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Anna LEWCZUK*
0000-0003-0450-3994

On the Relationship Between Civil Liberties and Socio-Economic Development in Post-Socialist States[1]

Abstract: This paper addresses the relationship between civil liberties and socio-economic development in post-socialist states in Central and Eastern Europe. Our analysis focuses on three categories of civil liberties: private civil liberties, political civil liberties, and physical integrity rights. The methodology used in the study consists of a panel vector autoregressive model. Our results imply that GDP growth in post-socialist states positively reacts to changes in civil liberties, while civil liberties positively react to changes in GDP growth. Moreover, the outcomes of the model suggest the presence of various intermediaries in the relationship between civil liberties and economic development in post-socialist states. These are domestic investment, foreign direct investment, total factor productivity, and judicial independence.

Keywords: civil liberties, economic analysis, human rights, rights protection, constitutional economics

JEL classification codes: K38, P26, P37

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* Faculty of Economic Sciences, University of Warsaw, Poland, e-mail: alewczuk@wne.uw.edu.pl

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O zależnościach między swobodami obywatelskimi a rozwojem społeczno-gospodarczym w państwach postsocjalistycznych

Streszczenie: W artykule omówiono współzależności między swobodami obywatelskimi *de facto* a rozwojem społeczno-gospodarczym w krajach postsocjalistycznych Europy Środkowej i Wschodniej. Analiza poświęcona jest trzem kategoriom swobód obywatelskich – „prywatnym" wolnościom obywatelskim, politycznym wolnościom obywatelskim oraz wolnościom odnoszącym się do integralności fizycznej obywateli. Metodologia zastosowana w badaniu składa się z panelowego wektorowego modelu autoregresyjnego. Zidentyfikowano kilka wzajemnych bezpośrednich i pośrednich związków przyczynowych między rozwojem gospodarczym a różnymi typami swobód obywatelskich. Wyniki modelu sugerują, że wzrost gospodarczy jest wrażliwy na zmiany w standardach ochrony swobód obywatelskich oraz że standardy ochrony swobód obywatelskich reagują na zmiany w dynamice wzrostu gospodarczego. Ponadto, uzyskane wyniki sugerują występowanie kilku ekonomicznych i instytucjonalnych kanałów współzależności między swobodami obywatelskimi a rozwojem gospodarczym w państwach postsocjalistycznych. Są to: inwestycje krajowe, łączna produktywność czynników produkcji i niezależność sądownictwa.

Słowa kluczowe: wolności obywatelskie, analiza ekonomiczna, prawa człowieka, ochrona praw, ekonomia konstytucyjna

Kody klasyfikacji JEL: K38, P26, P37

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Introduction

Nowadays, it is possible to observe a large diversity of civil liberties protection in post-socialist states in Central and Eastern Europe. The question that arises in this context is what mechanisms govern the mutual interrelationships between the quality of *de facto* protection[2] of civil liberties and the socio-economic development of a country. In particular, it is essential to determine whether the protection of civil liberties affects economic development, or whether it is economic development that serves as a predeterminant of a sound system of civil liberties protection. In our study, we focus on both the direct aspect of this relationship and the presence of proximate intermediaries.

Sen defines a process of development as one that focuses on the expansion of the real freedoms that people enjoy [Sen, 2001]. He defines the major sources of a lack of freedom as *inter alia* poverty, tyranny, poor economic opportunities, systematic social deprivation and overactivity of repressive states. Sen argues that society's conceptualisation of economic needs to a large extent depends on open public debates and discussions, which are guaranteed by the existence of basic political liberties and civil rights. On the other hand, the

[2] *De jure* rights are envisaged in the law of a particular country, while *de facto* rights refer to the real level of rights' protection [Melton, 2013].

socio-economic development of a country influences citizen preferences. For instance, an increase in wealth due to economic growth may result in greater demand for quality institutions and makes better institutions more affordable [Chang, 2011]. Therefore, it seems reasonable to account for direct, mutual and simultaneous influences between development and civil liberties. Apart from analysing the direct mechanisms of the civil liberties-economic development relationship, based on an approach presented by Blume and Voigt [Blume, Voigt, 2007], we devote our attention to possible intermediaries in the relationship between civil liberties and economic development related to components of economic development such as foreign direct investment (FDI), domestic investment, total factor productivity, and judicial independence.

The question of the mutual relationship between civil liberties and socio-economic development is of particular importance for post-socialist states. For the purpose of this paper, post-socialist countries are understood as those situated in Central and Eastern Europe[3], the former Yugoslavia[4] and the former Soviet Union[5]. Today countries in this region are characterised by a diversity of social, economic and institutional development. Their entire set of economic and political institutions was remodelled in the late 1980 s. That was when the process of transformation of the economic and political system began, and these countries experienced a transition from a communist – or socialist – system to democracy and from a centrally planned economy to a free-market economy. Therefore, in the case of countries in this region, the analysis of socio-economic development and civil liberties protection constitutes a natural experiment.

The main aim of the paper is to examine the effect of economic development on civil liberties and the effect of civil liberties on economic development in post-socialist states. Moreover, we test for the existence of potential channels of such an interrelationship. We focus our analysis on three categories of civil liberties: private civil liberties, political civil liberties and physical integrity rights. We focus on providing an answer to the following questions: (1) What are the mutual effects of *de facto* civil rights protection and economic development proxied by GDP growth? (2) Are there any indirect channels of the GDP growth-civil liberties interrelationship? In order to answer these questions, we propose a theoretical framework for the mechanisms governing the aforementioned relationships, and test it empirically with advanced econometric techniques, such as the panel vector autoregressive model. Our main focus is on the direct interrelationship of civil liberties and economic development measured by GDP growth (which we refer to as a "reduced form model"). Additionally, we account for possible intermediaries between civil liberties and economic development (which we refer to as a "model with

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3 Albania, Bulgaria, the Czech Republic, Hungary, Poland, Romania, and Slovakia.

4 Bosnia and Herzegovina, Croatia, Montenegro, Macedonia, Serbia, and Slovenia.

5 Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Lithuania, Latvia, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

intermediaries"). Our approach is the development of a model proposed by Blume and Voigt [Blume, Voigt, 2007]. As an added value, we account for the direct relationship between economic development and civil liberties, include the additional component of judicial independence, and use a panel data set.

The paper is structured as follows. First, we characterise the civil liberties to which we devote our study. In the next sections, we describe the theoretical framework and mechanisms underlying the relationships between economic development, civil liberties, domestic and foreign investment, total factor productivity, and judicial independence. Section IV discusses the empirical design of our study, while Section V is devoted to the discussion of the obtained results. The last section of the paper consists of conclusions and policy implications.

Characteristics of civil liberties

Human rights constitute a broad category of rights with various objects of protection. One of the most common divisions of human rights is into "first generation" and "second generation" rights. "First generation" rights constitute civil and political rights and liberties including various freedoms and legal protections, such as freedom of religion, freedom of expression, freedom of movement and association and various process rights [Orend, 2002]. "Second generation" rights comprise economic, social and cultural rights concerning concrete material goods and various social benefits, such as the subsistence level of income and the basic level of education or income [Orend, 2002]. Nowadays, the notion of "third generation" rights has appeared, focusing on social recognition and equality.

Another possible classification involves the division of rights into positive and negative. Negative rights prevent the state from violating individual autonomy, while positive rights impose a duty on the state to provide certain goods and services [Ezer, 2004]. Furthermore, negative rights may be divided into rights establishing freedom (or liberty) from state or third-party inference (e.g. freedom from torture) and rights establishing freedom to do something, e.g. freedom of assembly [Blume, Voigt, 2007].

In this paper, we focus on first-generation, negative human rights and civil liberties, which, following an approach presented in the VDem database [Coppedge et al., 2016], can be perceived in three dimensions, i.e. private civil liberties, political civil liberties, and physical integrity rights. Private civil liberties encompass freedom of movement, freedom of religion, freedom from forced labour, and property rights, while political civil liberties may be defined as freedom of association and freedom of expression. Finally, physical integrity rights concern citizens' freedom from political killings and torture by the government. The main aim of the paper is to analyse the interrelationship between negative, "first-generation" human rights (i.e. civil liberties) and economic development and to identify channels of mutual reinforcements.

Civil liberties and socio-economic development

In this section, we provide a review of literature regarding the interrelationship between civil liberties and socio economic-development. Our main focus is on the direct interrelationship of civil liberties and economic development measured by GDP growth (which we refer to as a "reduced form model"). Additionally, we account for possible intermediaries between civil liberties and economic development (which we refer to as "model with intermediaries"). On the basis of the aforementioned review, we formulate hypotheses in the last subsection of section II and test them empirically in section III.

Reduced form model

In the literature, three main hypotheses can be identified regarding the influence of different kinds of human rights on economic development, i.e. the Hayek hypothesis, the Barro-Posner hypothesis, and the Sen hypothesis [Blume, Voigt, 2007]. Hayek in *Law, Legislation and Liberty* argues that while basic human and property rights (which are usually negative rights) have a positive impact on economic growth, a high level of social rights (i.e. positive rights) may slow down this increase [Hayek, 1976]. The problem with the latter is associated with the fact that either their enforcement requires that the state function as a hierarchical organisation equipped with the appropriate means to act as such (which is, according to Hayek, incompatible with the nature of the market economy), or, alternatively, these rights may not be enforced, which can be seen as a breach of the promises made to non-state actors by the authorities. Such a breach may lower the level of the government's legitimacy in society and limit the propensity of non-state actors to cooperate with state authorities.

In their work, Posner and Barro are critical of considerations on the positive impact of civil and political rights on economic growth. In the literature, their views are referred to as the Barro-Posner hypothesis [Blume, Voigt, 2007]. The Barro-Posner hypothesis emphasises the importance of property rights. They posit that the development of property rights will lead to an improvement in society's income, which, in turn, would allow societies to attain higher levels of other kinds of rights at a later stage.

Finally, according to the Sen hypothesis, the existence of freedom, fairness and social capital has a positive impact on welfare and growth [Sen, 2001]. He perceives development as a process of expanding the freedoms that people enjoy. Freedoms depend not only on economic growth, but also on other determinants, such as social and economic arrangements (e.g. facilities for education and health care) as well as political and civil rights (e.g. the liberty to participate in public debate). Sen argues that development requires the removal of major sources of unfreedom, such as poverty, tyranny, poor economic opportunities, systemic social deprivation, neglect of public facilities,

intolerance and overactivity of repressive states. In this context, civil liberties may be perceived as a tool for social and economic development.

Civil liberties belong to the broader category of institutions, which (in particular property rights and the rule of law) are perceived as one of the most important determinants of economic development. Attention is paid to the rules of the game in a society and their conduciveness to desirable economic behaviour [e.g. North, 1991]. Rodrik, Subramanian and Trebbi argue that physical and human capital accumulation are at best proximate causes of economic growth, and enlist geography, institutions, and integration as "deeper" determinants of economic growth [Rodrik, Subramanian, Trebbi, 2004]. In the case of civil liberties, a broad bill of rights contributes to the emergence of the *loci* of independent economic power that stimulates the reform process and facilitates their sustainment [Fish, 1997]. Moreover, violations of basic human rights may lead to citizen protests and instability, which negatively influence their readiness to invest in economic reforms [Metelska-Szaniawska, 2009].

Causality in the other direction, i.e. from economic development to institutions, is more neglected in empirical research. However, there are various mechanisms explaining the influence of economic development on institutions. An increase in wealth due to economic growth may result in higher demand for high-quality institutions and makes better institutions more affordable [Chang, 2011]. This is because high-quality institutions are costly to both establish and run. What's more, economic development is associated with the emergence of new agents of change, who demand new institutions [Chang, 2002].

Additionally, good economic conditions decrease the probability of human rights repression as the government has more resources to peacefully resolve social conflicts. On the other hand, poor economic conditions evoke social unrest and increase the probability of human rights abuse. Furthermore, according to the theory of postmodern values transitions, economic development is linked with a shift from absolute norms and values towards those which are increasingly rational, tolerant, trusting, and participatory [Inglehart, Baker, 2000]. Therefore, richer voters are less likely to accept violations of civil rights. Finally, a better economic situation of voters contributes to decreasing marginal returns to income, which implies that other factors, such as civil rights protection, have become relatively more important to them.

There exists a broad empirical literature on the impact of various kinds of institutions on economic development. Due to the fact that research reports on civil liberties are much scarcer and that estimation challenges (related to endogeneity and simultaneity) are common for civil liberties and institutions in a broader sense, we incorporate in our methodological approach a review of empirical studies disentangling the interrelationship between economic development and various kinds of institutions. There are several approaches widely used in the literature, such as structural modelling, instrumental approach, panel VAR, and the OLS approach. Below we discuss examples of studies illustrating these approaches.

Venard analysed the relationship between institutional quality, corruption and economic development by applying partial least squares structural equation modelling [Venard, 2013]. Such an approach makes it possible to test relationships among all the variables involved in the model and to estimate a network of causal relationships. The key finding is that institutional quality affects economic development both directly and indirectly through its influence on corruption.

Gorodnichenko and Roland constructed an endogenous growth model explaining the effect of individualism and institutions (proxied by protection against expropriation risk) on growth [Gorodnichenko, Roland, 2017]. The authors use OLS and instrumental variable estimation approaches (with settler mortality data as an instrument for institutions, and the blood type distance measure as an instrument for individualism). The model results indicate that the effect of culture on long-run growth remains robust even after controlling for institutions. What's more, the authors provided a two-way causal effect between culture and institutions.

Bjørnskov and Méon proposed a model explaining the interrelationships between trust, education, institutions and economic development [Bjørnskov, Méon, 2013]. The crucial finding of the study is that trust affects both education and the quality of institutions, which determine GDP *per capita*. In order to report the evidence of causal relations, the authors run a set of two- and three-stage least-squares regressions instrumenting trust by the pronoun-drop rule, minimum annual temperature, the "monarchy dummy" and the log of national flag ratings.

Antonakakis, Cunado, Filis, and De Gracia constructed a model aimed at explaining the interdependencies between oil dependence, political institutions and economic growth [Antonakakis, Cunado, Filis, De Gracia, 2017]. The authors applied a panel VAR approach combined with panel impulse response functions. The main conclusion from the model is that when developing medium-income countries are characterized by weak quality of political institutions, then oil dependence is not growth enhancing.

Góes builds a panel structural VAR model in order to test the institutions hypothesis in determining development [Góes, 2016]. The author provides evidence for bi-directional causality between institutions and growth. The model results indicate that exogenous improvements in institutional quality have a positive and statistically significant impact on GDP *per capita*. The outcomes imply that countries characterised by higher levels of GDP *per capita* tend to have higher institutional quality, but experience a smaller payoff in terms of the percentage increase in GDP *per capita*.

Blume and Voigt proposed a model of the economic effects of various forms of human rights [Blume, Voigt, 2007]. They argue that basic human rights are a prerequisite of respecting other types of rights, such as property and civil rights. The right to one's own body constitutes a precondition for making productive use of other resources. Respect for human rights ensures legal certainty in a country, and, as a result, increases the productivity of factors of

production. On the other hand, human rights violations indicating a lack of certainty result in lower investment levels and, therefore, lead to a slowdown in economic growth. Blume and Voigt propose a model to explain the effect of four groups of rights (i.e. basic human rights, property rights, civil rights and emancipatory – or, in other words, economic, social and cultural – rights) on welfare and growth, and test it empirically on a global sample. The methodology consists of factor analysis combined with OLS regression. The authors identify three channels through which human rights influence welfare and growth. These are accumulation of physical capital, accumulation of human capital and knowledge, and total factor productivity. The model results indicate that basic human rights have a positive influence on investment, while emancipatory rights contribute to productivity improvements.

In our paper, we aim to develop the aforementioned model by including simultaneity effects and an additional institutional mechanism through which the economic development-civil liberties relationship operates (i.e. judicial independence), while also using a different estimation approach. The model proposed by Blume and Voigt assumes that the influence goes in one direction, i.e. from human rights protection to welfare and growth [Blume, Voigt, 2007]. Our main aim is to determine whether the government begins to respect civil liberties when the country becomes richer, if rights react to changes in economic development, or whether the dependence can be considered as bilateral. Moreover, we account for possible intermediaries between civil rights and economic development.

Model with intermediaries

In our study, we account for possible intermediaries between civil liberties and economic development. The channels we consider are either economic or socio-institutional in nature. We turn our attention to domestic and foreign direct investment, total factor productivity and judicial independence.

Domestic and foreign direct investment

The degree of civil liberties protection influences the level of both domestic and foreign investment. In the case of domestic investment, systematic abuses of civil liberties by the government lead to the emergence of anxiety and fear in society, thus decreasing the subjective well-being of citizens [see e.g. Chilton, Versteeg, 2016; Crabtree, Nelson, 2017]. Regimes that physically harm their citizens infringe on their property rights [Blume, Voigt, 2007]. Therefore, basic human rights can be considered as a precondition for making productive use of other resources. Consequently, uncertainty about respect for basic human rights results in a more uncertain return on investments [Blume, Voigt, 2007].

The main channel of how civil liberties influence the FDI inflow to the host country is associated with uncertainty. FDI is associated with high sunk costs, therefore it is vulnerable to different forms of uncertainty, including institutional uncertainty associated with poor government efficiency and

weak enforcement of property rights and of the legal system [Bénassy-Quéré, Coupet, Mayer, 2007]. Non-systematic and hazardous violations of civil liberties may be perceived as an indicator of the absence of certainty and constitute a discouraging factor for foreign investors. As a result, this may lead to lower investment, which, in turn, contributes to lower rates of economic growth and finally to lower per capita income [Blume, Voigt, 2007].

The negative influence of civil liberty violations on FDI is supported by Farber's signalling hypothesis based on an assumption that foreign investors care about the rule of law in the host country [Farber, 2002]. Farber assumes that protection of human rights is costly for the government. A government ensuring such protection demonstrates that it prefers long-term growth over short-term benefits and that its promises are generally credible. A government respecting the basic rights of its citizens is more likely to respect the private property rights of foreign investors. Therefore, the abuse of civil liberties leads to a decrease in both the creditworthiness of a country and foreign investment.

FDI generates positive spillover effects on the institutional environment of host countries [Kwok, Tadesse, 2006]. According to Kwok and Tadesse, multinational corporations influence the institutional environment over time via three effects: the regulatory pressure effect, demonstration effect, and professionalisation effect. In the case of civil liberties, one may think of the demonstration effect. Multinational corporations set industry-wide ethical codes of conduct and spread liberal values. Employees socialised by such values become critical of the standards governing the protection of liberal values in their country, and may start acting as agents of change.

Furthermore, variations in FDI flows may create incentives for state actors to adjust civil liberties protection. In this context, it is possible to distinguish a competition effect occurring when countries compete for foreign investment by improving institutions [Qian, Roland, 1998]. A country may be preferred by investors because of lower quality of institutions in nearby states.

Total factor productivity

In general, a considerable diversification of output per worker may be observed across countries. Hall and Jones state that only part of this variation can be explained by differences in physical capital and educational attainment [Hall, Jones, 1999]. The authors explain that differences in capital accumulation, productivity, and therefore output per worker are driven by social infrastructure, understood as institutions and government policies. The role of social infrastructure is to protect the output of individual production units from diversion, such as expropriation, confiscatory taxation, and corruption. In a society free of diversion, due to social control, the full amount of production is rewarded to productive entities, and individuals do not need to invest resources in order to avoid diversion [Hall, Jones, 1999]. The key agent in suppressing diversion is the government, which has the power to make and enforce rules, such as effective property rights.

Since systematic abuses of civil liberties by the government lead to the emergence of anxiety and fear in society, they decrease the subjective well-being of citizens [see e.g. Chilton, Versteeg, 2016; Crabtree, Nelson, 2017]. Subjective well-being is linked with productivity, creativity and longevity [Nikolova, 2016], and may therefore influence incentives to engage in innovation activities. It may be hypothesised that, *ceteris paribus*, the abuse of human rights will lead to lower levels of innovation [Blume, Voigt, 2007], and as a result contribute to lower levels of total factor productivity.

Judicial independence

One indirect mechanism through which civil liberties influence economic development is related to judicial independence. An independent judiciary is able to make the government stick to its promises, which leads to additional and more productive investment, and consequently contributes to economic development [Voigt, Gutmann, Feld, 2015]. Moreover, independent judiciary may help reduce the time inconsistency of the government's preferences.

In general, one of the best ways to protect civil liberties is through their inclusion in the constitution and through ensuring their protection by the judiciary [Keith, Tate, Poe, 2009]. Governments will have less of an incentive to abuse rights that are clearly and publicly promised to citizens in a legally binding document such as the constitution and those that are protected by an independent judiciary [Keith, Tate, Poe, 2009].

Judicial independence constitutes a means of protecting civil liberties from being breached by political decision makers – it is positively and robustly related to personal freedom in all its forms [Berggren, Gutmann, 2020]. On the one hand, judicial independence enables judges to protect civil liberties by invalidating legislation and decisions that constitute a breach of constitutional provisions. On the other hand, it empowers judges with a tool to stop constitutional violations without being influenced by other branches of government [Berggren, Gutmann, 2020]. The lack of judicial independence implies that politicians are able to influence the judicial review process in order to avoid any critique of their actions.

The litigation process provides a mechanism to publicise civil liberties violations and as a result imposes reputational and resource costs on the government [Crabtree, Nelson, 2017]. According to this theory, the government refrains from civil liberty violations in order to limit its exposure to harmful litigation.

However, in certain cases, the relationship between judicial independence and civil liberties may be ambiguous. One such case involves the personal convictions of judges [Berggren, Gutmann, 2020]. More conservative judges may be willing to limit the scope of civil liberties in certain areas (such as women's rights), while those with more liberal views may act in favour of widening the scope of civil liberties in the same areas.

Formulation of hypotheses

On the basis of the literature review, we formulate the following hypotheses to be tested in the empirical part of the paper.

Hypothesis 1: The relationship between economic growth and civil liberties in post-socialist states is mutual – GDP growth responds to changes in civil liberties, and civil liberties respond to changes in GDP growth.

Hypothesis 2: Foreign direct investment, domestic investment, total factor productivity and judicial independence are intermediaries in the civil liberties-economic growth interrelationship.

Apart from validating the formulated hypotheses, our paper addresses the following research question: Do the effects described in Hypotheses 1 and 2 differ for various types of civil liberties?

Empirical analysis

Data and variables

In our analysis, we draw on the dataset of the Varieties of Democracy Project (V–Dem), containing a variety of institutional, social and economic indicators [Coppege et al., 2019]. The data span is 1995–2019 for 27 post-socialist states. This time span has been chosen because the majority of post-socialist countries gained their independence in the early 1990 s. The V–Dem dataset is merged with the World Development Indicators dataset [World Bank, 2020] and the Penn World Table dataset [Feenstra, Inklaar, Timmer, 2015]. Our analysis is carried on yearly data. Table 1 presents the definitions and sources of all the variables used in the study, while Table 2 contains their descriptive statistics.

Table 1. Description of variables and data sources

Variable	Definition	Source
physical violence index	Continuous variable ranging from 0 to 1; the higher the value of the index the higher the extent to which physical integrity is respected, i.e. citizens enjoy freedom from political killings and torture by the government	V–Dem database [Coppedge et al., 2019]
political civil liberties index	Continuous variable ranging from 0 to 1; the higher the value of the index the higher is the extent up to which the government respects political liberties, such as freedom of association and freedom of expression	V–Dem database [Coppedge et al., 2019]
private civil liberties index	Continuous variable ranging from 0 to 1; the higher the value of the index the higher is the extent up to which the government respects private liberties, understood as freedom of movement, freedom of religion, freedom from forced labour, and property rights	V–Dem database [Coppedge et al., 2019]

Variable	Definition	Source
independence of judiciary	Continuous variable ranging from 0 to 1; captures the extent to which non-high court judges, while ruling in cases that are salient to the government, make decisions that reflect government wishes regardless of their sincere view of the legal record; the higher the score, the greater the judicial independence	V–Dem database [Coppedge et al., 2019]
gdp growth	GDP *per capita growth rate*	V–Dem database [Coppedge et al., 2019]
fdi	Foreign direct investment, net inflows (% of GDP)	World Bank Indicators [2020]
total factor productivity	TFP at constant national prices (2011=1); TFP is defined as the portion of output not explained by the amount of inputs used in production	Penn World Table, version 9.1 [Feenstra, Inklaar, Timmer, 2015]
domestic investment	Net investment in non-financial assets (% of GDP)	World Bank Indicators [2020]

Source: author's own elaboration.

Table 2. Descriptive statistics

Name of variable	Number of observations	Mean	Minimum	Maximum	Standard variation	Coefficient of variation
physical violence index	672	0.73	0.12	0.98	0.24	33%
Δ *physical violence index in log form*	645	0.01	–0.97	0.92	0.12	1662%
political civil liberties index	672	0.77	0.11	0.96	0.27	38%
Δ *political civil liberties index in log form*	645	0.00	–0.55	0.66	0.08	–9912%
private civil liberties index	672	0.71	0.03	0.98	0.22	29%
Δ *private civil liberties index in log form*	645	0.00	–0.56	1.03	0.07	4192%
independence of judiciary	672	0.52	0.00	1.00	0.28	54%
Δ *independence of judiciary in log form*	645	0.00	–2.78	3.28	0.27	–5829%
gdp growth	591	0.05	–0.60	0.92	0.09	188%
fdi	672	5.42	–41.46	55.08	6.75	125%
Δ *fdi in log form*	645	0.02	–3.17	3.22	0.72	3304%
domestic investment	672	2.57	–2.38	14.60	1.90	74%
Δ *domestic investment in log form*	645	0.02	–2.54	2.88	0.48	3205%
total factor productivity	618	0.65	0.00	1.32	0.44	68%
Δ *total factor productivity in log form*	591	0.02	–0.33	0.24	0.05	259%

Source: author's own elaboration.

Table 3. Correlation matrix

	gdp growth	*Δ physical violence index in log form*	*Δ political civil liberties index in log form*	*Δ private civil liberties index in log form*	*Δ independence of judiciary in log form*	*Δ fdi in log form*	*Δ domestic investment in log form*	*Δ total factor productivity in log form*
gdp growth	1.00							
Δ physical violence index in log form	0.21	1.00						
Δ political civil liberties index in log form	0.21	0.73	1.00					
Δ private civil liberties index in log form	0.18	0.32	0.36	1.00				
Δ independence of judiciary in log form	0.00	0.12	0.00	0.10	1.00			
Δ fdi in log form	0.04	0.02	0.11	0.08	–0.01	1.00		
Δ domestic investment in log form	0.02	–0.13	–0.16	–0.01	–0.03	–0.03	1.00	
Δ total factor productivity in log form	0.38	0.05	0.08	0.04	0.17	0.04	0.03	1.00

Source: author's own elaboration.

We measure the extent of economic development by gross domestic product growth (*gdp growth*). There are three variables related to *de facto* civil rights protection. These are the *physical violence index*, *political civil liberties index* and *private civil liberties index* (all defined in Table 1). Such a division enables us to deepen the analysis in order to better understand the relationship between various types of civil liberties and economic development. In order to capture the indirect channel of the civil liberties-economic development relationship, we include a set of variables, such as FDI (*fdi*), domestic investment (*domestic investment*), independence of judiciary proxied by the extent to which non-high court judges make decisions that reflect government wishes regardless of their sincere view of the legal record (*independence of judiciary*), and total factor productivity (*total factor productivity*). Due to the fact that the distribution of all the variables is far from normal, we apply a natural logarithm transformation in order to ensure that the shape of the distribution is closer to normal.

Empirical design

To investigate the mutual relationship between civil liberties and economic development, we run a set of panel vector autoregressive (VAR) regressions that are related to both direct and indirect interrelationships between civil liberties, GDP growth, FDI, domestic investment, TFP, and independence of judiciary.

In our model, we employ the notion of Granger causality. Its definition states that (time series) variable A causes B, if the probability of B conditional on its own past history and the past history of A (beside the set of the available information) does not equal the probability of B conditional on its own past history alone [Granger, 1980]. We are aware of potential problems associated with this notion of causality.

A Granger-causality test may return one of three results, i.e. reject the null in one of the tests (i.e. find a one-directional causal relation), reject the null hypothesis of the two tests (i.e. get bi-directional Granger-causality) or do not reject the null hypothesis. According to Maziarz, none of these results justifies implications of causality that are usually drawn from the test's outcome. As an example, if the null is rejected, such a result may imply that the Granger causality test is true, or that the rejection of the null occurred due to, for example, time series non-linearity, cointegration or common cause fallacy [Maziarz, 2015]. Furthermore, if the outcome of the test indicates bi-directional causality, it may imply that there is an instant Granger-causality between the time series or that X and Y are determined by a third variable [Maziarz, 2015]. Finally, the non-rejection of the null hypothesis may be driven by the fact that the time series are non-stationary [Maziarz, 2015]). The abovementioned problems can be remedied by a thoughtful analysis of the time series (in order to detect cointegration or data nonlinearity) and by gathering theoretical knowledge of the mechanisms connecting the time series [Maziarz, 2015].

In VAR models, all variables are treated as endogenous and interdependent, in a both dynamic and static sense, although exogenous variables can be included as well [Canova, Ciccarelli, 2013]. In its general form, the panel VAR model can be expressed as follows:

$$Y_{it} = A_1 Y_{it-1} + A_2 Y_{it-2} + \ldots + A_j Y_{it-j} + BX_{it} + \mu_i + \lambda_t + \varepsilon_{it}, \quad (1)$$

where Y_{it} is a vector of dependent/endogenous variables, X_{it} is a vector of exogenous variables, μ_i accounts for unobservable country characteristics, λ_t denotes time-fixed effects, while ε_{it} is the error term. In order to avoid the bias from the OLS estimate as a consequence of the country-specific effect, we take the first difference of Eq. (1).

Based on the calculated selection-order statistics, following the approach by Andrews and Lu (2001), we conclude that, in our case, the first-order panel VAR with the first four lags of endogenous instruments is the preferred model. As a result, we estimate the model in the following form:

$$\Delta Y_{it} = A_1 \Delta Y_{it-1} + \varepsilon_{it}, \quad (2)$$

where Y_{it} is the vector of endogenous variables consisting of different sets of variables depending on the specification. In the first specification ("reduced form model"), we account for one of the civil liberties indices (*physical violence index*, *political civil liberties index*, *private civil liberties index*) and *gdp growth*.

In the second specification ("model with intermediaries"), we focus on the interrelationships between one of the civil liberties indices (*physical violence index*, *political civil liberties index*, *private civil liberties index*), *gdp growth*, *FDI*, *domestic investment*, *tfp* and *independence of judiciary*. Such an approach allows us to account for possible intermediaries in the economic growth-civil liberties interrelationship. Due to the presence of lagged dependent variables in the right-hand side of the regression equation, the estimates may be biased [Nickell, 1981]. Therefore, we use a GMM approach with instruments as proposed by Holtz-Eakin, Newey, and Rosen [Holtz-Eakin, Newey, Rosen, 1988].

In order to use the panel VAR approach, we need to test whether our data meet several assumptions related to their properties. As a first step we conduct an augmented Dickey-Fuller (ADF) unit root test. The test has the null hypothesis of presence of a unit root in all the panels.

Table 4. ADF panel unit root test

Name of variable	Test statistics (inverse chi-squared)	p-value
physical violence index	71.79	0.05
Δ *physical violence index in log form*	187.64	0.00
political civil liberties index	53.01	0.51
Δ *political civil liberties index in log form*	117.33	0.00
private civil liberties index	46.87	0.74
Δ *private civil liberties index in log form*	182.25	0.00
independence of judiciary	119.70	0.00
Δ *independence of judiciary in log form*	132.38	0.00
gdp growth	176.72	0.00
fdi	70.14	0.07
Δ *fdi in log form*	219.50	0.00
domestic investment	49.23	0.35
Δ *domestic investment in log form*	137.41	0.00
total factor productivity	30.04	1.00
Δ *total factor productivity in log form*	164.57	0.00

Note: For all variables 2 lags are introduced.
Source: author's own elaboration.

According to the outcomes of the panel unit root test, all the variables are stationary in first difference, indicating the appropriateness of the use of the panel VAR approach in first differences. Therefore our final model specification for both the reduced model and the model with intermediaries is a first-order panel VAR model using three lags as instruments.[6]

[6] In order to determine the optimal number of lags of endogenous variables used as instruments, we analyse three model-selection criteria [Andrews, Lu, 2001] and the value of Hansen's J statistic for different model set-ups. Based on the obtained results, we choose to estimate the

Results

This section presents the results of the reduced form model and the model with intermediaries. In the first subsection, we present the results of the analysis in a reduced form, i.e. accounting only for GDP growth and different measures of civil liberties. The second subsection focuses on the results of the empirical analysis of the channels of interdependence between economic development, civil liberties, FDI, domestic investment, total factor productivity and judicial independence.

Reduced form model

In Table 5, we report the results of the Granger-causality test and in Table 6 we report the estimated coefficients of the reduced model.

Table 5. Block exogeneity/Granger-causality tests

	ΔCL = Δphysical violence index		*ΔCL = Δpolitical civil liberties index*		*ΔCL = Δprivate civil liberties index*	
	Δ(CL in log form)	*Δ(gdp pc in log form)*	*Δ(CL in log form)*	*Δ(gdp pc in log form)*	*Δ(CL in log form)*	*Δ(gdp pc in log form)*
Δ(CL in log form). lagt		4.845**		0.088		0.439
Δ(gdp pc in log form). lagt	3.559*		1.407		2.913*	

Note: The numbers in the table are Chi-square block exogeneity Wald tests. Under the null hypothesis, the excluded variables do not Granger-cause the dependent variable. * and ** denote significance at the 10% and 5% levels.

Source: author's own elaboration.

Table 6. The estimated results from panel VAR model

	ΔCL = Δphysical violence index		*ΔCL = Δpolitical civil liberties index*		*ΔCL = Δprivate civil liberties index*	
	Δ(CL in log form)	*Δ(gdp pc in og form)*	*Δ(CL in log form)*	*Δ(gdp pc in log form)*	*Δ(CL in log form)*	*Δ(gdp pc in log form)*
Δ(CL in log form). lagt	–0.032	0.085**	0.035	–0.015	–0.107**	0.059
z statistics	–0.41	2.20	0.70	–0.30	–2.64	0.66
Δ(gdp pc in log form). lagt	0.102*	0.344**	0.0562	0.334**	0.056*	0.309**
z statistics	1.89	4.20	1.19	4.24	1.71	4.62
Number of observations	510		510		510	

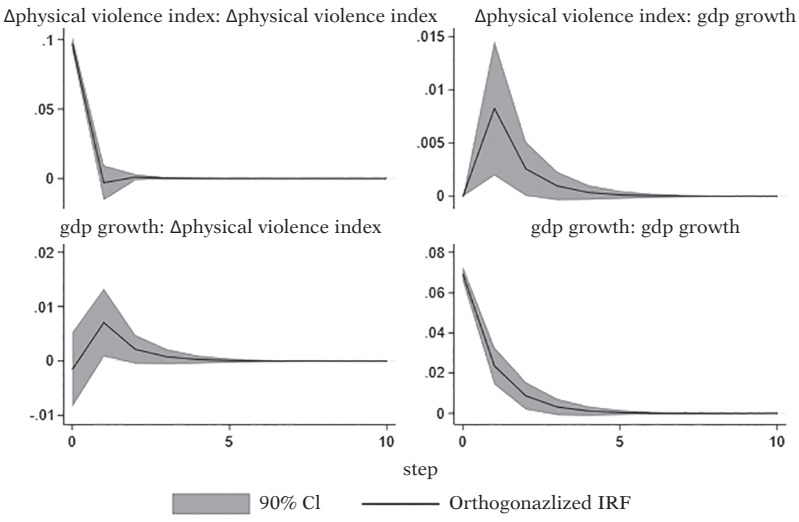
Note: * and ** denote significance at the 10% and 5% levels.

Source: author's own elaboration.

first-order panel VAR model using three lags as instruments for both the reduced form model and the model with intermediaries. Moreover, after fitting each of the models, we calculate the moduli of the companion matrix based on the estimated parameters. We conclude that the estimated models are stable because all the moduli are smaller than one.

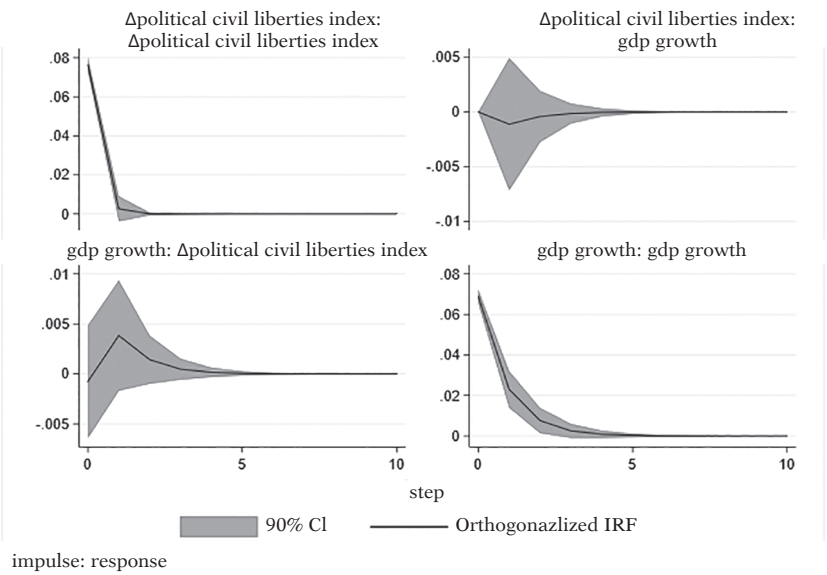
We present graphs of the impulse-response functions and the 10% error bands generated by the Monte Carlo simulation.

Figure 1. Impulse response functions Δphysical violence index – gdp growth



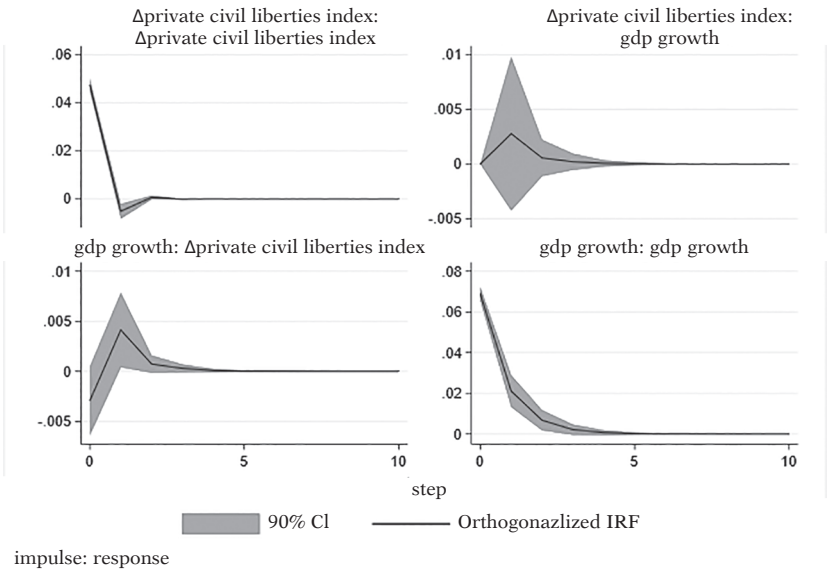
Note: Errors are generated by Monte-Carlo with 1,000 repetitions.
Source: author's own elaboration.

Figure 2. Impulse response functions Δpolitical liberties index – gdp growth



Note: Errors are generated by Monte-Carlo with 1,000 repetitions.
Source: Author's own elaboration.

Figure 3. Impulse response functions Δprivate liberties index – gdp growth



Note: Errors are generated by Monte-Carlo with 1,000 repetitions.
Source: author's own elaboration.

Based on the calculated coefficients and impulse-response functions, we observe that the physical violence index and the private civil liberties index respond positively and significantly to changes in gdp growth. We also observe that the response of GDP growth is positive for only one of the proxies of civil liberties, i.e. to the physical violence index. Therefore we conclude that in this econometric set-up there exists a mutual reinforcement mechanism between economic development and this category of human rights. We do not report any significant response for political civil liberties.

Table 7. Variance decompositions

		impulse variable					
		ΔCL = Δphysical violence index		*ΔCL = Δpolitical civil liberties index*		*ΔCL = Δprivate civil liberties index*	
		Δ(CL in log form)	*Δ(gdp pc in log form)*	*Δ(CL in log form)*	*Δ(gdp pc in log form)*	*Δ(CL in log form)*	*Δ(gdp pc in log form)*
response variable	*Δ(CL in log form)*	0.994	0.014	0.997	0.003	0.989	0.011
	Δ(gdp pc in log form)	0.006	0.986	0.000	1.000	0.002	0.998

Note: Percent of variation in the row variable (10 periods ahead) explained by column variable.
Source: author's own elaboration.

The variance decompositions presented in Table 7 allow us to quantify the strength of the effect on the variation 10 periods ahead. The magnitude of the effect is small – the *physical violence index* explains around 0.6% of the total variation in GDP growth, while GDP growth explains around 0.3% of the total variation in the *physical violence index* and around 1.1% in the *private civil liberties index*.

Model with intermediaries

In the next step, we test a model accounting for the presence of possible intermediaries between GDP growth and civil liberties. For the clarity of analysis we focus solely on the significance and direction of the responses. Therefore we conduct a Granger-causality test and calculate the coefficients of the panel VAR system. The obtained results are presented in Tables 8 and 9.

On the basis of the results of the model with intermediaries, it may be concluded that GDP growth in post-socialist countries positively responds to the protection of all types of civil liberties and that all types of civil liberties positively respond to GDP growth. What's more, the obtained results indicate the existence of a number of intermediaries in the relationship between GDP growth and civil liberties. For the *physical violence index*, these are: FDI as a mutual intermediary, i.e. one affecting both the response of GDP growth and civil liberties index; domestic investment and judicial independence as intermediaries affecting the response of GDP growth on civil liberties; and total factor productivity as an intermediary affecting the response of civil liberties on GDP growth. For the *political civil liberties index*, we observe domestic investment as a mutual intermediary, FDI as an intermediary affecting the response of GDP growth to civil liberties, and total factor productivity and judicial independence as intermediaries affecting the response of civil liberties to GDP growth. For the *private civil liberties index*, we find *tfp* as a mutual intermediary and domestic investment as an intermediary affecting the response of GDP growth to civil liberties.

Based on the results of the extended model, we may observe a mutual reinforcement mechanism between economic development and all categories of civil liberties. The results also indicate the presence of a transmission mechanism between GDP growth and different categories of civil liberties through investment (both foreign and domestic), total factor productivity and judicial independence. Consequently, it is justified to conclude that, in post-socialist states, the presence of an environment conducive to the accumulation of physical capital and factor productivity, combined with the existence of an independent judiciary, is crucial for the relationship between civil liberties and GDP growth. This may be attributed to several reasons. Low standards of civil liberties increase investors' uncertainty associated with investment in a given country or region, as it serves as a signal of the level of political and social stability and development. Abuses of civil liberties could result in decreased output per worker.

Table 8. Block exogeneity/Granger-causality tests

	ΔCL =Δ *physical violence index*						ΔCL = Δ*political civil liberties index*						ΔCL = Δ*private civil liberties index*					
	Δ(CL in log form)	*Δ(gdp pc in log form)*	*Δ(fdi in log form)*	*Δ(domestic investment in log form)*	*Δ(tfp in log form)*	*Δ(judicial independence in log form)*	*Δ(CL in log form)*	*Δ(gdp pc in log form)*	*Δ(fdi in log form)*	*Δ(domestic investment in log form)*	*Δ(tfp in log form)*	*Δ(judicial independence in log form)*	*Δ(CL in log form)*	*Δ(gdp pc in log form)*	*Δ(fdi in log form)*	*Δ(domestic investment in log form)*	*Δ(tfp in log form)*	*Δ(judicial independence in log form)*
Δ(CL in log form). lagt		410.687**	54.183**	135.068**	0.777	58.522**		161.269**	3.59*	50.759**	2.442	53.395**		5.878**	12.142**	100.483**	34.403**	33.895**
Δ(gdp pc in log form). lagt	11.131**		31.704**	8.769**	124.115**	35.147**	6.154**		11.857**	5.495**	111.791**	7.967**	51.652**		20.963**	2.108	138.412**	0.993
Δ(fdi in log form). lagt	4.722**	22.43**		14.654**	6.206**	3.963**	0.295	3.989**		9.436**	2.843*	6.683**	0.467	16.667**		5.676**	7.616**	0.109
Δ(domestic investment in log form). lagt	1.367	5.694**	0.992		0.032	0.587	6.427**	38.507**	0.116		6.811**	18.868**	1.735	7.644**	0.907		1.124	0.269
Δ(tfp in log form). lagt	12.411**	91.139**	0.003	51.032**		45.627**	115.254**	183.043**	0.217	99.244**		123.633**	8.587**	169.955**	0.053	113.032**		122.574**
Δ(judicial independence in log form). lagt	1.16	16.323**	1.381	8.075**	1.801		85.2**	0.223	0.254	0.101	0.139		12.223**	4.446**	0.66	0.345	0.775	
All	18.238**	761.091**	66.286**	428.403**	180.99**	169.639**	139.136**	466.006**	14.233**	233.475**	145.313**	224.031**	73.176**	336.524**	39.226**	312.862**	192.183**	184.117**

Note: The numbers in the table are Chi-square block exogeneity Wald tests. Under the null hypothesis, the excluded variables do not Granger--cause the dependent variable. * and ** denote significance at the 10% and 5% levels.

Source: author's own elaboration.

Table 9 The estimated results from panel VAR model

	ΔCL =Δ *physical violence index*						ΔCL = Δ*political civil liberties index*						ΔCL = Δ*private civil liberties index*					
	Δ(CL in log form)	*Δ(gdp pc in log form)*	*Δ(fdi in log form)*	*Δ(domestic investment in log form)*	*Δ(tfp in log form)*	*Δ(judicial independence in log form)*	*Δ(CL in log form)*	*Δ(gdp pc in log form)*	*Δ(fdi in log form)*	*Δ(domestic investment in log form)*	*Δ(tfp in log form)*	*Δ(judicial independence in log form)*	*Δ(CL in log form)*	*Δ(gdp pc in log form)*	*Δ(fdi in log form)*	*Δ(domestic investment in log form)*	*Δ(tfp in log form)*	*Δ(judicial independence in log form)*
Δ(CL in log form). lagt	0.418**	0.575**	3.696**	8.404**	–0.021	2.042**	0.259**	1.054**	1.092*	2.036**	0.053	6.197**	0.143**	0.268**	5.166	14.427**	–0.380**	2.469**
z statistics	14.03	20.27	7.36	11.62	–0.88	7.65	14.68	12.7	1.89	7.12	1.56	7.31	4.68	2.42	3.48	10.02	–11.76	5.82
Δ(gdp pc in log form). lagt	0.012**	0.352**	3.732**	1.216**	– 0.372**	0.711**	0.036**	0.418**	2.328**	0.488**	– 0.393**	0.453**	0.071**	0.394**	3.090**	–0.472	– 0.424**	0.172
z statistics	11.06	11.21	5.63	2.96	–11.14	5.93	2.48	11.05	3.44	2.34	–10.57	2.82	7.19	8.6	4.58	–1.45	–5.87	1.00
Δ(fdi in log form). lagt	0.002**	0.008**	– 0.227**	0.074**	0.003**	0.012**	–0.001	0.004**	–0.238**	0.050**	0.002*	0.020**	–0.001	0.008***	–0.291**	0.052	0.004**	–0.002
z statistics	2.17	4.74	–4.57	3.83	2.49	1.99	–0.54	2	–4.13	3.07	1.69	2.59	–0.68	4.08	–5.1	2.38	2.76	–0.33
Δ(domestic investment in log form). lagt	0.001	0.009**	–0.073	0.099**	0.001**	0.011	0.004**	0.020**	–0.0191	0.010	0.006**	–0.100**	–0.001	0.0108**	–0.066	0.112**	0.003	0.009
z statistics	1.17	2.39	–1.00	2.31	2.18	0.77	2.54	6.21	–0.34	0.45	2.61	–4.34	–1.32	2.76	–0.95	2.79	1.06	0.52
Δ(tfp in log form). lagt	0.041**	0.377**	–0.023	2.330**	0.547**	1.620**	0.244**	0.407**	0.028	2.574**	0.668**	2.406**	0.0268**	0.448**	0.113	4.495**	0.581	2.651**
z statistics	3.52	9.55	–0.05	7.14	10.3	6.75	10.74	13.53	0.5	9.96	14.85	11.12	2.93	13.04	0.23	10.63	13.57	11.07
Δ(judicial independence in log form). lagt	–0.002	0.014**	0.056	0.066**	0.004	–0.010	0.023**	0.002	–0.239	–0.007	0.001	0.029	0.006**	0.011**	0.054	–0.028	–0.005	– 0.118**
z statistics	–1.08	4.04	1.18	2.84	1.34	–0.43	9.23	0.47	–0.47	–0.32	0.37	0.58	3.5	2.11	0.81	–0.59	–0.88	–2.67
number of observations	189						189						189					

Note: * and ** denote significance at the 10% and 5% levels.

Source: author's own elaboration.

Systematic abuses of such liberties contribute to lowering citizens' incentives to innovate and to accumulate physical and human capital, thus reducing total factor productivity. Finally, an independent judiciary is able to make the government abide by its promises and may as a result contribute to a reduction of the time inconsistency of government preferences.

The results from the reduced form model and the model with intermediaries allow us to validate the stated hypotheses and answer the research question about effects specific to different types of civil liberties. In Hypothesis 1 we stated that the relationship between economic growth and civil liberties in post-socialist states is mutual: GDP growth responds to changes in civil liberties and civil liberties respond to changes in GDP growth. The outcomes of the reduced form model partially support this hypothesis – we identified a mutual relationship for the *physical violence index* and *gdp growth*. What's more, the results suggest that the *private civil liberties index* responds positively and significantly to changes in *gdp growth*. However, the results of the extended model with intermediaries fully support Hypothesis 1 – we identified mutual effects for GDP growth and all categories of civil liberties. Furthermore, the model results indicate the existence of various channels of interrelationship between economic development and civil liberties. These are domestic and foreign direct investment, total factor productivity and judicial independence. Therefore, Hypothesis 2 is supported. Finally, our results imply that the effect of the intermediaries varies with the type of civil liberties.

Conclusions

The paper provides a comprehensive analysis of the direct and indirect relationships between *de facto* civil liberties protection and economic development in the post-socialist countries of Central and Eastern Europe. The empirical analysis is based on a panel vector autoregressive model. The obtained results provide grounds for verifying the following hypotheses:

Hypothesis 1: The relationship between economic growth and civil liberties in post-socialist states is mutual: GDP growth responds to changes in civil liberties, and civil liberties respond to changes in GDP growth.

Hypothesis 2: Foreign direct investment, domestic investment, total factor productivity and judicial independence are intermediaries in the civil liberties-economic growth interrelationship.

Apart from verifying the formulated hypotheses, our paper addresses the following research question: Do the effects described in Hypotheses 1 and 2 differ for various types of civil liberties?

We proposed two econometric specifications: a reduced form model and a model with intermediaries. In the first model, we only accounted for GDP growth and different measures of civil liberties. The second model accounts for the presence of possible intermediaries and is devoted to the analysis of channels of interdependence between economic development, civil liberties, FDI, domestic investment, total factor productivity and judicial independence.

The outcomes of the reduced form model indicate a mutual relationship between the *physical violence index* and *gdp growth*. Moreover, we found that the *private civil liberties index* responds positively and significantly to changes in *gdp growth*. However, the results of the extended model with intermediaries suggest the existence of mutual effects for GDP growth and all categories of civil liberties. The model results indicate the existence of various channels of interrelationship between economic development and civil liberties. These are domestic and foreign direct investment, total factor productivity and judicial independence. The effect of intermediaries varies with the type of civil liberties. For the *physical violence index*, these are FDI as a mutual intermediary, i.e. one affecting both the response of GDP growth and civil liberties index; domestic investment and judicial independence as intermediaries affecting the response of GDP growth to civil liberties; and total factor productivity as an intermediary affecting the response of civil liberties to GDP growth. For the *political civil liberties index*, we observe domestic investment as a mutual intermediary, FDI as an intermediary affecting the response of GDP growth to civil liberties, and total factor productivity and judicial independence as intermediaries affecting the response of civil liberties to GDP growth. For the *private civil liberties index*, we find *tfp* as a mutual intermediary and domestic investment as an intermediary affecting the response of GDP growth to civil liberties.

On the whole, our results have several policy implications. They highlight the importance of civil liberties for the economic development of a country. Therefore, governments in post-socialist states should not overlook the need to adhere to rights protection standards while implementing other policies. Moreover, foreign and domestic investment, productivity, and the level of judicial independence may boost the effect of civil liberties on economic development and the effect of economic development on civil liberties. In addition, policy makers should be aware of the fact that the social and economic development of their countries will result in higher demand among citizens for high-quality civil liberties protection. Failure to account for that in public policies could potentially lead to social unrest and a decline in a country's development.

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