudes of the students. The second step was to find differences when clustering variables for different types of schools. An analysis of variance – a statistical method for examining observations that depend on one or more factors acting simultaneously – was used for comparison. This method explains the probability with which the extracted factors can account for differences between observed group averages (Blalock, 1979; Luszniewicz & Słaby, 2008).

Results and discussion

In the first step, the cluster analysis allowed four variables to be distinguished (Figure 1). The first group included variables relating to views of the future and related social views and attitudes towards money. Here, we can see similar variability for the view that "I will/would like to run a business in the future" with the view that "money is important in life" and the belief that "people are themselves responsible for their destiny". These categories of variables that are a set of attitudes and beliefs can be called 'Entrepreneurship allows you to earn a lot'. The second group comprises variables that combine responses concerning "the declared desire to participate in training and lessons related to future careers" and the belief that "students need such lessons". This group of variables can be called the "Declaration of improving skills for future development". The third group consists of two variables presenting "actual involvement in the classes" and "the desire to acquire knowledge". This group of variables can be called 'Actual commitment to competence enhancement'. The last group comprises the answers to questions about the quality of education; it includes the responses to questions about the atmosphere in the school, whether the school inspires development and creativity, whether the teachers pay attention to things needed for later careers, and whether, in general, the school prepares well for future work. We can call this category of variables 'the quality of the education system'.

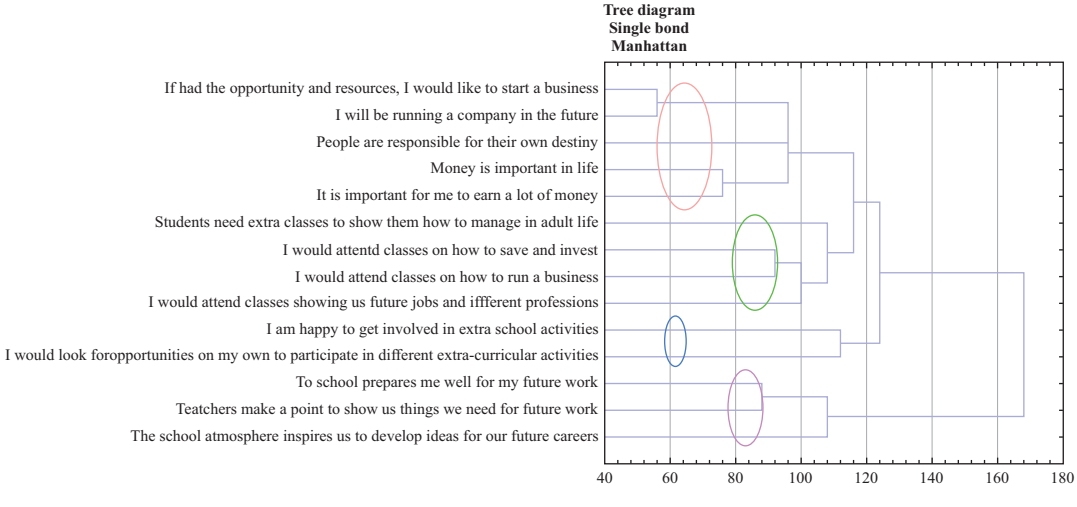

Figure 1. Cluster analysis of the studied variables

Source: Based on our own research.

As can be seen in the figure, the last group of variables, "the quality of the education system", stands out from the other clusters depicting the students' attitudes and views. It may indicate a different perception of school, from the need to be an entrepreneur or earn money to the desire to participate in classes to develop professional skills. The significant remoteness of the clusters from each other suggests that the education system is subject to a very different evaluation and does not fit into developmental or entrepreneurial categories or those related to career futures in general. The evaluation and perception of these variables is different from the others. For this reason, we decided to investigate these particular variables specifically when carrying out the analyses.

The first analytical step was to find a grouping variable that would show precise equations between the different variable categories in the study group. After testing several variables, it turned out that the variable confirming the existence of differences between categories was the school-type variable. This variable shows the differences between public and private schools and urban and rural schools. We decided to carry out a broader analysis, which we began by looking for differences between students' opinions and attitudes that vary by place of residence and by type of school.

The variance analysis allows us to show statistically significant differences between different types of schools and places of education. The first significant difference observed during the conducted analysis is the self-seeking of extracurricular activities; this difference is visible and also statistically significant between the urban private school and the urban public school; in this case, more students of the private school declared to seek the possibility to participate in extracurricular activities.

Taking into account the students' views on money, we can observe that significant differences are found in the comparison between the urban private school and the rural public school; in the case of the rural school, students firmly stated that money is essential in life and that money is used for spending. In the case of the latter opinion, pupils from the rural school differed when compared to pupils from the urban public school. In both cases, i.e. in the comparison of the rural school to the two urban schools, the difference in means was clear (1.333 compared to the urban private school and 1.167 compared to the urban public school), which indicated that there were different attitudes towards money and its functions between the students from the rural school and the two urban schools.

Further analysis indicates that surveyed students from rural schools are significantly more likely to run their businesses in the future than students from the two urban schools. The analysis of variance showed no statistically significant differences between the rural public school and the urban public school for the following two questions. In contrast, differences between the private school and public schools were found to be significant. In the case of this category of variables, defined above as 'Declaration of improving skills for future development', it can be seen that public school students are less interested in additional activities, whether in money management or related to the challenges of adult life. These differences are not huge, but they are visible and consistent, as they apply to every variable in this category.

What is most relevant from the perspective of our research is the evaluation of the education system's performance by assessing the performance of schools as such. As can be seen in Table 2, it lists the full results of the analysis of variance conducted for the three variables that, as a result of the cluster analysis conducted earlier, we classified as the category "the quality of the education system". Multiple comparisons were carried out for each category of clustering variable, i.e. for each type of school. What becomes a key conclusion after analysing the data from the table is

Table 1. Multiple comparisons for the dependent variables for the grouping variable "Type of school"

Multiple comparisons							
Dependent variable			**Difference of means**	**Stand. error.**	**Significance**	**95% confidence interval**	
						Lower limit	**Upper limit**
I am looking for opportunities to participate in extracurricular activities myself.	public urban	private urban	**.767***	0.216	**0.002**	0.24	1.29
Money is important in life.	private urban	public rural	**–.467***	0.153	**0.008**	–0.84	–0.1
Money is essential in life.	private urban	public rural	**–1.333***	0.15	**0.001**	–1.7	–0.97
	public rural	public urban	**1.167***	0.158	**0.001**	0.78	1.55
The profession of the future – running your own business.	private urban	public rural	**–.667***	0.176	**0.001**	–1.09	–0.24
	public rural	public urban	**.500***	0.186	**0.024**	0.05	0.95
Students need extra classes to show them how to manage adult life.	private urban	public rural	**–.600***	0.225	**0.026**	–1.15	–0.05
	public urban	private urban	**.583***	0.228	**0.035**	0.03	1.14
I would attend classes on how to save and how to invest.	private urban	public rural	**–.567***	0.217	**0.030**	–1.09	–0.04
	public urban	private urban	.733*	0.217	**0.003**	0.21	1.26

* The difference in means is significant at the 0.05 level.

Source: Based on our own research.

a comparison of the evaluations of the education system by analysing the way teachers work in the context of imparting content related to future employment, the atmosphere at school, whether the school inspires students from a future career perspective, and the overall evaluation of the school from the perspective of its ability to prepare students for future employment.

The analysis of all cases clearly shows that, for the schools surveyed, pupils rated the private school more positively regarding the described aspects of school performance. In the case of the evaluation of the teachers' work in terms of preparation for future work, it can be seen that the pupils of the private school rate their teachers better than the pupils of the municipal public school. A conditional evaluation can also be made of the comparison between urban and rural public schools (although, in this case, the statistical significance value was slightly exceeded). The comparison between the public schools, in this case, shows that pupils from the rural school rate the teachers higher in terms of the content related to future employment presented during lessons.

Another aspect is the atmosphere in the school, which can inspire thinking about the future and the search fp;[or development paths directed towards future work. Here again, the values obtained by the private school are a clear outlier. Compared with the urban public school,

Table 2. Multiple comparisons for dependent variables from the "Quality of the education system" category

Multiple comparisons							
Dependent variable			**Difference of means**	**Stand. error.**	**Significance**	**95% confidence interval**	
						Lower limit	**Upper limit**
Teachers pay attention to show us things we need for our future careers.	private urban	public rural	0.5	0.226	0.089	–0.06	1.06
		public urban	**1.083***	0.226	**0.000**	0.53	1.64
	public rural	private urban	–0.5	0.226	0.089	–1.06	0.06
		public urban	0.583	0.238	0.052	0	1.17
	public urban	private urban	**–1.083***	0.226	**0.000**	–1.64	–0.53
		public rural	–0.583	0.238	0.052	–1.17	0
The atmosphere at school inspires us to develop ideas for our future careers.	private urban	public rural	**.767***	0.251	**0.011**	0.15	1.39
		public urban	**1.017***	0.251	**0.000**	0.4	1.64
	public rural	private urban	**–.767***	0.251	**0.011**	–1.39	–0.15
		public urban	0.25	0.264	0.640	–0.4	0.9
	public urban	private urban	**–1.017***	0.251	**0.000**	–1.64	–0.4
		public rural	–0.25	0.264	0.640	–0.9	0.4
The school prepares me well for my future job.	private urban	public rural	**.733***	0.219	**0.004**	0.19	1.27
		public urban	**.733***	0.219	**0.004**	0.19	1.27
	public rural	private urban	**–.733***	0.219	**0.004**	–1.27	–0.19
		public urban	0	0.231	1.000	–0.57	0.57
	public urban	private urban	**–.733***	0.219	**0.004**	–1.27	–0.19
		public rural	0	0.231	1.000	–0.57	0.57

* The difference in means is significant at the 0.05 level.

Source: Based on our own research.

the average difference is significant (1.017) in favour of the private school, where, according to the students' assessment, the atmosphere inspires them to develop ideas for their professional future. Compared with the rural school, the advantage in evaluation is also on the side of the urban private school (0.767). However, this difference is less significant than in the comparison with the urban public school.

The final aspect of the analysis is the overall evaluation of the school as an institution preparing for future professional life. In this case, the student survey results show a clear advantage for the private school. The difference in mean evaluation values when comparing the private school with the two public schools are the same and amounted to – 0.733.

The research presents interesting differences in attitudes to learning, the perception of money, involvement in development, or the evaluation of schools and teachers. The results obtained allow for interpretations as well as creating opportunities for further research questions.

As can be seen, a significant difference is the students' attitude towards extra activities and seeking them out on their own. Students in the surveyed urban public schools show more initiative and willingness to seek out opportunities to participate in extracurricular activities independently. This may suggest that students in these schools are more motivated to pursue their interests outside the standard curriculum. It also shows that students are not receiving appropriate content within their school education. This may reflect the broader educational offerings available to students at the private school, e.g. interest circles or extracurricular activities. This raises the interesting question of whether broadening the offer of public schools would improve the situation for students forced to seek relevant content outside the education system. The literature and research often highlights this very differentiating aspect between private and public schools (Crespo-Cebada et al., 2014; Doğan, 2020; Goyal, 2009; Khan, Chandio, & Farooqi, 2014; Mancebón & Muñiz, 2008; Marilou et al., 2020).

The difference in the perception of money occurring between urban and rural school students is interesting. Students from the rural school placed a significantly higher value on money. The research shows that money was essential to a successful life for the rural school studied. In contrast, the urban school students presented a more balanced attitude towards money. This difference may be due to the different living conditions and economic realities faced by the students of these schools, as well as it may relate to the perception of social advancement and success in life mainly through the financial prism (Diener et al., 2010; Shim et al., 2009). Cities offer many pathways to social advancement that are not always linked to financial success, so perceptions of success in cities may only sometimes be associated with financial success (Ameliawati & Setiyani, 2018; Baron & Markman, 2003; Martos & Kopp, 2012).

Another interesting element was the significantly higher interest of rural public school students in running their businesses in the future than students from the surveyed urban schools. This may primarily indicate the rural school students' more remarkable resourcefulness and self-confidence, from which they are more courageous in taking responsibility for their destinies. On the other hand, it may also be related to the declared attitude towards money. From this perspective, the desire to run a business may be linked to higher earnings. In both cases, a higher level of entrepreneurial intentions is evident among the students of the rural public school. Entrepreneurship and professional self-efficacy are firmly rooted in rural areas (Egedy et al., 2015; Vaillant & Lafuente, 2007). Besides, research shows that rural education systems tend to be oriented towards self-reliance. Hence, we can infer a possible higher resourcefulness of students from a rural school (Joussemet et al., 2008; Samuels & Pryce, 2008). On the other

hand, this may be the result of seeking opportunities for social advancement, seen on a par with financial advancement as synonymous with success in life (Ameliawati & Setiyani, 2018; Baron & Markman, 2003), since entrepreneurship and running a business is seen as the best opportunity for financial advancement (Hitt et al., 2001; Kennedy et al., 2003)

From the perspective of the objectives of this article, the critical aspect was the category 'the quality of education'. Here, the analysis of all variables indicates that students rate the private school significantly more positively compared to the rating given to public schools. Firstly, private school students rate their teachers better from the perspective of their work, which is directed at preparing them for future work. As research shows, this may be the result of better working conditions for teachers, more flexibility in the curriculum, or a more individualised approach to students, which promotes better preparation for future professional challenges (Clayson, 2009; Klem & Connell, 2004; Kools et al., 2020). Secondly, the school atmosphere can significantly inspire students to think about the future and explore pathways related to future work (Blanco & Rodríguez-Martínez, 2015; Singh, 2014; Xu et al., 2022). As the research shows, private school students rated the school atmosphere as more inspiring and conducive to the development of ideas for their future careers compared to students in the two public schools surveyed. Thirdly, students of the private school rate the school itself and its focus on the development of work-related competencies better. Moreover, as research shows, better perceptions of the school are associated with greater engagement in work and learning (Clayson, 2009; Klem & Connell, 2004; Kools et al., 2020; Purkey & Smith, 1983).

These results suggest that private school education quality may translate into better teacher evaluations and a more motivating school atmosphere, which fosters students' development and shapes their positive attitude towards future work. From this perspective, it can be concluded that the quality of education in a given school impacts differences in students' perceptions of teachers and the atmosphere. Schools, even within a given education system, can create a more motivating environment for students, which translates into better teacher ratings, schools, and an atmosphere that inspires development.

Conclusions

The research findings that have transpired point to the need to pay attention to the quality of education in different types of schools and to take action to increase the diversity of educational provision and to support teachers in developing the skills to motivate and inspire students to succeed in the future (Dronkers & Robert, 2008; Khan, Chandio, & Farooqi, 2014; Looker & Bollman, 2020).

On the one hand, schools, but above all, education policymakers, should increase the capacity of schools to expand their educational offerings. Furthermore, in the next step, they should inspire and encourage students to actively seek and participate in extracurricular activities, which can better develop their interests and passions. Schools should pay attention to their students' career aspirations, support them in their professional development, and identify pathways for such development (Coffield, 2004; Payne, 2008; Payne & Keep, 2011).

Findings from the research suggest a need to focus on the differences in educational provision and access to various development opportunities in different types of schools. Measures are worth taking to increase educational provision and ensure that students from different backgrounds have

equal opportunities to develop their interests, financial skills, and career aspirations (Doğan, 2020; Goyal, 2009).

Although not directly emerging from the research, an important finding is that entrepreneurial education needs to be raised in profile. Schools should support students to acquire skills and competencies, develop career aspirations, and provide appropriate opportunities for development (Busso et al., 2017; Radermacher et al., 2014). Introducing skills into schools can positively impact the development of students' competencies and prepare them for the challenges of adult life.

In conclusion, the study shows that the quality of education plays an important role in shaping students' behaviour and attitudes. At the same time, it shows differences between school students that may be due to the quality of the educational offer and access to a variety of development opportunities. It is worth taking action to increase the diversity of educational offerings, promote financial education and entrepreneurship, and ensure that students have equal opportunities to succeed in the future.

A key aspect remains the design of the education system, which is underfunded, overburdened, inflexible, and focused on knowledge rather than skills. However, a comparison of different types of schools shows that even within an inefficient system, it is possible to achieve different outcomes and, consequently, different student grades. It is also worth considering further research to understand better the reasons for these differences between students from urban private schools, urban public schools, and rural schools. Such research can help to tailor curricula and educational support better to meet best the needs and aspirations of students in different school settings.

The conducted research provides a clear analytical pathway towards enhancing the efficacy of academic pursuits to strengthen and better exploit the development opportunities of students. A primary focus of the research is identifying factors that augment the efficiency of the transition from academia to the job market. Transition efficiency is not only about quantitative measures, but also about qualitative ones. It aims to closely match students' skills and qualifications to their future work, resulting in a more efficient use of labour resources. It aims to closely match students' skills and qualifications to their future work, resulting in a more efficient use of labour resources. This becomes especially vital given the unfavourable demographic shifts in developed nations. Identifying inadequacies in the education system and investigating effective approaches enables us to diagnose low educational efficiency. Additionally, we can showcase model interventions that can be implemented even in a well-functioning system. This was the intended purpose of presenting variances across different school types. The analyses conducted in the following steps enable us to examine the scope for changes in educational policies, both at the micro level – i.e. pertaining to the functioning of schools and teachers – and at the macro level, i.e. with regard to the orientation of the education system towards fostering the skills and qualifications essential for achieving success in the job market.

Limitations

The paper acknowledges limitations that should be noted. First, the sample size was measured in two dimensions: 1) the number of pupils; 2) the number of schools. In order to be consistent in the analysis, we surveyed whole classes, which does not allow for the appropriate proportions known even from the sex ratios in the years in question. However, we decided that the sample would be complete in this case and include all the pupils of the classes in question. On the other hand, the lack of a more significant number of schools in the survey results from an attempt to

find differences due to the specifics of the schools rather than seeking the representativeness of the survey. Therefore, in this article, we do not generalise the results, but refer to them as if they were the results of a qualitative study conducted on a particular group of respondents.

In order to eliminate the possible influence of respondent bias, we conducted the survey anonymised, and no teacher or school representative was present during the survey. We also communicated to the students that the information obtained would be the subject of a scientific study, the results of which would not affect either the surveyed students or the school.

We considered the selectivity of private school students and the benefits associated with studying in such schools. For this reason, we have separated questions about attitudes to school from questions concerning preparation for future working life. In this respect, we also considered that the results may be influenced by, among other things, the availability of additional activities and better school facilities.

We have taken into account the possible influence of the social, economic, and cultural environment both in the research and in the presentation of the results. We have also considered the aspect of both subject and object accessibility in our interpretations. Therefore, we did not introduce generalised interpretations criticising the education system as such, but, rather, focused on specific elements.

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Some Remarks on the Report "Science and Higher Education vs. GDP" Prepared at the Initiative of the Conference of Rectors of Polish Economic Universities: An Analysis of the Convergence Processes in Selected Central and Eastern European Countries

Abstract

Objectives: This paper summarises the findings of a report by Acedański et al. (2023) that focuses on the relationship between science and economic growth. The report was commissioned by the Conference of Rectors of Economic Universities (KRUE) and prepared by researchers from five public economic universities in Poland. The authors of the report and the KRUE aim to share their message with a wide audience that includes policymakers, academic experts, and students. Additionally, the article analyses the impact of research and higher education spending on convergence processes in Central and Eastern European countries.

Research Design & Methods: The study examined different indicators, including government expenditure on basic research, higher education, and research and development. We utilised SURE models and observed that there was notable diversity in the convergence processes among the analysed countries. Additionally, we found a correlation between research spending and the rate of catching up. However, it is important to note that this relationship is not universal and varies across countries, even those within the same region.

Findings: Acedański et al. (2023) report quantifies the relationship between science, higher education, GDP, and economic development in Poland. The report states that science and higher education sectors positively impact local economies, and individuals with higher education contribute the most to human capital resources in the economy, leading to GDP growth. However, Poland has a funding gap in research and science compared to highly developed countries as well as many Central and Eastern European countries. The report suggests that investment in a country's education and higher education system is essential for generating developmental impulses and supporting its economy.

Implications / Recommendations: The impact of scientific activity depends heavily on funding, especially through higher education institutions. In Poland, the salaries of academic teachers have decreased compared to other professions, and their position in the wage distribution is the worst it has been in the past two decades. Investing in a country's education and higher education system is essential to support the economy. Acedański et al. (2023) suggest that a 0.1 percentage point increase in research and development expenditure, as a percentage of GDP, can lead to a 0.8 to 1.3 percentage point increase in GDP growth. However, the conclusion was based on panel data from EU countries, and the impact of scientific research on GDP may differ when analysing Central and Eastern European (CEE) countries. In this paper, we also present an extended analysis of the impact of science and education on economic growth through the lens of convergence processes. We show that the relationship above is not straightforward and represents substantial variability across countries, even those of the same region.

Contribution / Value Added: Firstly, the report by Acedański et al. (2023) emphasises the importance of the science and higher education sector for economic growth. Their empirical research helps quantify the relationship between science, higher education, GDP, and economic development, offering a deeper understanding of this connection.

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The report complements previously published analyses and research on the topic. Secondly, our regional research shows that the convergence processes vary greatly among the analysed countries. The inclusion of spending on science, research, or higher education in the convergence equations has a varied impact on the assessment of the pace of the catching-up processes in the CEE region.

Keywords: R&D expenditures, government expenditures on science, convergence processes, SURE

JEL: O47, H5

Introduction

The paper aims to achieve two objectives. Firstly, it summarises the findings of the report by Acedański et al. (2023) that focuses on the role of science in economic development and growth processes. The Acedański et al. (2023) report was commissioned by the Conference of Rectors of Economic Universities. It was prepared by a team of researchers from five public economic universities in Poland, including the Katowice University of Economics, the Cracow University of Economics, the Poznan University of Economics, the Wroclaw University of Economics, and the Warsaw School of Economics. The report's authors and the Conference of Rectors of Economic Universities aim to disseminate their message to a broad audience, including policymakers, academic experts, and students. Secondly, the article provides an in-depth analysis of the impact of research and higher education spending on real convergence processes in Central and Eastern European countries. This aspect of the analysis was also discussed in Acedański et al. (2023) and represents the author's contribution to the report.

The article is structured as follows. The second chapter presents the main objectives and results of the report by Acedański et al. (2023). The third chapter discusses the concept of real convergence and proposes an approach to incorporating research and higher education expenditures in catch-up processes. The fourth chapter is dedicated to the discussion of empirical results. The final chapter contains concluding remarks.

Chapter 2 is a compilation of the findings presented in the executive summary of the report by Acedański et al. (2023). Chapters 3 and 4 constitute an expanded version of section 3.3 of the report (pp. 58–62).

Objectives and key findings in the report "Science and Higher Education Impact on GDP"

The aim of the report by Acedański et al. (2023) was to determine the role played by the science and higher education sector in the GDP changes. The analyses presented in the report focused mainly on funding scientific research activities in universities that use public funds, using a macroeconomic empirical approach. The idea that technological progress, science, and human capital play a significant role in economic growth and development is often repeated as a common belief in public discussions. Yet, it is not always grounded in empirical evidence. However, due to strict budget constraints, the science and higher education sector often loses out in competition with other political priorities in many countries. The authors intend to remind us of the importance of the science and higher education sector in economic growth and development, as well as to present the results of empirical research conducted for this study.

Recently, numerous reports have been published in Poland regarding the significance of science and higher education. These reports often highlight institutional issues that are important for the current situation of Polish universities and compare scientific activities through bibliometric and scientometric indicators. However, the report by Acedański et al. (2023) stands out, because it attempts to quantify the relationship between science, higher education, GDP, and economic development. This approach provides an opportunity for a deeper understanding of the connection between science and higher education as well as economic growth and development. The authors' report is intended to complement previously published analyses and research. Below, we briefly summarise the main conclusions drawn from the analyses.

In the past, economic growth in Central and Eastern European countries, including Poland, was not based on technological progress or scientific activity. The factors contributing to growth, such as catch-up effects and domestic market expansion, have been exhausted. Therefore, new growth engines need to be found.

The science and higher education sectors in Poland have positively impacted local economies. Cities with significant academic centres have grown up to 30% faster than a similar control group. Additionally, an increase of one percentage point in the student population of a district has been associated with a per capita GDP increase of 2,000 to 4,000 currency units in major academic centres.

Individuals with higher education contribute the most to human capital resources in the economy, leading to GDP growth. They are more likely to seek additional skills and competencies through education and training, which helps them find employment more quickly, have lower unemployment rates, and work longer throughout their careers. They also have a higher quality of life, are generally healthier, and live longer. In Poland, individuals with higher education have nearly a fourfold greater chance of receiving a good or very good health assessment and 2.5-3 times greater chances of a life without functional limitations than those with lower education.

The impact of scientific activity is strongly dependent on science funding, especially through higher education institutions. However, Poland has a funding gap in research and science compared to highly developed countries and many Central and Eastern European countries. Academic teachers' salaries in Poland have declined relative to other professions, and their relative position in the wage distribution is the worst over the last two decades.

Investment in a country's education and higher education system is essential for generating developmental impulses and supporting its economy. Research suggests that increasing scientific studies and development expenditures can lead to higher GDP growth. Every 0.1 percentage point increase in research and development expenditure as a percentage of GDP leads to a 0.8 to 1.3 percentage point increase in GDP growth. Investing one currency unit in scientific research can potentially lead to an increase of eight to thirteen currency units in GDP. However, this conclusion was based on the analyses of panel data from all European Union countries, and the impact of scientific research on GDP may vary among Central and Eastern European countries. In the next section, we present an extended analysis of the impact of science and education on economic growth through the lenses of convergence processes. We show that this relationship is not so obvious and represents substantial variability across countries of even the same region.

Real convergence and expenditure on science – the econometric approach within the SURE model

In this section, we utilise the Seemingly Unrelated Regression Equations (SURE) system as our research tool. The model, elaborated by Arnold Zellner (1962), offers a significant advantage in determining the level of convergence within a group of countries without assuming that the pace of "catching up" is uniform across all economies under study. The literature on empirical analyses aimed at verifying the hypothesis of real convergence traditionally relies on panel regression tools, assuming a similarity among the studied countries. However, SURE models enable us to depart from this assumption and investigate the country diversity of the convergence effect. As a result, the SURE regression system allows research in cases of significant heterogeneity in the convergence effect, which cannot be captured within standard econometric proposals.

This approach has been explored in studies by Pipień and Roszkowska (2019), Jarco and Pipień (2020), and Adamczyk and Pipień (2022). Our study aims to provide empirical evidence on how the impact of expenditures on science, research, or higher education on the catching-up processes may differ within a group of countries representing one region.

Barro and Sala-i-Martin (1992), who developed a theoretical model, put forth the idea of a convergence effect. Their construct representing the neoclassical school generalised the standard Solow and Swan growth model while staying within the orbit of the Ramsey, Koopmans, and Cass proposition. The authors demonstrated that economies significantly below their steady state tend to experience stronger growth fluctuations. Concurrently, Mankiw et al. (1992) also conducted analyses based on the convergence hypothesis. Barro and Sala-i-Martin's (1992) work (1992) presented a theoretical result subject to empirical verification for several decades using various econometric approaches. The presence of the convergence effect for a single economy is tested using a linear regression equation.

$$\Delta ln\left(y_t\right) = \alpha_0 + \sum_{i=1}^{M} \alpha_i z_{it} + \beta ln\left(y_{t-1}\right) + \varepsilon_t, t = 1,\ldots,T \tag{1}$$

where: y_t represents the labour productivity index in year t (i.e. GDP per capita according to purchasing power parity), is the additional model variables influencing labour productivity in the steady state, α_i are parameters determining the impact of the analysed determinants on the growth dynamics $\Delta ln(y_t)$, and β is the parameter determining the convergence rate. In the case of convergence, the parameter β takes a negative value, and its absolute value indicates the pace of "catching up" of the analysed economy.

Sala-i-Martin (1997) conducted a detailed analysis of the factors affecting variations in labour productivity across different countries. Pipień and Roszkowska (2019) have identified the most appropriate variables that reflect the characteristics of the Central and Eastern European region. These variables include the investment rate, government expenditure as a percentage of GDP, the inflation rate, and the square of the inflation rate. The convergence equation developed by Pipień and Roszkowska (2019) takes into account these variables and is expressed as follows:

$$\Delta ln\left(y_t\right) = \alpha_0 + \alpha_1\left(\frac{G_t}{Y_t}\right) + \alpha_2\pi_t + \alpha_3\pi_t^2 + \alpha_4 i_t + \alpha_5 t + \beta ln\left(y_{t-1}\right) + \varepsilon_t, t = 1,\ldots,T \tag{2}$$

where $\alpha_0,\alpha_1,...,\alpha_5$ are regression parameters, and G_t represents the government expenditure level in period t, Y_t is the GDP in period t, π_t is the year-on-year inflation rate, and i_t is the investment rate in period t. Equation (2) also includes a linear trend $\alpha_0 + \alpha_{5t}$, which approximately accounts for institutional changes or technological progress.

The objective of the research problem is to assess the extent to which spending on science, research, or higher education affects convergence processes. To this end, we introduce a new variable in equation (2) to represent such spending and label it ES.

ES: An indicator determining expenditures on science or higher education. (3)

After including the indicator, we obtain the convergence equation in the following form:

$$\Delta ln\left(y_t\right)=\alpha_0+\alpha_1\left(\frac{G_t}{Y_t}\right)+\alpha_2\pi_t+\alpha_3\pi_t^2+\alpha_4 i_t+\alpha_5 t+yES_t+\beta ln\left(y_{t-1}\right)+\varepsilon_t, t=1,\ldots,T \quad (4)$$

where parameter determines the strength of the impact of the value of the indicator (observed at time intervals t) on labour productivity.

To determine the impact of expenditure indicators on science, research or higher education, we will compare the estimated values of parameter for regression equations with and without the ES variable (Equations 2 and 4). If there is a statistical change in the inference about the parameter β, it would suggest that expenditures on science, research or higher education play a significant role in determining the pace of real convergence.

We will use panel data for selected CEE countries for the empirical study. To ensure sufficient data, we will require the number of time observations to be greater than the number of analysed countries, referred to as a "long panel". This approach will allow us to analyse the diversity of the convergence effect and the role of expenditures on science, research or higher education in these processes. The convergence equation for the j-th country will take the following form:

$$\Delta ln\left(y_{tj}\right)=\alpha_{0j}+\alpha_{1j}\left(\frac{G_{tj}}{Y_{tj}}\right)+\alpha_{2j}\pi_{tj}+\alpha_{3j}\pi_{tj}^2+\alpha_{4j}i_{tj}+\alpha_{5j}t+y_j ES_{tj}+\beta_j ln\left(y_{t-1j}\right)+\varepsilon_{tj}, t=1,\ldots,T; \mathrm{j}=1,\ldots,n \quad (5)$$

Considering (5) jointly for $j = 1$, we obtain a system of convergence equations with individual parameters for the n countries under investigation. In particular, the system of equations (5) convergence processes are characterised by parameters $\beta_j (j = 1,\ldots,n)$, unique to each country. It is also possible to determine the degree of differentiation in the impact of expenditures on science in the convergence processes, due to the variation of the corresponding parameter across countries; $y_j, j = 1,\ldots,n$.

An important aspect to consider is the correlation of random components ε_t – appearing in the regression equations for individual countries, which determines whether the system of equations will be treated as independent or as a Seemingly Unrelated Regression Equations (SURE) model. The specification referred to as M0 is the case in which the random components are uncorrelated, leading to an independent system of regressions. In the M0 model, regression parameters can be estimated separately for each $j = 1,\ldots,n$. This corresponds to a modelling strategy where convergence processes are treated separately for each country.

Model M1 represents a structure allowing simultaneous correlation of the random components. The resulting system of regression equations is a Seemingly Unrelated Regression Equations (SURE) model (Zellner, 1962). The final model specification depends on the form of the variance-covariance matrix Σ, which, for countries, takes the form of an $[n \times n]$ matrix. In cases where $\sigma_{ii}^2 > 0$ and $\sigma_{ii}^2 = 0$, the Σ becomes a diagonal matrix, corresponding to the M0 model. On the other hand, when $\sigma_{ii}^2 > 0$ and $\sigma_{ii}^2 \neq 0$, it signifies the M1 model.

Just as formula (4) extends the convergence equation (2) with a variable representing expenditures on science, research, or higher education, formula (5) also extends the system of convergence equations with the expenditure indicator excluded:

$$\Delta ln\left(y_{tj}\right)=\alpha_{0\mathrm{j}}+\alpha_{1j}\left(\frac{G_{tj}}{Y_{tj}}\right)+\alpha_{2j}\pi_{tj}+\alpha_{3j}\pi_{tj}^{2}+\alpha_{4j}i_{tj}+\alpha_{5j}t+\beta_{j}\,ln\left(y_{t-1j}\right)+\varepsilon_{tj},t=1,\ldots,T;j=1,\ldots,n \quad (6)$$

The above-discussed research procedure enables the analysis of the convergence phenomenon independently of the prevailing approach in the literature, which is based on panel studies. In other words, the proposed solution aims to deviate from the contemporary paradigm dominant in cross-temporal studies by applying a more general model. This approach is exemplified in the works of Pipień and Roszkowska (2019), Jarco and Pipień (2020), and Adamczyk and Pipień (2022).

Empirical results

When conducting empirical analyses, we had to choose the indicators that determined expenditures on science, research, or higher education. Due to the issue's complexity, we limited the analysis to a specific set of indicators. We had to ensure that the data was available for a long enough period and that we could analyse a group of countries. In this section, we will discuss the results of our parameter estimation for the convergence equation using data from a group of Central and Eastern European countries. These countries include the Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Slovakia, and Slovenia. Adamczyk and Pipień (2022) also studied this group of countries in relation to the role of capital flows in convergence processes. Annual observations on all the necessary indicators for estimating the convergence equation cover 2004 to 2019.

The government's expenditures on science, research, or higher education were evaluated based on five categories. The first category, denoted by BR, refers to government spending on basic research. The second category, TE, refers to government spending on tertiary education. The third category, RD, refers to government spending on research and development. These categories are expressed as a ratio to the GDP for a given year. Two additional categories were analysed, which do not directly reflect expenditures on science but describe research outcomes from a bibliometric perspective. Therefore, the fourth category, FWCI, is the citation index weighted by each discipline's share. In contrast, the fifth, PAJQ, is the number of significant scientific publications per 100,000 citizens of a given country. Table 1 provides detailed information on the sources of the analysed indicators.

The results were obtained by estimating four models, namely two equations or two systems of convergence equations. In order to estimate the parameters determining the convergence rate in both specifications where no variable describes expenditures on research, science, or higher education, we followed formulae (2) and (6) in a stepwise process. We analysed the convergence equation (2), where constraints were imposed on the constancy of all parameters, including the parameter β, and the system of equations (6), where parameter variations across countries were allowed. The results of the estimation for the convergence parameter are presented in Table 2.

In the second step, we estimated the parameters of the convergence equation (4) and the system of equations (5). These equations include a variable representing the analysed expenditures on science, research, or higher education. We present the estimation results for the convergence parameters and the parameters related to expenditures on science, research, or higher education in Tables 3, 4, 5, 6, and 7. These tables use the TE, BR, R&D, FWCI, and PAJQ indicators.

Table 1. Analysed indicators for expenditures on science, research, and higher education

Indicator	Definition	Source
BR	Government expenditures on basic research	Eurostat, General government expenditure by function (COFOG) Sector: General government Classification of the functions of government (COFOG 1999): Basic research https://ec.europa.eu/eurostat/databrowser/product/page/GOV_10A_EXP__custom_4708189
TE	Government expenditures on higher education	Eurostat, General government expenditure by function (COFOG) Sector: General government Classification of the functions of government (COFOG 1999): Tertiary education https://ec.europa.eu/eurostat/databrowser/product/page/GOV_10A_EXP__custom_4708189
RD	Government expenditures on research and development	Eurostat/OECD Gross domestic expenditure on R&D (GERD) by sector of performance and fields of R&D Sector: Government Fields of research and development classification: Total https://ec.europa.eu/eurostat/databrowser/product/page/RD_E_GERDSC__custom_4948022
FWCI	Field-Weighted Citation Impact (excl. self-citations)	Scopus
PAJQ	Publications in all Journal Quartiles by SNIP per 100,000 inhabitants	Scopus

Table 2. The results of estimating the β parameter in the convergence equations (2) and (6), which do not include a variable describing spending on education, research, or higher education

	Equation (2)		SURE system (6)	
	$\hat{\beta}$	$\hat{\gamma}$	$\hat{\beta}_j$	$\hat{\gamma}_j$
CZE	–0.1122*** (0.0183)	X	–0.5897*** (0.0023)	X
EST			–0.2121*** (0.0767)	X
HUN			–0.2921* (0.1649)	X
LTU			–0.3296*** (0.0755)	X
LVA			–0.4084*** (0.1200)	X
POL			–0.4335** (0.1649)	X
SVK			–0.2048* (0.1046)	X
SVN			–0.4553*** (0.1517)	X

*, ** and *** denotes the statistical significance of estimation at levels of 0.1, 0.05, and 0.01, respectively.

Table 3. The results of estimating the parameters β and γ of the convergence equations (4) and (5), including the TE indicator

	Equation (2)		SURE system (6)	
	$\hat{\beta}$	$\hat{\gamma}$	$\hat{\beta}_j$	$\hat{\gamma}_j$
CZE	–0.1269*** (0.0188)	–0.0200** (0.00929)	–0.5831*** (0.1111)	–0.0817** (0.0380)
EST			–0.3295*** (0.0998)	0.0662 (0.0434)
HUN			–0.2568 (0.1870)	–0.0560 (0.2085)
LTU			–0.3489*** (0.1107)	0.00129 (0.0303)
LVA			–0.6298** (0.2084)	0.0747*** (0.0077)
POL			–0.3833* (0.2083)	–0.0336 (0.0471)
SVK			–0.4274*** (0.1307)	0.2843** (0.1094)
SVN			–0.7390*** (0.2010)	0.1359 (0.0997)

*, ** and *** denotes the statistical significance of estimation at levels of 0.1, 0.05, and 0.01, respectively.

Table 4. The results of estimating the parameters β and γ of the convergence equations (4) and (5), including the BR indicator

	Equation (2)		SURE system (6)	
	$\hat{\beta}$	$\hat{\gamma}$	$\hat{\beta}_j$	$\hat{\gamma}_j$
CZE	–0.1106*** (0.0186)	–0.00062 (0.0137)	–0.5902*** (0.1249)	–0.0291 (0.0339)
EST			–0.2326** (0.0925)	–0.0182 (0.0578)
HUN			–0.3500** (0.1426)	0.2466** (0.0964)
LTU			–0.3573*** (0.0750)	–0.0425 (0.0466)
LVA			–0.5850*** (0.1425)	0.0765 (0.0470)
POL			–0.5217*** (0.1593)	–0.1968** (0.0876)
SVK			–0.1853 (0.1119)	–0.1402** (0.0599)
SVN			–0.5122*** (0.1714)	0.0407 (0.0976)

*, ** and *** denotes the statistical significance of estimation at levels of 0.1, 0.05, and 0.01, respectively.

Table 5. The results of estimating the parameters β and γ of the convergence equations (4) and (5), including the R&D indicator

	Equation (2)		SURE system (6)	
	$\hat{\beta}$	$\hat{\gamma}$	$\hat{\beta}_j$	$\hat{\gamma}_j$
CZE	–0.1061*** (0.0232)	–0.0142 (0.0322)	–0.7359*** (0.1189)	–0.1811 (0.1226)
EST			–0.1388 (0.1073)	–0.6808** (0.3104)
HUN			–0.3542* (0.1758)	1.1594** (0.5486)
LTU			–0.3770*** (0.0817)	0.1286 (0.2230)
LVA			–0.8252*** (0.1683)	0.7510*** (0.2302)
POL			–0.6508*** (0.2262)	0.1047 (0.0807)
SVK			–0.1847 (0.1129)	–0.2093 (0.2627)
SVN			–0.7810*** (0.2589)	0.2912 (0.2465)

*, ** and *** denotes the statistical significance of estimation at levels of 0.1, 0.05, and 0.01, respectively.

Table 6. The results of estimating the parameters β and γ of the convergence equations (4) and (5), including the FWCI indicator

	Equation (2)		SURE system (6)	
	$\hat{\beta}$	$\hat{\gamma}$	$\hat{\beta}_j$	$\hat{\gamma}_j$
CZE	–0.1360*** (0.0269)	–0.0081 (0.0135)	–0.4793*** (0.1618)	–0.2584 (0.2445)
EST			–0.0833 (0.1356)	0.0161 (0.0423)
HUN			–0.7911*** (0.2260)	–0,4387*** (0,1467)
LTU			–0.4308*** (0.0984)	–0.0756 (0.0589)
LVA			–0.4167 (0.3666)	–0.0015 (0.0760)
POL			–0.4426 (0.2253)	–0.4287 (0.2397)
SVK			–0.0885 (0.1230)	–0.2573 (0.1384)
SVN			–0.7852 (0.2259)	–0.0828 (0.0986)

*, ** and *** denotes the statistical significance of estimation at levels of 0.1, 0.05, and 0.01, respectively.

Table 7. The results of estimating the parameters β and γ of the convergence equations (4) and (5), including the PAJQ indicator

	Equation (2)		SURE system (6)	
	$\hat{\beta}$	$\hat{\gamma}$	$\hat{\beta}_j$	$\hat{\gamma}_j$
CZE	–0.1253*** (0.0295)	–0.000052 (0.000077)	–1.1292 (0.3113)	–0.0027** (0.0013)
EST			–0.1165 (0.1174)	–0.00099 (0.0015)
HUN			–0.4727** (0.2274)	0.0060 (0.0044)
LTU			–0.4677*** (0.0923)	–0.0029 (0.0013)
LVA			–0.6128 (0.2343)	–0.0026 (0.0018)
POL			–1.1245 (0.2137)	–0.0088*** (0.0017)
SVK			–0.1446 (0.1540)	–0.0012 (0.0014)
SVN			–1.1559 (0.1924)	0.0035 (0.00089)

*, ** and *** denotes the statistical significance of estimation at levels of 0.1, 0.05, and 0.01, respectively.

Figure 1 depicts the effect of including the indicator for spending on science, research, or higher education on the inference about the convergence parameter β. Figure 2 visualises the direction and potency of the influence of variables associated with spending on science, research, etc., on the real convergence processes in the chosen group of countries.

The conclusions drawn from the results presented in Table 2 align with findings from previous studies. The β-convergence effect is not universal among the examined countries despite their shared geopolitical location, history, and economic and social similarities. This is strongly supported by the research of Pipień and Roszkowska (2019), Jarco and Pipień (2020), and Adamczyk and Pipień (2022). The methodology used to calculate the convergence rate of approximately 0.11 for the analysed countries highly depends on arbitrary assumptions about similarities in the studied economies. These assumptions serve as the starting point for panel regression analyses and can significantly influence the results obtained from model (2).

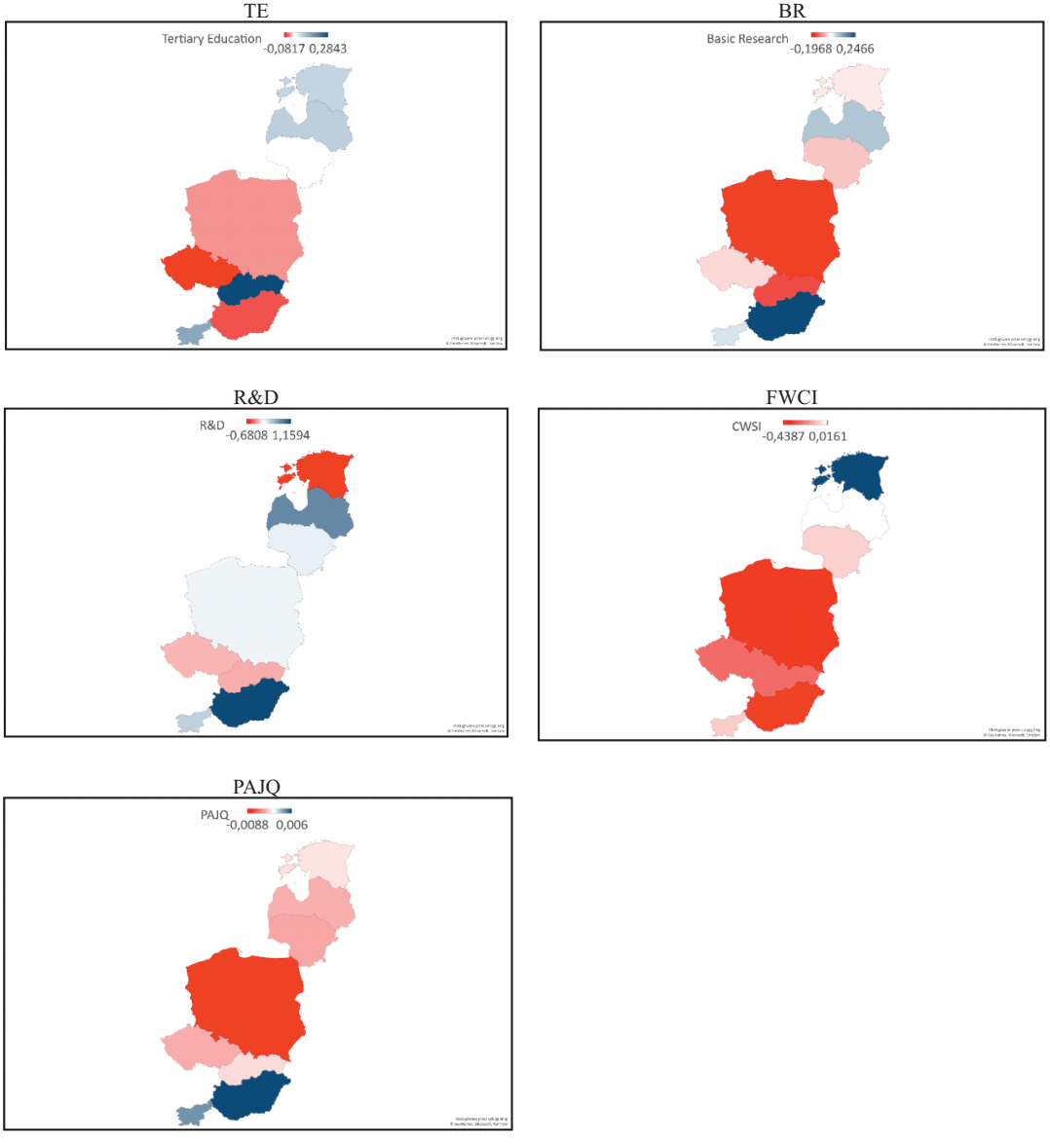
The results obtained from the Seemingly Unrelated Regression Equations (SURE) system indicate that the rate of convergence among the countries studied can vary considerably. Generally, the estimates it provides are higher than those obtained from panel regression. According to the estimated parameter β, the Czech Republic has the fastest catch-up rate, while Slovakia and Estonia have the slowest rates. The convergence effect for the Polish economy can be considered moderately high.

The effect of incorporating variables that describe spending on research, science, or higher education on the estimated catch-up rate is considerable. Still, it varies depending on the chosen metric and country. Figure 1 shows that introducing the R&D indicator into the system of convergence equations (5) results in the most diverse estimates of across countries, compared to the initial

Figure 1. Variability in the estimates of the convergence parameter obtained in all analysed SURE models

model (6) and the other two models with the BR and TE variables introduced, respectively. In the case of the model (5) with the R&D variable, the estimated catch-up effect is most strongly amplified in Latvia, Slovenia, the Czech Republic, and Poland. Estonia and Slovakia show a slower estimated catch-up rate than the results obtained from the other models. To some extent, a similar effect is observed for the model (5) with the TE indicator, but it is much less pronounced. Incorporating the BR indicator in the convergence model does not fundamentally change the obtained convergence parameter estimates. The analysis of the impact of the FWCI and PAJQ

Figure 2. The diversity of the impact of analysed expenditure indicators on science, research, or higher education in the selected group of countries. Results obtained from model (5)



indicators does not alter the above picture. An additional noteworthy effect is the insignificance of the parameters determining the relationship between growth and these measures of scientific sector outcomes. For the FWCI indicator, this effect is statistically significant for Hungary, while for the PAJQ indicator, it is significant for the Czech Republic and Poland.

The role of indicators that describe spending on research, science, or higher education in economic convergence processes is highly diverse. This is because the group of countries being studied is highly heterogeneous due to the sources of economic growth and the structure of public

spending. Figure 2 shows the impact of each analysed indicator of spending on research, science, or higher education on the rate of labour productivity. Countries with a negative influence are marked in red shades, while blue shades represent a positive impact. It is important to note that negative relationships sometimes do not necessarily imply that increasing spending on science will slow down economic growth. These relationships are based on historical data and indicate the short-term relationship between economic growth from different sources and spending on science. The sign and value of the estimated coefficients in equation (1) provide information on how much the rate of labour productivity could change in a steady state if the observed value of a given variable were to increase in that state. The negative impact of the explanatory variable in the convergence equations should be interpreted as indicating that this variable has a stabilising effect on observed economic fluctuations, as measured by the rate of changes in labour productivity. Conversely, a positive influence of the analysed variable should be interpreted similarly as evidence that it amplifies economic fluctuations.

When analysing indicators of expenditures on research, science, and higher education, it is possible to distinguish between countries with positive and negative relationships. The TE indicator negatively impacts Slovakia, Hungary, and Poland. Slovenia, Latvia, and Estonia experienced a positive effect. The BR variable negatively impacts growth fluctuations in Poland, Slovakia, the Czech Republic, Lithuania, and Estonia, while Hungary shows a strong positive effect. A weak positive effect of the BR variable is also observed in Latvia and Slovenia. The R&D variable has a positive impact on labour productivity in most countries, except for Estonia, Slovakia, and the Czech Republic. It is important to note that not all of the relationships described above are statistically significant. The results indicate that the relationship between the pace of labour productivity changes and science expenditures is complex and difficult to identify conclusively. In the case of the TE indicator, Slovakia and Latvia have a statistically significant positive relationship, with the latter case reaching significance at the 0.01 level. The results show one statistically significant negative relationship for the Czech Republic. For the BR indicator, a strong positive relationship exists with Hungary's labour productivity pace. At the same time, Poland and Slovakia have a negative and statistically significant relationship at the same significance level. The R&D indicator positively affects the pace of labour productivity in most countries, but this relationship is statistically significant only for Latvia and Hungary. Except for Estonia, the FWCI indicator negatively impacts labour productivity in all the analysed countries, but it is statistically insignificant in many cases. Similarly, the PAJQ indicator shows a negative relationship with the pace of labour productivity in all analysed economies except Hungary and Slovenia.

Concluding remarks

The impact of science expenditures on economic growth can be analysed from different perspectives. In this paper, we present empirical results that aim to determine the extent to which these expenditures affect real convergence processes. Research conducted in our region using Seemingly Unrelated Regression Equations (SURE) systems indicates significant diversity in convergence processes among analysed countries and a complex relationship between real convergence (catching up) and government spending on science.

The obtained results are heavily influenced by the selected indicator that describes the category of expenditures under consideration. The inclusion of expenditures on science, research or higher education in the convergence equations strengthens the hypothesis that convergence processes

are heterogeneous in nature. It confirms that the catching-up processes should be determined for each economy separately rather than for regions or groups of countries.

The analysed category of government spending interacts in a highly diverse manner with economic fluctuations, with some countries having a stabilising effect on growth dynamics while others possibly leading to an increase. In the case of the Polish economy, expenditures on science play a relatively minor role in the growth process. However, it is important to note that these results only reflect the current state, and measures should be taken to increase the role of science, research, and higher education in the future development of the Polish economy.

The economic growth of our country has been dependent on a large internal market for at least two decades and is consequently driven by solid consumption dynamics. Government expenditures on science, research, or higher education should primarily influence investments. However, among the possible sources of economic growth, investments have not played a primary role in the past for the Polish economy.

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Review

Elżbieta Mączyńska

How to Unleash the Economy of General Intellect to Build a Post-Capitalist World

A review of *Kapitalizm sieci* [*Network Capitalism*] by Jan Oleszczuk-Zygmuntowski (Wydawnictwo Rozruch, Warszawa 2020)

The relevance of the reviewed publication to theory and practice, and the topicality of the issues discussed

The reviewed work by Jan Oleszczuk-Zygmuntowski (Jan Zygmuntowski at the time of the publication) tackles one of the quintessential issues of the day both in the sphere of socioeconomic life and in the field of economic theory. It is the question of the model of a socioeconomic system that would provide the ground for sustainable and harmonious socioeconomic growth and optimal use of the potential of the Fourth Industrial Revolution. The author augurs the end of capitalism, and, being controversial as it is, such a prognosis also calls for an in-depth consideration.

Albeit controversial, the author's opinion on the anticipated end of capitalism is shared by others. Several years ago, the well-known American sociologist Immanuel Wallerstein expressed his dim view of capitalism and prognosticated that its end was nigh. A similarly negative opinion was put forward by Wolfgang Streeck, a German sociologist and economist; in his 2014 interview with the journalist Rafał Woś, he rightly, as it turned out, predicted that "a crisis similar in magnitude to that of 1929 or 2008 can hit us at any time. But will such a shock bring any reckoning? I do not think so. What I know is that capitalism cannot be put right, either as an economic or political system. It is because crisis has become not only its recurrent motif but a fellow traveller" (Streeck, 2014).

Streeck concludes that the state has demonstrably evolved from "a state of taxes" into "a state of debt" (*vom Steuerstaat zum Schuldenstaat*). In effect, the relations between the state and the markets are becoming less and less transparent, and it is not clear whether *states have nationalised banks* or *banks have privatised the state*. The decreasing state tax revenues driven by the neo-liberal doctrine of the "minimum state" and low taxes mean that states need to contract debt to discharge all their functions, including public investment projects, or else be compelled to forgo such functions. If the state restricts its public activity, such as the provision of educational, health, and other types of services, it automatically forces households to purchase them for their own money. This, in turn, will increase household borrowing from banks.

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As a result of imposing the burden of expenditure previously funded from the state budget onto households, the share of the financial sector in the economy inevitably increases, and the economy itself is more and more widely driven by loans. In 2008, the British political scientist Colin Crouch sarcastically dubbed such phenomena "privatised Keynesianism". Streeck thoroughly analyses the phenomenon; although he points out, based on the research findings, that capitalism cannot be repaired, in the above-mentioned interview he nevertheless suggests that "the dismantling of the 40 years of neo-liberalism at all levels could bring about a positive change".

Even though the reviewed work was written before the COVID-19 pandemic, its basic tenets tally with the current debate, made even stronger by the pandemic, on the dysfunctions of capitalism. The thesis on the need to develop a new model of the socioeconomic order and of relations between the state, the market, and the society is gaining more and more traction among the research, experts, and media communities. One, probably the most unexpected change of heart in that direction was expressed in early April 2020 by the editors of *The Financial Times* (FT, 2020), an illustrious British daily with neoliberal leanings, regarded by some as the "capitalists' newsletter", a paper with international circulation, and a strong advocate of the free market and globalisation. Its April 2020 editorial admits that the pandemic exposed 40 years of fallacious economic policies. The view was strongly echoed internationally and came as a surprise in many circles, particularly the proponents of Reaganomics and Thatcherism.

The excerpt quoted below, from the *Financial Times*' editorial, under the telling title "Virus lays bare the frailty of the social contract" (FT, 2020)– was the main headline of the day. It claims, among others, that:

> Radical reforms — reversing the prevailing policy direction of the last four decades — will need to be put on the table. Governments will have to accept a more active role in the economy. They must see public services as investments rather than liabilities, and look for ways to make labour markets less insecure. Redistribution will again be on the agenda; the privileges of the elderly and wealthy in question. Policies until recently considered eccentric, such as basic income and wealth taxes, will have to be in the mix..

Mr Zygmuntowski's tenets also align with the interdisciplinary discourse on the dysfunctions of capitalism and their axiological underpinnings, which is now gaining more and more currency in the West, as evidenced by swathes of publications dealing with this issue. One such example is the 2018 study by the Oxford University economist Paul Collier titled *The Future of Capitalism.* In it, the author points to the dangerous rift in the texture of the contemporary world, manifested e.g. by the emergence of the "Rottweiler society", populated by thoughtless, arrogantly consumerist individuals who ignore elementary societal values and other axiological issues.

Unfortunately, in Poland, these topics are rarely researched, debated, or published. Therefore, the work by Jan Zygmuntowski is a pioneering step in the analysis of socioeconomic phenomena that seeks to emphasise the need to find a new perspective on the economy and economics in the context of the Fourth Industrial Revolution. The significance of such issues for the contemporary world cannot be overestimated, as is demonstrated by some contemptible and perilous occurrences of the day, such as the growing frequency and magnitude of various crises, extensive social stratification, the degradation of the natural environment, the dehumanisation of the ongoing changes, etc. It is also demonstrated by the history.

Jan Zygmuntowski addresses those issues against the backdrop of the changes dictated by the Fourth Industrial Revolution. In his smooth narrative, he outlines the possible and necessary

changes both in the economic theory and in the *modus operandi* of individual actors – creators of the market economy. These are the fundamental challenges that the contemporary world is now facing, and the discussion of these issues adds gravity to the author's work.

Innovative aspects of the reviewed work

Jan Oleszczuk-Zygmuntowski's monograph is innovative and interdisciplinary, which is of great value in its own right. The author describes the changes precipitated by the Fourth Industrial Revolution in the context of such disciplines as economics, political science, sociology, psychology, and more. This is reflected in the structure of this 160-page work, comprising seven chapters, preceded by an introduction, and closing with the main conclusions as well as theoretical and practical recommendations.

The work has a clear-cut structure, while the unconventional and pertinent chapter titles and subtitles make for even more attractive reading. This is an important aspect, considering the complexity of some of the issues discussed, such as the threats to society posed by digitisation and increasing social inequalities. In addition to the still-expanding phenomenon of precarity, a new afflicted class of the *cybertariat* (digital proletariat) is emerging. This phenomenon is emphasised in the works by Ursula Huws (2014), who points to the class's exploitation since the biggest IT players divide the market among themselves and turn it into a "walled garden" that cannot be accessed from any other platform. Jan Zygmuntowski also warns of the risks and negative consequences of the digital world being oligopolised.

The analyses presented in Zygmuntowski's work invite reflections on the systemic transformation and future of capitalism. The ongoing Fourth Industrial Revolution and the resultant civilisational change, manifested in the transition from the industrial to post-industrial paradigm, forces institutional and systemic reforms to be initiated. In the context of such a major game changer, institutional, regulatory and other arrangements employed so far in socioeconomic policies more and more frequently prove to be at odds with the requirements of the new economy. Cultural regression, blockade, and isolation are phenomena marking the present day.

This lock-in effect, described in the literature on the subject to denote being confined to the old systemic framework, and the priorities, solutions and tools adopted indecision-making, poses a barrier to development. Furthermore, it has been corroborated by practice that the tools that have proved effective in fostering socioeconomic development in the industrial civilisation are still being employed despite their limited and dwindling efficacy caused by the clash of the civilisations and a transition to a new era (cf. Kleer & Mączyńska, 2018). It is increasingly demonstrated in practice that, under the conditions of the new economy, traditional solutions and tools are not only ineffective, but can even increase the risk of adverse socioeconomic decisions being taken at different institutional levels, and, in consequence, can disrupt the harmony between economic growth and social as well as ecological development.

Considering the shift of the civilisational paradigm now taking place, the author's reflections concerning agency in the context of capitalism dysfunctions assume special importance. This is underlined by authors such as Andrzej Szahaj, who claims that, in contemporary, *cognitive* capitalism, "the dematerialisation of work is a matter of primary significance, i.e. the shift from the economy based on manual labour to that sustained mostly by intellectual work. This process is closely connected with the arrival of a post-industrial society in which traditional industry with its associated manual and technical professions is being replaced by the service sector characterised

by a whole gamut of professions and trades, mostly requiring interpersonal skills, and therefore the skills how to manipulate people and their emotions, not objects" (Szahaj, 2014). Such threats also need to be taken into account, as some Nobel Prize winners forewarn (e.g. Robert J. Shiller, George A. Akerlof, Joseph E. Stiglitz).

These issues, tackled by Jan Zygmuntowski's work, are also discussed in Maciej Szlinder's publication (2018) entitled *Bezwarunkowy dochód podstawowy* [*Unconditional Basic Income*]; the author points to risks to society posed by capital striving to claim more and more spheres of socioeconomic life. Other commendable works include Gunter Pauli's report to the Club of Rome (2010) as well as the recent Club of Rome report under the meaningful title: *Come On! Capitalism, Short-termism, Population and the Destruction of the Planet*, alongside the publications by Antoni Kukliński (2013).

The tenets presented in the reviewed work are veritable eye-openers, as is, for example, the author's demonstration of the extent to which the Fourth Industrial Revolution does affect the nature of both employment and labour. In many areas, the boundaries between labour and non-labour as well as colonised and non-colonised labour seem blurred (cf. Tussey, 2018). Jan Zygmuntowski's work is noted for its originality of thought, attractive narrative, as well as lucidity of argumentation.

Suggestions for further economic research

The monograph is commendable for its thoroughness, topical insights, and editorial scrupulousness. Nonetheless, the work's lucidity would gain from some remarks being expanded, also from references to some publications not included by the author, some of which are listed above. This is particularly true for the tenet on the end of capitalism. In this context, it would also be warranted to discuss the role of the state in the new economic paradigm.

Regretfully, in his reflections, the author did not discuss the differences between Smithian liberalism, neoliberalism, and ordoliberalism. The latter form and its analysis would have been particularly important given the fact that ordoliberalism underpins the concept of social market economy, acknowledged by the EU treaties and the Polish Constitution as a form of socioeconomic system. The German word *Ordo* means order, including axiological order, which constitutes one of the differences between ordoliberalism and neoliberalism (Mączyńska & Pysz, 2012; 2018).

There are no references to some publications closely linked to the topics discussed in the reviewed work. In addition to the studies by A. Szahaj and others, mentioned above, it would have been worthwhile to comment on the concept of new pragmatism, promoted, e.g., by Grzegorz W. Kołodko, Maciej Bałtowski, and Jerzy Hausner (2019) or works on the ties between ethics and economics (Mączyńska & Sójka, 2017). Similarly, references to the works of such Noble Prize winners as G. Akerlof and R. Shiller (2021), R. Shiller (2016), A. Deaton (2016) would be welcome. It would also have been useful to refer more extensively to texts published in the Polish-language version of *Le Monde Diplomatique* on the dysfunctions of contemporary capitalism.

Similarly, a broader commentary on the measurement of economic performance would have been valuable (Stiglitz, Sen & Fitoussi, 2013; Stiglitz, Fitoussi & Durand, 2018). It would have also been useful to include in the discussion the question of appraising non-market goods (cf. Riera et al., 2012, in this regard), as well as a paper on John C. Bogle's book *Enough. True Measure of Business, Money, and Life* (2014), and a more extensive discussion of the costs and externalities theory, as propounded, e.g., by Mariana Mazzucato (2018, 2021).

Some of Jan Zygmuntowski's tenets coincide with the concepts of Alvin Toffler, who championed the development of social futurism through the establishment of "imaginative centres" at various levels that would seek interdisciplinary "brain stimulation". Toffler believes that this would produce concepts and ideas "that are not dreamt of in technocrats' philosophy" (Toffler, 1984). It would be interesting to know the author's opinion on this topic.

The book would be more convenient to read if the subject and name indexes were added. Similarly, a bibliography would be helpful. These remarks, however, do not negatively reflect on the values of the reviewed work, outlined above.

The work's potential readership

It would be worth including some or all of the remarks referred to above in the future editions of Jan Zygmuntowski's monograph, which will certainly be published. The book ought to be regarded as obligatory reading for researchers from various disciplines, in particular economists, philosophers, sociologists, psychologists, historians, political scientists, ecologists, and lawyers. It could also be used in the teaching of humanities and social science disciplines. Above all, however, it should attract the major socioeconomic policymakers, parliamentarians, and main actors shaping social and economic life, primarily those from the central agencies of the state and local government institutions.

Jan Zygmuntowski's work proposes to make watershed changes in the economy and economic theory, necessitated by the Fourth Industrial Revolution that the world is beginning to face. In this context, Zbigniew Madej's claim (2013) that the megasystems are lethal, could hardly be refuted. The reviewed work is a significant contribution pointing to the need to make systemic and social changes in the perception and operation of the contemporary world. The book sheds new light on many current global phenomena and the changes now in the making. Its reading is a must for all readers who want to prepare for such changes and better understand them.

Conclusion

Jan Zygmuntowski's work tackles the issue of social values, a topic that is currently of utmost significance both in the economy and in economic theory. Due to the importance of the subject matter, novel features, and the holism of the analysis, the monograph should be used as a study text for modern economics. The issues discussed in the reviewed work are of particular relevance, not least because of the dire need to prevent social dysfunctions from occurring both globally and locally, since, in some areas, they have the hallmarks of a ticking time bomb. Jan Zygmuntowski's work can, therefore, serve as an early warning tool against potential threats to harmonious socioeconomic development, some of which were brutally demonstrated by the COVID-19 pandemic. The Fourth Industrial Revolution can exacerbate or mitigate these threats, depending on the quality of socioeconomic policy.

Translated by Dorota Szmajda

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Please remember that you should register as 'Author', although we advise you to register also as 'Reviewer'. If you do not mark 'Author' status, you will not be able to submit your article.

Submission Preparation Checklist

As part of the submission process, authors are required to check their submission's compliance with all of the following items, and submissions may be returned to authors that do not adhere to these guidelines.

- The submission has not been previously published, nor is it under consideration in another journal (or an explanation has been provided in Comments to the Editor).
- The submission file is in OpenOffice, Microsoft Word, or RTF document file format.
- Where available, DOI numbers or URLs for the references have been provided.
- The text is single-spaced; uses a 12-point font; employs italics rather than underlining (except for URL addresses); and all illustrations, figures, and tables are placed within the text at the appropriate points rather than at the end.
- The text adheres to the stylistic and bibliographic requirements outlined in the Technical Guidelines for Authors.
- ORCID number was provided on the first page of the article and was provided in the OJS system.
- Subject classification according to EconLit Subject Descriptors-JEL codes was provided in the OJS during the submission process.
- The instructions in Ensuring Blind Review have been followed.
- The article will be checked for antyplagiarism by CrossCheck.

The Editorial Board approves only original papers, previously unpublished in any other periodicals or books, and not being subject of evaluation in other journals. The articles must be prepared in accordance with our technical requirements and taking our academic ethics code into account. We will reject submissions not prepared according to our requirements.

Reviewing Policy and Procedures

The Editorial Board will make a preliminary decision to either accept the paper for further review or reject the paper (desk rejection) if the submitted article does not meet our editorial requirements or is beyond our aim and scope. The author will be notified of the decision no later than 10 days from the date of submission. In certain situations, this decision will be made following consultation with a member of the Editorial Board specialising in a given area of research.

1. The reviews are prepared by at least 2 independent reviewers indicated by the Editorial Board. Reviewers are not associated with the author's parent institution (reviewers external to the author).
2. Reviews are prepared to use a double-blind peer review. This process is based on the rule that the reviewer does not know the identity of the author and vice versa.
3. Each review is issued in written form (later revealed to the Author) and ends with a recommendation for or against publication.
4. Evaluation criteria: clarity of the stated objective, originality of research issues, theoretical background, quality of empirical research, originality of conclusions, significance for the research area aligned with the scientific profile of the quarterly, quality of language, comprehensibility, punctuation, and appropriate source selection. Each review ends with an unambiguous recommendation:
   - the paper can be published as submitted,
   - the paper can be published pending minor modifications and inclusion of additional relevant information,
   - the paper can be published pending substantial revision and re-review,
   - the paper is unsuitable for publication.
5. In addition to the recommendations made by reviewers, the Author may receive additional editorial suggestions from:
   - **the Editorial Board**, only in urgent cases,
   - **a layout editor** for technical and editorial comments,
   - **a statistical editor** if the paper contains statistics.
6. The Author must reply to all comments and suggestions (a special form is required to be filled in and to be sent back).
7. The Author should be familiar with the following forms and evaluation criteria:
   - **Internal Review Form – Checklist of the Article** (*.docx),
   - **External Review Form** (*.docx),
   - **Author's Statement after the Reviews** (must be attached to the revised article),
   - **Statement by Author** (must be signed before publishing).

8. Before publishing each article is proofread by a linguistic editor (a native speaker or a bilingual speaker). Authors are obliged to apply all necessary changes, however they can negotiate special terminology use.
9. Prior to publishing, the Corresponding Author must sign and submit the Statement by Author, otherwise we will not be able to publish the given article.
10. Each Author must follow the principles of transparency and best practices in scholarly publishing (see our website for details). Editors and the Publisher will be documenting all forms of scientific misconduct and malpractice, particularly violations of ethics and science principles. Any such cases will be reported to the employer of the Author and to the relevant public and state institutions.

Submissions from Programme Board and Editorial Board members are handled in the same way as those from other authors.

Publication Ethics and Malpractice Statement

The author's statement including the copyright notice as well as the statement on ethics and good practice in science (including financial disclosure, ghost-writing firewall, guest authorship firewall) must be submitted alongside the manuscript according to the form provided (see our website) as well as to be mentioned on the article title page.

The detailed information on Ethics and Malpractice is available in the guidelines established by the Ministry of Science and Higher Education of the Republic of Poland: Scientific Research and Articles Solidity and Intellectual Rights Respect.

We use the following guidelines (extract from Scientific Research and Articles Solidity and Intellectual Rights Respect):

1. Articles must be original and cannot include borrowings from other works, which could result in liability of the publisher. Papers cannot infringe any third-party rights.
2. Articles must reveal the contribution of all individual authors in the creation of publications (with their affiliations and contributions, such as information about who is the author of concepts, principles, methods, protocol, etc. used in the preparation of publications).
3. Articles cannot display any signs of 'ghost-writing', that is not to disclose the names of authors who have made a significant contribution to the publication of, or otherwise contributed to its creation.
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6. Editors and the Publisher will be documenting all forms of scientific misconduct and malpractice, particularly violations of ethics and violations in science. Any such cases will be reported to the employer of the author and to the relevant public and state institutions.

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