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THE IMPACT OF MINIMUM WAGE ON ENTERPRISE BIRTHS IN EUROPEAN UNION COUNTRIES*

Andrea Tkacova¹, Peter Toth², Beata Gavurova^{3*}

^{1,2} Technical University of Kosice, Faculty of Economics, Department of Finance, Nemcovej 32, 041 01 Kosice, Slovakia

^{3*} Technical University of Kosice, Faculty of Mining, Ecology, Process Control and Geotechnologies, Letná 9, 042 00 Kosice, Slovakia

Emails: ¹ andrea.tkacova@tuke.sk; ² peter.toth@tuke.sk; ^{3*} beata.gavurova@tuke.sk

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Abstract. This study examines how increases in the minimum wage affect entrepreneurial dynamics in European Union countries, with a particular focus on enterprise births. The research is motivated by the growing need to understand the broader impact of wage regulation on economic activity and the structure of the business sector. The main research question is to what extent changes in the minimum wage influence the decision of potential entrepreneurs to enter the market and whether these effects vary by enterprise size. The empirical analysis is based on panel data from 21 EU member states covering the period from 2015 to 2023. We employ panel regression models, supplemented with robustness tests and size-based differentiation of results. Control variables such as unemployment rate, GDP per capita, and average earnings are also considered. The results show that a higher minimum wage has a statistically significant negative effect on the total number of enterprise births. Regarding enterprise size, this negative effect is more pronounced among newly established businesses with more than 10 employees compared to those with fewer than 10. A possible explanation is that larger new enterprises are more likely to operate in formal sectors with stricter compliance requirements, making them more exposed to wage regulation from the outset. The findings highlight the need to consider the minimum wage not only as a social policy tool but also as a factor that shapes the structure and development of the entrepreneurial environment across different types of economies within the EU.

Keywords: minimum wage; enterprise births; panel analysis; firm size; European Union

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JEL Classifications: J38, L26, E24, C23

1. Introduction

Minimum wage (MW) as a wage policy instrument serves an important social function by ensuring a decent income for workers at the lower end of the income distribution and by reducing income inequality. In recent years, however, interest has been growing in examining the broader effects of MW on economic dynamics, including the entrepreneurial environment. A particularly timely question in this context is how increases in MW affect the decisions of individuals and firms to enter the market and establish new businesses. Entrepreneurial activity is a key driver of long-term growth, innovation, and regional development (Dustmann

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et al., 2022). Recent evidence from the eurozone further shows that the prevalence of high-growth firms is shaped by a combination of macroeconomic and competitiveness conditions, including economic growth, credit growth, labour-market efficiency, market size, and business sophistication (Li et al., 2023; del Olmo-García et al., 2025).

Recent developments in the European Union, particularly discussions on the introduction of a common framework for MW (e.g., the 2022 EU Directive on adequate minimum wages) and its coordination at the EU level, add new relevance to this issue (Müller & Schulten, 2020; Drahokoupil & Müller, 2021; Lillie, 2022; Müller & Schulten, 2023). Countries such as Germany, Spain, and France have implemented significant increases in MW over the past decade, allowing for the analysis of cross-country differences in impacts depending on productivity, labor market structure, and the entrepreneurial environment. These differences offer an opportunity to better understand how MW influences entrepreneurial dynamics in diverse contexts (Harasztosi & Lindner, 2019).

While traditional discourse on MW has focused on its effects on employment and wage structures (Neumark & Shirley, 2022), more recent economic literature has begun to systematically analyze its impact on enterprise births and exits, technological choices, the rate of innovation (Aaronson et al., 2018; Luduvic et al., 2024), and the reallocation of workers to more productive firms (Dustmann et al., 2021; Rao & Risch, 2024). This research is based on the premise that wage regulation affects firms' cost structures and thus their decision to enter or exit the market. Moreover, MW has the potential to reshape the entrepreneurial sector by selecting firms based on their productivity and capacity to absorb higher labor costs (Mayneris, Poncet & Zhang, 2018).

The aim of this study is to contribute to the existing literature by examining the impact of MW on entrepreneurial dynamics in EU countries. Specifically, we analyze whether and to what extent increases in MW affect the number of enterprise births and whether this impact varies according to the size of the newly established enterprise. The study seeks to highlight the possible consequences of MW increases, while acknowledging the positive social and economic benefits of MW for employees. Unlike studies focusing on the U.S. or China, we focus on the European institutional framework, where it is necessary to account for differences in the level and pace of MW increases across countries.

This issue has important implications for public policy. If MW acts as a constraint on entry for small and new firms, it may have adverse effects on competition, innovation, and regional convergence (Kong et al., 2021; Luca & Luca, 2019). Conversely, if it creates pressure to raise productivity and fosters the selection of efficient actors, it may support qualitative shifts in the structure of the business sector (Dustmann et al., 2022; Mayneris et al., 2018). These effects are particularly relevant in regions with weaker business environments, where even moderate cost increases may significantly influence entrepreneurial decision-making. The aim of our research is to empirically test these opposing hypotheses using panel data from EU countries.

2. Theoretical background

2.1 The Concept of Minimum Wage in EU Countries and Its Impact on Entrepreneurship

The minimum wage (MW) is an important policy instrument within the EU to ensure decent working conditions and to reduce wage inequality. With the adoption of Directive (EU) 2022/2041 on adequate MWs, the EU has significantly strengthened its social dimension. The directive requires Member States to ensure that statutory MWs are adequate and set in a transparent manner. The use of reference indicators such as 60% of the median or 50% of the average gross wage is recommended (European Parliament and Council, 2022). A key part of the directive is the support for collective bargaining. Countries where less than 80% of employees are covered by collective agreements must develop an action plan to increase this share (Hassel, 2023). Haapanala, Marx, and Parolin (2023) demonstrated that in countries with high collective bargaining coverage, fewer workers are exposed to low wages, confirming the importance of combining statutory wage floors with collective agreements.

Significant differences exist in MW systems across the EU. Some countries (e.g. Sweden, Denmark) do not have a statutory MW and rely exclusively on collective agreements. Others, including the Visegrád Group,

apply centrally determined statutory MWs. These differences reflect historical and institutional approaches to labor market regulation (Müller & Schulten, 2020). In response to the directive and rising inflation, several countries such as Poland and Hungary implemented significant MW increases, approaching the recommended thresholds (Müller, 2023). Nevertheless, in many Member States, MWs still do not cover living costs and collective bargaining remains underdeveloped. The directive does not establish a unified MW level, but creates common standards for adequacy and promotes social dialogue as a key tool for effective implementation.

On the one hand, MW increases are intended to protect low-wage workers' rights to a decent standard of living. On the other, they are often perceived negatively by employers as a threat that could increase costs and reduce profitability. Alexandre et al. (2022) analyzed the effects of ambitious MW reforms in Portugal (since 2014) and found that MW increases reduced employment growth and profitability, particularly in financially weaker firms, while also increasing the likelihood of firm exits. Gorjón et al. (2023) examined the 22% increase in the Spanish MW in 2019 and found that the probability of unemployment for workers previously earning below the MW increased significantly (+1.7 percentage points), while work intensity declined (-0.9 points) compared to the control group. Laporšek et al. (2024) studied the MW increase in Slovenia and observed strong and persistent employment declines among “subminimum” wage workers, whose productivity fell below the new wage floor. Firms thus shifted hiring toward slightly higher-wage segments, while the most skilled workers remained complementary to the lowest paid.

Link (2024), analyzing the introduction of a national MW in Germany (2015), concluded that most firms increased output prices to cover rising wage costs, with no significant layoffs. Firms that passed costs on to consumers more aggressively experienced weaker employment effects. Arabzadeh et al. (2024), using both empirical and model-based methods, studied German firms facing financial constraints. They found that higher MWs reduce hiring and turnover (leading to lower overall employment) and push firms to adopt more selective hiring practices, narrowing the wage dispersion. Highly indebted firms showed stronger employment declines in response to MW increases. Gregory and Zierahn (2022), in an experimental setting, found that very high MWs reduced wages and employment among high-skilled workers at the top of the wage distribution. While medium-skilled workers just above the MW saw a modest increase in wages and employment, the overall market adjustment increased labor costs and reduced demand for higher-skill categories.

All these studies highlight that MW increases raise business costs, whether through higher wages, price adjustments, cost-saving efforts elsewhere, or employment reductions. The most significant negative effects—declines in employment and profitability—are observed especially among low-productivity and financially vulnerable firms. This cost channel is also relevant from a competitiveness perspective: recent evidence from Czech enterprises identifies production costs as a critical factor in firm competitiveness and highlights the importance of firm-size heterogeneity in organisations' responses to changing economic conditions (Heinzová et al., 2026).

2.2 Minimum Wage and Its Potential Impact on Enterprise Births

The literature identifies several mechanisms through which the minimum wage (MW) may influence entrepreneurial dynamics. The first is the selection effect, which implies that raising the wage floor creates a productivity threshold below which firms are no longer viable in the long term, discouraging entry by less productive entrepreneurs (Bachmann, Bauer & Frings, 2014). This can also contribute to firm exits, thus reshaping the market structure. This mechanism tends to be more pronounced in sectors with a high share of low-skilled labor, such as services, retail, and hospitality (Luca & Luca, 2019).

Another mechanism is the so-called putty-clay effect, where new firms entering the market adopt technologies adapted to higher labor costs, whereas existing firms remain technologically rigid. Aaronson et al. (2018) show that in such contexts, there can even be a short-term increase in enterprise births, particularly when new firms take advantage of market opportunities created by the exit of less efficient competitors. MW also has the potential to restructure the business sector by selecting firms based on their productivity and ability to absorb higher labor costs.

Empirical evidence from EU countries often points to a modest negative effect of MW on enterprise births. Draca et al. (2011) found that in the UK, following the introduction and increase of the MW, the rate of enterprise births declined in sectors with a high share of low-skilled labor. Bachmann, Bauer, and Kröger (2014) conducted a survey of 800 German service firms and found that many employers supported sectoral MW as a tool to limit entry by new competitors. This support was stronger in regions with low natural entry barriers (especially in eastern Germany) and among highly productive firms facing competition from low-cost entrants. This suggests that higher wage floors may be perceived as a way to raise entry costs for potential newcomers. Following the introduction of MW in 2015, there was an increase in solo self-employment, but many start-ups also reported difficulties (wage adjustments, administrative burdens) (Egeln, 2016). Dustmann et al. (2022) confirm that MW in Germany led to a modest decline in the number of firms due to increased selection, with allocation effects dominating as workers moved to more productive firms. Ganserer et al. (2022) support this view using panel data and the implementation of initial sectoral MWs (e.g. in construction, painting, and electrical work), finding that MW significantly increased the share of solo self-employed individuals (micro-entrepreneurs without employees). After six years, solo employment rose by 1–5 p.p., especially in industrial sectors in eastern Germany. These findings are consistent with Medrano-Adán et al. (2015), who found that MW led to more solo self-employment among entrepreneurs unable to afford employees and a decline in small employer firms. Thus, MW acts as a barrier for entrepreneurs intending to employ workers, leading to a reduction in total business output and a shift in income from the lowest and highest earners toward the middle class.

Harasztosi & Lindner (2019) found that shock increases in MW in Hungary reduced the number of enterprise births, particularly in low-productivity sectors. This inspired Casanova et al. (2025), who examined Spanish firm-level panel data and the 22% MW hike in 2019. They compared firms by the share of affected employees and differentiated effects by firm size. Their main finding was that the negative employment effects were concentrated in microenterprises (up to 5 employees), where employment growth slowed. In affected firms with up to 250 employees, worker inflows and outflows increased, resulting in poorer job quality (more part-time transitions). The study shows that the MW increase in 2019 slowed workforce expansion and increased labor turnover in small Spanish firms. Regional variation is also documented by Zeman (2018), who found that after MW hikes, eastern Slovakia saw a sharper decline in new business registrations compared to western regions.

Significant studies on MW effects on firm dynamics have also come from the US and China. Lyu and Fossen (2025), using U.S. county panel data (2001–2020), found that MW increases reduced the number of nonemployer businesses. A \$1 increase in MW was associated with a 0.5–0.9% decline in such enterprises. Moreover, MW decreases the likelihood that these businesses would transition into employer firms, while increasing exits and transitions into wage employment. Kwapisz (2020) found no major overall MW effect on hiring among U.S. startups, but did observe that higher MW reduced hiring likelihood among female entrepreneurs. Among firms that did hire, higher MW was linked to lower profitability and a higher likelihood of premature closure. Kong, Qin, and Xiang (2021), using Chinese microdata, showed that a 10% MW increase reduced enterprise births by about 6%, with the strongest effects in small service firms. The effect was stronger in low-productivity regions with a high share of informal labor. These results are consistent with Meer & West (2016), who observed long-term employment declines due to constraints on small firm growth. Li et al. (2023) explored how local MW adjustments in China affect enterprise entry. They found that a 10% MW increase reduced firm entries by 2.69%, especially in low-wage or low-skill labor sectors.

An important aspect is impact heterogeneity. Ludovice et al. (2024) found that new firms without prior business experience face higher exit rates due to increased wage burdens and are more vulnerable to MW hikes, while established entrepreneurs are more resilient. Cordier and Bade (2023) explored how regulatory costs influence entrepreneurial decisions, especially among new entrants. They found that stricter labor regulations combined with rising MW could discourage enterprise births. Cui and Li (2023) observed similar dampening effects from cost uncertainty in trade policy, showing parallels with rising labor costs. The most affected sectors are small services and retail. Bachmann et al. (2014) documented that MW acts as a market entry barrier for low-productivity firms in labor-intensive sectors. These findings support the hypothesis that MW induces restructuring toward higher productivity, albeit at the cost of reducing entry opportunities for low-capital entrepreneurs. Dustmann et al. (2022) confirm that the strongest effects are concentrated among small firms (up

to 5 employees), which experienced employment declines, while larger firms expanded. This vulnerability is consistent with recent entrepreneurship research showing that new ventures often operate under pronounced resource constraints and that their ability to acquire, combine, and deploy limited resources is central to maintaining competitiveness (Wu et al., 2025).

Overall, the impact of MW on entrepreneurial dynamics is not uniform. Most studies point to a mildly negative effect on enterprise births. The effect depends on a country's specific conditions, sectoral composition, firm size, and entrepreneur type. The evidence also suggests that microenterprises are the most vulnerable, particularly due to their lower productivity and limited reserves. These firms often aim to hire a few employees in low-cost sectors, making them especially susceptible to wage floor constraints. A recent fuzzy multi-criteria assessment of SME entrepreneurship indicators likewise identifies organisational innovation and risk-taking among the most influential dimensions, reinforcing the view that firms' responses to external cost pressures depend on a broader configuration of entrepreneurial capabilities rather than on a single economic factor (Rostamzadeh et al., 2026).

3. Methodology

The aim of this study is to analyze the impact of rising minimum wages on entrepreneurial dynamics in European Union countries, with a specific focus on the number of enterprise births. For this purpose, we used panel data covering the period from 2015 to 2021 for a selected group of 21 EU member states. Countries such as Denmark, Italy, Cyprus, Austria, Sweden, and Finland were excluded from the analysis due to the absence of a unified national minimum wage or lack of available data during the observed period. The data sources include statistics from Eurostat.

Based on the theoretical framework and previous empirical findings, we formulated the following research hypotheses:

- H1:** An increase in the minimum wage has a negative effect on the total number of enterprise births.
H2: The sensitivity to minimum wage growth is higher among newly established microenterprises (1–9 employees) than among larger enterprise births with more than 10 employees.

To verify the formulated hypotheses, statistical models were tested using the R programming language. The dependent variable is the number of enterprise births per 100,000 inhabitants ($\ln(births)$). This indicator was calculated based on Eurostat's Business Demography statistics and is used to capture the dynamics of entrepreneurial activity and the entry of new economic units into the market. The main explanatory variable in the models is the minimum monthly wage in euros ($\ln(MW)$), with data sourced from Eurostat reflecting nominal changes in the minimum wage over time. Control variables include gross domestic product per capita ($\ln(GDP)$) as an indicator of a country's economic performance, the unemployment rate ($Unemp$) as a measure of labor market conditions, and the average net earnings ($\ln(Earn)$) as a proxy for compensation levels and purchasing power. All variables are annual and expressed in euros or percentages.

For the dependent variable, the number of enterprise births per 100,000 inhabitants, a logarithmic transformation $\ln(1 + x)$ was applied. Adding one eliminates the issue of potential zero values, which would otherwise prevent log transformation. Logarithmization was used to stabilize variance, reduce heteroskedasticity, and mitigate the influence of extreme values.

The observed period was divided into two sub-periods 2015–2020 and 2021–2023 due to changes in the methodology for reporting enterprise births. These methodological changes, implemented by Eurostat in 2021 as part of the European Business Statistics (EBS) regulation, marked a significant shift in how business demography is measured. The goal of the revision was to enhance the accuracy, consistency, and international comparability of data on business entries and exits. Under the new definition, an entity is classified as an enterprise birth only if it represents a new combination of production factors—meaning a genuinely new economic entity entering the market. Enterprises that were merely reactivated after a temporary suspension of activity (e.g., for less than two years), as well as cases of mergers, demergers, spin-offs, or changes in legal

form, are no longer included in the “births” category. Similarly, changes in business activity that do not involve the creation of a new unit are also excluded (Eurostat, 2025). Another major innovation was the introduction of Statistical Business Registers (SBR) as the primary data source. This significantly improved the quality and consistency of the data and enabled tracking of linkages between economic units. Eurostat also implemented unified rules for data validation and systematic cleaning of databases, thereby eliminating duplicate or non-standard records and enhancing cross-country comparability.

These adjustments also had a significant impact on time series data. Since 2021, the number of enterprise births is no longer fully comparable with earlier series (2015–2020), as the stricter definition and the exclusion of reactivations led to a decrease in the recorded number of “births” in some countries. For this reason, the sample was split into two periods—before and after the methodological change—to minimize the risk of bias resulting from the revision and to enable a clearer interpretation of differences between them. Currently, data on enterprise births are only available through 2023, which also limited the sample size.

Table 1. Overview of monitored variables

Abbreviation	Variable Name	Unit	Note
ln(births)	Number of enterprise births	Number of new enterprises	Adjusted per 100,000 inhabitants and log-transformed as $\ln(1 + x)$
MW	Minimum monthly wage in EUR	EUR / month	Semi-annual data averaged to yearly basis
GDP	Gross Domestic Product per capita (chain-linked volumes)	EUR per capita	Estimate of the country’s economic performance
Earn	Average net monthly earnings of employees	EUR / month	Adjusted for full-time equivalent employees
Unemp	Unemployment rate (total)	Percent (%)	Share of unemployed in the economically active population
population	Total population	Number of persons (thousands)	Used to recalculate the number of enterprise births per 100,000 inhabitants

Source: authors

After analyzing the overall impact of the minimum wage (MW) on the number of enterprise births, we extended the research to include an analysis by size categories of newly established enterprises. The aim was to examine whether the effect of the minimum wage differs depending on the scale of business activity, specifically the number of employees that new enterprises hire. In line with Eurostat methodology, we distinguished four size classes of new enterprises: enterprises with no employees, enterprises with 1–4 employees, enterprises with 5–9 employees, and enterprises with 10 or more employees. This approach allows us to capture potential heterogeneous effects of the minimum wage, as smaller enterprises may be more sensitive to rising labor costs, while larger new entities may have better financial or organizational capacities to absorb them. The analysis thus provides a more detailed view of how minimum wage policy influences entrepreneurial dynamics across different segments of enterprise births.

The estimated model has the following structure:

$$\ln(births_{it}) = \beta_0 + \beta_1 \ln(MW_{it}) + \beta_2 \ln(GDP_{it}) + \beta_3 Unemp_{it} + \beta_4 \ln(Earn_{it}) + \alpha_i + \lambda_t + \varepsilon_{it}, \quad (1)$$

- i = country,
- t = year,
- $\ln(births_{it})$ = dependent variable (logarithm of the number of enterprise births per 100,000 inhabitants),
- $\ln MW_{it}$ = logarithm of the minimum wage in euros,
- $Unemp_{it}$ = unemployment rate in %,
- $\ln Earn_{it}$ = logarithm of average (net) earnings,
- α_i = country fixed effect,
- λ_t = year fixed effect,

- ε_{it} = random error term.

To verify the suitability of the panel structure and determine the optimal model specification, a series of diagnostic tests was conducted, representing a standard procedure in empirical panel data analyses. First, the F-test for fixed effects (pFtest) was applied to assess the existence of heterogeneity across countries and over time, and to determine whether fixed effects significantly improve the explanatory power of the model compared to a pooled OLS estimate. Subsequently, the Lagrange Multiplier test (Breusch–Pagan LM test) was conducted to test for the presence of random effects and to evaluate whether a random effects model is preferable to the pooled model. The final decision between the fixed effects and random effects model was based on the Hausman test, which compares the consistency and efficiency of the estimates from both approaches. Rejection of the null hypothesis in this test indicates a preference for the fixed effects model. To increase the reliability of the estimates, robust standard errors were used in all model specifications (White HC1, clustered by country or year, or Driscoll–Kraay), accounting for potential heteroskedasticity and serial correlation in the panel data.

4. Results and Discussion

4.1 Development of Minimum Wage and Enterprise Births in the EU

The aim of this study is to determine the impact of the minimum wage (MW) on the number of enterprise births in the EU. Before constructing statistical models, it is necessary to examine the overall trends and basic relationships between the variables, which may indicate the existence and direction of this impact. Within the European Union, the level of the minimum wage varies significantly across countries, reflecting differences in economic performance, labor productivity, and price levels. Comparing the development of the minimum wage over time allows for an assessment not only of absolute differences between countries, but also of the pace at which they are converging toward the EU average. Figure 1 illustrates the variability of minimum wages in EU member states from 2015 to 2023.

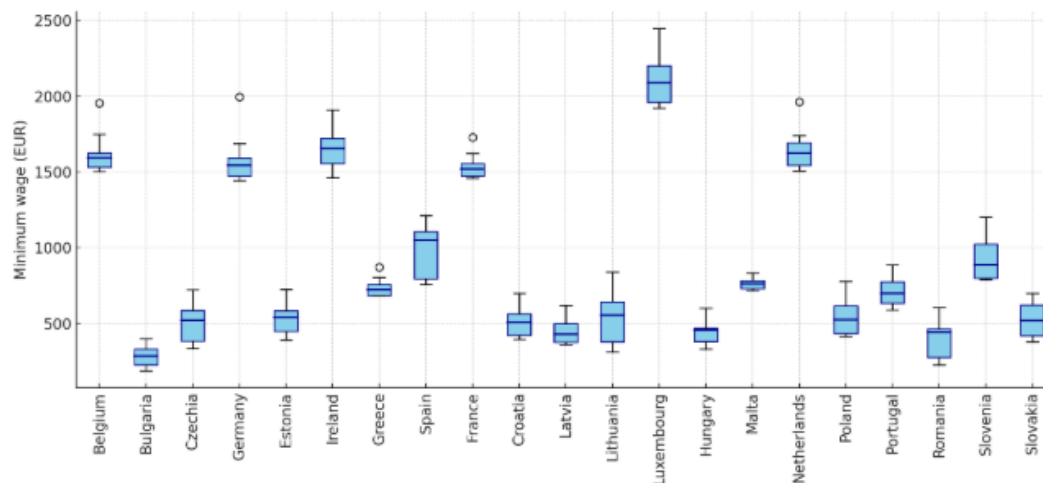


Figure 1. Distribution of Minimum Wage Levels by Country (2015-2023)

Source: Eurostat

Figure 1 illustrates the distribution of minimum wages in EU countries between 2015 and 2023. Western European countries (Luxembourg, Ireland, the Netherlands, Belgium, Germany) consistently reach the highest levels with low variability, while Eastern European countries (Bulgaria, Romania, Hungary, Slovakia) show lower wage levels but faster growth and greater dynamism in changes. The gap between the upper and lower quartiles remains significant, confirming persistent regional disparities, although the gradual convergence of minimum wage levels indicates a slow process of wage harmonization within the EU. In the long term, MW growth supports domestic demand and consumption, but on the other hand, it represents rising costs for

employers, especially in sectors with lower labor productivity (services, retail, agriculture). For enterprise births, this may constitute a barrier to entry.

The analysis of enterprise births provides important insights into the dynamism of the business environment and the economy's ability to generate new jobs. Comparing the average number of new firms between the periods 2015–2020 and 2021–2023 allows us to identify regional differences in entrepreneurial activity and capture changes potentially linked to macroeconomic developments, wage growth, or the effects of the COVID-19 pandemic. The following maps (Figure 2) visualize the average number of enterprise births in EU member states for both observed periods.

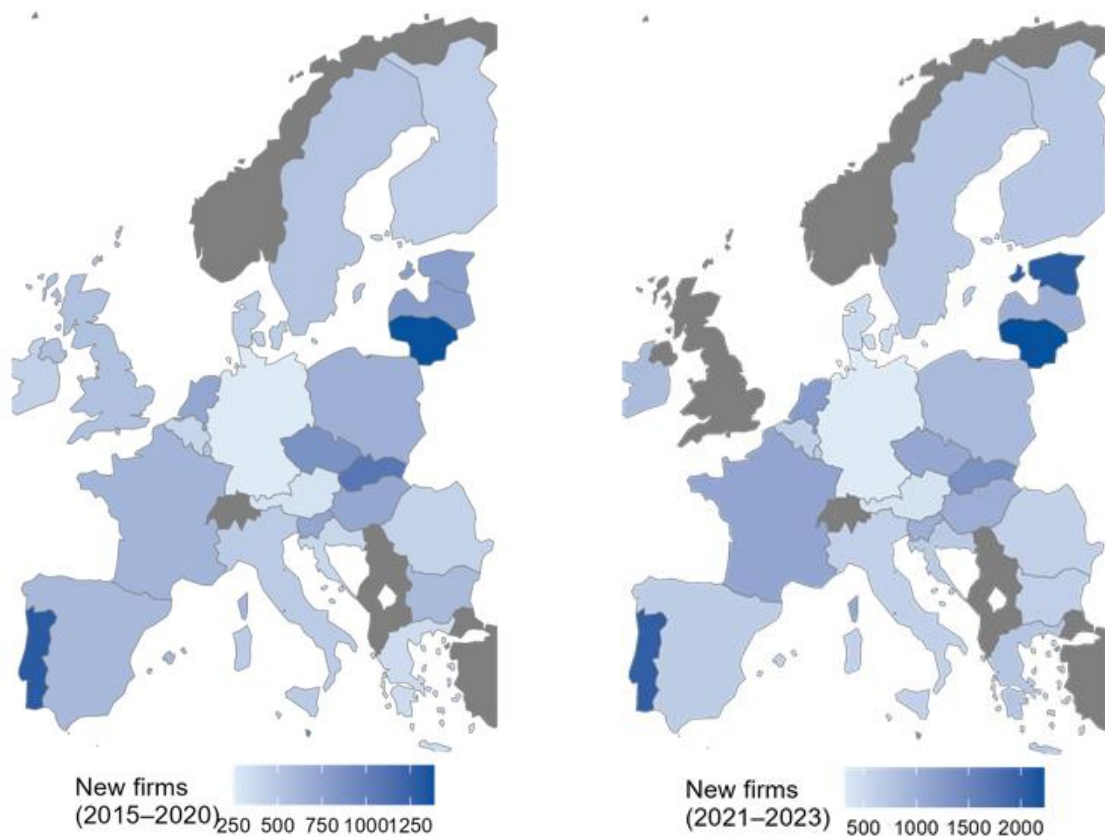


Figure 2. Average Number of Enterprise Births (New firms) in the Periods 2015–2020 (Left) and 2021–2023 (Right)
Source: Eurostat (own processing)

The comparison of both periods in Figure 2 clearly shows that entrepreneurial activity across the European Union evolved differently across regions. Between 2015–2020, new business registrations were concentrated mainly in the Baltic states and parts of Western Europe (e.g., Portugal, the Netherlands), while after 2021 a more pronounced increase emerged in Central and Southeastern Europe. This shift suggests a gradual recovery of the business environment following the pandemic period, while also highlighting persistent differences in entrepreneurial dynamism between countries. A higher number of enterprise births may reflect improved economic expectations, greater access to capital, or a response to rising labor costs in certain sectors.

To illustrate the relationship between the level of the minimum wage and business dynamism, we compare the average values of minimum wage and the number of enterprise births per 100,000 inhabitants in EU countries. The following Figure 3 displays this relationship for two time periods—before and after the change in the methodology for business statistics.

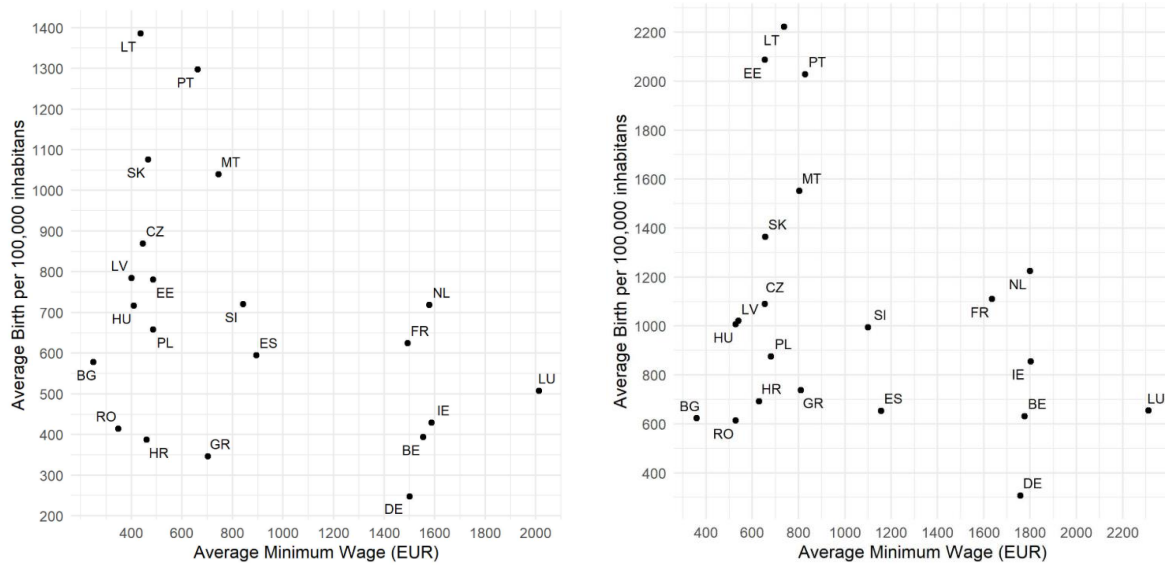


Figure 3. Relationship Between Average Minimum Wage and Average Number of Enterprise Births for the Periods 2015–2020 (Left) and 2021–2023 (Right)

Source: Eurostat (own processing)

Figure 3 shows that in the period 2021–2023, the relationship between higher minimum wages and a lower number of enterprise births appears more systematic than in the previous years. Countries with higher wage levels exhibit lower entrepreneurial activity, visually supporting the hypothesis of a negative impact of rising minimum wages on business formation. This trend may result from stronger regulatory interventions, changes in statistical methodology, or higher entry costs associated with formal entrepreneurship.

4.2 The Impact of the Minimum Wage on the Total Number of Enterprise Births

To test Hypothesis H1, a series of models was created for two distinct periods, 2015–2020 and 2021–2023, based on the methodological changes in the Eurostat database that affect the calculation of enterprise births. Tables 2 and 3 present the results for five statistical models.

Table 2. Results of Panel Models for the Period 2015–2020 (All Enterprise Births, Old Methodology)

Variable	Pooled OLS	FE (ind.)	FE (time)	FE (2W)	RE (ind.)
ln(MW)	−0.675* (0.370)	−0.238 (0.344)	−0.723*** (0.141)	−0.156 (0.119)	−0.207 (0.317)
ln(GDP)	0.013 (0.379)	0.361 (0.474)	0.133* (0.073)	0.841 (0.636)	−0.002 (0.307)
Unemp	−0.024 (0.017)	−0.025** (0.011)	−0.018*** (0.004)	0.005 (0.005)	−0.028*** (0.010)
ln(Earn)	0.399 (0.428)	0.283 (0.563)	0.372** (0.148)	−0.363 (0.315)	0.181 (0.437)
Constatnt	7.402*** (1.235)	—	—	—	6.400*** (1.554)
Obsetvations	126	126	126	126	126
R ²	0.169	0.133	0.173	0.033	0.105
Adj. R ²	0.142	−0.073	0.109	−0.259	0.076

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: authors

According to both diagnostic tests and economic logic, the most appropriate model in Table 2 is the RE individual model (random country effects). In all model specifications, the minimum wage variable has a negative coefficient. It is strongly statistically significant in the FE-time model ($\beta = -0.723$, $p < 0.01$), and moderately significant in the pooled OLS model ($p \approx 0.07$). In the most suitable RE model, the effect remains negative but is not statistically significant. This suggests that a higher minimum wage may contribute to a reduction in the number of enterprise births—i.e., rising wage costs may act as a barrier to market entry for new businesses. The panel models for the period 2015–2020 show that control variables such as GDP have a positive effect, supporting entrepreneurial activity. Unemployment consistently shows a negative effect, and higher

average earnings are associated with a more favorable business environment. Table 3 presents results for the period 2021–2023, following the implementation of the new methodology for calculating enterprise births.

Table 3. Results of Panel Models for the Period 2021–2023 (All Enterprise Births, New Methodology)

Variable	Pooled OLS	FE (ind.)	FE (time)	FE (2W)	RE (ind.)
ln(MW)	−0.787 (0.727)	−0.599 (0.474)	−0.811*** (0.137)	−1.046*** (0.227)	−0.550 (0.422)
ln(GDP)	−0.110 (0.489)	0.661 (0.679)	−0.042 (0.088)	0.924*** (0.062)	−0.120 (0.328)
Unemp	−0.012 (0.036)	−0.050* (0.026)	−0.008 (0.008)	−0.020 (0.013)	−0.053*** (0.017)
ln(Earn)	0.585 (0.659)	0.642* (0.373)	0.561*** (0.151)	0.396* (0.204)	0.532* (0.320)
Constant	7.382*** (1.545)	—	—	—	6.539*** (1.391)
Observations	63	63	63	63	63
R ²	0.086	0.233	0.089	0.174	0.132
Adj. R ²	0.023	−0.252	−0.008	−0.423	0.072

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: authors

Based on the diagnostic tests, the most appropriate model for this dataset is the country random effects model (RE individual). For the 2021–2023 data, the coefficient on the minimum wage (in euros) is negative across all models, suggesting that an increase in the minimum wage tends to reduce the number of newly established firms. The effect is statistically significant in the time and two-way fixed effects models (FE time, FE two-ways), where $\beta = -0.811^*$ (FE-time) and $\beta = -1.046^{***}$ (FE two-ways). This indicates that increasing the minimum wage raises fixed labor costs, which may discourage small and new businesses from entering the market. In the pooled OLS and RE models, the effect remains negative but is not statistically significant, implying that the impact is weaker when cross-country differences are taken into account. Overall, higher minimum wages appear to have a dampening effect on firm creation, while economic growth (GDP) clearly contributes positively.

Unemployment remains a significant negative determinant, as was the case in the previous period. According to Wosiek (2024), it is also important to consider the structure of unemployment. A higher share of highly skilled unemployed individuals increases the rate of firm formation, especially in knowledge-based services and manufacturing. Conversely, a higher proportion of long-term unemployed negatively affects the emergence of new businesses, particularly those with employees. According to our findings, higher earnings may indicate a more attractive business environment.

In summary, labor costs in the EU context have a real and quantifiable impact on business dynamics, as evidenced by the negative and economically significant minimum wage coefficient in the fixed effects models. The statistical model results, depending on the methodology used to calculate business births, are summarized in Table 4.

Table 4. Comparison of Model Results for the Periods 2015–2020 and 2021–2023

Variable	Old Methodology (2015-2020)	New Methodology 2021-2023)	Trend
MW	Negative, significant	Negative, but not significant	Weakened effect
GDP	Positive, insignificant to mildly significant	Positive, stable	Consistent effect
Unemp	Negative, significant	Negative, significant	Stable effect
Earn	Positive, significant in FE-time	Positive, not significant	Weaker effect after methodology change

Source: authors

The results of the models presented in Tables 2, 4, and 4 confirm H1: *An increase in the minimum wage has a negative effect on the total number of newly established enterprises.* This effect should be interpreted as moderately negative, and it is important to point out the relatively low explanatory power of the models given

the R^2 values. Thus, while the primary function of the minimum wage (MW) is to protect low-income employees, it can also act as a barrier to the formation of new enterprises in EU countries. Our findings are supported and explained by previous studies. A higher wage floor increases entry costs and creates a productivity threshold below which new enterprises cannot survive (Bachmann et al., 2014). This effect is confirmed by international studies by Draca et al. (2011) in the United Kingdom, Harasztosi & Lindner (2019) in Hungary, and Kong et al. (2021) in China. The literature also highlights that some potential entrepreneurs respond to wage regulation by shifting into non-employer entrepreneurship (Ganserer et al., 2022), which can result in a decline in the number of formally registered businesses. Therefore, a higher MW not only selects entrepreneurs based on productivity but also alters the structure of new businesses in favor of smaller and more informal types (Cordier & Bade, 2023).

4.3 The Impact of Minimum Wage on Newly Established Firms by Size

To test hypothesis H2, a total of eight models were developed to examine the effect of MW on the number of newly established enterprises across four size categories during the two observed periods: 2015–2020 and 2021–2023. The results of selected models are presented in Table 5, while the complete set of MW coefficient estimates across all examined models can be found in Table 6.

Table 5. Results of the Models Estimating the Effect of Minimum Wage on the Number of New Enterprises by Size

Model	2016-2020				2021-2023			
	Model 1 (0)	Model 2 (1-4)	Model 3 (5-9)	Model 4 (10+)	Model 5 (0)	Model 6 (1-4)	Model 7 (5-9)	Model 8 (10+)
ln(MW)	0.095 (0.430)	-0.622 (0.408)	-0.974 (0.557)	-0.781* (0.411)	0.197 (0.206)	0.010 (0.085)	-0.057 (0.111)	-0.155 (0.162)
ln(GDP)	0.097 (0.519)	0.332 (0.515)	1.289 (1.075)	0.816 (0.707)	-0.710** (0.321)	0.131 (0.125)	0.222* (0.115)	0.405*** (0.107)
Unemp	-0.036* (0.019)	-0.011 (0.014)	-0.038* (0.020)	-0.029* (0.016)	-0.029*** (0.011)	-0.004 (0.007)	-0.016** (0.008)	-0.019*** (0.007)
ln(Earn)	-0.034 (0.678)	0.027 (0.572)	-0.572 (0.858)	-0.571 (0.676)	0.229 (0.214)	0.070 (0.111)	0.076 (0.128)	0.133 (0.113)
constant	5.858** (2.490)	7.388*** (1.807)	-	-	8.418*** (1.369)	6.387*** (1.033)	-	4.148*** (0.597)
R2	0.102	0.084	0.214	0.243	0.417	0.077	0.241	0.310
Adjusted R2	0.069	0.050	0.025	0.060	0.376	0.013	-0.239	0.262

Note: The presented values reflect the results of the model with random individual effects. In case of the symbol (-), the most suitable model was the one with fixed individual effects. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: authors

Table 6. Results of Models Estimating the Impact of Minimum Wage on the Number of Enterprise Births by Firm Size

Model	2015-2020				2021-2023			
	Model 1 (0)	Model 2 (1-4)	Model 3 (5-9)	Model 4 (10+)	Model 5 (0)	Model 6 (1-4)	Model 7 (5-9)	Model 8 (10+)
Pooled OLS	-0.688	0.031	-0.688	-1.039	-0.432	-0.582	-0.346	-0.746
FE (ind.)	0.054	-0.891	-0.974*	-0.781*	0.234	-0.006	-0.057	-0.068
FE (time)	-0.732*	-0.005	-0.723**	-1.053**	-0.442*	-0.628*	-0.364	-0.765*
FE (2W)	-0.019	-0.469*	-0.795***	-0.576***	-0.080	0.203	-0.034	-0.174
RE (ind.)	0.095	-0.622	-0.845*	-0.810**	0.197	0.010	-0.077	-0.155

Note: The reported coefficients refer to the variable ln(MW). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: authors

When testing H2, it was expected that micro-enterprises (0–9 employees) would be more sensitive to increases in the minimum wage (MW), but the results show the opposite trend. The strongest negative effect appears among enterprises with more than 10 employees, particularly in the years 2021–2023 (Model 8), where the

coefficient for MW is consistently negative and statistically significant. For micro-enterprises (Models 5 and 6), the results are less pronounced and mostly insignificant. These findings do not confirm hypothesis H2 and suggest that MW increases may more strongly limit the entry of larger new businesses that plan to employ a greater number of workers from the outset. This can be explained by the fact that rising labor costs have a greater impact on enterprises that must hire a larger workforce, compared to entrepreneurs without employees.

This result does not fully align with expectations from the literature (Harasztosi & Lindner, 2019; Dustmann et al., 2022), which suggests that smaller firms are the most vulnerable. Another possible explanation is that larger new businesses more often operate in regulated sectors with a higher share of manual occupations, where the effect of MW is amplified (Mayneris et al., 2018). Micro-enterprises (0–9 employees), on the other hand, may be temporarily more flexible or less visible to formal regulations.

The control variables in most models confirm the expected direction: higher GDP ($\ln(\text{GDP})$) is associated with a higher number of new firms, with the coefficient being statistically significant in the more recent models (e.g., Model 7). Unemployment (Unemp) generally shows a negative and statistically significant effect, indicating that higher unemployment may discourage business entry. However, these results may vary depending on the sector in which the business enters, as noted by Wosiek (2024). Wages ($\ln(\text{Earn})$) exhibit only limited effects, with no consistent direction or significance. These results suggest that, in addition to the minimum wage, broader macroeconomic conditions also play a crucial role in shaping entrepreneurial dynamics.

Conclusion

This study aimed to examine the extent to which increases in the minimum wage (MW) influence the dynamics of new firm creation in EU countries. Based on panel data analysis, we tested two hypotheses related to the overall number of newly established enterprises and their size structure. The results provide important insights into the broader implications of wage policy on the business environment and highlight the specific vulnerabilities of certain types of enterprises.

Our findings support the first hypothesis (H1), which states that MW growth has a negative effect on the number of enterprise births. This effect is especially noticeable in countries and periods that experienced more significant increases in MW. These results are consistent with existing European studies such as Harasztosi & Lindner (2019) in Hungary, Dustmann et al. (2022), Ganserer et al. (2022) in Germany, and Casanova et al. (2025) in Spain, all of which emphasize that the sector a business seeks to enter plays a critical role. In general, the impact of MW on new businesses appears to be mildly negative.

Interesting findings emerged from testing the second hypothesis (H2), which expected that MW growth would primarily affect micro-enterprises (0–9 employees). However, our results show that the strongest negative impact was observed among firms with more than 10 employees. This outcome partially contradicts expectations but may relate to the cost structure and employment rigidity of larger firms. Micro-enterprises (0–9 employees) may be more flexible in adapting to changes (e.g., adjusting working hours or shifting activities to the informal sector), whereas medium-sized firms are more subject to strict labor regulations. These interpretations align with the framework presented by Aaronson et al. (2018), which highlights different firm responses to labor costs depending on their technical and organizational flexibility. A possible explanation is that larger new firms are more likely to operate in formal sectors with higher compliance requirements, increasing their exposure to wage regulations early in their lifecycle. The response to MW by firm size may differ significantly between existing firms and potential entrants. If a firm intends to employ more than 10 workers, MW hikes may present a greater barrier to entry than for smaller firms, which could explain our results.

From a theoretical standpoint, our research confirms the selection effect of MW and supports the argument that MW creates an implicit threshold for market entry (Bachmann, Bauer & Frings, 2014), potentially acting as a barrier especially for entrepreneurial initiatives with lower capital and productivity. However, the overall effect is only mildly negative for the full sample, more pronounced for firms with over 10 employees, and does not outweigh the social benefits of MW increases. The primary purpose of MW growth is to ensure a decent income for workers, reduce in-work poverty, and promote social justice. It also aims to strengthen household purchasing

power, contributing to aggregate demand. Within the EU, it serves as a tool for narrowing living standard gaps between member states and reinforcing the Union's social pillar. Overall, while MW increases can entail negative consequences for business dynamics—especially in areas with a high prevalence of MW-paid jobs—wage policy must be considered in the context of the broader economic environment and business conditions. The main goal of this study is to highlight potential downsides, not to advocate for halting MW increases across the EU.

Despite robust relationships observed, this research has several limitations. First, it uses aggregated panel data at the country level, which prevents analysis of sectoral or regional heterogeneity. Second, we lacked micro-level data on individual firms, making it difficult to identify mechanisms such as technological adaptation, legal entry forms, or shifts to the informal economy. Moreover, we did not account for factors such as entrepreneurial culture, credit availability, or tax incentives, which may interact with the effects of MW. Another limitation is the time series covered (2015–2023), which had to be split into two periods due to a change in Eurostat's enterprise birth methodology after 2020.

For future research, it would be valuable to analyze the MW effect on firm creation at the sectoral or regional level, and to complement the quantitative analysis with qualitative data—for instance, surveys of entrepreneurs on their perceptions of wage regulations as barriers to entry (Cui & Li, 2023). Such findings would be important for implementing sector-specific or regional MW levels in EU countries that do not yet use this approach. We also recommend including variables such as entrepreneurial expectations or regulatory changes over time. Finally, it would be beneficial to compare the effects of wage regulation in EU countries with those outside the EU (e.g., the USA or China), where labor market institutions differ.

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Andrea TKACOVA is in an Assistant Professor of Faculty of Economics, Technical University in Kosice. In her research work she has focused primarily on the issue of public finances and finances of local governments with an emphasis on public procurement and employment policy. Her areas of interest also include monitoring and forecasting the economic cycles of the countries of the European Union and minimum wage in EU countries.

ORCID: <https://orcid.org/0000-0002-6025-1261>

Peter TOTH is in an Assistant Professor of Faculty of Economics, Technical University in Kosice. In his research, he focuses on the field of accounting and auditing, and also specializes in public finance and the finances of local governments.

ORCID: <https://orcid.org/0000-0002-5616-5520>

Beata GAVUROVA is a Professor at the Faculty of Mining, Ecology, Process Control and Geotechnologies, Technical University of Kosice. In her research, she focuses primarily on applied economics, public policy, artificial intelligence and digital transformation, with particular emphasis on data-driven decision-making, risk and resilience, public health, and regional development. Her research also covers the socioeconomic impacts of emerging technologies, AI governance, digital and cognitive resilience, and the application of advanced quantitative and decision-support methods in economic and social research.

ORCID: <https://orcid.org/0000-0002-0606-879X>

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