






Human Resource Management as a Factor Fostering Companies' Economic Growth



Chinara Alamanova¹, Hongtao Liu², Nana Gadelia³,
Stanislav Ovcharyk⁴, Ihor Lukianenko⁵

^{1,2}Kyrgyz National University named after Jusup Balasagyn, Kyrgyzstan

¹alamanovachin@gmail.com

²iuriefrunza42@gmail.com

³Caucasus International University, Georgia

³nanagad@gmail.com

⁴National Transport University, Ukraine, Ukraine

⁴stanislav1234@gmail.com

⁵Interregional Academy of Personnel Management, Ukraine

⁵UpPro School, Ukraine

⁵ihorluk118@gmail.com

Citation: Alamanova, C., Liu, H., Gadelia, N., Ovcharyk, S., & Lukianenko, I. (2026). Human resource management as a factor fostering companies' economic growth. *Theoretical and Practical Research in Economic Fields*, 17(1), 67–82.

[https://doi.org/10.14505/tpref.v17.1\(37\).06](https://doi.org/10.14505/tpref.v17.1(37).06)

Article info:

Received 6 June 2025;

Received in revised form 11 August 2025;

Accepted for publication 7 October 2025;

Published 30 March 2026.

Abstract: The Effective human resource management plays a pivotal role in optimizing labor organization, thereby stimulating productivity growth and ensuring the companies' sustainable economic advancement, which underscores the significance of research in this domain. The purpose of this study was to evaluate the influence of working conditions and labor process organization on productivity, while considering both global and national contexts. The study used regression, correlation, and comparative analysis methods. Employing regression, correlation, and comparative analysis methodologies, the findings elucidate how human resource management through working hours organization, remuneration, and the implementation of training and innovative technologies affects corporate productivity as a determinant of economic growth.

Regression analysis revealed that employee income exerts the most substantial influence on productivity, whereas the number of hours worked affects productivity only when considered in conjunction with income. The corresponding standardized Beta coefficients for these variables are 0.9207 for income and 0.1926 for hours worked. Among intangible factors, the most significant impact stems from the companies' adoption of digital technologies, reflected in a coefficient of 0.7437. Against this backdrop, the proportion of firms offering formal training did not demonstrate a statistically significant effect on productivity according to the regression analysis. However, correlation analysis indicated a positive association between productivity and the implementation of training (0.4568), suggesting that this factor may also play a potentially critical role in corporate growth.

The case study of China illustrated that the influence of the examined indicators may vary across different nations, shaped by unique cultural and traditional contexts. Consequently, this research affirms the existence of a substantial impact of human resource management on organizational efficiency and economic growth. A novel contribution of this work lies in the proposed methodology for constructing a sample of indicators and conducting an analysis of the effects of working conditions and labor process organization on productivity. The outcomes of this study may serve as a valuable resource for developing human resource management strategies that account for the identified predictors of productivity enhancement. Future research prospects may involve examining the studied indicators at the organizational level, which, although narrower in scope, could yield more indicative results.

Keywords: human resource management, economic growth, productivity, income, number of hours worked, digital technologies, personnel training, sustainable development.

Copyright© 2026 The Author(s). Published by ASERS Publishing 2026. This is an open access article distributed under the terms of [CC-BY 4.0 license](https://creativecommons.org/licenses/by/4.0/).

Introduction

Human resource management constitutes a pivotal element in companies' economic growth, as effective personnel management fosters the attraction, integration, development, enhancing motivation, and retention of exceptional talent (Furman *et al.*, 2023; Kadirov *et al.*, 2024). This objective is accomplished through the formulation of effective human resources policies that guarantee effective training, rational use of time, equitable remuneration, and organizational considerations, including the implementation of digital technologies (Zayed *et al.*, 2022). At the same time, evaluating the tangible impact of these metrics on corporate growth presents a challenge, as not all organizations transparently disclose the data for comprehensive analysis. Furthermore, assessing intangible metrics, such as employee motivation and engagement, complicates this evaluation. An additional critical undertaking in this context is the selection of a judicious approach to appraising the companies' economic growth. The selection of an effective evaluative strategy becomes particularly salient within the sustainable development framework (Raza *et al.*, 2022), facilitating the identification of the principal factors influencing company's economic, social, and environmental sustainability (Madero-Gómez *et al.*, 2023).

This paper proposes a groundbreaking approach to quantifying the impact of human resource management on corporate economic growth through the utilization of quantitative indicators and advanced economic and mathematical modeling. It is proposed to evaluate the personnel management effectiveness via indicators related to working conditions and the organization of labor processes, encompassing metrics such as hours worked, remuneration, training implementation, and digitalization initiatives. The assessment of economic growth is inherently complex due to its multifactorial nature. With that in mind, this paper suggests employing productivity as a comprehensive indicator of resource efficiency. Furthermore, it underscores that the influence of these indicators may vary significantly across different national contexts, highlighting the necessity of considering local circumstances. For instance, the example of China reveals that specific indicators pertaining to working conditions and labor process organization exert varying degrees of influence compared to the global sample.

The proposed methodology addresses the persistent issue of the disjunction between the theoretical frameworks and practical applications of human resource management (Cooke *et al.*, 2021), thereby facilitating the enhancement of personnel policies in light of the identified predictors of effectiveness. The central hypothesis of this study posits that the parameters of working conditions and the organization of labor processes exert a substantial influence on the organizational productivity increase. The novelty of the study lies in developing an approach to analyzing the impact of working conditions and work process organization on productivity with the integration of digitalization factors into the evaluation model. Consequently, the primary objective of this study was to evaluate the impact of working conditions and labor process organization on productivity, taking into consideration both global and national contexts.

Research objectives include:

- conducting a correlation analysis between indicators of working conditions, labor process organization, and productivity across a global sample of nations;
- performing a regression analysis to ascertain the influence of working conditions and labor process organization on productivity within a global context;
- comparing the analytical outcomes of the indicators for the global sample of countries with those specific to China.

1. Literature Review

Human resource management is frequently regarded in numerous scholarly works as a key factor in enhancing productivity, competitiveness, and the sustainability of enterprises in contemporary contexts. According to Šebestová & Popescu (2022), investments in human resources are of paramount importance for the success of organizations, increasing their overall effectiveness. Furthermore, Siswanto *et al.* (2022) established a correlation between human resource development and economic growth. Next, Ojochona *et al.* (2022) showed the connection between human resource management practices and organizational effectiveness. Phiri & Phiri (2022) further demonstrated the presence of a relationship encompassing all human resource management practices and organizational effectiveness. Nonetheless, the conclusions drawn from the above studies do not exclude the potential impact of subjective and regional factors, as they are predicated on the findings of local surveys.

Garengo *et al.* (2022) underscored the pivotal role of human resource management in enhancing organizational performance. For instance, Rustiawan *et al.* (2023) and Gomes *et al.* (2025) described the significance of human resource management in achieving corporate objectives, particularly within the framework

of sustainable development. Moreover, Susantinah and Krishernawan (2022) alongside Easa and Orra (2021) demonstrated that proficient human resource management can serve as a catalyst for an organization's innovative advancement. Nevertheless, it is noteworthy that these studies are bibliometric reviews and lack empirical substantiation of the relationships they delineate.

Hernita *et al.* (2021) utilized multiple regression analysis and demonstrated that enhancing human resource capacity significantly elevates business productivity. Similarly, Althawadi (2025) asserted that fostering human capital development through proficient human resource management enhances business competitiveness. However, these studies predominantly focused on small and medium-sized enterprises, which may render the researchers' conclusions less applicable to organizations of varying sizes. While Anwar & Abdullah (2021) explored the influence of human resource management on organizational performance, yet their investigation was confined to government institutions.

A number of studies have shown the positive impact of technology implementation on human resource management, which is expressed through increased productivity. Diawati *et al.* (2023) consider information technology to be a key factor in increasing the efficiency and effectiveness of human resources in the workplace. However, the study does not provide empirical evidence for the conclusions drawn. In contrast, in the works of AIDhaheri *et al.* (2023) and Mohlala *et al.* (2024), the positive impact of technologies is confirmed using economic and mathematical modeling, allowing theoretical conclusions to be reinforced in practice.

This study extends the existing literature on HRM and economic growth, primarily by moving from theoretical generalizations and survey results to empirical analysis based on real data. Unlike most previous studies, which have established the relationship between HRM and productivity or economic efficiency of enterprises on the basis of local or subjective observations, this study uses correlation and regression analysis to assess the impact of specific indicators of work organization and employment conditions on productivity in a sample of 46 countries. In addition, the work complements the scientific discussion by introducing a comparative approach - combining a general global model with a national case study on pickled Chinese. This approach allows us to show that the role of HRM in ensuring productivity is heterogeneous and depends on cultural, social and managerial contexts.

2. Methodology

2.1. Research Procedure

The first stage of the study entailed the formulation of a sample comprising various countries and relevant indicators that reflect working conditions, the organization of labor process, and productivity. This sample incorporated both developed and developing nations, thereby ensuring a wide data variability. Furthermore, during this phase, the criteria for the selection of indicators and countries were substantiated. Authoritative sources of statistical information and analytical research were employed to gather data: CEIC Data (n.d.-a; n.d.-b), FM Global (n.d.), Ritchie *et al.* (n.d.), Trading Economics (n.d.), WorldData.info (n.d.), World Bank (n.d.). Data cleaning procedure: countries with missing data on key variables were removed; outliers and outliers were checked, which could have biased the results.

The second stage involved the application of correlation and regression analysis methodologies to elucidate the relationships between the selected indicators of working conditions, labor process organization, as well as productivity. Correlation analysis facilitated the identification of the degree of dependence among variables, particularly highlighting which facets of working conditions exhibit the most significant correlation with productivity. On the other hand, regression analysis enabled an assessment of the strength and direction of influence exerted by individual factors, which in turn made it possible to formulate analytical hypotheses.

The third stage involved a comparative analysis of the obtained results against existing studies within the scientific literature. This process not only facilitated the validation of the consistency of the results with established scientific paradigms but also enabled the identification of unique characteristics inherent to the studied sample. Special emphasis was placed on the analytical outcomes pertaining to China, which provided insights into specific national attributes regarding the impact of working conditions on productivity.

2.2. Sample

The sample of indicators for the study comprised a productivity metric alongside indicators pertaining to working conditions and labor process organization across various countries (latest available data, mostly 2019–2023). In terms of GDP per hour, productivity is expressed as a comprehensive measure of corporate economic efficiency. This metric elucidates the efficacy with which labor resources are utilized in conjunction with other production factors, serving as a pivotal predictor of corporate economic advancement. The indicators related to working conditions and labor process organization encompass as follows: the DAI Business Sub-index, the percentage of

companies offering formal training, average annual hours worked, as well as annual income. These indicators reflect the effectiveness of human resource management, as they delineate the extent of business digitalization, the availability of learning opportunities, work-life equilibrium, and the financial remuneration of employees. Such factors are instrumental in attracting, developing, and retaining skilled personnel and are prevalent across most nations worldwide.

DAI Business Sub-index – characterizes business digitalization (index 0–100) (CEIC Data, n.d.). An increase in the index is expected to have a positive impact on productivity, as digitalization contributes to process automation and more efficient use of resources.

Firms offering formal training (% of firms) – percentage of companies offering formal training (WorldData.info, n.d.). Theoretically, an increase in the percentage of companies offering training should increase productivity, as employees acquire new skills and improve their qualifications.

Average hours worked per year – average number of hours worked per year (hours/year) (World Bank, n.d.). The effect is expected to be mixed: excessive hours can reduce productivity due to fatigue, while moderate workload can have a positive impact on work results.

Annual income – average annual income of an employee (USD/year) (Trading Economics, n.d.). Theoretically, income growth should have a positive impact on productivity, as better material motivation and employee well-being stimulate more efficient work.

The initial sample included all countries globally in the world for which productivity data were accessible (122 countries). However, during the process of incorporating data on additional indicators, the list of countries was markedly diminished due to the unavailability of data for specific indicators. Ultimately, the final sample comprised 46 countries, including: Argentina, Austria, Bangladesh, Belgium, Brazil, Bulgaria, Cambodia, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, Denmark, Ecuador, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, India, Ireland, Israel, Italy, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malaysia, Malta, Mexico, New Zealand, Philippines, Poland, Portugal, Romania, Singapore, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Thailand, Ukraine. Thus, total number of observations: 46 countries × 4 core indicators of working conditions and work organization + productivity indicator.

The initial sample encompassed all nations for which productivity data were (122 countries). However, given the sample size, the conclusions derived from this analysis can be regarded as generalized: they elucidate the influence of only the most fundamental indicators prevalent across numerous nations. Consequently, an additional phase of analysis was undertaken, focusing on China as a nation significantly shaped by its national traditions. Owing to its distinctive amalgamation of rapid economic advancement and an exceptional model of labor organization, China was selected for comprehensive examination. This model is predicated on centralized planning, cultural characteristics, and contemporary management practices, rendering the country an exemplary case study. It should be mentioned that data was gathered from authoritative sources of statistical information and analytical research, including CEIC Data, CEIC Data, FM Global, Ritchie *et al.*, Trading Economics, WorldData.info, and the World Bank.

2.3. Methods

The methodology of correlation analysis, as delineated by the Pearson criterion, employed to examine the linear interrelationships between variables, made it possible to postulate the existence of either a direct or inverse association among these variables. The presence of medium to strong correlations among the examined indicators underscored the feasibility of retaining all variables for further analysis employing alternative methodologies. To assess the impact of several factors on productivity at the same time, multiple linear regression was used, since the indicators of working conditions and labor process organization are numerical, cross-sectional, and measured at the same time interval. Regression analysis was instrumental in elucidating the degree to which indicators of working conditions and labor process organization account for variations in productivity.

Description of model variables:

Dependent variable: Productivity – GDP per hour worked, USD/hour, expected positive impact from improving working conditions.

Independent variables: DAI Business Sub-index, Firms offering formal training, Average hours worked per year, Annual income; all indicators are numerical, measured in the appropriate units, the expected impact is positive for all, except Average hours worked, where the reverse effect is possible.

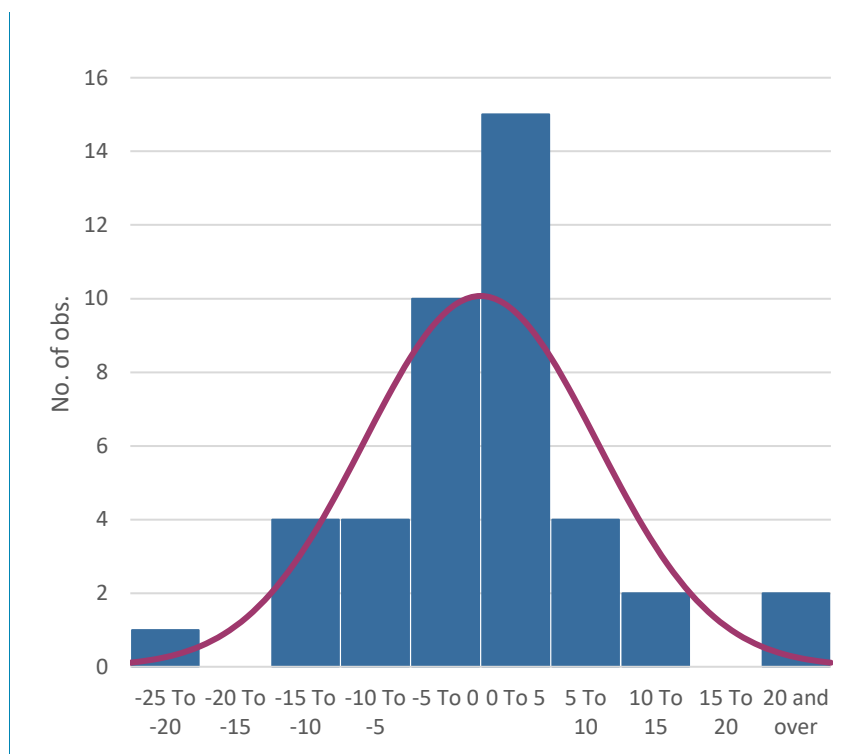
The integrity of the regression models was examined through tests for multicollinearity, heteroscedasticity, autocorrelation, as well as the residuals normality. Regression statistics and graphs to test the normality of the distribution are presented in Tables 1-2 and Figures 1-6.

Table 1. Regression statistics for model 1

Regression Statistics					
<i>R</i>	0,9261	<i>R-Squared</i>	0,8577	<i>Adjusted R-Squared</i>	0,8423
<i>MSE</i>	76,6745	<i>S</i>	8,7564	<i>MAPE</i>	25,3397
<i>Durbin-Watson (DW)</i>	1,8049	<i>Log likelihood</i>	-148,0646		
<i>Akaike inf. criterion (AIC)</i>	7,2888	<i>AICc</i>	7,3145		
<i>Schwarz criterion (BIC)</i>	7,4957	<i>Hannan-Quinn criterion (HQC)</i>	7,3646		
<i>PRESS</i>	4 179,5102	<i>PRESS RMSE</i>	9,9756	<i>Predicted R-Squared</i>	0,7903

Source: built by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

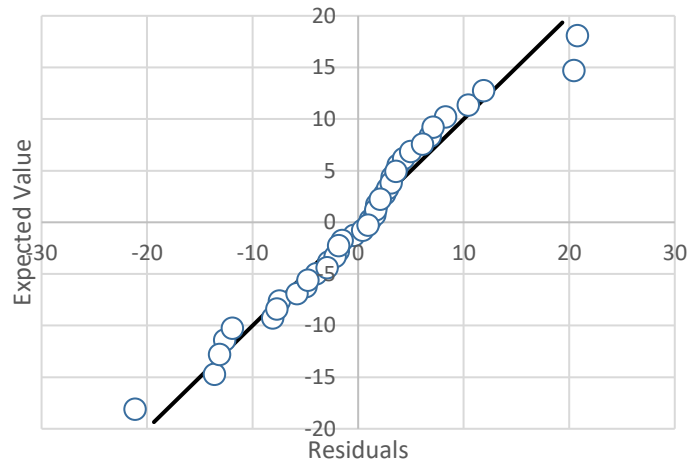
Figure 1. Histogram for "Residuals" for model 1



Source: built by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

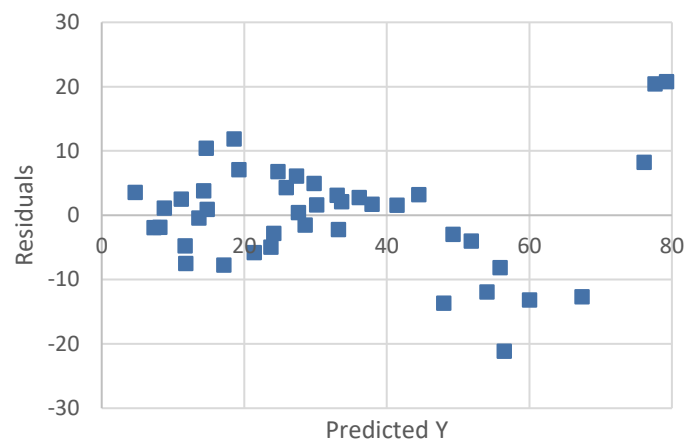
The first model is statistically reliable, explains the dependence well, and meets the basic assumptions of regression. The second model is acceptable for general analysis but is less accurate and has weak predictive power. A comparative analysis was conducted to delineate the disparities in regional strategies pertaining to human resource management, particularly illustrated through the case of China.

Figure 2. Normal Q-Q Plot - Residuals for model 1



Source: built by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

Figure 3. Residuals vs Predicted Y for model 1



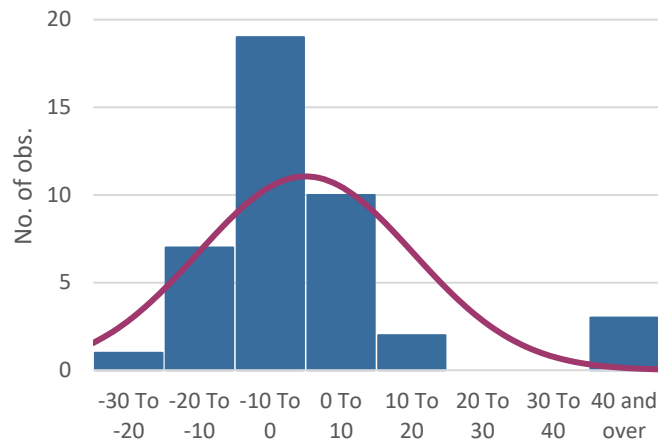
Source: built by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

Table 2. Regression statistics for model 2

Regression Statistics					
R	0,7264	R-Squared	0,5277	Adjusted R-Squared	0,4904
MSE	247,7756	S	15,7409	MAPE	48,3763
Durbin-Watson (DW)	1,7958	Log likelihood	-173,2567		
Akaike inf. criterion (AIC)	8,4408	AICc	8,4558		
Schwarz criterion (BIC)	8,6063	Hannan-Quinn criterion (HQC)	8,5015		
PRESS	12 441,1802	PRESS RMSE	17,2110	Predicted R-Squared	0,3759

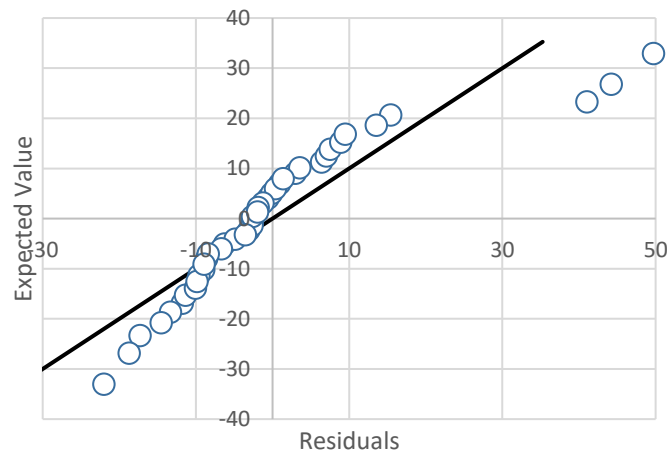
Source: built by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

Figure 4. Histogram for "Residuals" for model 2



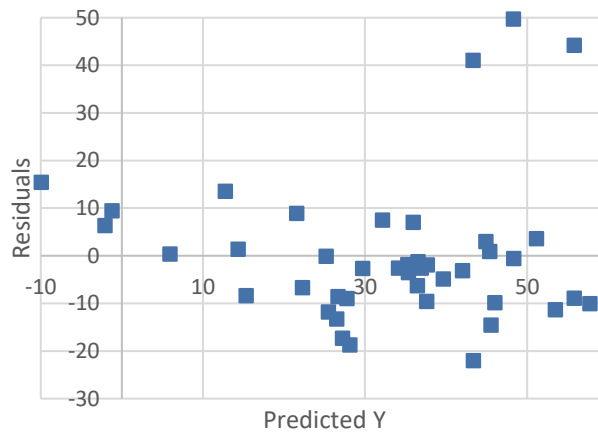
Source: built by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

Figure 5. Normal Q-Q Plot - Residuals for model 2



Source: built by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

Figure 6. Residuals vs Predicted Y for model 2



Source: built by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

3. Research Results

The first stage of the research involved conducting a correlation analysis between the indicators under study. Although correlation between indicators is not yet definitive confirmation of a causal relationship, it can show the presence of a statistical relationship between variables. What is more, correlation analysis determines the direction and strength of such a relationship and can show which hypotheses are appropriate to test using other analysis methods. The results of the correlation analysis between productivity and indicators of working conditions and labor process organization are presented in Table 3.

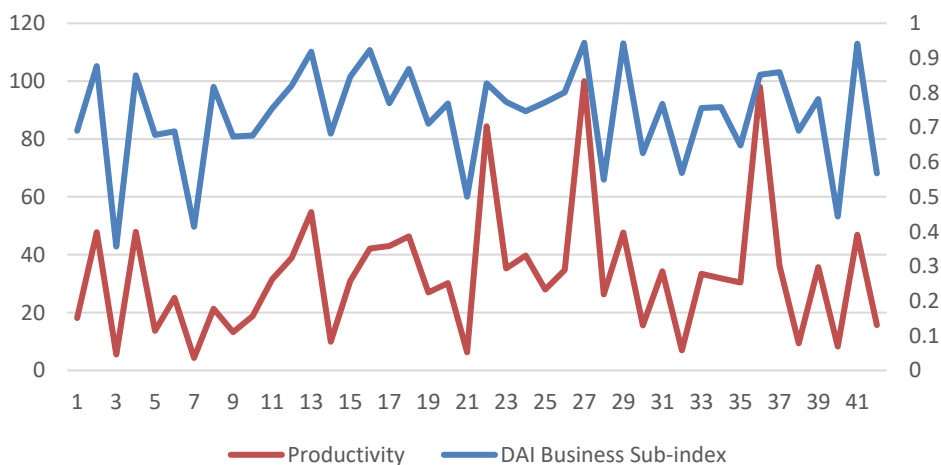
Table 3. Results of the correlation analysis between productivity and indicators of working conditions and labor process organization

	DAI Business Sub-index	Firms offering formal training (% of firms)	Average hours worked per year	Annual income	Productivity
DAI Business Sub-index	1				
Firms offering formal training (% of firms)	0,612911	1			
Average hours worked per year	-0,63839	-0,53523	1		
Annual income	0,772431	0,516794	-0,58165	1	
Productivity	0,724676	0,456879	-0,43016	0,914116	1

Source: calculated by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

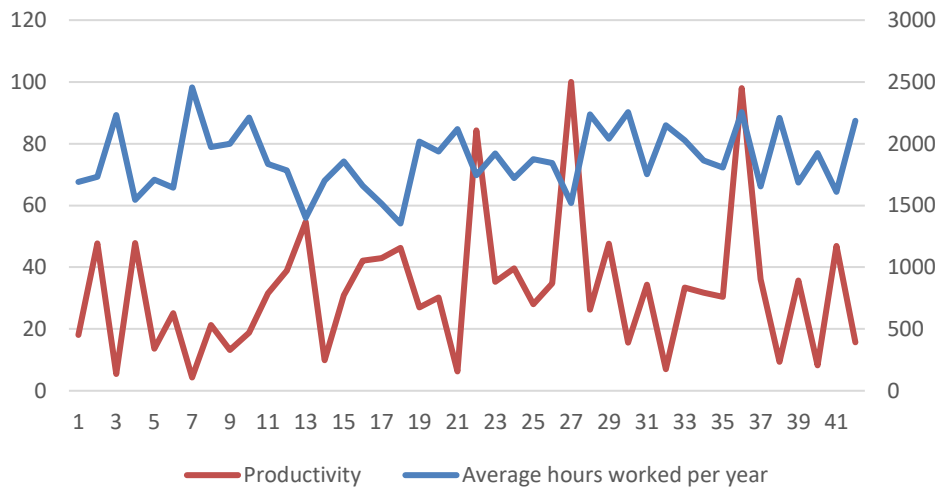
As evidenced by the results of the correlation analysis, productivity exhibits a strong correlation with the average annual income across nations, as well as the index of the firms adopting digital technology. The direct nature of this association indicates that productivity escalates concurrently with income growth and the assimilation of digital technologies within organizations. Furthermore, a direct and positive correlation of moderate strength is observed between productivity metrics and the proportion of firms offering formal training. Consequently, the implementation of employee training initiatives can significantly enhance productivity. On the other hand, an inverse moderate relationship is noted between productivity and the total number of hours worked annually. This may suggest that an increase in working hours does not necessarily correlate with heightened productivity and could even detrimentally impact labor efficiency. Below are graphs that clearly illustrate the relationships between the studied indicators (Figures 7-10).

Figure 7. Interdependence of productivity and DAI Business Sub-index



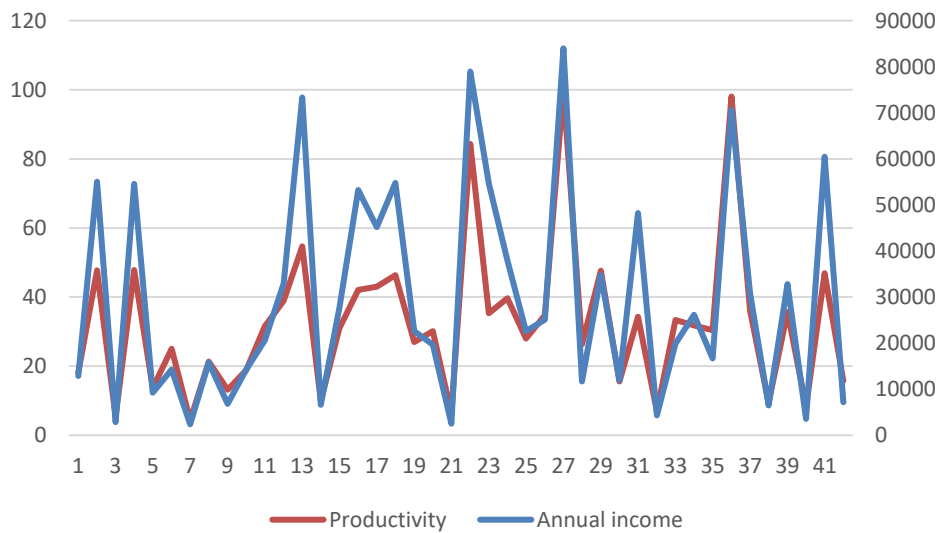
Source: built by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

Figure 8. Interdependence of productivity and hours worked per year



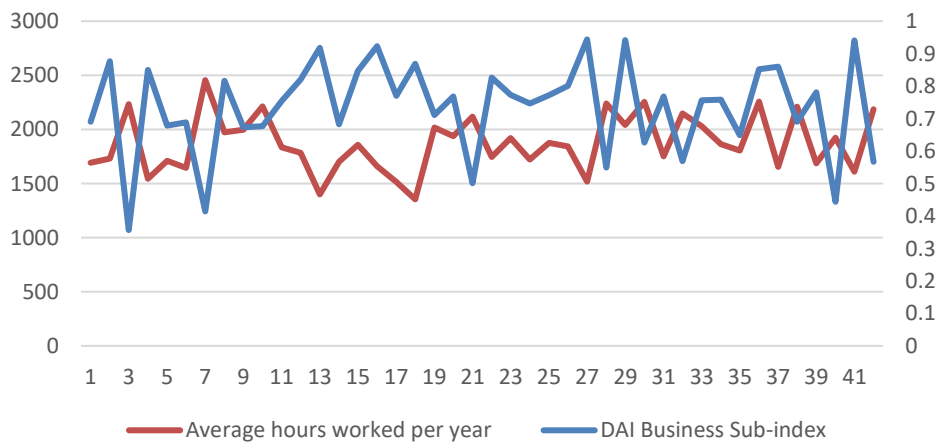
Source: built by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

Figure 9. Interdependence of productivity and average employee income



Source: built by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

Figure 10. Interdependence of hours worked and DAI Business Sub-index



Source: built by the author based on data from (WorldData.info, n.d.; Ritchie et al., n.d.; World Bank, n.d.; FM Global, n.d.).

Figure 7 shows a direct correlation between productivity and DAI Business Sub-index. This clearly demonstrates that business digitalization contributes to productivity growth. At the same time, Figure 8 illustrates the inverse relationship between productivity and hours worked. Interestingly, in the regression model, in combination with other factors, in particular, the amount of employee income, the number of hours worked has a direct impact on productivity. Accordingly, it can be assumed that an increase in the number of working hours increases productivity only simultaneously with an increase in financial remuneration. There is the closest direct correlation between productivity and employee income (Figure 10). At the same time, there is an inverse correlation between the DAI Business Sub-index and the number of hours worked (Figure 10). From this we can conclude that digitalization allows you to reduce working hours, while positively contributing to productivity.

Regression analysis was used to expand the conclusions obtained regarding the relationship between the studied indicators. The dependent variable was productivity, which enabled assessing the impact of indicators of working conditions and the organization of the labor process on its level. The first stage of the regression analysis covered all indicators included in the correlation analysis. The results are presented in Table 4.

Table 4. Results of the regression analysis of the impact of indicators of working conditions and labor process organization on productivity

	Coefficients	Std Err	LCL	UCL	t Stat	p-value	H0 (5%)	VIF	TOL	Beta
Intercept	-39,2740	20,3158	-80,4377	1,8896	-1,9332	0,0609	Accepted			
DAI Business Sub-index	20,9076	16,9640	-13,4647	55,2800	1,2325	0,2255	Accepted	3,1626	0,3162	0,1359
Firms offering formal training (% of firms)	0,0010	0,0954	-0,1922	0,1942	0,0103	0,9918	Accepted	1,7003	0,5881	0,0008
Average hours worked per year	0,0164	0,0072	0,0019	0,0309	2,2902	0,0278	Rejected	1,8387	0,5439	0,1926
Annual income	0,0009	9.4856E-5	0,0007	0,0011	9,2627	3.5463E-11	Rejected	2,5687	0,3893	0,9207
T (5%)	2,0262									
LCL - Lower limit of the 95% confidence interval										
UCL - Upper limit of the 95% confidence interval										

Source: calculated by the author based on data from (WorldData.info; Ritchie et al., 2022; World Bank; FM Global).

The resulting model allows explaining up to 84.23% of the variation in the dependent variable by the coefficient of determination, and there is a close correlation between the variables in the model at the level of 0.9261. The model looks as follows:

$$\text{Productivity} = -39.2740 + 20.9076 * \text{DAI Business Sub-index} + 0.0010 * \text{Firms offering formal training (\% of firms)} + 0.0164 * \text{Average hours worked per year} + 0.0009 * \text{Annual income}$$

Looking at the regression results in detail, it is worth noting that the indicators Average hours worked per year and Annual income have the greatest impact on the dependent variable. This means that these variables largely determine productivity, with the influence of both variables being direct. It should be noted that, when looking at the standardized Beta coefficient, the impact of income is much stronger. Unlike the results of correlation analysis, the results of regression analysis show that the number of hours worked is directly related to productivity. These differences can be explained by considering the influence of several factors simultaneously, which allows for the assessment of regression analysis. Therefore, in combination with other factors (in particular, income growth), the number of hours worked can have a positive impact on productivity, whereas business adoption of digital technologies and implementation of training did not show a significant impact on productivity in this context.

The significant impact of income on productivity has a logical explanation, as it determines the level of employees' well-being and stimulates effective work. However, it is worth examining whether other variables will affect productivity when income is excluded as the most influential variable. Given the above, this will allow us to

assess how productivity is affected by the intangible factors of working conditions and the organization of the labor process (Table 5).

The results of the regression analysis of the indicators after excluding the income variable showed some deterioration in the model quality. The correlation coefficient was measured at 0.7264, and the explanatory power, as indicated by the coefficient of determination, was 49.04%. The model looks as follows:

$$\text{Productivity} = - 63.0528 + 114.3794 * \text{DAI Business Sub-index} + 0.0412 * \text{Firms offering formal training (\% of firms)} + 0.0054 * \text{Average hours worked per year}$$

Table 5. Results of the regression analysis concerning the impact of working conditions and labor process organization indicators on productivity (excluding the income indicator)

	Coefficients	Std Err	LCL	UCL	t Stat	p-value	H0 (5%)	VIF	TOL	Beta
Intercept	-63,0528	36,2278	-136,3921	10,2865	-1,7405	0,0899	Accepted			
DAI Business Sub-index	114,3794	24,5130	64,7554	164,0035	4,6661	3.7463E-5	Rejected	2,0435	0,4894	0,7437
Firms offering formal training (% of firms)	0,0412	0,1712	-0,3054	0,3879	0,2408	0,8110	Accepted	1,6968	0,5894	0,0350
Average hours worked per year	0,0054	0,0127	-0,0203	0,0311	0,4246	0,6735	Accepted	1,7881	0,5593	0,0633
T (5%)	2,0244									
LCL - Lower limit of the 95% confidence interval										
UCL - Upper limit of the 95% confidence interval										

Source: calculated by the author based on data from (Ritchie et al., 2022; World Bank; FM Global).

In this light, it is imperative to examine the variations in the strength of the influence exerted by the studied variables on productivity. The only variable of significance within this model was the DAI Business Sub-index. Consequently, taking into account the effects of income, the firm's integration of digital technologies emerges as the foremost factor influencing labor productivity. Thus, it can be argued that the integration of digital technologies within the company, particularly in human resource management, constitutes an important factor of productivity. Furthermore, it is noteworthy that, independent of income considerations, the number of hours worked ceased to exert an influence on productivity. Accordingly, the hours worked in itself do not dictate productivity; in this scenario, income serves as a mediating variable. Offering training programs by the firms did not yield a statistically significant impact in either model. Nevertheless, the moderate and direct correlation between productivity and this indicator may suggest the relevance of training within specific contexts.

The analysis encompassed indicators from numerous countries across the globe, each exhibiting a variety of characteristics – including methodologies and organizational frameworks pertaining to personnel management. Consequently, the findings can be regarded as generalized; they reflect the impact of only the most general indicators prevalent in the majority of nations. These indicators characterize the fundamental facets of labor organization, irrespective of the unique attributes of national human resources management paradigms. Therefore, the adaptation of the proposed models to a specific country's practices necessitates the incorporation of supplementary variables that consider the local context.

Next, it is proposed to elucidate the characteristics of personnel management organization through the lens of China, a nation profoundly influenced by its national traditions. The impact of elements such as traditions and cultural characteristics is inherently challenging to assess, as they frequently lack explicit metrics. Nonetheless, these factors may exert an equally significant influence on human resource management as the aforementioned indicators.

Specifically, the following attributes can be discerned within Chinese culture that enhance employee motivation and productivity:

- the importance of building relationships based on trust;
- concern for the reputation and dignity of a person, expressed in respect, public recognition and reciprocity;

- motivation through career advancement opportunities, the potential for professional growth, and training to attain status is more compelling than motivation stemming from financial incentives; however, equitable compensation remains a crucial factor;
- significance of leveraging digital technologies, particularly for the facilitation of remote or hybrid work environments.

Below are the results of the correlation analysis between productivity and individual indicators of working conditions and labor process organization in China.

Table 6. Results of the correlation analysis between productivity and indicators of working conditions and labor process organization in China

	Productivity	China Average Annual Wages, K CNY/year	Average number of hours worked
Productivity	1		
China Average Annual Wages, K CNY/year	0,549793	1	
Average number of hours worked	0,706367	0,568759	1

Source: calculated by the author based on data (Trading Economics, n.d.; CEIC Data, n.d.-a; CEIC Data, n.d.-b).

As can be seen from Table 6, productivity in China is most intricately linked to the number of hours worked: this metric exhibits a significant and direct correlation with productivity levels. Conversely, while wages are indeed associated with productivity, they demonstrate the lowest degree of correlation among the examined indicators. These findings highlight the substantial disparities that may arise between global analyses and those that consider localized characteristics. Furthermore, they may corroborate the notion that in China, financial incentives exert a relatively smaller impact on performance, with factors such as respect and recognition taking precedence. Thus, local characteristics must be considered in human resource management strategies. The most advantageous approach entails synergy of exemplary global practices with the distinctive attributes of national human resource management models.

4. Discussions

The findings of the author's research align closely with the conclusions drawn by prominent scholars regarding the profound influence of human resource management on organizational efficiency and economic advancement. Specifically, Šebestová & Popescu (2022) and Siswanto *et al.* (2022) emphasized a strong correlation between human resource management practices and economic growth, as well as enhanced economic efficacy of enterprises. Hernita *et al.* (2021) identified a connection between the increasing human resource potential and the adoption of technology, which subsequently elevates business productivity. These insights are consistent with the author's findings, which revealed that the integration of digital technologies alongside effective human resource management significantly enhances productivity.

Ojochona *et al.* (2022) demonstrated that human resource management practices encompassing skill enhancement, motivation, and empowerment exert a substantial influence on corporate performance. Phiri & Phiri (2022) established that performance management, rewards, training, development, and employee well-being significantly affect organizational efficacy. Like the author of the study, AIDhaheer *et al.* (2023) found empirical evidence of the positive impact of salary, training and development, and innovation on labor productivity using the example of government employees in the UAE. The results of Damayanti *et al.* (2025) also showed that vocational training positively contributes to increasing employee productivity as well as work discipline. Nevertheless, not all scholarly inquiries unequivocally evaluate the impact of training and development on organizational effectiveness. According to Anwar & Abdullah (2021), among the various HR management instruments, only decentralization, defined as the delegation of authority to employees and teams, was identified as a statistically significant factor affecting organizational effectiveness. The researchers dismissed the hypothesis suggesting a statistically significant effect of training and employee incentives on efficiency. Furthermore, their study revealed no statistically significant impact of corporate training initiatives on productivity. However, a positive correlation between these variables was substantiated, which may imply the latent influence of training on performance.

Susantinah and Krishernawan (2022) demonstrated that the cultivation of employee skills, increasing competencies, as well as the promotion of engagement can significantly bolster organizational innovation. Nedumaran and Rani (2021) asserted that human resource management is intricately linked to increasing the firms' competitive advantage. This article places a particular emphasis on the integration of technology within human resources management, notably in processes such as e-recruitment and e-learning. The perspectives articulated

by scholars are corroborated by the findings of the current study, which showed a positive correlation between staff training and the organization's embrace of digital technologies.

Similar to the assertions posited by the study's author, Zhao *et al.* (2021) and Lai & Zeng (2014) emphasized the imperative of acknowledging the regional idiosyncrasies inherent in human resource management, particularly in the context of China. Special emphasis is placed on the significance of traditional cultural values. Malik *et al.* (2022) corroborated these perspectives through an analysis encompassing several Asian nations, including China. Knies *et al.* (2024) remarked that the preeminent Western practices in human resource management may prove ineffectual in China, primarily due to the subtly divergent national values. The results of the study have practical significance for various groups of stakeholders – managers, government agencies and investors – as they allow to understand which aspects of human resource management directly affect labor productivity and economic efficiency. For managers, the results confirm that the digitalization of HRM processes and fair remuneration are key factors in increasing productivity. Managers should invest in digital HR management tools and form balanced motivation systems. For governments: the study emphasizes the importance of supporting policies aimed at developing digital competencies, improving the quality of jobs and encouraging employee training. For investors: a high level of digitalization and effective HRM can serve as an indicator of sustainable economic growth and be a criterion when assessing the investment attractiveness of companies or countries.

4.1. Limitations

The limitations of the study relate primarily to the lack of particular data on working conditions and labor process organization in China, which constrained the ability to juxtapose the findings of the global sample analysis with those of the national results. Moreover, the sample coverage does not include all countries with comparable economic structures, which may limit the generalizability of the results. Another important limitation is the lack of microeconomic (firm-level) data, preventing a deeper exploration of intra-organizational factors affecting labor productivity. Additionally, the potential influence of organizational culture on employee behavior and performance was not directly captured, which could moderate or mediate some of the observed relationships.

4.2. Recommendations

Improving human resource management strategies necessitates a consideration of both global trends and the local context. The models proposed in this study can be used in the practices of individual countries, with adaptations that incorporate additional indicators that may exert an influence at the national level. The key predictors of productivity enhancements through human resources are employee income and hours worked. However, in the absence of adequate income, the significance of hours worked diminishes. Consequently, human resource strategies should strive to harmonize these indicators, ensuring equitable remuneration for time invested while fostering a balance between personal and professional life.

Digital adoption emerges as a key intangible predictor of productivity advancements. Thus, the integration of cutting-edge technologies into human resource management practices and the broader organizational framework is imperative for securing companies' sustainable economic growth. Although no statistically significant correlation between formal training and productivity was identified, the positive association between these variables may suggest the latent importance of training.

Conclusions and Further Research

Human resource management significantly influences the companies' economic growth by enhancing their productivity through the strategic organization of work. The analysis revealed that income serves as the most pivotal determinant of productivity, while the number of hours worked impacts productivity only in conjunction with income. Consequently, modern firms should devote substantial attention to the planning of working hours and the promotion of a harmonious balance between personal life and professional obligations. A critical intangible factor influencing productivity is the firms' adopting digital technologies. This underscores the paramount importance of leveraging innovative technologies to enhance firm's productivity, thereby fostering sustainable economic growth.

Interestingly, the proportion of firms offering formal training did not exhibit a significant effect on productivity. However, this outcome may be attributed to the limited data available regarding this indicator, as accurately determining the precise number of companies implementing formal (and, even more challenging, informal) training is inherently complex. The moderate correlation observed between the proportion of firms offering formal training and productivity further suggests a positive relationship between formal training initiatives and productivity enhancement.

In addition to the aforementioned general predictors of productivity growth, which hold significance across the global spectrum of indicators, it is expedient to highlight the national characteristics that influence the efficacy of human resource management. For instance, the case of China demonstrates that the correlation between income and productivity is markedly weaker than that observed in the global sample, indicating that non-material motivation may assume a more substantial role.

The main hypotheses of the study were partially confirmed: income and digitalization have a positive impact on labor productivity, while formal education demonstrates only an indirect effect. This indicates that economic incentives remain the leading factor in productivity growth, but digital transformation is becoming a critical condition for improving the efficiency of human resources management. The practical implications for companies are the need to invest in digital HR tools, develop flexible motivation systems and optimize working hours. For government agencies, the results can be used to shape wage policies, regulate working hours and stimulate the digitalization of enterprises. From the perspective of employment and education policy, it is advisable to increase the effectiveness of vocational training programs by integrating them with digital platforms and skills assessment systems. This will contribute to the creation of a more productive and innovative work environment. Future research endeavors could focus on a granular analysis of the examined indicators at the company level; while such an analysis will have a smaller scope, its findings could yield more illustrative insights.

Declarations

Credit Authorship Contribution Statement:

Chinara Alamanova: Conceptualization, Investigation, Methodology, Project administration, Software, Formal analysis, Writing – original draft, Supervision, Data curation, Validation, Writing – review and editing, Visualization, Funding acquisition;

Hongtao Liu: Conceptualization, Investigation, Methodology, Project administration, Software, Formal analysis, Writing – original draft, Supervision, Data curation, Validation, Writing – review and editing, Visualization, Funding acquisition;

Nana Gadalia: Conceptualization, Investigation, Methodology, Project administration, Software, Formal analysis, Writing – original draft, Supervision, Data curation, Validation, Writing – review and editing, Visualization, Funding acquisition;

Stanislav Ovcharyk: Conceptualization, Investigation, Methodology, Project administration, Software, Formal analysis, Writing – original draft, Supervision, Data curation, Validation, Writing – review and editing, Visualization, Funding acquisition;

Ihor Lukianenko: Conceptualization, Investigation, Methodology, Project administration, Software, Formal analysis, Writing – original draft, Supervision, Data curation, Validation, Writing – review and editing, Visualization, Funding acquisition.

Declaration of Competing Interest: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of use of generative AI and AI-assisted technologies: The authors declare that they have not used generative AI to design or conduct all or part of their research strategy or data synthesis.

References

- AIDhaeri, H., et al. (2023). The relationship between HRM practices, innovation, and employee productivity in UAE public sector: A structural equation modelling approach. *International Journal of Process Management and Benchmarking*, 13(2), 157–176. <https://doi.org/10.1504/IJPMB.2023.128471>
- Althawadi, A. (2025). A strategic framework for enhancing SME competitiveness and growth. In *Sustainable Data Management: Navigating Big Data, Communication Technology, and Business Digital Leadership* (Vol. 1, pp. 289–301). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-83911-5_26
- Anwar, G., & Abdullah, N. N. (2021). The impact of human resource management practice on organizational performance. *International Journal of Engineering, Business and Management (IJEEM)*, 5(1), 1–13. <https://dx.doi.org/10.22161/ijeem.5.1.4>
- CEIC Data. Labor productivity growth: China. <https://www.ceicdata.com/en/indicator/china/labour-productivity-growth>

- CEIC Data. Average working hours per week: China. <https://www.ceicdata.com/en/china/average-working-hours-per-week>
- Cooke, F. L., Xiao, M., & Chen, Y. (2021). Still in search of strategic human resource management? A review and suggestions for future research with China as an example. *Human Resource Management*, 60(1), 89–118. <https://doi.org/10.1002/hrm.22029>
- Damayanti, A., Utami, E. M., & Rahmawati, F. (2025). Work training and work discipline on employee productivity. In *IECON: International Economics and Business Conference* (Vol. 3, No. 1, pp. 902–914). <https://jurnal.amertainstitute.com/index.php/IECON/article/view/339/390>
- Diawati, P., et al. (2023). The role of information technology in improving the efficiency and productivity of human resources in the workplace. *Jurnal Teknologi Dan Sistem Informasi Bisnis*, 5(3), 296–302. <https://doi.org/10.47233/jteksis.v5i3.872>
- Easa, N. F., & El Orra, H. (2021). HRM practices and innovation: An empirical systematic review. *International Journal of Disruptive Innovation in Government*, 1(1), 15–35. <https://doi.org/10.1108/IJDIG-11-2019-0005>
- FM Global. Resilience index. FM Global. <https://www.fm.com/resources/resilience-index>
- Furman, D., et al. (2023). Motivation and incentives for employees of domestic enterprises. *Journal of Law and Sustainable Development*, 11(3), 0815. <https://doi.org/10.55908/sdqs.v11i3.815>
- Garengo, P., Sardi, A., & Nudurupati, S. S. (2022). Human resource management (HRM) in the performance measurement and management (PMM) domain: A bibliometric review. *International Journal of Productivity and Performance Management*, 71(7), 3056–3077. <https://doi.org/10.1108/IJPPM-04-2020-0177>
- Gomes, G. P., Coelho, A., & Ribeiro, N. (2025). A systematic literature review on sustainable HRM and its relations with employees' attitudes: State of the art and future research agenda. *Journal of Organizational Effectiveness: People and Performance*, 12(1), 37–56. <https://doi.org/10.1108/JOEPP-11-2023-0497>
- Hernita, H., et al. (2021). Economic business sustainability and strengthening human resource capacity based on increasing the productivity of small and medium enterprises (SMEs) in Makassar City, Indonesia. *Sustainability*, 13(6), 3177. <https://doi.org/10.3390/su13063177>
- Kadirov, A., et al. (2024). AI in human resource management: Reimagining talent acquisition, development, and retention. In *2024 International Conference on Knowledge Engineering and Communication Systems* (pp. 1–8). IEEE. <https://doi.org/10.1109/ICKECS61492.2024.10617231>
- Knies, E., Boselie, P., Gould-Williams, J., & Vandenabeele, W. (2024). Strategic human resource management and public sector performance: Context matters. *The International Journal of Human Resource Management*, 35(14), 2432–2444. <https://doi.org/10.1080/09585192.2017.1407088>
- Lai, X. Y., & Zeng, J. (2014). Motivating employees in China: Theories and applications. In *International Conference on Management Science and Management Innovation (MSMI 2014)* (pp. 773–777). Atlantis Press. <http://dx.doi.org/10.2991/msmi-14.2014.137>
- Madero-Gómez, S. M., et al. (2023). Companies could benefit when they focus on employee well-being and the environment: A systematic review of sustainable human resource management. *Sustainability*, 15(6), 5435. <https://doi.org/10.3390/su15065435>
- Malik, A., et al. (2022). Multilevel relational influences on HRM practices: A cross-country comparative reflective review of HRM practices in Asia. *Asian Business & Management*, 21(5), 745–764. <https://doi.org/10.1057/s41291-022-00208-z>
- Mohlala, T. T., et al. (2024). Strategic innovation in HRIS and AI for enhancing workforce productivity in SMEs: A systematic review. <https://doi.org/10.20944/preprints202409.1996.v1>
- Nedumarán, G., & Rani, C. (2021). A study on the impact of E-HRM activities in the growth of companies. *ZENITH International Journal of Multidisciplinary Research*, 11(1), 18–28. <https://www.indianjournals.com/ijor.aspx?target=ijor:zijmr&volume=11&issue=1&article=002>
- Ojochona, R. A., Nnia, I. M., Agbaeze, K. E., & Isichei, E. E. (2022). HRM practices and organizational performance. *Revista Brasileira de Gestão de Negócios*, 24(1), 1–22. <https://doi.org/10.7819/rbgn.v24i1.4149>

- Phiri, K., & Phiri, J. (2022). Strategic human resource management practices and organizational performance: A case of the National Assembly of Zambia. *Open Journal of Business and Management*, 10(5), 2461–2483. <https://doi.org/10.4236/ojbm.2022.105124>
- Raza, A., Shaikh, E., Tursoy, T., & Almashaqbeh, H. (2022). Economics and business perspectives of sustainable HRM. In *Sustainable Development of Human Resources in a Globalization Period* (pp. 36–48). Hershey: IGI Global. <https://doi.org/10.4018/978-1-6684-4981-3.ch003>
- Ritchie, H., Roser, M., & Ortiz-Ospina, E. Working hours. *Our World in Data*. <https://ourworldindata.org/working-hours>
- Rustiawan, I., et al. (2023). The strategic role of human resource management in achieving organizational goals. *Innovative: Journal of Social Science Research*, 3(2), 632–642. <https://j-innovative.org/index.php/Innovative/article/view/345/327>
- Šebestová, J. D., & Popescu, C. R. G. (2022). Factors influencing investments into human resources to support company performance. *Journal of Risk and Financial Management*, 15(1), 19. <https://doi.org/10.3390/jrfm15010019>
- Siswanto, D. J., et al. (2022). Human resources management in the country's border region faces industry 4.0 and the COVID-19 pandemic. *Al-Tanzim: Jurnal Manajemen Pendidikan Islam*, 6(1), 228–242. <http://doi.org/10.33650/al-tanzim.v6i1.3052>
- Susantinah, N., & Krishernawan, I. (2023). Human resource management (HRM) strategy in improving organizational innovation. *Journal of Contemporary Administration and Management (ADMAN)*, 1(3), 201–207. <https://doi.org/10.61100/adman.v1i3.80>
- Trading Economics. Chinese wages. *Trading Economics*. <https://tradingeconomics.com/china/wages>
- World Bank. World Bank homepage. *World Bank*. <https://www.worldbank.org/ext/en/home>
- WorldData.info. Average income. <https://www.worlddata.info/average-income.php>
- Zayed, N. M., et al. (2022). Human resource skill adjustment in service sector: Predicting dynamic capability in post COVID-19 work environment. *Journal of Risk and Financial Management*, 15(9). <https://doi.org/10.3390/jrfm15090402>
- Zhao, C., Cooke, F. L., & Wang, Z. (2021). Human resource management in China: What are the key issues confronting organizations and how can research help? *Asia Pacific Journal of Human Resources*, 59(3), 357–373. <https://doi.org/10.1111/1744-7941.12295>