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**Working Paper**

## Drivers of New Business Creation in the OECD: The Role of Education and Taxation

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# Working Papers

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# Drivers of New Business Creation in the OECD: the Role of Education and Taxation<sup>\*</sup>

António Afonso<sup>\$</sup> · M. Carmen Blanco-Arana<sup>#</sup> · Ana J. Cisneros-Ruiz<sup>†</sup>

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## Abstract

The main aim of this paper is to empirically assess the impact of education and tax revenue on fostering new business creation in the OECD countries. To this end, we employ fixed effects and random effects models using panel data from 2006 to 2022, incorporating alternative conditions. Results confirm that while education and the economic situation are key pillars in fostering new business creation, the role of tax revenue in supporting economic development – and, by extension, new business formation – is fundamental, even if non-linear, with a threshold of 30% of GDP. Tax revenue collected by governments provides essential funding for public goods and services such as infrastructure, education, and innovation support programs, all of which contribute to creating an environment where new businesses can emerge and thrive. Our findings remain robust under the GMM estimation.

**Keywords:** New Business; Tax Revenue; Education; Economic Growth; Panel Data

**JEL classification:** C23; H2; I2; M20

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## **1. Introduction**

Entrepreneurship is a critical engine of economic and social development, exerting a profound influence on innovation, job creation, and the overall competitiveness of national economies. As global conditions are increasingly shaped by rapid technological advancements, shifting demographic patterns, and heightened geopolitical and economic uncertainties, fostering the creation of new businesses has become a strategic priority for policymakers and institutions alike. Within this evolving landscape, a key question arises for both economic researchers and decision-makers: What are the macro-level drivers that stimulate entrepreneurial activity, and under which economic and institutional conditions are new ventures more likely to emerge and thrive?

Among the various factors that influence entrepreneurship, socioeconomic determinants remain some of the most extensively examined. These determinants reflect the broader systemic conditions that support or hinder business creation: whether the macroeconomic environment is stable, whether institutions are trustworthy, and whether the population is equipped with adequate knowledge and resources to engage in entrepreneurial activity. For instance, access to education and good institutional frameworks may encourage business formation. In this sense, governments could provide essential funding for public goods and services such as infrastructure, education, and innovation support programs. The literature on developing public policies promoting entrepreneurship is vast in countries worldwide. The efficiency of the public policies and the support from public administration towards entrepreneurship triggered economic development, technological progress, competitiveness, and means of reducing social inequalities and increasing well-being (Dima et al., 2016). Thus, the concept of well-being and its relationship to businesses has been promoted for a long time in terms of welfare entrepreneurship for regional and economic development.

Therefore, the primary objective of this research is to examine how economic conditions influence the formation of new businesses. Specifically, the study focuses on the roles of fiscal policy and educational attainment in driving business creation. By analysing macroeconomic and institutional indicators, it seeks to identify structural factors that shape early-stage entrepreneurial activity across a diverse sample of developed economies. The ultimate goal is to provide actionable insights for evidence-based policymaking and strategic planning by highlighting the systemic conditions that most effectively support the emergence of new firms.

The impact of fiscal policy on entrepreneurship has emerged as a compelling area of research. De Schoenmaker et al. (2014) assert that local taxes can hinder a company's financial performance. Similarly, other studies have confirmed the negative effects of local taxation on

regional financial health, firm performance, and employment growth (Gatsi et al., 2013; Fang et al., 2022). However, these studies also highlight that aggregate public spending – particularly on infrastructure, education, and public safety – can enhance firm profitability (Duranton et al., 2011; De Schoenmaker et al., 2014).

Overall, especially for new businesses, taxes influence the risks undertaken by entrepreneurs. Therefore, if tax policies may influence the entrepreneurs' decisions to start their businesses or not, the economic theory suggests that higher tax rates constrain entrepreneurial activity. Still, the tax code might support the private sector in employing special treatment for losses or capital investments. In this context, Lobonț et al. (2023) refer to income growth and higher employment in regions with an environment supporting entrepreneurship and areas providing more significant support from channelling public resources to welfare. Overall, taxes influence the activities and performance of companies to an extent that taxation may be considered to have an even more substantial influence on entrepreneurship than public spending. Of course, the effectiveness of fiscal policies makes the difference across countries and times (especially in times of financial instability).

Early-stage entrepreneurship is used as a proxy for broader investment in business creation, offering a lens through which to understand the foundational drivers of innovation and long-term economic growth. This is why investigating the tax revenue, GDP growth, and level of education concerning entrepreneurial activity in terms of threshold makes this research innovative. To conduct this analysis, a representative sample of 37 member countries of the Organisation for Economic Cooperation and Development (OECD) was selected, excluding only the United States due to limitations in data availability. This selection was guided by several methodological and practical considerations. OECD countries represent high-income economies characterized by stable governance, developed financial markets, and advanced statistical systems, thereby ensuring the availability of consistent, high-quality data. At the same time, the OECD encompasses considerable heterogeneity in economic structures, education systems, regulatory frameworks, and societal attitudes toward entrepreneurship. This internal diversity is particularly advantageous for comparative analysis, as it allows for the identification of shared patterns and relevant divergences within a common institutional context. Moreover, the OECD's commitment to coordinated economic and social policies adds an additional layer of comparability to the dataset, facilitating meaningful cross-national analysis while retaining contextual depth. For instance, Nordic countries combine strong welfare systems with high levels of business dynamism, while Southern European countries may face institutional constraints despite stable macroeconomic indicators. These contrasts provide a valuable

framework for assessing how structural variables interact to shape entrepreneurial outcomes. Furthermore, the exclusion of non-OECD countries minimizes potential data inconsistencies or distortions due to informal economies or institutional instability.

In sum, this study provides a structured and empirically grounded examination of the macro-level determinants of entrepreneurship across OECD economies. It addresses the central research question: To what extent do GDP per capita, tax revenue and education influence the creation of new businesses in developed countries besides other contextual factors? Through this inquiry, the research aims to contribute to a deeper understanding of how economic and social systems shape entrepreneurial ecosystems and to offer practical implications for public policy and private investment strategies aimed at fostering innovation and sustainable economic development. This is why investigating the tax revenue, GDP growth, and level of education concerning entrepreneurial activity in terms of threshold makes this research innovative, going beyond the study of one state to the level of the OECD countries.

The rest of this article is organized as follows. In the next section, we briefly review the literature. Section 3 presents the panel data set and the methodology. Section 4 goes on to discuss the empirical results. Finally, the last section concludes.

## **2. Literature**

In recent years, decision-makers have increasingly focused on the determinants of entrepreneurship, particularly in the context of a turbulent economic environment marked by financial and economic crises. Thus, business investment is a complex phenomenon shaped by a wide range of interrelated variables, which are typically considered socio-economic or institutional factors (see, for example, Demircuc-Kunt and Maksimovic, 1998; Levine et al., 2000; van Stel et al., 2005; Acs, 2006; Naudé, 2010; Kim et al., 2022; Ahmed et al., 2022; Blanco-Arana and Angulo-Guerrero, 2024; among others). Among these determinants, fiscal policy has drawn significant attention, as it has emerged as a key tool for fostering entrepreneurial activity (Acs and Armington 2004; Lobonț et al., 2023; OECD, 2023a; OECD 2023b). Therefore, this section reviews the most significant findings in these areas to establish a theoretical foundation for the empirical analysis of business formation across OECD countries.

Focusing on fiscal policies, tax revenue collected by governments is often reinvested in infrastructure, education, and innovation, which indirectly supports entrepreneurship. Studies such as Acs and Armington (2004) argue that government spending financed by tax revenue can improve entrepreneurial ecosystems and facilitate new business creation. In this context,

tax revenue enables governments to invest in infrastructure, education, and innovation, creating a conducive environment for new businesses. For instance, the OECD (2023a) highlights how increased tax revenues, particularly from corporate income taxes and value-added taxes, have supported economic activities and, indirectly, entrepreneurship. Moreover, tax policies, such as corporate income tax rates and value-added taxes, influence business formation. In this line, the OECD (2023b) notes that while tax policy measures have supported growth in tax revenues, the direct impact of these revenues on new business creation requires further empirical investigation. In this context, Lobonț et al. (2023) examine how fiscal policies, government effectiveness, trade, economic growth, and education shape the entrepreneurial environment in EU countries. Using panel threshold regression on data from 2002–2019, the research identifies a threshold effect of fiscal policy on entrepreneurship. It finds that tax policy, trade, and government effectiveness significantly stimulate entrepreneurship. Therefore, the study suggests that governments can boost entrepreneurship by aligning tax laws with EU standards, reducing regulatory burdens, and promoting transparency and fair competition.

Moreover, a substantial body of literature underscores the pivotal role of entrepreneurial activity in promoting a country's economic growth and overall development. Entrepreneurship serves as a key driver of job creation, income generation, and innovation, all of which contribute to enhanced economic performance. By fostering the establishment of new businesses, entrepreneurial initiatives stimulate competition, increase productivity, and encourage investment. These effects not only boost household incomes but also improve national welfare and reduce unemployment rates. In this context, entrepreneurship is seen as both a cause and consequence of economic growth, creating a virtuous cycle of development. Empirical studies consistently support these claims, demonstrating strong links between entrepreneurial activity and positive macroeconomic outcomes (see, for example, van Stel et al., 2005; Acs, 2006; Kim et al., 2022). Regarding to educational determinants, Naudé (2010) highlighted that in developing economies, a skilled labour force contributes to higher productivity and greater innovation, which in turn support business creation. Access to quality education also increases the likelihood that individuals will engage in formal entrepreneurial activities rather than informal or subsistence-based work. However, Lobonț et al. (2023) do not confirm the GDP growth and education's positive influence on entrepreneurial activity.

Turning to other economic variables, Demircuc-Kunt and Maksimovic (1998) examined the impact of financial development on firm growth in emerging markets during the 1980s and 1990s. Their analysis revealed that countries with more developed and accessible financial systems exhibited higher levels of investment and entrepreneurial activity. Importantly, their



findings highlighted that access to finance is not merely a driver of investment volume, but a critical structural condition for enabling business expansion and scalability. Levine et al. (2000) reinforced these insights through a comprehensive analysis of financial intermediation and its impact on global economic growth from 1960 to 1995. Utilizing both cross-sectional and panel data approaches, they showed that the development of financial systems enhances capital allocation efficiency and supports sustained business activity. Crucially, their study emphasized that greater credit availability and lower transaction costs are key mechanisms through which well-developed financial systems contribute to more dynamic and resilient business environments. In addition, Blanco-Arana and Angulo-Guerrero (2024) explored the role of financial development in reducing poverty and enhancing entrepreneurship in developing countries from 2000 to 2019. Their findings suggest that a strong financial system not only supports business creation but also improves economic inclusion by expanding opportunities for low-income entrepreneurs. The presence of accessible credit systems, legal frameworks, and stable governance emerges as a foundational element for business investment. In this line, the influence of institutional and political factors has also received increasing attention. Ahmed et al. (2022) examined the impact of political and economic uncertainty on global investment decisions. They found that heightened levels of uncertainty, including policy instability or governance risks, lead to lower investment levels and increased hesitation among firms to launch or expand operations.

In summary, the academic literature highlights several key macro-level variables that influence business investment, including GDP per capita, financial development, education levels, and fiscal policy. These indicators capture structural conditions that either facilitate or hinder entrepreneurship and are commonly used in comparative policy research. However, to the best of our knowledge, this study is the first to simultaneously examine the primary factors influencing new business creation over an extended time-frame (2006–2022). As such, we contribute to the understanding of the main socio-economic drivers of entrepreneurship within the OECD context. Specifically, we analyse panel data from 2006 to 2022 using fixed effects and random effects models, incorporating a range of alternative structural and institutional conditions.

Based on the afore-mentioned findings and ideas that emerge from the literature review, the following main hypothesis may be formulated:

- H1. Secondary education contributes new business creation.
- H2. Tax revenue impacts new business creation via fiscal policies.
- H3. The impact of tax revenue has an inverted U shape.

This paper contributes to the understanding of entrepreneurial dynamics in OECD countries by identifying which factors most significantly influence new business creation under varying condition. Thus, this is the first study to address the gap in the literature regarding the impact of economic growth, fiscal policy, and education on new business creation across OECD countries over an extended time frame. In addition, we incorporate other contextual factors identified in prior research to provide a more comprehensive analysis.

### **3. Data and estimation strategy**

This section presents a detailed description of the dataset and elaborates on the empirical strategy employed to assess the impact of education and tax revenue – alongside other relevant contextual variables – on the creation of new businesses in OECD countries.

The database is taken from World Development Indicators (WDI) and from the Worldwide Governance Indicators (WGI) obtained from the World Bank.

#### **Dependent variable**

*New Business:* New businesses registered are the number of new limited liability corporations (or its equivalent) registered in the calendar year.

#### **Independent variables**

*GDP:* GDP per capita in constant 2017 international \$, this indicator provides values for gross domestic product (GDP) expressed in constant international dollars, converted by purchasing power parities (PPPs). PPPs account for the different price levels across countries and thus PPP-based comparisons of economic output are more appropriate for comparing the output of economies and the average material well-being of their inhabitants than exchange-rate based comparisons.

*Education:* The percentage of population ages 25 and over that attained or completed upper secondary education. In this context, the gross enrolment rate in secondary education serves as a valuable proxy for human capital availability across countries. High levels of secondary education enrolment are generally associated with a more capable and adaptable workforce,

which can attract investment and enable the growth of new enterprises. In contrast, limited educational access tends to constrain labour market flexibility and reduce the innovation capacity of firms.

*Tax Revenue:* Taxes are compulsory, unrequited payments, in cash or in kind, made by institutional units to government units. This indicator is expressed as a percentage of GDP.

*Accessibility:* Commercial bank branches are retail locations of resident commercial banks and other resident banks that function as commercial banks that provide financial services to customers and are physically separated from the main office but not organized as legally separated subsidiaries.

*Unemploy:* Unemployment refers to the share of the labour force that is without work but available for and seeking employment.

*Researchers:* The number of researchers engaged in Research & Development (R&D), expressed as per million. Researchers are professionals who conduct research and improve or develop concepts, theories, models techniques instrumentation, software of operational methods. R&D covers basic research, applied research, and experimental development.

*Corruption:* The WGI are a research dataset summarizing the views on the quality of governance provided by a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. Governance consists of the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them. One dimension of governance is control of Corruption.

*Inflation:* Inflation as measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency.

*Human capital stock:* we also used the Barro-Lee measure of human capital as an additional control factor.

- **Methodology**

Our principle objective is to examine which are the key socio-economic drivers of new business creation in the OECD countries. In an OLS estimation, the correlation of individual errors with the observations is not corrected and consequently the estimates made will be biased (Breusch and Pagan, 1980). Thus, the use of panel data estimation seems to be essential, as not only does it permit controlling the existence of individual effects that may be correlated with the explanatory variables observed in the model, but it also permits controlling through variables that change over time (Hausman and Taylor, 1981).

With the objective of examining the impact of economic growth and tax revenue on environmental sustainability in European countries during the period 1990-2023, we estimate a model with panel data. Some of the advantages and disadvantages of the use of panel data are described in the study carried out by Baltagi (2001). Among the advantages, the author mentions the following: control over individual heterogeneity, greater variability, less collinearity between variables, more degrees of freedom, greater efficiency, better adaptation to the study of adjustment dynamics, better adequacy for identifying and measuring effects that are not detectable in pure cross-sectional or time-series data, and better analysis capacity in a more complicated behaviour. As disadvantages, panel data presents the problem of data collection, distortions due to measurement errors, and the short time dimension that is generally found in the data sets. According to Hausman and Taylor (1981), one of the most noteworthy characteristics of the use of panel data is the ability to control specific individual effects that may be correlated with other variables.

We could consider the basic approach to regression analysis with panel data, such as pooled regression. The advantage of estimation through OLS lies in the simplification, which results from being able to determine the value of a certain endogenous variable through a linear relationship with all the exogenous variables that participate in the system. On the other hand, the main drawback of this method lies precisely in the simplification of the model, where the correlation of individual errors with observations are not corrected, and therefore the resulting estimates will be biased. If this occurs, the null hypothesis of ‘no country effects’ is rejected, implying that a pooled regression model is inappropriate, as estimates made with pooled OLS would be biased (Breusch and Pagan, 1980).

Therefore, the use of panel data seems to be key, as permits considering the existence of individual effects not controlled by the explanatory variables observed in the model and, in addition, it enables controlling for variables that change over time. Furthermore, the use of

panel data offers more informative data and, as stated above, more variability, less collinearity, and a greater degree of freedom (Klevmarken, 1989, and Hsiao, 2003). For this reason, and also because the considered series is sufficiently long, we opt for an estimation based on panel data.

Once this model has been estimated by panel data, we use the Hausman test (see Hausman, 1978) to contrast which of the nested models is appropriate by comparing their estimates; that is, we choose between the fixed effects or random effects model. Thus, in each case, we apply the fixed effects or random effects model depending on the results of Hausman test (results are in Table 1), which is conducted to determine the appropriate method for the model. The fixed effects estimator ensures that differences between states are a constant correlation. In contrast, the estimator of random effects considers that differences between states are not a constant correlation, as, in this case, the differences between countries are considered random. Hence, applying the random effects model assumes that the error is composed of a random variable (with a mean value and a non-zero variance) for each country, in addition to another part, which corresponds to the disturbance. Hence, we estimate the appropriate method in each model.

In sum, the baseline models proposed are as follows:

$$New\ business_{it} = \beta_0 + \beta_1 GDP_{it} + v_i + u_{it} \quad (1)$$

$$New\ business_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 Education_{it} + v_i + u_{it} \quad (2)$$

$$New\ business_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 Tax\ Revenue_{it} + v_i + u_{it} \quad (3)$$

$$New\ business_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 Education_{it} + \beta_3 Tax\ Revenue_{it} + v_i + u_{it} \quad (4)$$

where  $New\ business_{it}$  refers to the number of new limited liability corporations registered in the calendar year for each country  $i$  at time  $t$ , as measure of entrepreneurship.  $GDP_{it}$  refers to the GDP per capita of each country  $i$  at time  $t$ , which are introduce in all models. Model (2) includes  $Education_{it}$  which refers to the level of secondary education of each country  $i$  at time  $t$ . Model (3) includes  $Tax\ Revenue_{it}$  which refers to the tax revenue as percentage of GDP of each country  $i$  at time  $t$ .  $v_i$  is the intercept for each country  $i$ , and  $u_{it}$  are the individual errors. Finally, we estimate in model (4), all variables.

In order to assess the existence of a possible non-linear effect of tax revenues we consider a squared term as well on the right-hand side of the baseline specification:

$$New\ business_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 Tax\ Revenue_{it} + \beta_3 (Tax\ Revenue_{it})^2 + v_i + u_{it} \quad (5)$$

Therefore, in equation (5), if  $\beta_2$  is positive and  $\beta_3$  is negative, we have support for an inverted U-shape relationship, meaning also that we can check if tax revenues have a positive effect on new businesses until some threshold, and becoming negative afterwards, and also determine such thresholds. Hence, finding the first derivative of (5) in order to *Tax Revenue*,

$$\frac{\partial New\ business}{\partial Tax\ Revenue} = \beta_2 + 2\beta_3 Tax\ Revenue, \quad (6)$$

and making (6) equal to zero we can derive the respective tax revenue threshold:

$$\beta_2 + 2\beta_3 Tax\ Revenue = 0 \Leftrightarrow Tax\ Revenue = \frac{-\beta_2}{2\beta_3}, \quad (7)$$

and the underlying assumption that the estimated coefficients will be  $\beta_2 > 0$  and  $\beta_3 < 0$ .

- **Unobserved heterogeneity**

As we explained previously, in order to analyse the unobserved effects presented in equation (3), it is possible to apply a fixed effects or a random effects model. Thus, we apply the Hausman test to choose the best methodology for solving the problem of unobserved effects. According to Afonso and Alves (2015), the endogeneity issue is one of the main questions that arises from panel data analysis. Should it be present in regressors, then one of the main objectives is to solve this problem, in order to obtain unbiased estimators. Endogeneity can emerge from omitted variables, measurement errors or simultaneity. Country-specific properties may be responsible for some unobserved omitted variables. To this concern, we incorporate in the model additional variables in our analyses to assess their relevance on the new business creation.

$$New\ business_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 Education_{it} + \beta_3 Tax\ Revenue_{it} + \beta_4 X_{it} + v_i + u_{it} \quad (8)$$

where  $X_{it}$  refers to the respective control variables of each country  $i$  at time  $t$ , which are introduced in model (8).

#### 4. Empirical results and discussion

In Tables 1 and 2 we report respectively the summary statistics of the variables used in the analysis and a correlation matrix, to assess potential multicollinearity.

Table 1 - Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
New Business	567	59558.15	104675.8	1639	790311
GDP	1,329	43539.62	21679.34	9996.098	138678
Education	694	67.06437	19.45087	7.67	95.28925
Tax Revenue	1,172	19.83199	5.834989	7.339652	37.61285
Accesibility	732	28.26973	18.15075	4.009827	110.8609
Unemploy	1,292	7.612786	4.076166	1.1	27.686
Researchers	848	3451.755	1926.038	58.0547	9434.762
Corruption	950	81.0086	17.07188	16.19048	100
Inflation	1,322	8.295287	46.50082	-11.0768	942.3066

Table 2 - Correlation matrix

	New Business	GDP	Education	Tax Revenue	Accesibility	Unemploy	Researchers	Corruption	Inflation
New Business	1								
GDP	-0.0842	1							
Education	-0.1568	0.2929	1						
Tax Revenue	-0.0134	0.3769	0.1127	1					
Accesibility	0.1051	0.2707	-0.3178	0.0892	1				
Unemploy	0.0501	-0.3138	-0.3168	-0.0626	0.302	1			
Researchers	-0.0695	0.589	0.4517	0.4822	-0.0908	-0.3076	1		
Corruption	0.0008	0.6532	0.4215	0.4311	0.0905	-0.2321	0.7215	1	
Inflation	0.0564	-0.1125	-0.1322	-0.0776	-0.1438	-0.1034	-0.1327	-0.2393	1

According to the methodology presented in the previous section, the results of the regression analysis of the baseline model for OECD countries are reported in Table 3.

Table 3. RE models for OECD countries (2006-2022)

Variables	(1)	(2)	(3)	(4)	(5)	(8)
GDP	0.010*** [0.002]	0.007** [0.003]	0.010*** [0.003]	0.008*** [0.003]	0.010*** [0.003]	0.003* [0.002]
Education		8.186** [3.419]		6.183* [3.513]		8.718*** [2.635]
Tax Revenue			21.368** [8.400]	23.153*** [8.158]	77.099** [35.963]	21.849*** [5.413]
Tax Revenue^2					-1.216* [0.764]	
Accessibility						2.468** [1.082]
Unemploy						5.852* [3.106]
Researchers						0.047*** [0.014]
Corruption						-5.510*** [1.765]
Inflation						5.829*** [1.474]
Constant	104.458 [202.128]	-312.351 [276.388]	-332.228 [275.213]	-690.899** [318.084]	-930.322** [464.710]	-504.098* [327.774]
Observations	567	515	546	509	546	440
Number of countries	37	37	36	36	36	35
Breusch-Pagan test	0.0000	0.0000	0.0000	0.0000	0.000	0.0000
Hausman test	0.0931	0.2519	0.1358	0.3103	0.2585	0.8426

Data source: World Development Indicators and Worldwide Governance Indicators (World Bank, 2025).

Note: Standard deviations in brackets. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Results show that GDP per capita has a positive influence on new business creation, as higher levels of economic output generally reflect increased consumer demand, greater investment capacity, and a more supportive environment for entrepreneurial activity. In wealthier nations, enhanced infrastructure, larger consumer markets, and better access to capital collectively lower the barriers to entry for new firms. This aligns with the arguments made by Levine et al. (2000) and Demircuc-Kunt and Maksimovic (1998), who emphasize the role of financial development and economic affluence in facilitating investment activity. In this sense, countries with robust per capita income and strong financial systems – such as Luxembourg or Norway – frequently exhibit higher-than-average business formation rates.

Secondary education positively influences new business creation by equipping individuals with essential skills such as literacy, numeracy, problem-solving, and basic financial literacy, which are foundational for entrepreneurial activity. A well-educated population is more likely to recognize business opportunities, make informed decisions, and navigate regulatory and

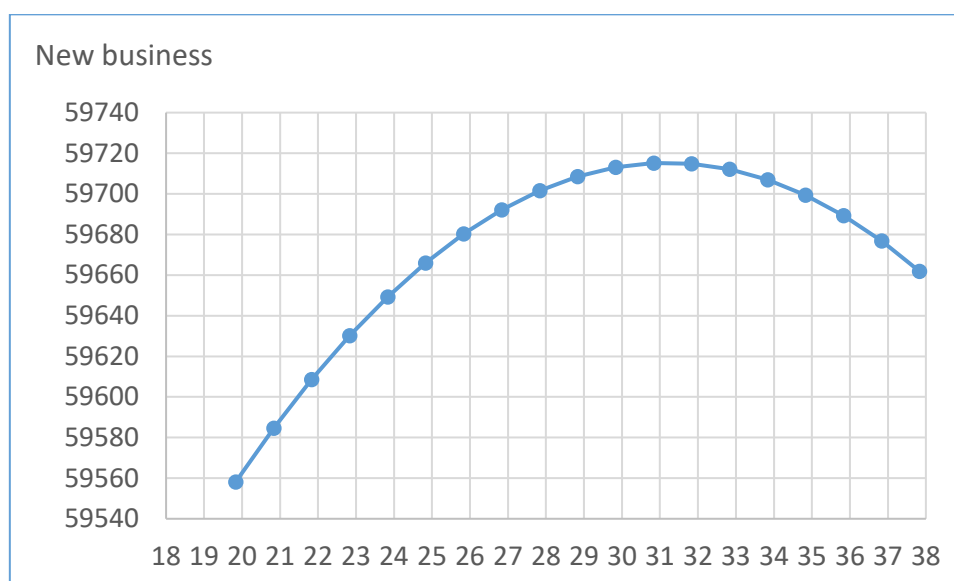


financial systems effectively. Moreover, secondary education enhances employability and social mobility, which can increase confidence and reduce the perceived risk of starting a business. It also fosters innovation and adaptability, qualities that are crucial in dynamic and competitive markets. As a result, societies with higher levels of secondary educational attainment tend to exhibit stronger entrepreneurial ecosystems and greater rates of new firm formation.

Tax revenue can positively influence new business creation when it is effectively mobilized and allocated to support key public goods and services. Higher tax revenues enable governments to invest in infrastructure, education, healthcare, digital connectivity, and legal frameworks – all of which reduce barriers to entrepreneurship and enhance the business environment. For instance, reliable transportation systems, efficient public administration, and access to quality education and training can lower start-ups costs and increase the likelihood of business success. Moreover, stable and predictable tax systems contribute to investor confidence and long-term planning. When tax policies are transparent, equitable, and reinvested in ways that support economic dynamism, they help create a fertile ground for entrepreneurial activity and new firm formation.

However, in model 3.1, when the squared term for tax revenue is introduced, the relationship is concave (inverted U-shape). That means the positive effect of tax revenue slows down as it grows larger, and after some point it may actually turn negative. In sum, at low to moderate levels of tax revenue, higher revenue is linked with more new business creation and at a certain peak (the turning point), new business creation reaches its maximum. From the estimated coefficients  $\beta_2$  (77.1) and  $\beta_3$  (-1.216) we can determine a threshold for the revenue ratio as follows: tax revenue threshold =  $-77.1 / (-2*1.216) = 33.2\%$ . Figure 1 illustrates approximately this relationship, using these estimated coefficients.

Figure 1. Inverted U-shape relation between new businesses and the tax-to-GDP ratio



Notes: vertical axis, new business; horizontal axis, tax-to-GDP ratio;  $\beta_2=77.1$ ;  $\beta_3=-1.216$ .

Moreover, the inclusion of additional control variables highlights the critical role of access to finance, the availability of researchers, and labour market dynamics in driving new business creation. The results suggest that countries with better-developed financial systems – facilitating easier access to credit and investment – tend to experience higher levels of entrepreneurial activity. Similarly, a greater concentration of researchers and knowledge workers is positively associated with new firm formation, reflecting the importance of innovation and human capital in fostering entrepreneurship. Interestingly, the findings also indicate that higher unemployment rates are often linked to increased entrepreneurial activity, particularly in contexts where necessity-driven entrepreneurship prevails. This suggests that in the absence of formal employment opportunities, individuals may be more inclined to start their own businesses as an alternative source of income. Taken together, these insights reinforce the idea that structural factors such as financial infrastructure, research capacity, and labour market conditions play a pivotal role in shaping the entrepreneurial landscape across OECD countries. Another particularly notable result is the positive and statistically significant association between inflation and business creation. As reported in Table 3, this relationship may initially seem counterintuitive, given that inflation is traditionally viewed as a sign of macroeconomic instability. However, in the OECD context – where inflation rates are generally moderate and well-contained – the result may reflect adaptive behaviour among entrepreneurs. Moderate inflation might be perceived as a signal of active markets or economic recovery, prompting individuals to establish new ventures as a means of preserving real income or capitalizing on

perceived demand. In the aftermath of the COVID-19 pandemic, for example, countries like Germany experienced a surge in digital and self-employed business registrations, suggesting that inflation may stimulate entrepreneurship under certain circumstances. We also find that the corruption variable is negative and statistically significant, suggesting that higher levels of corruption hinder new business creation. This significance likely reflects the importance of institutional quality for entrepreneurs. In particular, corruption can undermine trust in public institutions, increase the cost of doing business, and create uncertainty – all of which discourage entrepreneurial activity.

When the Barro–Lee measure of human capital is included as a control variable in place of secondary education, we consider two options to cover our sample (2006–2022). The first option is to retain 5-year blocks, which keeps the dataset consistent with Barro and Lee’s reporting, since they only publish 5-year averages. The results, presented in Table 3’ in the Appendix, remain robust and broadly in line with the baseline model, though the coefficients of human capital increase in models (2) and (4), and lose their significance when all variables are included in model (8).

The second option is to interpolate the data between specific years. Under this approach, the effect of taxes loses statistical significance in favour of human capital (see Table 3’’ in the Appendix).

In the next stage of our analysis, we introduce alternative conditions to assess whether variations in income levels (see Tables 3A and 3B), education (see Tables 3C and 3C), and tax revenues (see Tables 3D and 3E) lead to differential effects on new business creation.

Table 3A. Models for OECD countries (2006-2022) below mean of GDP per capita

Variables	(1)	(2)	(3)	(4)	(5)	(8)
GDP	0.014*** [0.002]	0.003 [0.003]	0.012*** [0.003]	0.003 [0.003]	0.012*** [0.003]	0.010*** [0.003]
Education		15.844*** [2.557]		14.154*** [2.690]		5.063* [2.812]
Tax Revenue			17.107** [7.119]	9.987 [7.601]	28.660 [26.862]	4.366 [7.265]
Tax Revenue^2					-0.298 [0.669]	
Accessibility						-0.764 [1.392]
Unemploy						11.938*** [3.221]
Researchers						-0.006 [0.022]
Corruption						-8.517*** [1.628]
Inflation						6.506*** [1.341]
Constant	-123.973* [81.085]	-778.578*** [138.844]	-375.973*** [141.926]	-869.144*** [171.962]	-478.635* [270.511]	121.590 [290.011]
Observations	267	239	252	233	252	213
Number of countries	20	20	19	19	19	18
Breusch-Pagan test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test	0.0700	0.1758	0.1269	0.2511	0.0002	0.8324

Data source: World Development Indicators and Worldwide Governance Indicators (World Bank, 2025).

Note: Standard deviations in brackets. \*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1.

Table 3B. Models for OECD countries (2006-2022) above mean of GDP per capita

Variables	(1)	(2)	(3)	(4)	(5)	(8)
GDP	0.007*	0.007*	0.009**	0.010**	0.012***	0.002
	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]	[0.003]
Education		3.389		3.113		8.673**
		[6.320]		[6.285]		[3.939]
Tax Revenue			20.450*	26.739**	137.840*	29.488***
			[14.023]	[13.285]	[81.903]	[8.917]
Tax Revenue^2					-2.313*	
					[1.592]	
Accessibility						2.563*
						[1.637]
Unemploy						-4.802
						[8.503]
Researchers						0.077***
						[0.020]
Corruption						3.081
						[5.507]
Inflation						-4.956
						[5.368]
Constant	256.371	33.137	-276.506	-665.166	-1,806.744*	-1,428.125*
	[324.617]	[515.654]	[500.362]	[619.851]	[1,160.065]	[785.955]
Observations	300	276	294	276	294	227
Number of countries	26	25	25	25	25	24
Breusch-Pagan test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test	0.0026	0.0000	0.0011	0.0000	0.3241	0.5961

Data source: World Development Indicators and Worldwide Governance Indicators (World Bank, 2025).

Note: Standard deviations in brackets. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Based on the analysis of Tables 3A and 3B, we conclude that the impact and determinants of new business creation vary significantly across countries with different income levels – specifically, between those with GDP per capita below and above the global average. This heterogeneity suggests that the factors driving entrepreneurial activity are not uniform but rather depend on a country's stage of economic development and institutional capacity. In countries with lower income levels (those below the mean GDP per capita), education stands out as a key enabler of entrepreneurship. Improved access to education not only enhances the skill sets and capabilities of potential entrepreneurs but also fosters innovation, critical thinking, and problem-solving—essential qualities for business creation in environments that may lack strong financial infrastructure or government support. Thus, investment in human capital through education can provide the foundational conditions necessary to stimulate new business formation in these economies. Conversely, in higher-income countries (those above the mean

GDP per capita), the data suggest that tax revenues are more strongly associated with increased levels of entrepreneurial activity. This may reflect the role of well-structured fiscal policies and the use of tax revenues to finance public goods and services, such as infrastructure, digital access, legal systems, and financial incentives that support start-ups. In these economies, where educational attainment is already high, the quality and allocation of government resources become more influential in shaping a favourable environment for new ventures. In addition, in Tables 3B and 3C from the estimated coefficients  $\beta_2$  and  $\beta_3$ , the thresholds for the revenue ratio are respectively 30% and 28.2% (similar to the previous computed threshold).

Table 3C. Models for OECD countries (2006-2022) below mean of Education

Variables	(1)	(2)	(3)	(4)	(5)	(8)
GDP	0.041*** [0.007]	0.031*** [0.007]	0.039*** [0.007]	0.033*** [0.007]	0.039*** [0.007]	0.004 [0.006]
Education		11.908*** [3.177]		8.057** [3.349]		15.437*** [5.541]
Tax Revenue			46.111*** [11.277]	35.967*** [11.846]	122.781*** [38.473]	25.586** [11.121]
Tax Revenue^2					-2.174** [1.044]	
Accesibility						5.671*** [1.597]
Unemploy						-2.907 [4.487]
Researchers						0.004 [0.043]
Corruption						-7.994*** [2.467]
Inflation						7.819*** [1.889]
Constant	-814.945*** [236.165]	-992.915*** [230.243]	-1,610.590*** [296.329]	-1,603.421*** [290.911]	-2,219.319*** [413.592]	-424.007 [449.145]
Observations	148	148	144	144	144	136
Number of countries	15	15	15	15	15	14
Breusch-Pagan test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test	0.0001	0.0032	0.0000	0.0000	0.0003	0.7281

Data source: World Development Indicators and Worldwide Governance Indicators (World Bank, 2025).

Note: Standard deviations in brackets. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 3D. Models for OECD countries (2006-2022) above mean of Education

Variables	(1)	(2)	(3)	(4)	(5)	(8)
GDP	0.009*** [0.003]	0.010*** [0.004]	0.009*** [0.003]	0.011*** [0.004]	0.009*** [0.003]	0.003 [0.002]
Education		-5.109 [5.956]		-5.841 [5.971]		-1.539 [3.084]
Tax Revenue			14.822 [10.710]	18.231* [10.497]	40.784 [51.102]	9.159* [6.198]
Tax Revenue^2					-0.538 [1.036]	
Accessibility						-0.718 [1.464]
Unemploy						5.391 [4.247]
Researchers						0.058*** [0.013]
Corruption						2.434 [2.599]
Inflation						-0.903 [2.868]
Constant	91.149 [263.381]	435.550 [466.645]	-214.832 [361.389]	98.330 [514.911]	-512.767 [675.726]	-178.692 [411.924]
Observations	419	367	402	365	402	304
Number of countries	29	29	28	28	28	27
Breusch-Pagan test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test	0.2147	0.3458	0.3970	0.5249	0.6366	0.8898

Data source: World Development Indicators and Worldwide Governance Indicators (World Bank, 2025).

Note: Standard deviations in brackets. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

The results, as shown in Tables 3C and 3D, further support the differentiation in the impact of new business creation when considering education and income levels. Our analysis reveals that the determinants of entrepreneurship vary significantly across countries with different levels of educational attainment. Specifically, in countries where secondary education is more widespread, both education and tax revenues emerge as key enablers of new business creation. However, in countries with higher levels of education—particularly where tertiary education is more prevalent—tax revenues become the primary driver of entrepreneurial activity. These findings suggest that as educational attainment increases, the role of fiscal capacity and the effective use of public funds becomes more prominent in fostering new business ventures.

Table 3E. Models for OECD countries (2006-2022) below mean of Tax Revenue

Variables	(1)	(2)	(3)	(4)	(5)	(8)
GDP	0.012*** [0.002]	0.002 [0.003]	0.011*** [0.002]	0.002 [0.003]	0.011*** [0.002]	-0.001 [0.003]
Education		23.011*** [4.105]		19.566*** [4.187]		22.098*** [5.308]
Tax Revenue			40.444*** [10.261]	30.692*** [10.390]	188.269*** [62.902]	38.881*** [9.948]
Tax Revenue^2					-5.040** [2.117]	
Accessibility						7.567*** [1.334]
Unemploy						6.292* [3.959]
Researchers						0.077*** [0.023]
Corruption						-6.057*** [2.247]
Inflation						7.004*** [1.449]
Constant	-36.841 [93.728]	-1,184.870*** [234.594]	-575.638*** [163.919]	-1,412.822*** [242.428]	-1,626.270*** [470.012]	-1,655.996*** [463.270]
Observations	218	205	218	205	218	191
Number of countries	20	19	20	19	20	19
Breusch-Pagan test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test	0.0002	0.0000	0.0000	0.0000	0.0075	0.0004

Data source: World Development Indicators and Worldwide Governance Indicators (World Bank, 2025).

Note: Standard deviations in brackets. \*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1.



Table 3F. Models for OECD countries (2006-2022) above mean of Tax Revenue

Variables	(1)	(2)	(3)	(4)	(5)	(8)
GDP	0.028*** [0.007]	0.029*** [0.007]	0.027*** [0.007]	0.020*** [0.006]	0.019*** [0.006]	0.000 [0.004]
Education		-0.887 [5.190]		1.243 [5.051]		4.024 [3.234]
Tax Revenue			10.245 [13.670]	15.756 [13.025]	81.009 [112.112]	18.805** [8.721]
Tax Revenue^2					-1.307 [2.077]	
Accessibility						-1.676 [1.737]
Unemploy						1.048 [4.914]
Researchers						0.035* [0.019]
Corruption						1.584 [3.497]
Inflation						-2.419 [4.507]
Constant	-834.898** [361.120]	-810.722** [401.221]	-1,025.309** [483.238]	-857.876* [551.002]	-1,509.287 [1,521.806]	-424.498 [545.061]
Observations	349	310	328	304	328	249
Number of countries	26	26	23	23	23	21
Breusch-Pagan test	0.0000	0.0000	0.0000	0.0000	0.0000	0.000
Hausman test	0.0090	0.0401	0.0498	0.1314	0.4837	0.8844

Data source: World Development Indicators and Worldwide Governance Indicators (World Bank, 2025).

Note: Standard deviations in brackets. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

The results in Tables 3E and 3F highlight how the impact of new business creation varies with tax revenue, education, and income levels. Our analysis shows that the determinants of entrepreneurship differ significantly across countries based on their fiscal capacity. In nations with moderate tax revenues, both education and tax income serve as important enablers of entrepreneurship. In contrast, in countries with higher tax revenues, fiscal capacity becomes the dominant driver of new business formation. These findings suggest that as public revenue increases, the effective use of those funds plays a more central role in promoting entrepreneurial activity.

- **Robustness analysis**

The results are robust for our main variables of interest, as confirmed by the GMM model (see Table 4). Countries with stronger economic conditions are more likely to foster new business creation. Secondary education significantly contributes to entrepreneurship by equipping individuals with essential skills – such as literacy, numeracy, problem-solving, and financial literacy – that serve as a foundation for entrepreneurial activity. In the final model, tax revenue emerges as the most influential determinant, showing a strong positive effect on new business creation, likely due to its role in funding public goods and improving the overall business environment.

Table 4. GMM models for OECD countries (2006-2022)

Variables	(1)	(2)	(3)	(4)	(5)	(8)
L.New Business	0.975*** [0.019]	0.948*** [0.019]	0.978*** [0.010]	0.949*** [0.019]	0.976*** [0.020]	0.924*** [0.095]
GDP	0.006** [0.002]	0.002 [0.002]	0.006** [0.003]	0.002 [0.002]	0.006** [0.002]	0.005* [0.003]
Education		3.922* [2.102]		4.059* [2.133]		3.534 [2.798]
Tax Revenue			-6.430 [5.147]	-1.356 [3.535]	13.956 [22.378]	11.507* [6.233]
Tax Revenue^2					-0.394 [0.435]	
Accesibility						-0.953 [0.977]
Unemploy						10.092*** [3.471]
Researchers						0.003 [0.010]
Corruption						1.058 [2.382]
Inflation						2.911*** [0.659]
Constant	-232.139** [106.359]	-338.843** [161.710]	-115.277 [154.136]	-320.755* [197.530]	-345.217 [280.232]	-841.491* [451.409]
Observations	490	446	473	444	473	368
Number of countries	37	36	36	36	36	32
Number of instruments	17	18	18	19	19	24
Arellano and Bond AR (1)	0.1457	0.1025	0.1405	0.1020	0.1431	0.0034
Arellano and Bond AR (2)	0.6258	0.5342	0.6069	0.5280	0.6090	0.1062

Data source: World Development Indicators and Worldwide Governance Indicators (World Bank, 2025).  
Note: Standard deviations in brackets. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

- **Sensitivity analysis**

Table 5. RE models for European countries (2006-2022)

Variables	(1)	(2)	(3)	(4)	(5)	(8)
GDP	0.000*** [0.000]	0.000*** [0.000]	0.000*** [0.000]	0.000*** [0.000]	0.000*** [0.000]	0.000*** [0.000]
Education		0.055** [0.026]		0.054** [0.025]		0.056* [0.029]
Tax Revenue			0.101** [0.041]	0.081** [0.041]	0.234 [0.263]	0.113* [0.060]
Tax Revenue^2					-0.001 [0.006]	
Accesibility						-0.021 [0.019]
Unemploy						-0.009 [0.046]
Researchers						-0.000 [0.000]
Corruption						0.024 [0.029]
Inflation						0.048* [0.026]
Constant	0.372 [1.345]	-3.100* [2.146]	-1.606 [1.554]	-4.676** [2.270]	-4.216 [3.370]	-5.280 [3.811]
Observations	418	393	418	393	418	365
Number of countries	26	26	26	26	26	26
Breusch-Pagan test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman test	0.3229	0.7913	0.4557	0.3103	0.5646	0.6469

Data source: World Development Indicators and Worldwide Governance Indicators (World Bank, 2025).

Note: Standard deviations in brackets. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

The findings remain consistent for the main variables of interest in the European context (see Table 5). Nations with stronger economic conditions tend to exhibit higher levels of new business formation. Secondary education proves to be a key driver of entrepreneurship, as it equips individuals with fundamental competencies – such as literacy, numeracy, problem-solving, and financial understanding – that underpin entrepreneurial success. In the final specification, tax revenue stands out as the most influential factor, showing a strong positive link to new business creation, likely reflecting its role in funding essential public services and enhancing the overall business climate.

## 5. Conclusion

This paper aims to empirically examine the impact of education and tax revenue—along with other contextual factors—on new business creation across OECD countries. To achieve this, we apply fixed effects and random effects models using panel data spanning from 2006 to 2022, accounting for varying structural conditions. The results indicate that education and the broader economic environment are key drivers of entrepreneurial activity, while tax revenue plays a crucial supporting role in economic development and, consequently, in facilitating new business formation. Government-collected tax revenue enables the provision of essential public goods and services—such as infrastructure, education, and innovation support programs—that help establish a conducive environment for entrepreneurship. These findings are robust across model specifications, including GMM estimation, and hold consistently within the European context.

One of the main findings is the statistically significant relationship between GDP per capita and new business creation. Thus, the direction and significance support the hypothesis that higher levels of income are associated with more dynamic entrepreneurial ecosystems. In prosperous economies, individuals are more likely to identify market opportunities, secure financing, and take entrepreneurial risks, all of which contribute to the formation of new businesses. Additionally, economic growth often coincides with improvements in infrastructure, institutional quality, and access to resources – factors that further facilitate business entry and development.

A key insight from the analysis is the dominant role of education in fostering entrepreneurship. Secondary school enrolment, used as a proxy for human capital, was not only statistically significant but demonstrated the strongest impact among all variables. This finding affirms the centrality of human capital development in shaping productive and innovative economies. The empirical results have direct relevance for policymakers seeking to foster dynamic entrepreneurial ecosystems. First and foremost, the evidence positions education policy at the core of any strategy to promote entrepreneurship. Investment in secondary education, particularly programs that integrate financial literacy, digital skills, and entrepreneurial thinking, should be prioritized.

Furthermore, our main findings conclude that tax revenue can play a significant role in promoting new business creation when it is effectively collected and strategically allocated to support essential public goods and services. Higher tax revenues empower governments to invest in critical areas such as infrastructure, education, healthcare, digital networks, and legal

institutions – each of which helps reduce barriers to entrepreneurship and improve the overall business climate. For example, well-developed transport systems, efficient public administration, and access to high-quality education and training can lower start-up costs and improve business viability. In addition, stable and predictable tax regimes enhance investor confidence and support long-term strategic planning. When tax policies are transparent, fair, and reinvested to foster economic vitality, they contribute to a more supportive environment for entrepreneurship and facilitate the emergence of new enterprises. In addition, the effect of tax revenues is non-linear, with a threshold of around 30%.

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## APPENDIX

Table 3' (using human capital). RE models for OECD countries (2006-2022)

Variables	(1)	(2)	(3)	(4)	(5)	(8)
GDP	0.010*** [0.002]	0.009*** [0.003]	0.010*** [0.003]	0.009*** [0.003]	0.010*** [0.003]	0.004 [0.003]
Human capital		56.954*** [53.004]		154.530*** [54.219]		10.063 [38.207]
Tax Revenue			21.368** [8.400]	13.580* [8.359]	77.099** [35.963]	17.725*** [6.498]
Tax Revenue^2					-1.216* [0.764]	
Accesibility						0.012 [1.209]
Unemploy						-2.405 [4.204]
Researchers						0.031** [0.016]
Corruption						-3.715* [2.235]
Inflation						-4.069 [3.929]
Constant	104.458 [202.128]	516.482** [310.951]	-332.228 [275.213]	-887.083** [374.757]	-930.322** [464.710]	127.193 [401.133]
Observations	567	412	546	396	546	338
Number of countries	37	33	36	32	36	31
Breusch-Pagan test	0.0000	0.0000	0.0000	0.0000	0.000	0.0000
Hausman test	0.0931	0.1336	0.1358	0.1540	0.2585	0.6952

Data source: World Development Indicators and Worldwide Governance Indicators (World Bank, 2025).

Note: Standard deviations in brackets. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 3'' (using human capital). RE models for OECD countries (2006-2022)

Variables	(1)	(2)	(3)	(4)	(5)	(8)
GDP	0.010*** [0.002]	0.009** [0.005]	0.010*** [0.003]	0.009* [0.005]	0.010*** [0.003]	0.003 [0.005]
Human capital		152.739** [68.358]		149.843** [70.594]		132.555** [60.453]
Tax Revenue			21.368** [8.400]	6.393 [8.952]	77.099** [35.963]	10.004 [7.485]
Tax Revenue^2					-1.216* [0.764]	
Accesibility						0.068 [1.824]
Unemploy						-5.751 [4.947]
Researchers						0.004 [0.021]
Corruption						1.725 [3.105]
Inflation						-1.733 [4.085]
Constant	104.458 [202.128]	-617.007* [391.270]	-332.228 [275.213]	-712.162* [452.151]	-930.322** [464.710]	-544.154 [504.573]
Observations	567	281	546	269	546	234
Number of countries	37	31	36	30	36	29
Breusch-Pagan test	0.0000	0.0000	0.0000	0.0000	0.000	0.0000
Hausman test	0.0931	0.0812	0.1358	0.1239	0.2585	0.9296

Data source: World Development Indicators and Worldwide Governance Indicators (World Bank, 2025).

Note: Standard deviations in brackets. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.