

Empirical Analysis of Military Recruitment Determinants in the Czech Republic

Petr BARVIK^{1*}, Jakub ODEHNAL¹, Jiri NEUBAUER²

¹Department of Resources Management, Faculty of Military Leadership, University of Defence, Address: Kounicova 65, 662 10 Brno, Czech Republic

²Department of Quantitative Methods, Faculty of Military Leadership, University of Defence, Address: Kounicova 65, 662 10, Brno, Czech Republic

Correspondence: *petr.barvik@unob.cz

Abstract

This paper analyses the determinants of recruitment intensity in the Armed Forces of the Czech Republic. Using annual data from 2005 to 2024, a multivariate regression framework is applied to examine the effects of labour market, demographic, and fiscal factors. The results indicate that the unemployment rate is negatively associated with recruitment intensity, while demographic variables exhibit strong and consistent effects. By contrast, compensation and fiscal variables show weaker and less robust relationships. These findings suggest that realised recruitment outcomes reflect not only labour supply conditions but also institutional constraints and the structure of the population meeting military recruitment requirements.

KEY WORDS: *military labour supply, recruitment, defence expenditure, regression analysis*

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1. Introduction

Military recruitment in all-volunteer forces can be framed as a labour supply decision in which individuals compare expected returns from military service with civilian employment opportunities. Recruitment outcomes are therefore shaped by labour market conditions, individual characteristics, and the relative attractiveness of military compensation [1]. In this setting, the armed forces operate as an employer competing for labour force within the broader economy.

Empirical evidence consistently identifies the unemployment rate as a key determinant of recruitment. Bäckström [2] shows that higher unemployment increases interest in military service among young individuals, reflecting weaker outside labour market opportunities and the relative stability of employment in the defence sector. Evidence from Belgium similarly confirms that unemployment significantly affects application rates at the regional level, while also highlighting the role of institutional and structural factors [3]. Findings from Norway further indicate that favourable labour market conditions alone are insufficient, as recruitment outcomes depend on the ability of institutions to absorb increased labour supply [4]. Together, these studies suggest that recruitment reflects both labour supply conditions and institutional constraints.

Another important mechanism is wage differentiation. Warner [5] shows that increases in military pay, holding civilian wages constant, improve both recruitment and retention. Additional studies suggest that targeted financial incentives, such as bonuses, may be more effective than standard wage increases [6].

Fiscal variables also play a role. Previous research indicates that defence expenditure may influence both recruitment and broader labour market dynamics [7]. Evidence from NATO countries shows that defence expenditure is positively associated with personnel levels, particularly when spending is directed towards personnel-related expenditure, which represents a major component of mandatory defence expenditure [8]. Existing research for the Czech Republic similarly indicates that recruitment outcomes are associated with relative wages and broader defence expenditure dynamics [9]. However, these effects appear to depend on the internal allocation of resources within defence budgets. Additional evidence from countries undergoing significant security and economic transformation, such as Ukraine, suggests that changes in defence expenditure may also contribute to broader structural adjustments in the labour market [10].

Demographic characteristics represent an additional set of relevant factors. Empirical studies suggest that recruitment outcomes are influenced by the structure of the eligible population, including the share of men, foreign

population, and educational attainment [2,3]. Crow [11] shows that the recruitment pool is mainly composed of young males with at least upper secondary education and average ability levels, indicating that demographic constraints may limit the effective supply of recruits.

Overall, the literature indicates that military recruitment is shaped by labour market conditions, compensation, demographic structure, and institutional factors, including defence expenditure. However, most studies rely on application rates or absolute inflows, which primarily capture labour supply rather than realised recruitment outcomes.

The aim of this paper is to empirically analyse the determinants of recruitment intensity in the Armed Forces of the Czech Republic, with a particular focus on labour market conditions.

This paper addresses this limitation by introducing recruitment intensity as a relative measure of personnel inflows. Unlike application-based measures, this approach captures realised recruitment outcomes and allows for a more direct assessment of how labour market conditions translate into actual personnel growth, which may differ from patterns observed in application-based studies.

2. Military Recruitment in the Czech Republic

The recruitment of professional soldiers in the Czech Republic is shaped by the framework of an all-volunteer force, introduced following the professionalisation of the armed forces in 2005. Under this system, recruitment relies on voluntary enlistment in peacetime, while alternative mechanisms based on compulsory service may be activated under exceptional circumstances, such as wartime or the fulfilment of international obligations.

The Armed Forces of the Czech Republic operate in a competitive labour market environment, where potential recruits compare military service with civilian employment opportunities. As a result, recruitment outcomes are closely linked to labour market conditions, particularly unemployment, wage differentials, and job stability. In this context, the armed forces can be understood as a specific type of employer competing for labour within the broader economy.

Recent strategic documents highlight the need for a substantial increase in personnel capacities, driven by both national security requirements and commitments within NATO [12]. Current planning assumptions envisage an increase in the number of professional soldiers in the Czech Armed Forces by more than 20%, alongside a significant expansion of reserve forces by more than 80% [13]. These targets place additional pressure on the recruitment system and raise questions about its capacity to generate sufficient inflows of personnel under varying economic conditions.

At the same time, recruitment is shaped by institutional constraints, including eligibility requirements such as a minimum age of 18, citizenship, minimum education levels, and health standards. These conditions directly affect the size and structure of the potential recruitment pool. In particular, until 2025, the requirement of at least upper secondary education limited the participation of individuals with lower educational attainment, while citizenship requirements restricted access for foreign-born populations.

Taken together, these characteristics suggest that military recruitment in the Czech Republic is influenced by both structural labour market conditions and institutional factors. While economic conditions may affect individuals' willingness to enter military service, realised recruitment outcomes are simultaneously shaped by organisational capacity, eligibility constraints, policy-driven requirements, and the relative attractiveness of military compensation, as well as the fiscal capacity of the defence sector.

3. Method of Investigation

To assess whether conclusions from international studies apply to the Czech Republic, a set of labour market, demographic, and fiscal variables was constructed using publicly available annual data for the period 2005–2024 [14]. Labour market and demographic indicators were obtained from the Czech Statistical Office, while data on recruitment intensity and defence expenditure were sourced from the Ministry of Defence of the Czech Republic [15].

The main dependent variable is recruitment intensity, defined as the ratio of annual inflows of professional soldiers to the total number of professional soldiers in a given year. This indicator captures the relative growth of military personnel and enables better comparability across time series.

The explanatory variables were selected based on existing literature on military labour supply and include labour market conditions, demographic structure, and fiscal factors. Specifically, the model includes the unemployment rate, the share of the male population, the share of the foreign population, the share of the adult population without upper secondary education, the civilian–military wage difference, defence expenditure as a share of GDP, and the share of mandatory defence expenditure. The relationship between recruitment intensity and its determinants is examined using regression analysis specified as:

$$Y = \beta_0 + \beta_1 X_1 + \dots + \beta_k X_k + \epsilon, \quad (1)$$

where Y is the recruitment intensity, $X_1, \dots, X_k$ represents the explanatory variables, and ϵ is the error term.

The estimation proceeds in three steps. First, the full model including all explanatory variables is estimated using ordinary least squares (OLS). Second, a reduced specification is obtained using backward variable selection to improve model parsimony. Finally, diagnostic tests are applied to assess model assumptions. While the assumptions of normality and homoscedasticity are satisfied, statistically significant autocorrelation is detected in the residuals. To address this issue,

the final model is estimated using generalised least squares (GLS), which provides more efficient parameter estimates in the presence of autocorrelation.

3.1. Data and Descriptive Statistics

Descriptive statistics provide an initial overview of the dataset and capture variation in recruitment intensity and its potential determinants. Table 1 summarises the variables included in the analysis and documents their variation over the observed period.

Table 1.

Summary statistics of the variables				
Variable	Mean	Std. Dev.	Minimum	Maximum
Recruitment Intensity (%)	6.08	2.40	1.79	9.34
Unemployment Rate (%)	4.72	2.11	2.00	7.90
Male Population Share (%)	49.10	0.13	48.80	49.30
Foreign Population Share (%)	5.29	2.21	2.73	10.30
Population without Upper Secondary Education (%)	13.04	2.06	10.70	17.02
Civilian-Military Wage Difference (%)	10.25	7.97	-2.62	29.00
Defence Expenditure Share (% of GDP)	1.35	0.34	0.95	1.99
Mandatory Defence Expenditure Share (%)	47.01	8.69	26.36	58.93

Recruitment in the Armed Forces of the Czech Republic has evolved within a shifting macroeconomic environment since the transition to a fully professional force in 2005. The observed period encompasses several distinct phases associated with economic fluctuations, including the global financial crisis (2008–2013), the impacts of the COVID-19 pandemic, and the developments following the Russian invasion of Ukraine. These periods were accompanied by changes in unemployment, wage dynamics, inflation, and broader economic conditions.

The unemployment rate is selected as a key explanatory variable due to its established role in the literature as a determinant of military labour supply. In addition, the civilian–military wage difference, defined as the percentage difference between average military and civilian wages relative to civilian wages, is included to capture the relative attractiveness of military compensation compared to civilian employment. The share of mandatory defence expenditure serves as an indicator of the fiscal structure and personnel financing capacity of the defence sector. Together, these variables reflect key dimensions of recruitment performance, including labour market conditions, compensation incentives, and institutional fiscal capacity.

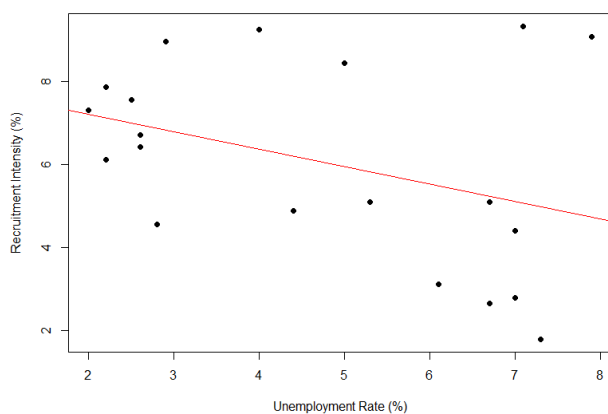


Fig. 1. Relationship between Recruitment Intensity and Unemployment Rate.

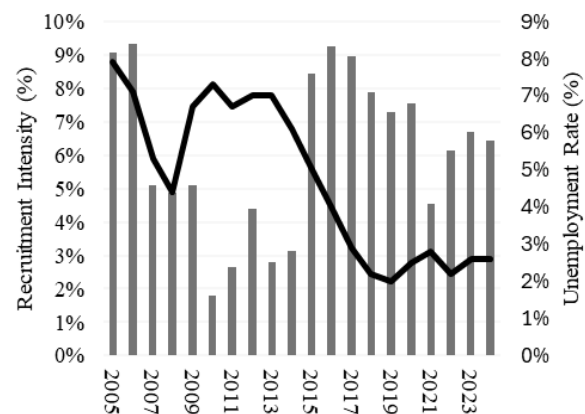


Fig. 2. Development of Recruitment Intensity and Unemployment Rate (2005–2024)

Figures 1 and 2 present descriptive evidence on recruitment intensity and the unemployment rate over the observed period. The time-series reflects variation across economic phases. The correlation coefficient is -0.367 , which is statistically insignificant at a significance level of 0.05 (the p-value is 0.111). This pattern differs from previous findings, which typically identify a positive relationship between unemployment and military recruitment, particularly when application rates are used [2,3]. Recruitment intensity captures realised inflows rather than individual willingness to apply and may therefore be influenced by institutional or capacity constraints.

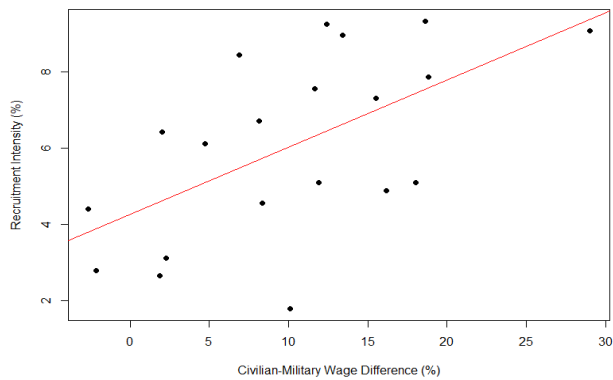


Fig. 3. Relationship between Recruitment Intensity and Civilian-Military Wage Difference.

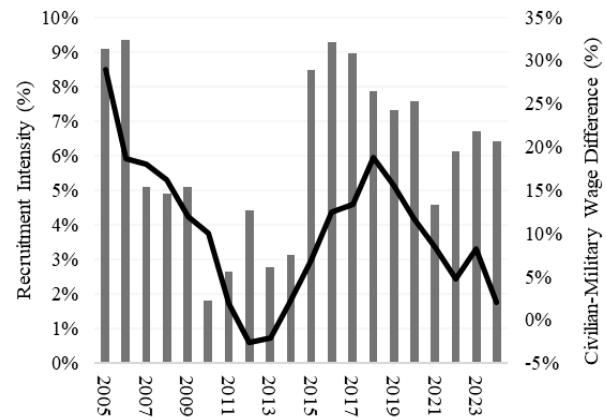


Fig. 4. Development of Recruitment Intensity and Civilian-Military Wage Difference (2005–2024).

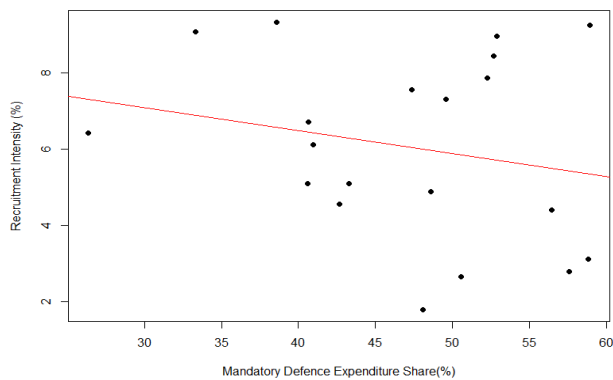


Fig. 5. Relationship between Recruitment Intensity and Mandatory Defence Expenditure Share.

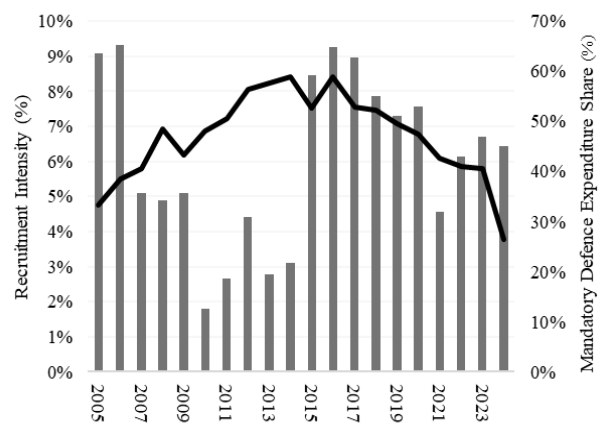


Fig. 6. Development of Recruitment Intensity and Mandatory Defence Expenditure Share (2005–2024).

Figures 3–6 extend the descriptive analysis by examining the civilian–military wage difference and the share of mandatory defence expenditure. The relationship between recruitment intensity and the civilian–military wage difference appears positive, with a correlation coefficient of 0.587 that is statistically significant at the significance level of 0.05 ($p = 0.007$). This indicates a positive association between the two variables, although this relationship does not account for the influence of other factors.

By contrast, the share of mandatory defence expenditure exhibits a weak and statistically insignificant relationship with recruitment intensity (correlation coefficient -0.217 , $p = 0.357$). The absence of a clear pattern in the plot indicates that this variable may not have a direct or consistent influence on recruitment outcomes.

Overall, the descriptive evidence suggests that labour market conditions and relative compensation may be associated with recruitment intensity, whereas fiscal variables exhibit mixed patterns at the descriptive level. These findings highlight the need for a multivariate framework that jointly accounts for labour market, demographic, and fiscal determinants. The following section therefore presents the regression analysis of selected variables.

3.2. Empirical Results

The estimation results are reported in Table 2, which presents three model specifications. Model 1 reports estimates from the full OLS specification, Model 2 represents the reduced OLS model obtained through backward variable selection, and Model 3 reports the preferred GLS estimates that account for autocorrelation in the residuals.

Across model specifications, the unemployment rate exhibits a negative coefficient. While the estimate in the full OLS model is not statistically significant, it becomes statistically significant in the reduced OLS and GLS specifications. In the preferred GLS model, a one percentage point increase in unemployment is associated with an approximate 1.64 percentage point decrease in recruitment intensity ($p < 0.01$).

These findings differ from previous studies, in which the unemployment rate was positively associated with military application rates [2,3]. This discrepancy likely reflects the distinction between application-based measures of labour supply

and recruitment intensity as a measure of realised personnel inflows. Realised recruitment outcomes appear more strongly constrained by institutional capacity, recruitment targets, and eligibility requirements.

Table 2.

Regression Analysis of Recruitment Intensity Determinants

	OLS		GLS
	Model 1	Model 2	Model 3
Unemployment Rate (%)	-1.001 (0.633)	-1.515*** (0.303)	-1.643*** (0.175)
Male Population Share (%)	-19.471** (6.903)	-23.568*** (5.126)	-24.294*** (2.808)
Foreign Population Share (%)	-1.285* (0.712)	-1.915*** (0.358)	-1.883*** (0.193)
Population without Upper Secondary Education (%)	-1.825*** (0.493)	-1.783*** (0.474)	-1.635*** (0.313)
Civilian-Military Wage Difference (%)	0.093 (0.104)		
Mandatory Defence Expenditure Share (%)	0.173 (0.193)		
Defence Expenditure Share (% of GDP)	7.420 (4.564)	4.068** (1.624)	3.000** (1.389)
Constant	978.333** (351.861)	1,198.352*** (257.138)	1,233.884*** (140.023)
AIC	78.037	75.815	71.185
Observations	20	20	20
R ²	0.785	0.765	0.754
Adjusted R ²	0.659	0.681	0.667
Residual Std. Error	1.401	1.356	1.187

*p < 0.1; **p < 0.05; ***p < 0.01

Demographic variables also appear to play an important role. The male population share is negatively associated with recruitment intensity and is statistically significant in all three models, with stronger significance in the reduced OLS and GLS specifications. A similar pattern is observed for the foreign population share, which is negative in all models, although its statistical significance is weaker in the full OLS specification. The share of the population without upper secondary education is likewise negative and statistically significant across all specifications, indicating that educational structure may be relevant for recruitment outcomes. These findings are broadly consistent with Crow [11] and prior labour supply studies [2,3], which emphasise that recruitment capacity is shaped not only by labour market conditions but also by the demographic and educational composition of the eligible recruitment pool.

Economic variables display more limited and less consistent explanatory power across specifications. The civilian–military wage difference is not statistically significant in the full model and is excluded from the reduced specification. This partially contrasts with findings from U.S. studies [5,6] and prior Czech evidence [9], which often identify stronger wage effects on recruitment or retention. Similarly, the mandatory defence expenditure share is not statistically significant and is also excluded from the subsequent models. By contrast, defence expenditure as a share of GDP is positive across all specifications and becomes statistically significant in the reduced OLS and GLS models, suggesting that broader fiscal commitment to defence may be associated with stronger recruitment outcomes.

Overall, the GLS model is preferred because diagnostic tests indicate autocorrelation in the residuals of the reduced OLS specification. The consistency in the direction of the main coefficients across models supports the robustness of the findings, although the strength and statistical significance of some effects vary across specifications.

4. Conclusions

Military recruitment in all-volunteer forces is closely linked to labour market conditions, demographic structure, and the institutional capacity of the armed forces. In the Czech Republic, these relationships have become increasingly relevant given rising personnel requirements and the need to ensure sufficient inflows under varying economic conditions. This paper provides a quantitative assessment of selected labour market, demographic, compensation, and fiscal determinants

of recruitment intensity in the Armed Forces of the Czech Republic using annual data for the period 2005–2024. The findings indicate that recruitment outcomes are primarily shaped by labour market conditions and the demographic structure of the population meeting military recruitment requirements, while compensation and fiscal variables play a more limited role.

A main contribution lies in distinguishing between potential labour supply and realised recruitment outcomes. Periods of unfavourable labour market conditions may increase interest in military service without necessarily translating into higher enlistment. Recruitment intensity therefore captures the effectiveness of the system in converting potential supply into realised personnel inflows. These findings imply that recruitment outcomes should be interpreted as the result of both market conditions and system-level constraints, rather than as a direct reflection of labour supply conditions alone.

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