

Democratic versus autocratic management style and national productivity: a cross-country analysis

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Abstract

Purpose – The aims are to verify whether the transition from an autocratic to a democratic management style increases national productivity and which of the five characteristics of the management style contribute the most to the increase in national productivity.

Design/methodology/approach – We studied the impact of five management style features on national productivity in 105 countries in 2008–2020. The research methods were Pearson's linear correlation and log-linear regression analysis.

Findings – Higher investments in employee development, better cooperation between employees and employers, higher share of productivity in pay, greater reliance on professional management and higher willingness to delegate authority are accompanied by a statistically significant improvement in national productivity. This means that the more democratic the management style in a given country, the higher the national productivity and therefore the well-being of society.

Research limitations/implications – The main limitations are the availability of free data on larger groups of countries over a sufficiently long time. The results can be helpful in understanding that including these five management style features in a long-term human resources management strategy can increase productivity, as employees will be more motivated, engaged, appreciated and treated fairly.

Originality/value – It is difficult to find comprehensive studies on the impact of various management style features on productivity at the country level. Our research findings contribute to filling this gap.

Keywords Democratic management style, Autocratic management style, National productivity, Cross-country analysis

Paper type Research article

Introduction

Management style is understood as a specific way of influencing subordinates by a superior in order to achieve organizational goals. It determines inter alia the nature of relationships between members of a given organization, the rules for filling positions and promotions, the autonomy of employees in making decisions, the attitude of superiors to the needs and expectations of subordinates, motivational instruments and control methods.

The subject of research is the dichotomy between a democratic and participative management style and an autocratic and directive management style. It is difficult to find comprehensive studies in the scientific literature on the impact of various management style features on productivity at the country level. For this reason, we decided to contribute to filling this gap. First, the aim of the study is to verify whether the transition from an autocratic to a

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democratic management style increases national productivity. Second, which of the five characteristics of management style contribute the most to the growth of national productivity.

To realize the aims of the study, the authors constructed their own research model. Supported by the academic literature, we identified key features that allow us to check whether a management style is more democratic or autocratic. Next, we selected those for which data could be obtained in the long period. These are employee development, cooperation in labour–employer relations, the relationship of pay to productivity, reliance on professional management and willingness to delegate authority. The national productivity indicators were output per worker, structural change the productive capacities index (PCI) and gross domestic product per capita (GDP pc). These are commonly accepted and recommended indicators for measuring national productivity (see: [Majewska-Bator, 2010](#); [Majewska, 2013](#); [Majewska, Mazur-Wierzbicka, & Duarte, 2025](#)). Finally, a complete database was created covering changes in five components of management style and four national productivity indicators for 105 countries between 2008 and 2022.

Pearson's linear correlation and log-linear regression analysis were chosen as the research methods. We also used a time-lag study method in which the explanatory variable in year t_0 changes the dependent variable in t_0 and t_1 .

The paper is divided into five parts. Part 1 presents the theoretical foundations of the empirical model. Part 2 describes the limitations, assumptions and elements of our research model. Part 3 presents the research results and the process of hypotheses testing. Part 4 contains a discussion of the results and research implications. Part 5 provides the conclusions and future research agenda.

Theoretical foundations of the empirical model

Management style can be considered a set of social institutions that regulate the operation of an organization, which constitutes a social system. For example, [Talcott Parsons \(1991\)](#) defines a social institution as a set of rules, norms and principles which establish the performances and determine the sanctions that are functionally necessary to a social system. He distinguishes three types of social institutions. The first is relational institutions that define reciprocal role expectations. These institutions are identified with social capital. The system of relational institutions is the core of the social structure. The second is regulative institutions that define the limits of the legitimacy of private interest pursuit with respect to goals and means. The third is cultural institutions that define obligations to accept culture patterns.

Parsons indicates that social institutions determine the roles played by human actors. In our case, superiors and subordinates. [Oliver Williamson \(2010\)](#) stresses differences in the cognitive, leadership and conduct attributes of human actors as foresight, reading and forecasting human conduct; ascertaining the requisite means; planning, implementation and adaptation. These differences determine productivity of an organization. Similarly, [Douglas North \(1990\)](#) understands social institutions as people's ways of forming interactions in the political, economic and social spheres. They are formal rules (e.g. constitution, laws and property rights) and informal norms (e.g. behavioural norms, conventions, imposed codes of conduct, customs). Together they form the human environment of interactions.

As [Thomas Fischer and Sim Sitkin \(2023\)](#) indicate, leadership is an ever-growing field of research in management and applied psychology. They add that according to many scholars, evidence has shown that people become less effective when they engage in such negative styles as abusive supervision or destructive leadership. Since the subject of the research is the dichotomy between democratic and autocratic management styles, the literature review will mainly focus on these types of management styles.

Original leadership theories of the 1940s assume that great leaders are born with individual traits that predispose them to leadership roles. Later researchers recognized that leadership circumstances vary significantly and place different demands on leaders, regardless of their individual traits. Certain contextual factors may weaken or even reverse the effects of

management styles on employee performance. Their studies challenged the validity of trait theory, which in turn led to the emergence of situational and behavioural approaches to leadership. Since then, leadership has increasingly been understood as a process in which an individual influences another individual or a group of people in a specific situational construct in order to achieve a common goal (Northouse, 2019; Fischer & Sitkin, 2023).

Kurt Lewin is considered the pioneer of a behavioural approach to leadership. Lewin (Lewin, Lippitt, & White, 1939; Lewin, 1943) distinguishes authoritarian, democratic and laissez-faire leadership climates. According to Lewin, a democratic leadership climate increases employee performance the most. The reason is that employees prefer a democratic leadership climate and it promotes discussion and cooperation between superiors and subordinates. John Miner (2005) indicates that although he died before the field of organizational behaviour came into existence, his theoretical thinking has been institutionalized by scholars of organizational behaviour.

Douglas McGregor (1960) created very influential Theories X and Y. These theories represent the perceptions managers hold about their employees, which implies the use of a specific leadership style. According to theory X, employees are inherently lazy, dislike work and responsibility, are incapable of problem-solving and have little ambition. Their actions are driven by the desire to avoid punishment, not by demonstrating initiative. Hence, managers use authoritarian management style. In Theory Y, we have the exact opposite situation. Then managers employ participative management style in which people are able to exercise self-direction and self-control in achieving organizational goals and their creativity is valued.

Rensis Likert (1961, 1967) developed the theory of participative leadership based on group work, calling it a new management model. Likert distinguishes exploitative-authoritarian, benevolent-authoritarian, consultative and group-participative leadership styles. He formulates three main principles of participative leadership theory: the mutual support principle, the group decision principle and the high standards principle. Likert emphasizes that the group-participative style is the model style that every manager should strive to adopt because friendly working relationships and participation in decision-making lead to high organizational effectiveness in all its dimensions.

Robert Blake and Jane Mouton (1964) also advocate the democratic style. The authors of the *Managerial Leadership Grid* conclude that the most effective management model in most situations is a cooperative style, encouraging and supporting employees to work as a team to reach optimal productivity. This style maximizes both concern for production and people. The relationships within the organization are characterized by trust and mutual respect, and employees demonstrate high levels of engagement to its operations.

Robert House (1977, 1996) is known mainly for path-goal and charismatic leadership theories. House updated his path-goal theory in 1996. Both of House's theories are formulated as diverse sets of propositions. House argues that leaders to be effective should engage in behaviours that complement subordinates' environment and abilities. Leaders should do this in a way that compensates for shortcomings and serves the satisfaction of subordinates and the performance of individual employees and teams. According to House, the effects of such leadership include devotion, trust, unquestioned obedience, loyalty, commitment, identification, confidence in the ability to achieve goals and radical changes in beliefs and values.

Although our research does not refer to the influence of national culture on management style, it is worth mentioning two large research projects that made a significant contribution to the development of this field of science. Geert Hofstede (1980) looks at national culture through the prism of values and norms as the determinants of people's behaviour. As a result of his research conducted in 52 countries, Hofstede identified four dimensions of national culture that have a strong impact on management: high and low uncertainty avoidance, masculinity/femininity, high and low power distance and individualism/collectivism. For example, low power distance means striving for equality and stemming from the belief that people are entitled to similar rights and the organization should reflect this basic equality. Therefore, in

countries with low power distance, it will be easier to implement a democratic management style.

The next project was the Global Leadership and Organizational Behaviour Effectiveness (GLOBE) program. It was established in 1991 under the leadership of mentioned House. The aim of the project was to collect empirical data in 62 countries on the relationships between societal culture, organizational culture and management styles. Measurements were conducted of the cultural values of societies and organizations and their impact on dependent variables, such as leadership dimensions. In this project, numerous researchers took part (see: [House, Javidan, Hanges, & Dorfman, 2002](#)).

The next part of the literature review will focus on those characteristics of democratic and autocratic management styles that are included in our research model. Authority can be formal and informal. The formal authority is defined as the power that a manager receives from the organization to give orders, control, reward, punish, etc. The extent of formal authority results from the position a person holds in an organizational hierarchy, regardless of how that position was obtained. In an autocratic management style, the purpose of formal authority is primarily the desire to dominate and control others.

Autocratic superiors usually strive to concentrate as much power as possible in his or her hands. Hence, an autocratic management style is characterized by a low level of power decentralization and weak employee participation in decision-making. We have therefore high power distance between managers and employees. Weak participation is usually informal and means that employees can express their views and ideas, but these are not binding on managers ([Yu, Fang, & Wang, 2016](#); [Karabati, 2021](#); [Awwad & Lafi, 2023](#); [Battilana, Beckman, & Yen, 2025](#)).

Autocratic leadership is based on strict control and a strong bureaucratic hierarchy. Autocratic management is directive in nature and managers show usually more concern for tasks than for people. That is why managers assign tasks in detail and closely and frequently supervise employees, whom they treat in an instrumental way. Numerous and detailed instructions and regulations serve this purpose because management staff believe that without these actions employees would certainly make a mistake. Thus, there is a lack of trust in subordinates, caused by excessive self-esteem of superiors ([Baltaci & Balci, 2017](#); [Janićijević, 2019](#); [Awwad & Lafi, 2023](#); [Moczyłowska, 2024](#); [Hassan, Yoon, & Dedahanov, 2025](#)).

A characteristic feature of the autocratic management style is the use of negative motivation through means of coercion and persuasion, punishments, reprimands, orders, prohibitions and commands. The use of negative motivation by autocratic managers is associated with an increased sense of anxiety among employees. Autocratic managers create the threat of penalties for too small work input or insubordination. For example, threat of dismissal, reduction of salary or demotion to a lower position. Such actions lead to the emergence of demotivation and fear of making a mistake.

Then employees are not always able to perform their tasks properly due to too much emotional stress and strictly follow instructions to avoid punishment. They also believe that at the workplace they are not being able to express and behave in a sincere manner, without having to fear undesirable consequences and potential retaliation. Then the ability to cope with work and external private life decreases. This must result in a decrease in employee creativity and therefore organizational innovation. Hence, autocratically managed organizations can be not flexible enough to adapt to changes in the competitive environment ([Baltaci & Balci, 2017](#); [Banjarnahor, Hutabarat, Sibuea, & Situmorang, 2018](#); [Bussel & Regenberg, 2019](#); [Kahn, 1990](#); [Awwad & Lafi, 2023](#); [Mazrouei & Bakri, 2023](#); [Moczyłowska, 2024](#)).

The fear of losing control and power is often mentioned as a reason for the low willingness to delegate authority to subordinates. There is also a low level of cooperation in an organization because managers prefer that employees compete rather than cooperate. There is also competition for the favour of a superior. Interpersonal contacts are characterized by hostility and distrust. Communication is one-way and serves the purpose of accomplishing the task.

Another often highlighted reason is that the superior may have trouble accepting that others are also competent to perform a given task and may have higher qualifications. In other words, superior is afraid that employees will turn out to be better and threaten his or her position. This can limit the possibility of employee development and freedom to act independently (Yu *et al.*, 2016; Janićijević, 2019; Karabati, 2021; Wang, Hou, & Li, 2022; Battilana *et al.*, 2025).

Nepotism and clientelism (cronyism) can occur in organizations run autocratically. In autocratic organizations a hierarchy is artificially created and imposed from above for the benefit of those who are to occupy privileged positions within it. Here, the basis for promotion to a given position does not have to be the development of knowledge and qualifications, as it should be in a participative management style. Senior management positions may be held by relatives, friends or influential people.

Additionally, who receives what salary and bonuses depend on the decisions of superiors, who do not have to take into account the contribution made by a given employee to the success of an organization. This must result in a decline in job satisfaction, professional management and therefore in productivity. The above description explains also why in autocratically managed organizations pay does not reflect employee productivity and large socio-economic inequalities occur (Üzümlü & Özkan, 2023; Bardhan, Mitra, Mookherjee, & Nath, 2024; Nxumalo & Gamede, 2024; Bhoi, Markopoulos, Markopoulos, & Nandi, 2025).

In a participative management style, the position of the employee in the organizational hierarchy results mainly from informal authority. Informal authority is usually held by people who combine knowledge and experience with actions that are beneficial to others, taking into account their needs and expectations. Hence, higher level positions are held by professionals chosen for their qualifications and merits in the area they are to manage. This is called knowledge-based decision making. Professionalization of management is high in such organizations.

Informal authority is also based on the trust and respect of subordinates towards superiors, on faith in their competences and a sense of the meaningfulness of implementing their proposals. If employees experience positive emotions through participative leadership, they develop favourable perceptions of internal organizational practices and want to imitate leaders. This type of authority is therefore based on the voluntary acceptance of subordinates (Peng, Zou, Kang, & Zhang, 2021; Tan & Ho, 2023; Bhoi *et al.*, 2025; Hassan *et al.*, 2025).

Managers should also remember that organizational democracy based on working principles such as respect for human rights, egalitarianism, transparency, justice and cooperation. Therefore, there is no discrimination against employees on the basis of age, gender, religion, race and disability. The remuneration principles should be transparent and equal for all those holding the same position or doing the same work. Everyone in an organization should be rewarded according to their responsibilities and the results they achieve. Since there are not easy tasks, leaders should undergo training that will improve their managerial competences in these areas (David, 2020; Huang, Li, & Chang, 2021; Tabancali, 2022; Wang *et al.*, 2022; Fischer & Sitkin, 2023; Bulog & Bakotić, 2024).

It is also the responsibility of a democratic manager to ensure employee development, which means that he or she should help them expand their knowledge, skills and abilities. Hence, a democratic manager inspires and enhances employees' self-esteem, sets challenging goals and encourage high expectations.

They treat employees as partners with specific skills and knowledge that are worth using for the good of an organization. So participative managers encourage employee to express their ideas and share knowledge. Managers consider employees' ideas whether or not they disagree with them, and use their suggestions to make decisions. We are therefore dealing with positive motivation that is various types of incentives that stimulate creativity and learning and make work more efficient, safer and easier. The positive outcomes of this kind motivation are mainly an increase in satisfaction, employee engagement performance and ethical behaviour of employees (Majewska & Szulczyńska, 2014; Ishak, Ismail, Samsudin, Lee, & Ali, 2018; Chang, Chang, Chen, Seih, & Chang, 2021; Khassawneh & Hamzah, 2022; Tabancali, 2022;

Coffeng, Van Steenberghe, De Vries, Steffens, & Ellemers, 2021; Greeff & Van Staden, 2023; Rzepka, Bańkowski, & Mazur-Wierzbicka, 2024; Jada, Swain, John, & Jena, 2025).

The participative management style is characterized by a high level of decentralization and shared decision-making. Employees are encouraged to take on greater responsibilities and contribute to decision-making processes within the limits defined by their knowledge and skills. Shared leadership is a particular type of trust building practice that influences employee loyalty and commitment to organizational goals. The relationships between employees and managerial staff are characterized by mutual respect. Employees are satisfied, loyal and motivated (Barnett & Weidenfeller, 2016; Nieżurawska, Kycia, Ludviga, & Niemczynowicz, 2023; Qing & Hua, 2023; Belás, Petráková, Streimikis, & Kozová, 2024; Battilana *et al.*, 2025; Morikawa, Martela, & Hakanen, 2025).

Organizations are becoming flatter with fewer levels of management and open and multi-directional communication. Information sharing between superiors and subordinates is helpful in developing cooperation more quickly and allow subordinates to organize work in an individual way. Hence, we are dealing with flexible work arrangements and remote work. Thus, the greater the level of freedom of subordinates in terms of self-direction and self-control of task implementation, the more participative the management style. Finally, it can be said that participative management style improves employee well-being and thus productivity of an organization (Inceoglu, Thomas, Chu, Plans, & Gerbasi, 2018; Huang *et al.*, 2021; Olomi & Ikegwuru, 2021; Jianfeng, Yuxin, & Hongmei, 2022; Tabancali, 2022; Bhoi *et al.*, 2025).

Materials and research methods

The main limitation of our research was access to free data on more detailed management style indicators. The goal was to collect panel data covering as many countries as possible over a sufficiently long period. This increases the reliability of comparing the obtained results. Therefore, we were limited in terms of number of observations and the length of research period as we can only consider 105 countries with data covering a period of fifteen years. We also tried to collect data on management style indicators from a single source because this means that the same method of measuring management style indicators is used in each country. This is a challenging task because data on organizational management are usually country-specific and do not allow for cross-country comparisons. Ultimately, we managed to collect data for five management style indicators. Hence, another limitation relates to the fact that the effect of other potential management style indicators on national productivity was not analysed in our research due to a lack of data. Given these limitations, the model we created provides only a fragmented reflection of the reality under study.

Moreover, when examining cause-and-effect relationships between multifaceted phenomena, there is a risk of endogeneity, i.e. omitting an important variable. This risk growing with the increasing complexity of socio-economic indicators, as many phenomena occurring at the level of society coexist and influence each other. This does not mean that we should abandon research on socio-economic phenomena, but we should remember this when interpreting the results.

The research period was 2008–2022. We included in the study 105 countries. Supported by the academic literature we have chosen indicators for which there is broad consensus that they measure national productivity (dependent variables) and are characteristics of management style (independent variable). Output per worker, structural change, the PCI and GDP pc were chosen as national productivity indicators.

As already indicated, the choice of management style characteristics was limited by the availability of data over a sufficiently long period. Due to the availability of data, we included in the study the following management style indicators: employee development, cooperation in labour-employer relations, relationship of pay to productivity, reliance on professional management and willingness to delegate authority.

The sources of management style indicators were The Global Competitiveness Reports and The Global Talent Competitiveness Indexes. These data come from the executive opinion survey in which respondents estimate the presence of a given factor in their country on the seven-point scale, where 1 refers to the lowest level of this factor, and 7 to the highest (the best situation).

Ultimately, a complete database was created that included changes in the five components of management style and four productivity indicators for 105 countries. Table 1 presents the variable definitions, symbols and data sources.

It was decided to perform Pearson's linear correlation and log-linear regression analysis. These methods were chosen because the authors wanted to estimate and compare the impact of each of the studied management style characteristics on individual national productivity indicators. Moreover, these methods are often used to study the impact of independent variables on national productivity indicators by researchers of economic development.

Table 1. Description of variables

Variables	Code	Description	Source
<i>Independent variables</i>			
Employee development	EST	Extent to which companies invest in employee training and development	WEF
Cooperation in labour-employer relations	CLE	Cooperation in labour–employer relations that can be generally confrontational or generally cooperative	WEF
Relationship of pay to productivity	PPR	Extent to which pay is related to employee productivity	WEF
Reliance on professional management	RPM	Reliance on professional management relating to whether in a given country senior management positions hold relatives and friends without regard to merit, or professional managers chosen for merit and qualifications	WEF
Willingness to delegate authority	WDA	Willingness to delegate authority to subordinates relating to whether in a given country top management controls all important decisions or authority is mostly delegated to business unit heads and other lower-level managers	WEF
<i>Dependent variables</i>			
Output per worker	OPW	GDP per worker in constant 2021 international dollars at purchasing power parity	ILOSTAT data explorer from
Structural change	SCH	Structural change refers to the movement of labour and other productive resources from low-productivity to high-productivity economic activities	UNCTADstat
Productive capacities index	PCI	The levels of productive capacities based on three pillars: the productive resources, entrepreneurial capabilities and production linkages which together determine the capacity of a country to produce goods and services and enable it to grow and develop	UNCTADstat
Gross Domestic Product per capita	GDP pc	According to the World Bank, GDP pc provides a basic measure of the value of output per person, which is an indirect indicator of per capita income. The change in GDP pc is considered broad measure of increase or decrease in economic productivity	UNCTADstat

Source(s): Authors' elaboration

The variables included in our study were transformed into natural logarithms. We also used a time-lag study method in which the explanatory variable in year t_0 changes the dependent variable in t_0 and t_1 . The number of observations in the period t_0 was 1 575 and in t_{+1} 1 470.

To assess the quality of regression models, we used statistics recommended in the literature. The first statistics are the estimation errors of correlation coefficients, regressions coefficients and constants (intercepts) in the regression models. Estimation errors are measures of model fit. In our research, we assumed a significance level of 0.5. At a significance level of 0.5, the result obtained has a 95% chance of being true or the result has a 5% chance of not being true. The confidence interval is therefore 0.95. Hence, the estimation errors of correlation coefficients, regression coefficients and constants should not exceed 0.48. In the case of regression models, we have also the standard error of the estimate, which is a measure of the accuracy of predictions. Smaller values are better because it indicates that the observations are closer to the fitted line.

The parametric Z-tests were also calculated, which are recommended for samples bigger than 30 observations. The Z-test is a modification of the t -Students test. Z-test checks whether the regression coefficients in the model are significantly different from zero. Each Z-statistic has an associated p -value that indicates the significance of the explanatory variable. The smaller the p -value, the stronger the evidence against null hypothesis (H0) and favour alternative hypothesis (H1).

The determination coefficient (R^2) indicates the proportionate amount of variation in the explanatory variable explained by the independent variables in the log-linear regression model. In other words, R^2 is a statistical measurement that examines how differences in one variable can be explained by the difference in a second variable.

The F -test verifies whether all regression coefficients in the model are significantly different from 0. We evaluate the F test based on p -value associated with it. Since we have only one independent variable in our models, the p -value assigned to the F -test equals the p -value assigned to the regression coefficient of that variable. When F statistic is larger, we have more evidence against null hypothesis (H0) and favour alternative hypothesis (H1).

The last method was the Durbin–Watson (D-W) statistic, which is used to verify the assumption that the residuals are uncorrelated in the regression model. The D–W test is usually used when we conduct research using repeated measurements of one or several variables. In addition, a larger number of observations results in a greater accuracy of the D–W statistic approximation, which means that the larger the sample size, the smaller the area of inconclusiveness. That is why this statistic was chosen. The result of the D–W test can take values between 0 and 4. It is usually assumed that values in the range of 1.5–2.5 indicate the lack of autocorrelation. The best value is 2.

The statistical analysis was carried out to verify the following hypotheses:

The main hypotheses: The increase in employee development, cooperation in labour–employer relations, relationship of pay to productivity, reliance on professional management and willingness to delegate authority caused the growth of output per worker, structural change, the PCI and GDP pc in 105 countries in 2008–2022.

Null hypotheses H0. Employee development, cooperation in labour–employer relations, relationship of pay to productivity, reliance on professional management and willingness to delegate authority have no statistically significant effect on output per worker, structural change, the PCI and GDP pc.

Alternative hypotheses H1. Employee development, cooperation in labour–employer relations, relationship of pay to productivity, reliance on professional management and willingness to delegate authority have statistically significant effect on output per worker, structural change, the PCI and GDP pc.

Research results and hypotheses testing

Table 2 shows that all parameters of correlation and regression analyses and test values are statistically significant for the dependence of output per worker on management style indicators in 105 countries in 2008–2022. Thus, the Pearson's linear correlation and regression analysis confirm a statistically significant relationship between the increase in management style indicators in year t_0 and the growth of output per worker in year t_0 and t_{+1} .

The correlation coefficients estimated for employee development are the strongest in year t_0 and t_{+1} . Their average value is 60.5%. The second place was taken jointly by reliance on professional management and willingness to delegate authority. The range of these four correlation coefficients is 55–57%. Third place went to relationship of pay to productivity and last to cooperation in labour–employer relations. For these last two management style characteristics, the correlation coefficients range from 41 to 46%.

The highest value of regression coefficients appeared for the dependence of output per worker on employee development. In this case, the average value of regression coefficients in the periods t_0 and t_{+1} is 3.790. The rest of regression coefficients are lower and similar in the height because they are within the range 2.775–3.036. The difference in the impact of management style indicators on output per worker, i.e. between the highest and the lowest regression coefficient, is not big because it amounts to 1.032.

The above findings are reflected in the values of the R^2 coefficients because changes in the output per worker are explained by differences in management style indicators in the same order as the correlation and regression coefficients.

All the estimation errors of correlation coefficients, regression coefficients and constants are lower than 0.48. This indicates that the models can provide a good fit to the data. The standard errors are in the range 0.810–0.928. The lowest standard errors are for employee development and the highest for cooperation in labour–employer relations. Moreover, all results of the D–W results are close to 2, indicating no autocorrelation between the residuals.

The results of the Z statistics and the F -tests show that the regression coefficients in the models are significantly different from 0 because all the p -values are less than 0.05. Hence, we have evidence favour the alternative hypotheses (H1). Also taking into account the height of the F and Z statistics, we can reject the null hypothesis that the examined management style indicators have no statistically significant effect on output per worker.

Summarizing the overall assessment of the goodness of regression models, we can state that the increase in the value of management style indicators caused the growth of output per worker in 105 countries in 2008–2022. Therefore, the main hypotheses that the examined management style indicators have a positive impact on changes in output per worker can be considered true.

Table 3 shows that all parameters of correlation and regression analyses and test values are statistically significant for the dependence of structural change on management style indicators in 105 countries in 2008–2022. Thus, the Pearson's linear correlation and regression analysis confirm a statistically significant relationship between the increase in management style indicators in year t_0 and the advancement of structural change in year t_0 and t_{+1} .

The correlation coefficients estimated for reliance on professional management and employee development are the strongest. They range from 52 to 55%. The second place was taken jointly by willingness to delegate authority and relationship of pay to productivity. The correlation coefficients are in the range of 45–48%. Last place was taken by cooperation in labour–employer relations with the correlation coefficients of 32% in both periods of time.

The highest value of regression coefficients appeared again for the dependence of structural change on employee development. In this case, the average value of regression coefficients in the periods t_0 and t_{+1} is 1.021. The second place was taken jointly by relationship of pay to productivity and reliance on professional management. The last two places went to willingness to delegate authority and cooperation in labour–employer relations. However, the difference in the impact of management style indicators on structural change is very small because it amounts to 0.353.

Table 2. Effects of components of management style on output per worker (OPW), 2008–2022

Statistics	<i>R</i>	<i>SE R</i>	<i>B</i>	<i>SE B</i>	<i>Z</i>	<i>p</i>	<i>R</i> ²	<i>F</i>	<i>p</i>	<i>SEE</i>	<i>D-W</i>
<i>Employee development</i>											
Constant			5.251*	0.178*	29.514*	0.0000	0.37*	915.753*	0.0000	0.812*	2.07
OPW _{t0}	0.61*	0.020*	3.807*	0.126*	30.261*	0.0000					
Constant			5.321*	0.183*	29.103*	0.0000	0.37*	847.096*	0.0000	0.810*	2.07
OPW _{t+1}	0.60*	0.021*	3.773*	0.130*	29.105*	0.0000					
<i>Cooperation in labour-employer relations</i>											
Constant			6.357*	0.234*	27.217*	0.0000	0.17*	333.228*	0.0000	0.928*	2.11
OPW _{t0}	0.42*	0.023*	2.853*	0.156*	18.255*	0.0000					
Constant			6.487*	0.240*	27.083*	0.0000	0.17*	298.913*	0.0000	0.927*	2.11
OPW _{t+1}	0.41*	0.024*	2.775*	0.161*	17.289*	0.0000					
<i>Relationship of pay to productivity</i>											
Constant			6.514*	0.203*	32.125*	0.0000	0.21*	411.156*	0.0000	0.910*	2.02
OPW _{t0}	0.46*	0.022*	2.970*	0.146*	20.277*	0.0000					
Constant			6.560*	0.207*	31.660*	0.0000	0.21*	386.648*	0.0000	0.905*	2.02
OPW _{t+1}	0.46*	0.023*	2.944*	0.150*	19.663*	0.0000					
<i>Reliance on professional management</i>											
Constant			6.095*	0.164*	37.109*	0.0000	0.33*	764.899*	0.0000	0.838*	2.01
OPW _{t0}	0.57*	0.021*	3.036*	0.110*	27.657*	0.0000					
Constant			6.155*	0.168*	36.674*	0.0000	0.33*	715.594*	0.0000	0.834*	2.01
OPW _{t+1}	0.57*	0.021*	3.002*	0.112*	26.751*	0.0000					
<i>Willingness to delegate authority</i>											
Constant			6.458*	0.159*	40.575*	0.0000	0.30*	689.795*	0.0000	0.852*	2.00
OPW _{t0}	0.55*	0.021*	2.947*	0.112*	26.264*	0.0000					
Constant			6.528*	0.162*	40.381*	0.0000	0.31*	648.732*	0.0000	0.847*	2.00
OPW _{t+1}	0.55*	0.022*	2.916*	0.114*	25.470*	0.0000					

Note(s): * statistically significant at $\alpha < 0.05$; *R* – correlation coefficient; *SE R* – estimation errors of correlation coefficients, *B* – regression coefficient, *SE B* – estimation errors of regression coefficient, *z* – *z* test; *p* – *p* value; *F* – *F* statistic; *D-W* – Durbin–Watson test

Source(s): Authors' calculations

Table 3. Effects of components of management style on structural change (SCH), 2008–2022

Statistics	<i>R</i>	<i>SE R</i>	<i>B</i>	<i>SE B</i>	<i>Z</i>	<i>p</i>	<i>R</i> ²	<i>F</i>	<i>p</i>	<i>SEE</i>	<i>D-W</i>
<i>Employee development</i>											
Constant			2.639*	0.059*	44.590*	0.0000	0.27*	592.677*	0.0000	0.270*	2.11
SCH _{t0}	0.52*	0.021*	1.019*	0.042*	24.345*	0.0000					
Constant			2.639*	0.061*	43.406*	0.0000	0.28*	561.996*	0.0000	0.269*	2.12
SCH _{t+1}	0.53*	0.022*	1.022*	0.043*	23.706*	0.0000					
<i>Cooperation in labour–employer relations</i>											
Constant			3.075*	0.076*	40.621*	0.0000	0.10*	174.750*	0.0000	0.301*	2.09
SCH _{t0}	0.32*	0.024*	0.670*	0.051*	13.219*	0.0000					
Constant			3.078*	0.078*	39.679*	0.0000	0.10*	165.509*	0.0000	0.300*	2.09
SCH _{t+1}	0.32*	0.025*	0.669*	0.052*	12.865*	0.0000					
<i>Relationship of pay to productivity</i>											
Constant			2.826*	0.063*	44.695*	0.0000	0.20*	392.872*	0.0000	0.284*	2.02
SCH _{t0}	0.45*	0.023*	0.905*	0.046*	19.821*	0.0000					
Constant			2.824*	0.065	43.646	0.0000	0.20*	376.793*	0.0000	0.283*	2.02
SCH _{t+1}	0.45*	0.023*	0.907*	0.047	19.411	0.0000					
<i>Reliance on professional management</i>											
Constant			2.745*	0.052*	52.583*	0.0000	0.29*	656.105*	0.0000	0.266*	2.13
SCH _{t0}	0.54*	0.021*	0.894*	0.035*	25.615*	0.0000					
Constant			2.744*	0.053*	51.462*	0.0000	0.30*	629.685*	0.0000	0.265*	2.13
SCH _{t+1}	0.55*	0.022*	0.895*	0.036*	25.094*	0.0000					
<i>Willingness to delegate authority</i>											
Constant			2.968*	0.052*	56.888*	0.0000	0.22*	455.360*	0.0000	0.279*	2.06
SCH _{t0}	0.47*	0.022*	0.785*	0.037*	21.339*	0.0000					
Constant			2.971*	0.053*	56.002*	0.0000	0.23*	438.411*	0.0000	0.278*	2.06
SCH _{t+1}	0.48*	0.023*	0.787*	0.038*	20.938*	0.0000					

Note(s): * statistically significant at $\alpha < 0.05$; *R* – correlation coefficient; *SE R* – estimation errors of correlation coefficients, *B* – regression coefficient, *SE B* – estimation errors of regression coefficient, *z* – *z* test; *p* – *p* value; *F* – *F* statistic; *D-W* – Durbin–Watson test

Source(s): Authors' calculations

Greater differences occurred in the level of determination coefficients. The values of the R^2 coefficients are the highest for reliance on professional management and employee development. These R^2 coefficients range from 0.27 to 0.30. Next in order are willingness to delegate authority and relationship of pay to productivity. These R^2 coefficients range from 0.20 to 0.23. Last place was taken by cooperation in labour–employer relations with the R^2 coefficients of 0.10.

All the estimation errors of correlation coefficients, regression coefficients, constants and the standard errors are lower than 0.48. This indicates that the models can provide a very good fit to the data. Additionally, all results of the D–W results are close to 2, indicating no autocorrelation between the residuals.

The results of the Z statistics and the F tests show that the regression coefficients in the models are significantly different from 0 because all the p -values are less than 0.05. Hence, we have evidence favour the alternative hypotheses (H1). Taking into account the height of the F and Z statistics, we can reject the null hypotheses that the examined management style indicators have no statistically significant effect on structural change.

Summarizing the overall assessment of the goodness of regression models, we can state that the increase in the value of management style indicators caused the advancement of structural change in 105 countries in 2008–2022. Therefore, the main hypotheses that the examined management style indicators have a positive impact on changes in structural change can be considered true.

Table 4 shows that all parameters of correlation and regression analyses and test values are statistically significant for the dependence of the PCI on management style indicators in 105 countries in 2008–2022. Thus, the Pearson's linear correlation and regression analysis confirm a statistically significant relationship between the increase in management style indicators in year t_0 and the growth of the PCI in year t_0 and t_{+1} .

The correlation coefficients estimated for employee development are the highest. Their average value in the periods t_0 and t_{+1} is 58%. The second place was taken jointly by willingness to delegate authority and reliance on professional management. Here the R coefficients are in the range of 51–54%. Third place went to relationship of pay to productivity with the correlation coefficients of 47% in both periods of time. Last place was taken by cooperation in labour–employer relations. For this variable, the R coefficients range from 37 to 38%.

The highest value of regression coefficients appeared again for the dependence of the PCI on employee development. Their average value is 1.037. The second place was taken jointly by relationship of pay to productivity and reliance on professional management. The last two places went to willingness to delegate authority and cooperation in labour–employer relations. We therefore have the same order as for structural change. The difference in the impact of management style indicators on structural change is very small because it amounts to 0.325.

The values of the R^2 coefficients are the highest for employee development. Their average value is 0.33 in the periods t_0 and t_{+1} . Next in order are reliance on professional management, willingness to delegate authority and relationship of pay to productivity. In this case, the R^2 coefficients range from 0.22 to 0.29. Last place was taken by cooperation in labour–employer relations with the R^2 coefficients of 0.14.

All the estimation errors of correlation coefficients, regression coefficients, constants and the standard errors are lower than 0.48. This indicates that the models can provide a very good fit to the data. All results of the D–W results are close to 2, indicating no autocorrelation between the residuals.

The results of the Z statistics and the F tests show that the regression coefficients in the models are significantly different from 0 because all the p -values are less than 0.05. Hence, we have evidence favour the alternative hypotheses (H1). Taking into account the height of the F and Z statistics, we can reject the null hypotheses that the examined management style indicators have no statistically significant effect on the PCI.

Table 4. Effects of components of management style on the PCI, 2008–2022

Statistics	<i>R</i>	<i>SE R</i>	<i>B</i>	<i>SE B</i>	<i>Z</i>	<i>p</i>	<i>R</i> ²	<i>F</i>	<i>p</i>	<i>SEE</i>	D-W
<i>Employee development</i>											
Constant			2.373*	0.053*	45.096*	0.0000	0.33*	789.409*	0.0000	0.240*	2.02
PCI _{it0}	0.58*	0.021*	1.045*	0.037*	28.096*	0.0000					
Constant			2.406	0.054	44.856	0.0000	0.33*	729.956*	0.0000	0.238*	2.02
PCI _{it+1}	0.58*	0.021*	1.028*	0.038*	27.018*	0.0000					
<i>Cooperation in labour–employer relations</i>											
Constant			2.732*	0.069*	39.850*	0.0000	0.14*	265.043*	0.0000	0.272*	2.09
PCI _{it0}	0.38*	0.023*	0.747*	0.046*	16.280*	0.0000					
Constant			2.776*	0.070*	39.840*	0.0000	0.14*	238.005*	0.0000	0.270*	2.09
PCI _{it+1}	0.37*	0.024*	0.720*	0.047*	15.427*	0.0000					
<i>Relationship of pay to productivity</i>											
Constant			2.628*	0.058*	45.350*	0.0000	0.22*	444.285*	0.0000	0.260*	2.01
PCI _{it0}	0.47*	0.022*	0.882*	0.042*	21.078*	0.0000					
Constant			2.650*	0.059	45.152	0.0000	0.22*	419.975	0.0000	0.256	2.01
PCI _{it+1}	0.47*	0.023*	0.869*	0.042	20.493	0.0000					
<i>Reliance on professional management</i>											
Constant			2.620*	0.049*	53.882*	0.0000	0.29*	642.310*	0.0000	0.248*	2.05
PCI _{it0}	0.54*	0.021*	0.824*	0.033*	25.344*	0.0000					
Constant			2.646*	0.049*	53.713*	0.0000	0.29*	602.145	0.0000	0.245	2.05
PCI _{it+1}	0.54*	0.022*	0.808*	0.033*	24.539*	0.0000					
<i>Willingness to delegate authority</i>											
Constant			2.723*	0.047*	57.855*	0.0000	0.27*	575.300*	0.0000	0.252*	2.01
PCI _{it0}	0.52*	0.022*	0.796*	0.033*	23.985*	0.0000					
Constant			2.764*	0.048*	58.049*	0.0000	0.26*	525.302*	0.0000	0.250*	2.00
PCI _{it+1}	0.51*	0.022*	0.773*	0.034*	22.919*	0.0000					

Note(s): * statistically significant at $\alpha < 0.05$; *R* – correlation coefficient; *SE R* – estimation errors of correlation coefficients, *B* – regression coefficient, *SE B* – estimation errors of regression coefficient, *z* – *z* test; *p* – *p* value; *F* – *F* statistic; *D–W* – Durbin–Watson test

Source(s): Authors' calculations

Summarizing the overall assessment of the goodness of regression models, we can state that the increase in the value of management style indicators caused the growth of the PCI in 105 countries in 2008–2022. Therefore, the main hypotheses that the examined management style indicators have a positive impact on changes in the PCI can be considered true.

Table 5 shows that almost all parameters of correlation and regression analyses and test values are statistically significant for the dependence of GDP pc on management style indicators in 105 countries in 2008–2022. The exception are the insignificant intercepts in the regression models for the dependence of GDP pc on employee development in the period t_0 . We can therefore conclude that the Pearson's linear correlation and regression analysis confirm a statistically significant relationship between the increase in management style indicators in year t_0 and the growth of GDP pc in year t_0 and t_{+1} .

The order of the values of regression coefficients is the same as in the case of correlation and determination coefficients. The correlation, regression and R^2 coefficients estimated for employee development are the strongest. Their average values are 68.5, 6.057 and 47, respectively. The second place was taken by reliance on professional management, the third by willingness to delegate authority, the fourth by cooperation in labour–employer relations and the last by relation pay to productivity. In these four cases, the correlation coefficients range from 46 to 65%. The regression coefficients, in turn, are significantly lower than those estimated for employee development and similar in magnitude, ranging from 4.274 to 4.833. The R^2 coefficients for these four management style indicators range from 21 to 42%. They reach almost twice as high values for reliance on professional management and willingness to delegate authority (0.38–0.42) than for relation pay to productivity and cooperation in labour–employer relations (0.21–0.23).

All the estimation errors of correlation coefficients, regression coefficients and constants are lower than 0.48. The standard errors are in the range 1.045–1.281. This indicates that the models can provide a good fit to the data. All the D–W test results are in the range of 1.5–2.5, which indicates the lack of autocorrelation between the residuals.

The results of the Z statistics and the F tests show that the regression coefficients in the models are significantly different from 0 because all the p -values are less than 0.05. Hence, we have evidence favour the alternative hypotheses (H1). Taking into account the height of the F and Z statistics, we can reject the null hypotheses that the examined management style indicators have no statistically significant effect on GDP pc.

Summarizing the overall assessment of the goodness of regression models, we can state that the increase in the value of management style indicators caused the growth of GDP pc in 105 countries in 2008–2022. Therefore, the main hypotheses that the examined management style indicators have a positive impact on changes in GDP pc can be considered true.

Discussion and research implications

The studied features of management style had the greatest impact on GDP pc, then on output per worker, and the least on structural change and the PCI in 105 countries in 2008–2022. For GDP pc the regression coefficients range from 4.239 to 6.069, for output per worker from 2.775 to 3.807, for the PCI from 0.720 to 1.045 and for structural change from 0.669 to 1.022. It is therefore evident that a shift from an autocratic to a democratic management style should result in a significant increase in national productivity in the long period.

A shift from an autocratic to a democratic management style will also lead to an improvement in country production capabilities and therefore technological progress. The positive impact of the growth of five management style indicators on the advancement of structural change and the increase in the PCI confirms this statement.

As can be seen, the differences in the regression coefficients for PCI and structural change are very small. We can therefore conclude that all independent variables have a similar effect on the PCI and structural change. Since we have the same order of the regression coefficients for these dependent variables, we can assign a certain hierarchy to the management style

Table 5. Effects of components of management style on GDP pc, 2008–2022

Statistics	<i>R</i>	<i>SE R</i>	<i>B</i>	<i>SE B</i>	<i>Z</i>	<i>p</i>	<i>R</i> ²	<i>F</i>	<i>p</i>	<i>SEE</i>	D-W
<i>Employee development</i>											
Constant			0.427	0.231	1.848	0.0647	0.47*	1379.205*	0.0000	1.055*	2.11
GDPpct ₀	0.68*	0.018*	6.069*	0.163*	37.138*	0.0000					
Constant			0.496*	0.236*	2.104*	0.0356	0.47*	1306.595*	0.0000	1.045*	2.11
GDPpct ₊₁	0.69*	0.019*	6.045*	0.167*	36.147*	0.0000					
<i>Cooperation in labour–employer relations</i>											
Constant			2.032*	0.319*	6.377*	0.0000	0.23*	476.360*	0.0000	1.266*	2.12
GDPpct ₀	0.48*	0.022*	4.655*	0.213*	21.826*	0.0000					
Constant			2.154*	0.325*	6.624*	0.0000	0.23*	442.853*	0.0000	1.259*	2.13
GDPpct ₊₁	0.48*	0.023*	4.587*	0.218*	21.044*	0.0000					
<i>Relationship of pay to productivity</i>											
Constant			3.074*	0.286*	10.766*	0.0000	0.21*	429.213*	0.0000	1.281*	2.07
GDPpct ₀	0.46*	0.022*	4.274*	0.206*	20.717*	0.0000					
Constant			3.136*	0.291*	10.775*	0.0000	0.22*	406.310*	0.0000	1.272*	2.07
GDPpct ₊₁	0.47*	0.023*	4.239*	0.210*	20.157*	0.0000					
<i>Reliance on professional management</i>											
Constant			1.783*	0.217*	8.222*	0.0000	0.41*	1112.128*	0.0000	1.106*	2.05
GDPpct ₀	0.64*	0.019*	4.833*	0.145*	33.349*	0.0000					
Constant			1.860*	0.220*	8.440*	0.0000	0.42*	1056.226*	0.0000	1.096*	2.04
GDPpct ₊₁	0.65*	0.020*	4.790*	0.147*	32.500*	0.0000					
<i>Willingness to delegate authority</i>											
Constant			2.417*	0.213*	11.359*	0.0000	0.38*	961.333*	0.0000	1.139*	1.98
GDPpct ₀	0.62*	0.020*	4.652*	0.150*	31.005*	0.0000					
Constant			2.526*	0.215*	11.731*	0.0000	0.38*	910.716*	0.0000	1.129*	1.98
GDPpct ₊₁	0.62*	0.021*	4.602*	0.153*	30.178*	0.0000					

Note(s): * statistically significant at $\alpha < 0.05$; *R* – correlation coefficient; *SE R* – estimation errors of correlation coefficients, *B* – regression coefficient, *SE B* – estimation errors of regression coefficient, *z* – *z* test; *p* – *p* value; *F* – *F* statistic; D-W – Durbin–Watson test

Source(s): Authors' calculations

indicators based on the values of the determination coefficients. The order is as follows: employee development, reliance on professional management, willingness to delegate authority, relationship of pay to productivity and cooperation in labour–employer relations.

In the case of GDP pc and output per worker, the clear leader is employee development. The impact of the remaining management style indicators on these two dependent variables is similar. Proceeding as above, that is taking into account the values of regression and determination coefficients together, reliance on professional management and willingness to delegate authority are jointly in second place. In the case of GDP pc, cooperation in labour–employer relations seems to have a slightly greater impact on its changes than relationship of pay to productivity. In the case of output per worker, the situation is exactly the opposite.

As already emphasized, it is difficult to find comprehensive studies in the scientific literature on the impact of various management style features on productivity at the country level. However, it can be assumed that the research results of various authors presented in the theoretical foundations of the empirical model are consistent with the findings of our study. Here we will present four research papers conducted on larger samples that confirm our results.

Joanna Dyczkowska, and Tomasz Dyczkowski (2018) conducted research on a group of 149 small- and medium-sized enterprises in 2013–2014 in Poland. The findings show that involvement of employees in managerial activities is a precondition for developing performance-based rewarding strategies, and employees are more satisfied when their remuneration had a character of pay-for-performance reward.

Maria Majewska, Joanna Nieżurawska, and Nelson Duarte (2024) studied the impact of eleven components of social capital on economic development for low-income, middle-income and high-income countries. The economic development measures were GDP pc and Gross National Income per capita (GNI pc). The impact was examined on a sample of 96 countries in 2008–2020. In the context of our study, the finding show that reliance on professional management and willingness to delegate authority are very strongly correlated with GDP pc and GNI pc in three income groups.

Jada *et al.* (2025) confirmed that participative management style has a positive impact on employee productivity. They conducted a study on 328 executives of private banks in Eastern India. They explain that participative management style stimulates creativity in the workplace and encourages employees to learn new things, which translates into increased employee productivity.

Our research findings confirm that employees are more productive in a democratic organizational culture. This is consistent not only with the leadership and management style theories presented in this paper but also with the motivation theories. The analysis of the research results allows us to formulate the following implications for management practice in terms of increasing employee productivity:

- (1) Managers should follow McGregor's Theory Y. That is, managers should understand that employees want to develop and therefore they should invest in employee development, thus satisfying their need for self-fulfilment. This requires designing a program for continuous development and improvement of employee knowledge, skills and abilities and to use them in practice.
- (2) Managers should reward equitable employees for their work. They should start by creating a compensation system that ensures both procedural justice (fair methods or procedures) and distributive justice (amount of pay is fair). The minimum requirement is that pay should be based on employee productivity. The next step is creating a career development path with clearly defined rules for promotions.
- (3) Managers should introduce a strategy of employee empowerment which refers to the delegation of decision-making authority to lower levels in the organizational hierarchy. This involves decentralization of management and a greater degree of employee autonomy. This strategy leads to strengthen feeling of self-efficacy among

employees, learns to take responsibility of their outcomes and reduces resistance to change as a result of joint planning of organizational activities.

- (4) The implementation of above implications in an organization should increase trust among its members, which results in an improvement in the quality of social relations, i.e. social capital. Without the development of social capital, it is impossible to implement a democratic style.

Conclusions

The research results indicate that higher investments in employee development, better cooperation between employees and employers, higher share of productivity in pay, greater reliance on professional management and higher willingness to delegate authority are accompanied by a statistically significant improvement in national productivity. This means that the more democratic the management style in a given country, the higher the national productivity and therefore the well-being of society.

It should be emphasized that the transition from an autocratic to a democratic management style requires time and a strategy of gradual achievement of the goal, especially when we have superiors and subordinates who rate high in traditionality. According to the theory of strategic management, we will have more problems with the adaptation of managers to changes than with their subordinates, because people get used to having power. Therefore, when managers sabotage the transformation towards a more democratic style, they should be replaced by others.

It is worth starting the transformation by moving from an internal identity based on employee competition (self-affirmation) to an internal identity focused first on tasks and decentralization (joint planning of task implementation), to finally achieve an internal identity based on cooperation and trust. Then employees will be motivated, engaged, appreciated and treated fairly. In addition, it is obvious that different management styles are used in organizations depending on the type of tasks performed by employees. However, this does not mean that employees performing standard tasks should be treated instrumentally and directly.

The authors intend to continue research in this area in the future. They want to expand the database with indicators of equal treatment of employees. They want to divide countries into groups and examine differences in the importance of individual management style features for national productivity. They also intend to create a conglomerate index of management style at the country level.

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