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### **THE RULE OF LAW AND INFLATION IN THE MIDDLE-INCOME COUNTRIES**

**Abstract.** The article analyzes the relationship between compliance with the rule of law and inflation. Annual data for the period of 2013—2019 of the Rule of Law Index from the non-governmental organization World Justice Project (WJP) for 40 countries of Central and Eastern Europe, the former Soviet Union, Asia and Latin America were used. By means of cross-section estimates and panel data using a random effects model (RE), the dependence of inflation on individual WJP sub-indices was empirically estimated, taking into account a wide analytical spectrum of different aspects of the rule of law. Recently, the issue of the rule of law is increasingly used in economic research. First of all, it concerns the dependence of transaction funds and trust on legal factors, which has a direct impact on the funds of production and inflation, as emphasized by the representatives of the new institutional school (New Institutional Economics). Instead, Neoclassical economics economists mainly analyze the influence of the rule of law mechanisms on the formation of trust in such institutions as the independent central bank or the state administrative apparatus. There is no lack of empirical evidence that the anti-inflationary influence of the central bank significantly depends on the concomitant conditions of compliance with the rule of law. Keynesian economics experts state that the importance of legal and regulatory norms increases significantly with a low interest rate (Zero Lower Bound — ZLB), which has been the case recently in most industrialized countries. Since the academic interpretation of the rule of law is quite broad, it is of practical interest to study the relevant macroeconomic effects in terms of such individual components as the system of counterbalances and checks for government, the fight against corruption, maintenance of law and order, efficiency of regulatory mechanisms, etc. The study showed that there is no reason to deny the anti-inflationary impact of the rule of law in general and in terms of individual components, but the obtained empirical estimates may be vulnerable to data aggregation and differ in terms of individual groups of countries. If we use the general index of the rule of law of the WJP, the anti-inflationary effect can be traced both for the general sample of 40 countries, and separately for both subgroups of countries: 1) Central and Eastern Europe (CEE) and the former Soviet Union, 2) Asia and Latin America. The use of WJP sub-indices shows an anti-inflationary effect for the general sample of countries and subgroups of CEE countries and the

former Soviet Union (with a few exceptions), but the corresponding effect is completely lost for the countries of Asia and Latin America (it can mean that only complex simultaneous introduction of all components of the rule of law is anti-inflationary). This feature draws attention to the possibility of erroneous use of panel data estimates for large groups of countries that may not meet certain regional characteristics and incline to erroneous recommendations for economic policy. Among other results, weak signs of accelerating inflation have been observed over time in the CEE countries and the former Soviet Union, but not in Asia and Latin America. Also in these countries, inflation does not depend on GDP dynamics. In contrast, in the CEE and former Soviet Union countries, on average, each percentage point of GDP growth (lag per year) is marked by a 0.3-percentage-point decrease in inflation.

**Keywords:** the rule of law, inflation, panel data.

**JEL Classification** C23, E02, E31, K10

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## **ВЕРХОВЕНСТВО ПРАВА ТА ІНФЛЯЦІЯ У КРАЇНАХ ЗІ СЕРЕДНІМ РІВНЕМ ДОХОДУ**

**Анотація.** Проаналізовано зв'язок між дотриманням норм верховенства права та інфляцією. Використовувалися річні дані за період 2013—2019 рр. індексу верховенства права від неурядової організації World Justice Project (WJP) для 40 країн Центральної і Східної Європи, колишнього Радянського Союзу, Азії і Латинської Америки. За допомогою оцінок перехресної регресії (cross-section) і панельних даних з використанням методу зі змінною сталою (*англ.* a random effects model — RE) емпірично оцінено залежність інфляції від окремих субіндексів WJP, що враховують широкий аналітичний спектр різноманітних аспектів верховенства права. Останнім часом проблематика верховенства права все ширше використовується в економічних дослідженнях. Передусім це стосується залежності трансакційних коштів і довіри від правових чинників, що має безпосередній вплив на кошти виробництва та інфляцію, як це наголошують представники нової інституційної школи (New Institutional Economics). Натомість економісти неокласичної школи (Neoclassical economics) переважно аналізують вплив механізмів верховенства права на формування довіри до таких інститутів, як незалежний центральний банк чи державний адміністративний апарат. Не бракує емпіричних свідчень, що антиінфляційний вплив центрального банку істотно

залежить від супутніх умов з дотриманням верховенства права. Економісти кейнсіанської школи (Keynesian economics) стверджують, що важливість правових і регуляторних норм істотно зростає за умов низької процентної ставки (Zero Lower Bound — ZLB), як це притаманно останнім часом більшості промислових країн. Оскільки академічне трактування верховенства права досить широке, становить практичний інтерес вивчення відповідних макроекономічних ефектів у розрізі таких окремих компонент, як система противаг і стримувань для уряду, боротьба з корупцією, підтримання правопорядку, ефективність регуляторних механізмів тощо. Проведене дослідження показало, що немає підстав заперечувати антиінфляційний вплив верховенства права — як загалом, так і в розрізі окремих компонент, але отримані емпіричні оцінки можуть бути вразливими до агрегації даних та відрізнятися у розрізі окремих груп країн. Якщо використати загальний індекс верховенства права WJP, антиінфляційний вплив простежується і для загальної вибірки 40 країн, і окремо для обох підгруп країн: 1) Центральної і Східної Європи (ЦСЄ) та колишнього Радянського Союзу, 2) Азії і Латинської Америки. Використання субіндексів WJP показує антиінфляційний вплив для загальної вибірки країн та підгрупи країн ЦСЄ і колишнього Радянського Союзу (за декількома винятками), але відповідний ефект повністю втрачається для країн Азії і Латинської Америки (це може означати, що антиінфляційним є лише комплексне одночасне запровадження всіх компонент верховенства права). Така особливість привертає увагу до можливостей хибного використання оцінок панельних даних для великих груп країн, що можуть не відповідати окремим регіональним особливостям і схилити до хибних рекомендацій для економічної політики. З-поміж інших результатів слабкі ознаки прискорення інфляції з часом простежуються у країнах ЦСЄ і колишнього Радянського Союзу, але цього немає у країнах Азії і Латинської Америки. Також у цих країнах інфляція не залежить від динаміки ВВП. Натомість у країнах ЦСЄ і колишнього Радянського Союзу в середньому кожен відсоток зростання ВВП (з лагом у рік) позначається зниженням інфляції на 0,3-процентного пункту.

**Ключові слова:** верховенство права, інфляція, панельні дані.

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## ВЕРХОВЕНСТВА ПРАВА И ИНФЛЯЦИЯ В СТРАНАХ СО СРЕДНИМ УРОВНЕМ ДОХОДА

**Аннотация.** Проанализирована связь между соблюдением норм верховенства права и инфляцией. Использовались годовые данные за период 2013—2019 гг. индекса верховенства права от неправительственной организации World Justice Project (WJP) для 40 стран Центральной и Восточной Европы, бывшего Советского Союза, Азии и Латинской Америки. С помощью оценок перекрестной регрессии (cross-section) и панельных данных с использованием метода с переменной постоянной (*англ.* a random effects model — RE) эмпирически оценена зависимость инфляции от отдельных субиндексов WJP, учитывающие широкий аналитический спектр разных аспектов верховенства права. В последнее время проблематика верховенства права все шире используется в экономических исследованиях. Прежде всего это касается зависимости транзакционных средств и доверия от правовых факторов, что имеет непосредственное влияние на средства производства и инфляцию, как это отмечается представителями новой институциональной школы (New Institutional Economics). Зато экономисты неоклассической школы (Neoclassical economics) преимущественно анализируют влияние механизмов верховенства права на формирование доверия к таким институтам, как независимый центральный банк или государственный административный аппарат. Достаточно эмпирических свидетельств, что антиинфляционное влияние центрального банка существенно зависит от сопутствующих условий с соблюдением верховенства права. Экономисты кейнсианской школы (Keynesian economics) утверждают, что важность правовых и регулятивных норм существенно возрастает в условиях низкой процентной ставки (Zero Lower Bound — ZLB), как это характерно в последнее время большинству промышленных стран. Поскольку академическое трактовки верховенства права достаточно широкое, становится практический интерес изучение соответствующих макроэкономических эффектов в разрезе таких отдельных компонент, как система противовесов и сдержек для правительства, борьба с коррупцией, поддержания правопорядка, эффективность регуляторных механизмов и тому подобное. Проведенное исследование показало, что нет оснований отрицать антиинфляционное влияние верховенства права — как в целом, так и в разрезе отдельных компонент, но полученные эмпирические оценки могут быть уязвимыми к агрегации данных и отличаться в разрезе отдельных групп стран. Если использовать общий индекс верховенства права WJP, антиинфляционное влияние прослеживается и для общей выборки 40 стран, и отдельно для обеих подгрупп стран: 1) Центральной и Восточной Европы (ЦВЕ) и бывшего Советского Союза; 2) Азии и Латинской Америки. Использование субиндексов WJP показывает антиинфляционное влияние на общую выборку стран и подгруппы стран ЦВЕ и бывшего Советского Союза (за несколькими исключениями), но соответствующий эффект полностью теряется для стран Азии и Латинской Америки (это может означать, что антиинфляционным есть только комплексное одновременное введение всех компонентов верховенства права). Такая особенность привлекает внимание к возможностям ложного использования оценок панельных данных для больших групп стран, что могут не соответствовать отдельным региональным особенностям и склонять к ошибочным рекомендациям для экономической политики. Среди других результатов, слабые признаки ускорения инфляции со временем прослеживаются в странах ЦВЕ и бывшего Советского Союза, но этого нет в странах Азии и Латинской Америки. Также в этих государствах инфляция не зависит от динамики ВВП. В свою очередь, в государствах ЦВЕ и бывшего Советского Союза в среднем каждый процент роста ВВП (с лагом в год) сказывается снижением инфляции на 0,3-процентного пункта.

**Ключевые слова:** верховенство права, инфляция, панельные данные.

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**1. Introduction.** Mostly the connection between the quality of institutions and economic growth is traced through the mechanisms of protection of property rights, compliance with contracts

and restriction of corruption, which, in turn, encourages entrepreneurship and investment, and this directly stimulates economic growth [4, p. 41—58; 11; 30, p. 883—871], including the countries of CEE and the former Soviet Union [5, p. 5—18; 26, p. 278—289]. In some cases, the importance of combating violence and prevention of civil conflicts is emphasized, which requires coordinated action of the prosecutor's office and the judiciary [16, p. 673—685]. Much less attention has been paid to the impact of the rule of law on maintaining a low-inflation environment, which is usually considered one of the most important preconditions for sustainable economic growth [3, p. 153—169; 12, p. 33—49], especially in countries with a long pre-history of price and monetary instability [10]. It is possible that the influence of the rule of law on economic growth is carried out not only directly but also indirectly through the reduction of inflation to an acceptable level.

Low inflation may be the result of declining transaction funds, which is directly related to various aspects of legality and institutional constraints (in a broader sense). Relevant considerations have been confirmed empirically according to the data of countries with different income levels [1, p. 7—21; 15; 27, p. 308—322]. In particular, under the conditions of democratic institutions and the rule of law, the anti-inflationary influence of such institutional decisions as an independent central bank increases [6, p. 35—61; 15, p. 87—105; 18; 19, p. 407—423; 24, p. 659—687]. At the same time, there is empirical evidence that the influence of the rule of law on inflation is nonlinear and may depend on the degree of public control over power [2, p. 351—417]. Taking into account the legal aspects significantly changes the approaches to the study of factors of inflation in particular and economic growth in general, eliminating the relevant issues of excessive dependence on abstract theoretical constructions.

As the Nobel laureate R. Coase aptly noted [8, p. 31—39], until recently most economists did not notice the connection between the economy and the state of law administration, and therefore did not take into account the importance of transaction funds. Increased attention to the means of doing business and the influence of legal factors is an important «bridge» between legal issues and standard macroeconomic structures, which often do not go beyond the realities of economic life of the so-called «blackboard economics».

The aim of this research is to study the dependence of inflation on the achieved state of the rule of law (in terms of a number of sub-indices) for middle-income countries that implement (with few exceptions) a strategy of catching up economic growth (or convergence to the level of income of industrial countries). The obtained results can be useful for studying non-monetary factors of achieving a low-inflation environment as a prerequisite for accelerating the dynamics of GDP, and at the same time giving a systematic character to the process of forming a legal state, which is rightly called one of unfinished problems of modern Ukraine [28, p. 22—28].

**2. Theoretical commentary.** Functional mechanisms that combine the rule of law with inflation are quite diverse. While economists in mainstream economics emphasize the importance of choice for market participants (using production functions with a declining return on factors of production), supporters of the New Institutional Economics prefer to study the features of transactional funds and trust as a means of better allocation of resources, stimulation of investments and innovations, and as a result — increase of the equilibrium level of income [29, p. 41—65]. Qualitative legal environment with reliable regulatory mechanisms is considered as a factor of labor productivity and reduction of means of production, which should lead to lower wholesale and retail prices. Competition in the market of goods and services has a similar effect [27, p. 308—322].

The dependence of inflation on the rule of law is important in the context of the transition from relatively closed economies with a number of institutional problems (non-democratic political system, privileges for government, lack of protection of property rights and equality of citizens before the law, etc) to more efficient open economies when at the early stages of such a transition, there is neither the automatism of further transformations, nor guarantees of the irreversibility of the initiated structural transformations [23].

Neoclassical economics experts do not deny the importance of the rule of law as a factor of increasing income and deceleration of inflation (due to lower transaction costs), but pay more

attention to the factors of confidence and expectations of price dynamics, along with means capital and labor force, which have traditionally been considered the main drivers of economic growth.

As shown by B. Hayo and S. Voigt [17, p. 751—777], the independence of the judiciary system *de facto* and confidence in it reduce inflation both directly through an increase in long-term income (GDP) and indirectly through increased guarantees of central bank independence. To explain the corresponding functional dependence, a simple model with Phillips curve was used:

$$U = U^* - \alpha(\pi - \pi^e), \quad (1)$$

$$L(U, \pi) = U + \gamma\pi^e, \quad (2)$$

where  $U$  i  $U^*$  mean actual and «natural» unemployment (%),  $\pi$  and  $\pi^e$  – actual and expected inflation (%),  $L$  — standard target function of the central bank, which seeks to find the optimal balance between unemployment and inflation expectations. The «natural» level of unemployment reflects the optimal correlation for a given country between the number of people of working age who enter and leave the labor market.

As the reduction of transaction funds stimulates business activity, in the economy with higher efficiency of production processes there is a decrease in the «natural» level of unemployment, which further becomes a factor of reducing the equilibrium value of inflation. In a somewhat different context, the improvement of the rule of law is accompanied by an increase in the «natural» level of income ( $Y^*$ ), and, accordingly, a decrease in the so-called «income gap»:  $Y - Y^*$ , where  $Y$  — is the actual value of GDP. Accordingly, inflation is declining, which creates the preconditions for lowering the short-term interest rate of the central bank, and this stimulates an increase in income above some «natural» level, which corresponds to the maximum possible use of labor and other productive resources and is not accompanied by the acceleration of inflation beyond the defined optimal target (it can be assumed that the «natural» level of income and «natural» unemployment characterize the same equilibrium state of the economic system). Thus, the «gap» in income disappears, but inflation stabilizes at a new lower level.

Hielscher and Markwardt [12] state that even if an independent monetary policy is pursued in the short term, in a broader sense, long-term confidence in the independent status of the central bank is weakened by potential vulnerability to political pressure. The rule of law is considered an important factor of increasing confidence in all government institutions, including the central bank, along with two other institutional factors — the stability and effectiveness of the government and democratic accountability.

In economics with weak institutions, institutional constraints on fiscal policy may be more important for deceleration of inflation [16]. It has been empirically found that as institutional quality increases, the impact of fiscal constraints on inflation weakens, while the independence of the central bank retains a stable anti-inflationary impact. One of the mechanisms may be an increase in budget revenues due to the reduction of space for corrupt practices, which usually have an inflationary impact [7, p. 225—227; 25, p. 1—17].

The importance of legal factors grows under the conditions of extremely low interest rate (Zero Lower Bound — ZLB), which in the last decade has proved to be a fairly stable phenomenon in the post-crisis environment of industrialized countries, and long-term distortions in the labor market [13, p. 709—742]. Recently Y. Listokin [21, p. 46—80] used the logic of the canonical Keynesian model of equilibrium in the commodity and money markets IS—LM to explain the relationship between legal regulators and aggregate demand, which is directly related to price dynamics. This position is opposed to neoclassical approaches based on microeconomic dependencies. The mechanisms of the influence of legal factors on prices may differ from country to country. If for industrialized countries in the state of ZLB a means of generating higher inflation under the condition of continuing price reductions (deflation) is recommended to weaken bankruptcy proceedings and antitrust regulators, then for countries with persistent expectations of inflation everything is just the opposite. Here, strengthening the rule of law in bankruptcy proceedings is necessary to increase the degree of trust in the lending process, and the fight against

monopoly — to facilitate the entry of new firms into the market and increase in competition. As a result, the increase in investment and production volumes should create the appropriate anti-inflationary pressure.

On the other hand, among industrialized countries there is no lack of evidence that excessive liberalization of entrepreneurial activity leads to a decrease in labor productivity and the number of new firms entering the market [13, p. 709—742]. Accordingly, the competition weakens and the prices of large monopoly companies rise. However, studies for lower-income countries show that legal protection against political influence contributes to the improvement of both administrative regulators and conditions for entering the market of new firms [22, p. 1—25]. As found for the CEE countries in the 1990s, liberalization measures are beneficial for economic growth, and the gradual transformation of the independence of state institutions on political influence from *de jure* to *de facto* is determined by the degree of achievement of the rule of law [10]. In general, a number of studies have concluded that the anti-inflationary impact of both the rule of law and the independent status of the central bank is stronger in countries with weak institutions [9; 20, p. 72—89]. If so, this implies an increased favorable impact of measures to strengthen the rule of law, especially for countries like Ukraine, which are in the process of formation of a legal state.

**3. Methodology of statistical research.** To study the dependence of the dynamics of economic growth on the rule of law, we used the WJP index, which uses survey data from both categories of respondents — experts and ordinary citizens. Our study used data from 40 CEE countries, the former Soviet Union, Asia, and Latin America, which are predominantly middle-income countries (except South Korea).

The study of the relationship between the rule of law and inflation was conducted in terms of individual components of the WJP rule of law index: 1) limited government powers, 2) absence of corruption, 3) order and security, 4) fundamental rights, 5) open government, 6) effective regulatory enforcement, 7) access to civil justice, 8) effective criminal justice (the value of each of the sub-indices is in the range from 0 to 1). Virtually each of these components of the rule of law can be related to price dynamics, although it is natural to assume a different amplitude of such influence for individual sub-indices.

The following statistical model was used for empirical evaluation:

$$CPI_{it} = \alpha_0 + \alpha_1 TIME_t + \alpha_2 \Delta Y_{it-1} + \alpha_3 LAW_{it}^n + \eta_i + \varepsilon_{it}, \quad (3)$$

where  $CPI_{it}$  — is consumer price inflation (%),  $TIME_t$  — time variable,  $\Delta Y_{it}$  — GDP growth rate of the country  $i$  in time period  $t$  (%),  $LAW_{it}^n$  — one of the sub-indices of the WJP rule of law ( $n = 1, 2, 3 \dots 8$ ),  $\eta_i$  — identifier for an individual country,  $\varepsilon_{it}$  — stochastic factor.

The  $TIME_t$  variable takes into account the possible dependence of inflation on the time trend. In particular, it is important to identify the presence of a downward trend, which in industrialized countries under the conditions of ZLB causes concomitant fears of deflation. Accordingly, there are specific proposals for legal regulators of economic activity, as noted above.

The inclusion of the lag value of GDP dynamics is aimed at taking into account the comparative influence of aggregate supply and demand factors. If the aggregate supply mechanisms prevail, as the economists of the institutional school predict, then inflation can be expected to decrease ( $\alpha_2 < 0$ ). Instead, in the context of models with the Phillips curve, GDP growth becomes inflationary ( $\alpha_2 > 0$ ), if the dynamics of actual GDP outpaces the growth of some equilibrium (or «natural») level of this indicator.

In terms of individual WJP sub-indices, the greatest anti-inflationary impact can be expected from the system of counterbalances and restraints for the government ( $LAW_{it}^1$ ), success in the fight against corruption ( $LAW_{it}^2$ ), greater transparency of government activities ( $LAW_{it}^5$ ) and compliance with regulatory requirements ( $LAW_{it}^6$ ). Since the prevention of corruption depends on

the activities of law enforcement agencies, the corresponding sub-index ( $LAW_{it}^8$ ) seems to be no less important. Less important are the factors of law and order and security ( $LAW_{it}^3$ ), fundamental rights of citizens ( $LAW_{it}^4$ ) and access to civil justice ( $LAW_{it}^7$ ). In all cases, a significant anti-inflationary impact is expected through the promotion of responsible entrepreneurial activities within the legal field and the development of civil society institutions (this strengthens trust mechanisms).

Correlation analysis reveals a fairly close relationship between individual sub-indices, which also correlate with the overall WJP index (*Table 1*). The sub-indices of compliance with regulatory requirements ( $LAW_{it}^6$ ) and access to civil justice ( $LAW_{it}^7$ ) correlate the most with the general WJP index ( $LAW_{it}$ ). The sub-index of fundamental rights of citizens ( $LAW_{it}^4$ ) is characterized by the lowest correlation with other indicators. Among the individual sub-indices, the correlation coefficient is relatively insignificant for effective criminal justice ( $LAW_{it}^8$ ) and fundamental human rights ( $LAW_{it}^4$ ), which is quite expected, as well as opportunities for the protection of civil rights ( $LAW_{it}^7$ ). The correlation between progress in the fight against corruption ( $LAW_{it}^2$ ) and access to civil justice ( $LAW_{it}^7$ ), on the one hand, and respect for human rights ( $LAW_{it}^4$ ), and transparency in government activities ( $LAW_{it}^5$ ), on the other, is slightly higher.

Table 1

Correlation between WJP sub-indices

	$LAW_{it}$	$LAW_{it}^1$	$LAW_{it}^2$	$LAW_{it}^3$	$LAW_{it}^4$	$LAW_{it}^5$	$LAW_{it}^6$	$LAW_{it}^7$	$LAW_{it}^8$
$LAW_{it}$	1,00								
$LAW_{it}^1$	0,84	1,00							
$LAW_{it}^2$	0,86	0,63	1,00						
$LAW_{it}^3$	0,89	0,85	0,66	1,00					
$LAW_{it}^4$	0,77	0,83	0,55	0,92	1,00				
$LAW_{it}^5$	0,80	0,68	0,57	0,83	0,77	1,00			
$LAW_{it}^6$	0,93	0,77	0,88	0,81	0,73	0,68	1,00		
$LAW_{it}^7$	0,91	0,64	0,87	0,71	0,57	0,63	0,91	1,00	
$LAW_{it}^8$	0,89	0,66	0,85	0,64	0,51	0,58	0,80	0,86	1,00

Source: own calculations.

**4. The results obtained.** The cross-section regression for the average values of 2013—2019 reveals a clear inverse relationship between the general rule of law index  $LAW_{it}$  and inflation (*Fig. 1*). The relationship is somewhat weak after eliminating several high-inflation outliers (*Fig. 1b*), but remains significant. An increase in the overall  $LAW_{it}$  index by 0.1 is indicated by a decrease in inflation by 1.6 percentage points. For example, from the increase in the current rule of law index in Ukraine (0.50) to the level of Poland (0.66) we can expect a decrease in inflation by 2.6 percentage points, which is half of the domestic official target (5%). Accordingly, there will be opportunities to reduce interest rates, which should promote economic growth. A sufficiently high value of the



coefficient of determination  $R^2$  means that the rule of law factor explains about 30% of changes of consumer price inflation.

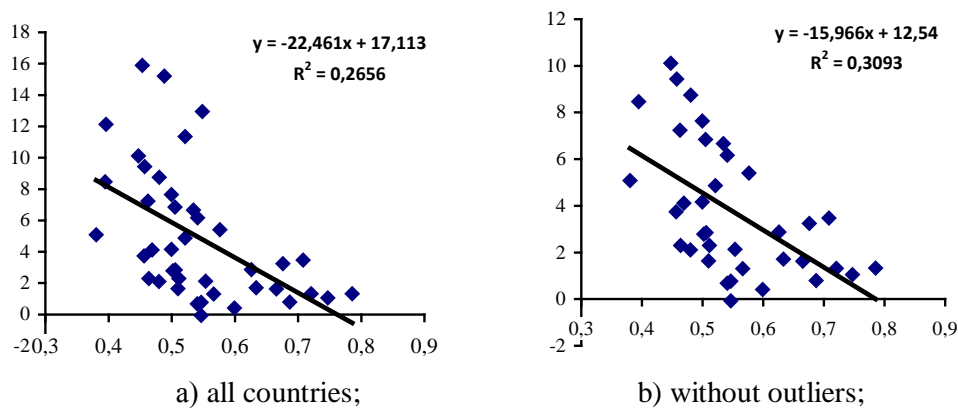
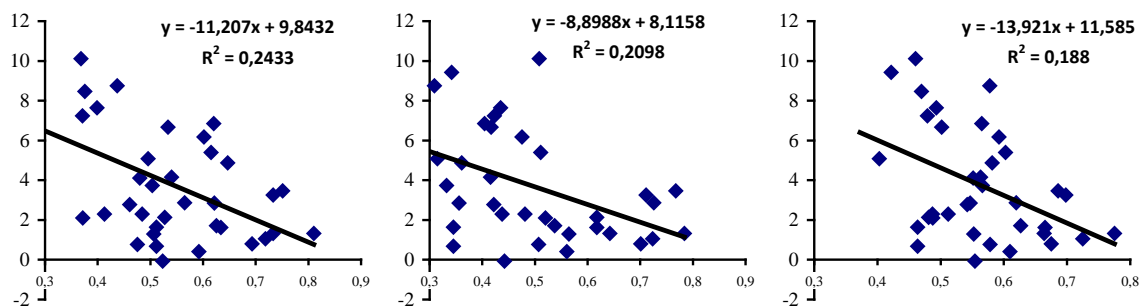


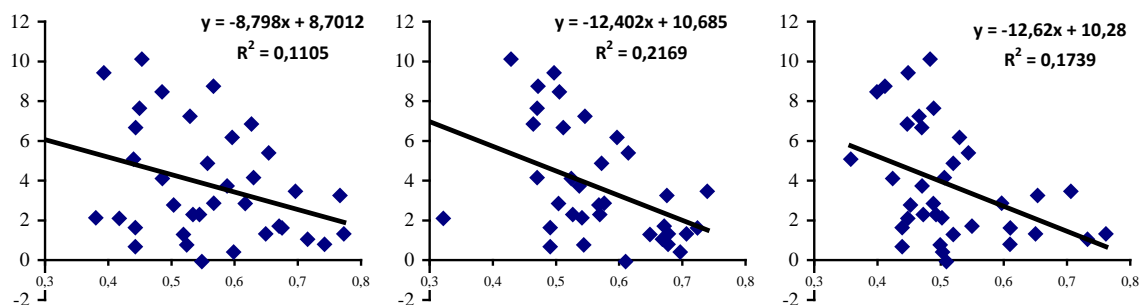
Fig. 1. Dependence of inflation on the value of the general WJP index ( $LAW_{it}$ )

Note: outliers include inflation rates for Belarus, Ukraine, Iran and Egypt.  
Source: own calculations.

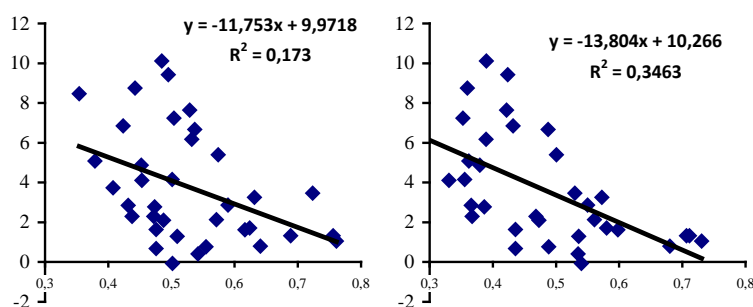
Among the individual sub-indices, effective criminal justice, effective regulatory enforcement, open government and limited governance powers have the most significant impact. The impact of other sub-indices is less significant, but equally anti-inflationary. In the first approximation, at least, this does not negate the arguments in favor of an appreciable anti-inflationary direction of the rule of law. The coefficient of determination of  $R^2$  is the highest in the case of effective criminal justice and limited government powers (Fig. 2).



1) limited government powers    2) absence of corruption    3) order and security



4) fundamental rights    5) open government    6) effective regulatory enforcement



7) access to civil justice, 8) effective criminal justice

Fig. 2. Dependence of inflation on the value of WJP sub-indices

Source: own calculations.

Empirical estimates for panel data are given in *Tabl. 2*. Since the elimination of outliers improves the statistical characteristics of the estimated regression models, inflation values not exceeding 12% per annum were used. Based on the Houseman test, a random effects model (RE) was used. The statistical characteristics of the estimated regression models are slightly worse for the specification taking into account the data of all countries, but in the specifications for the two regional samples they are quite satisfactory. For example, for CEE countries and the former Soviet Union, the included variables account for 25%, and for Asia and Latin America — for 22% of inflation.

Table 2

**Inflation factors ( $CPI_{it}$ ) taking into account the general WJP index**

Independent variables	All countries	Countries of CEE and the former Soviet Union	Countries of Asia and Latin America
Const	8,969 (9,85 <sup>***</sup> )	12,065 (9,51 <sup>***</sup> )	12,433 (3,71 <sup>***</sup> )
$TIME_{it}$	-0,054 (-0,49)	0,315 (1,60 <sup>*</sup> )	-0,149 (-1,11)
$\Delta Y_{it-1}$	0,063 (1,01)	-0,304 (-2,57 <sup>**</sup> )	0,125 (1,07)
$LAW_{it}$	-9,194 (-2,20 <sup>***</sup> )	-16,737 (-2,87 <sup>***</sup> )	-14,155 (-2,37 <sup>***</sup> )
N	194	86	84
$R^2$	0,07	0,25	0,22
Wald	6,09 <sup>**</sup>	17,88 <sup>*</sup>	8,43 <sup>**</sup>

Note: here and further in parentheses z-values are given; \* means statistical significance at the level of 10%; \*\* at the level of 5%; \*\*\* at the level of 1%.

Source: own calculations.

The obtained results testify to the universal favorable influence of the rule of law as a factor of deceleration of inflation (the corresponding coefficient is statistically significant at the level of 1%), while the influence of the other two variables reveals a clear regional specificity. Compared with previous estimates, where the explanatory variable was only the lag value of the rule of law index [26, p. 188—195], the anti-inflationary impact of the general WJP index also appears for Asia and Latin America. The tendency to increase inflation over time has been identified for the CEE countries and the former Soviet Union, while this is not shown by the results for the countries of Asia and Latin America, as well as estimates for the general samples of all countries. Similarly, the dynamics of GDP (lag in a year) has an anti-inflationary effect only for the CEE countries and the former Soviet Union. Among other things, this dependence testifies in favour of the arguments of New Institutional Economics, as it provides an inverse relationship between the increase in supply of goods and services and prices.

Empirical estimates, taking into account the WJP sub-indices, confirm the favorable influence of the rule of law in all aspects for the general sample of all countries, but estimates for individual subgroups of countries show significant differences (*Table 3*). If we use the data of all the studied countries, it is expected that the most significant influence is exercised by limited government powers (the corresponding specification has the highest explanatory power according to the values of  $R^2$ ), but the effective criminal justice factor ( $R^2=18\%$ ) is slightly inferior. The factors of fundamental rights and open government have twice as weak influence. The influence of the time trend and the lag value of GDP dynamics was not revealed (the corresponding results are not shown in *Table 3*).

Table 3

**Inflation factors ( $CPI_{it}$ ) taking into account WJP sub-indices**

Independent variables	All countries		Countries of CEE and the former Soviet Union		Countries of Asia and Latin America	
$LAW_{it}^1$	-12,390 (-4,37 <sup>***</sup> )	$R^2=0,19$	-13,653 (-3,59 <sup>***</sup> )	$R^2=0,31$	-2,227 (-0,56)	$R^2=0,05$
$LAW_{it}^2$	-8,143 (-2,66 <sup>***</sup> )	$R^2=0,13$	-9,385 (-2,34 <sup>**</sup> )	$R^2=0,22$	-0,212 (-0,05)	$R^2=0,06$
$LAW_{it}^3$	-7,407 (-2,61 <sup>***</sup> )	$R^2=0,17$	-5,048 (-1,13)	$R^2=0,17$	-0,588 (-0,14)	$R^2=0,06$
$LAW_{it}^4$	-5,318 (-2,18 <sup>**</sup> )	$R^2=0,12$	-6,712 (-1,71 <sup>*</sup> )	$R^2=0,20$	0,429 (0,13)	$R^2=0,06$
$LAW_{it}^5$	-5,913 (-2,14 <sup>**</sup> )	$R^2=0,17$	-6,146 (-1,29)	$R^2=0,26$	-5,419 (-1,33)	$R^2=0,12$
$LAW_{it}^6$	-9,863 (-2,37 <sup>**</sup> )	$R^2=0,13$	-8,769 (-1,47)	$R^2=0,21$	2,284 (0,44)	$R^2=0,04$
$LAW_{it}^7$	-9,495 (-2,41 <sup>**</sup> )	$R^2=0,11$	-8,668 (-1,44)	$R^2=0,17$	-1,354 (-0,26)	$R^2=0,05$
$LAW_{it}^8$	-11,726 (-3,50 <sup>***</sup> )	$R^2=0,18$	-15,155 (-3,54 <sup>***</sup> )	$R^2=0,30$	2,001 (0,40)	$R^2=0,07$

Source: own calculations.

For the CEE countries and the former Soviet Union, the significant anti-inflationary impact of limited government powers and effective criminal justice is confirmed, but among the other sub-indices, the corresponding inverse dependence is observed only for the absence of corruption and fundamental rights. In the rest of the specifications, the coefficients for the sub-indices of the rule of law are negative, but they lack statistical significance. At the same time, for the countries of Asia and Latin America, the dependence of inflation on the sub-indices of the rule of law was not found in any of the specifications (moreover, some coefficients even turned out to be positive). This result is quite unexpected, as the overall WJP index shows the anti-inflationary impact for this subgroup of countries no less convincingly than for the CEE countries and the former Soviet Union, and leads to two conclusions.

Firstly, panel data estimates for large groups of countries should be treated with extreme caution. A significant number of observations help to improve the statistical characteristics of the estimated regression models, but may create erroneous economic policy implications. For example, greater efficiency of criminal justice seems to be a significant anti-inflationary factor for the CEE countries and the former Soviet Union, but not for the countries of Asia and Latin America. Secondly, the obtained results can be explained by the effect of aggregation. In the case of Asia and Latin America, this may mean that the anti-inflationary effect is provided only by the integrated simultaneous introduction of all components of the rule of law, while in isolation it has no effect on prices.

Differences between the two subgroups of countries are also present in terms of the impact of the time trend and GDP dynamics. Weak signs of accelerating inflation are observed over time in

the CEE countries and the former Soviet Union (although the statistical significance of the obtained regression coefficient depends on the specification), but this is not the case in Asia and Latin America. Also in these countries, inflation does not depend on GDP dynamics. In contrast, in the CEE countries and the former Soviet Union, higher GDP growth rates clearly reduce inflation (with a lag in a year). On average, a higher percentage of GDP growth is reflected in a decrease in inflation by 0.3-percentage points.

**Conclusions.** The relationship between the rule of law and inflation has a variety of theoretical explanations. Representatives of the New Institutional Economics emphasize the importance of transactional funds and trust as factors in the cost of production of goods and services. The factor of trust is actively used by economists of the Neoclassical school to explain the effectiveness of non-monetary (institutional) factors of inflation, which depends on compliance with the rule of law. Recently, Keynesian school economists have become interested in legal and regulatory mechanisms as alternatives to interest rate policy in maintaining an adequate level of aggregate demand.

Estimates of cross-regression and panel data show a favorable anti-inflationary impact of the rule of law for both the overall group of 40 countries and in terms of both regional subgroups of countries. The use of WJP sub-indices shows an anti-inflationary effect for the general sample of countries and subgroups of CEE countries and the former Soviet Union (with a few exceptions), but is completely lost for Asia and Latin America (this contradicts some earlier estimates). This feature draws attention to the possibilities of such use of panel data estimates for large groups of countries that may not meet certain regional characteristics and lead to erroneous recommendations for economic policy. Among other results, weak signs of accelerating inflation have been observed over time in CEE countries and the former Soviet Union, but not in Asia and Latin America. Another feature of the CEE countries and the former Soviet Union is the inverse relationship between inflation and GDP growth (with a lag in a year). On average, each percent of GDP growth is marked by a decrease in inflation by 0.3-percentage points.

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