MASTER

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MASTER´S FINAL WORK

DISSERTATION

ENTREPRENEURSHIP AND ELECTION TIMING

ANDREA GALLINA

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SUPERVISION:
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TEA – Total Entrepreneurial Activity
GDP – Gross Domestic Product.
GEM – Global Entrepreneurship Monitor
EFI – Index of Economic Freedom
WGI – World Governance Indicators
WDI –World Development Indicators
OLS – Ordinary Least Squares
EA – Entrepreneurial Activity
EY – Election Year
PC – Party Change
NTEA – Necessity Total Entrepreneurial Activity
OTEA – Opportunity Total Entrepreneurial Activity

ABSTRACT

Purpose of this dissertation is to examine the impact of political elections on entrepreneurial activity. In order to do so, we collect data from 17 countries for a varied number of years (within a range of 16 to 21 years per country) to build a sample of 3,056 observations. Our data comes from the Global Entrepreneurship Monitor Adult Population Survey and from Nordsieck, W. (1997) *Parties and Elections in Europe* retrieved from http://www.parties-and-elections.eu . We then estimate a pooled Ordinary Least Squares (OLS) and a fixed effect model to see how the elections timing affect entrepreneurial levels in the country. In addition, we examine the effects of an unexpected victory, Results obtained suggest that Total Entrepreneurial Activity increases during an election year and decreases the year before, while there is no statistical evidence of any effect in the year after.

KEYWORDS: Entrepreneurship; Political Elections; Fixed-effects model

JEL CODES: L26; C23; C13

RESUMO

O objetivo desta dissertação é examinar o impacto das eleições políticas na atividade empresarial. Para isso, coletamos dados de 16 países por um número variado de anos (dentro de uma faixa de 16 a 21 anos por país) para construir uma amostra de 3.056 observações. Os nossos dados vêm do Global Entrepreneurship Monitor Adult Population Survey e do Nordsieck, W. (1997) Parties and Elections in Europe, obtido em http://www.parties-and-elections.eu. Em seguida, estimamos um pooled Ordinary Least Squares (OLS) e um modelo de efeito fixo para ver como o momento das eleições afeta os níveis empresariais no país. Além disso, examinamos os efeitos de uma vitória inesperada. Os resultados obtidos sugerem que a Atividade Empreendedora Total aumenta durante um ano eleitoral e diminui no ano anterior, enquanto não há evidência estatística de qualquer efeito no ano seguinte.

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1. INTRODUCTION

The purpose of this dissertation is to understand the relationship between political uncertainty and entrepreneurial activity by measuring the change in the level of such activity before, during, and after election years throughout a sample of different countries

While in previous literature the topic of entrepreneurship activity and its determinants has been widely explored, attempts to link such activity with political cyclicality have been scarce and produced different results. Possible reasons for this phenomenon can be the multiplicity of definitions of entrepreneurship, which result in different interpretations of its meaning and inevitably a wide range of research. Different definitions also result in collection of different type of data, meaning results which hold for a certain definition of entrepreneurship may not hold for another interpretation of the same phenomenon. In this paper, we use Global Entrepreneurship Monitor (GEM) definition and define entrepreneurial activity as percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business. In this study, we evaluate whether political cyclicality, and more precisely election timing and leadership change, have an effect on entrepreneurial activity. In order to do so, survey-based panel data was extracted from the Global Entrepreneurship Monitor (GEM) survey to create a sample of 16 countries[1] across a range of 16 to 21 years per country, using multilinear and fixed effect regression to characterize the econometric relation between political cycles and level of entrepreneurial activity.

We find that total entrepreneurial activity decreases two years prior to an election where a leading party change occurred. We find no statistical evidence of entrepreneurial activity increasing after the elections took place. Nevertheless, these results underline how entrepreneurial activity is dependent on the political stability of a country, adding to the previous literature on political studies, which demonstrates how the entrepreneurial ecosystem may be reinforced by a controlled political environment.

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[1] Countries in sample are: Belgium, Croatia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom

The dissertation is organized as follows. Section 2 presents the literature review; Section 3 explains the methodology and the data base while Section 4 explains the results of the empirical analysis. Section 5 concludes.

2. LITERATURE REVIEW

2.1.Defining Entrepreneurship

When trying to understand entrepreneurial activity, the first obstacle is related to the definition of entrepreneurship. Previous literature sees entrepreneurial activity through a variety of lenses. Bjørnskov and Foss (2008) for example when considering entrepreneurship and economic freedom see entrepreneurs as individuals who perceive new economic opportunities and introduce their specific ways of seizing these opportunities into the market in the face of uncertainty. Acs and Szerb (2007) similarly define the entrepreneur as an individual willing to assume the financial risk of developing a new venture based on a new idea or an innovative way to perform a task. Nevertheless, a common thread that ties the definitions together is the idea of discovery and innovation: the entrepreneur is always an individual who, whether by introducing new combinations of production methodologies, discovering something previously unknown, or undertaking new business ventures in spite of financial uncertainty, disrupts the previously reached economic equilibrium.

2.2. Entrepreneurship and Institutional Theory

When trying to define and explain the determinants of entrepreneurial activity, previous research refers to institutional theory. This theory tries to find a cause effect relationship between existing institutions and the level of entrepreneurial activity.

Beginning point for this particular analysis is research such as Chowdhury and Desai (2016) who take a wide view of entrepreneurial activity and its relationship with institutional attributes. In particular, they analyse the relation with government size, tax policy and entrepreneurship. They find that larger government size does not necessarily coincide with greater entrepreneurial effort as this can be heavily dependent on efficient allocation and bureaucratic burden. Other authors take a different approach to understand the same issue; although tackling a similar research question, that is how

different institutional arrangements influence the rate and type of entrepreneurship. For example, Stenholm, Acs, and Weber (2010) introduce Scott's institutional pillars to the research. This approach consists in grouping a multitude of institutional factors under four different dimensions: regulatory, which include policies and laws that affect individual behavior and can consequently promote or hinder entrepreneurial activity; cognitive, which regards the interpretation of information by individuals and their ability to discern and seize novel opportunities; narrative, more deeply related to social norms and human behavior; and conducive, which captures how institutional arrangements shape the quality of entrepreneurship in a country. The authors add to this theory by introducing the conducive dimension in order to analyze more deeply the relationship between how institutional arrangements shape the quality of entrepreneurship in a country.

Bylund and Mccaffrey (2017) focus on the role of institutional uncertainty; more specifically, the authors find that institutional uncertainty exists when entrepreneurs doubt the future comparability of institutions at different levels. As a consequence, the paper highlights different courses of actions available when being faced with such conditions and group them into four categories: abiding, evasive, altering and exit. Taking a different theoretical perspective, that is focusing on entrepreneurial reaction when facing uncertainty rather than directly addressing institutions and entrepreneurial activity, the results obtained also fall under a different scope providing new insights on how to distinguish between various types of entrepreneurial decision making.

Henrekson (2005) takes a more theoretical approach by considering the cause-effect relationship with a welfare state model. While similarities with institutional theory observations are present, he groups different countries under a 'welfare state' model and observes whether this particular style of governmental action facilitates or hinders entrepreneurial activity.

Previous research suggests that governmental presence through policy making is always present and always significant when regressed against entrepreneurship. Henrekson (2005) finds that, while a moderate presence can provide an easier entrepreneurial entry rate, an arguably excessive governmental intervention can significantly reduce entrepreneurial incentives and ultimately render the activity unattractive when compared with other possibilities. Focusing on the Swedish welfare

state example, he finds that "structure of payoffs have a negative effect on the return to entrepreneurial behaviour both in relative and absolute terms" (Henrekson, 2005, p. 26) due to the effects of taxation of entrepreneurial outcome and savings incentives which are encouraged to take forms that withdraw funds from entrepreneurial ventures. The author also concludes that other variables such as a high level of minimum standard of living guaranteed by the government also negatively impacts the level of necessity entrepreneurship. Similar results can be seen when changing geographical perspective. Acs and Szerb (2007), while focusing on the United States, implement a parallel analysis and find comparable results as previously cited research, which mainly focused on European territory. The authors group the variables used in three different spheres: demographic characteristics, including measures relative to education; state demographic characteristics, such as unemployment rates, and finally state policy variables, such as taxation and minimum wage laws. When stating their expectations, they argue that unemployment rate is expected to have a positive influence on entrepreneurship, since less employment opportunities would give more incentives for individuals to start their own business, and that less involvement of the government may lead to a more suitable environment for creativity and entrepreneurial activity. Their findings support this hypothesis as they conclude that, in order to encourage economic growth, it is necessary to focus on creating an environment consistent with economic freedom.

2.3. Impact of Political Institutions

Other strands of research do tackle a similar problem as the one proposed in this study, that is the existence or not of a relationship between election timing and entrepreneurial entry. Dutta et al. (2012) test the effect of political stability on entrepreneurial rates, basing themselves on the underlying argument that political instability leads to greater risk and uncertainty in in contracting application of legal rules, structure of property rights and tax expenditures policies. The authors hypothesize a positive relation between the stability of political institutions and entrepreneurial activity, arguing that "unstable governments fail to commit credibly to policies that can encourage savings and thereby hamper the efficient functioning of the financial markets"(). Ultimately, their findings show that greater political stability, or

alternatively lower political risk, enhances the entry rate of firms and therefore raises entrepreneurial activities within a nation. Similarly, Autio and Fu (2015) tackle the research question of how a country's political and economic institutions influence the allocation of efforts into both formal and informal entrepreneurship. They distinguish between formal and informal entrepreneurship, more precisely they define informal entrepreneurs as those who "trade legal products and services but do not apply for business registration or file any incorporation documents with government authorities" (Autio and Fu, 2015, p. 3). The authors' main finding reveals that political and economic institutions have different effects when considering the typology of entrepreneurial effort; in particular, they prove that if institutions are lacking in quality, more entrepreneurs will choose not to register but may still choose to start or continue their activity.

Julio and Yook (2012) also theorize that politics influences real decisions through the channel of uncertainty and instability; the authors do offer a different perspective though by introducing the inherit cyclical nature of politics, recognizing the real world is characterized by leaders who face limited terms and whose policies therefore are generally limited by the time horizon. This translates in the entrepreneurial world by considering that "if an election can potentially result into a bad outcome from a firm's perspective, the option value of waiting to invest increases and the firm may rationally delay investment until some or all the political uncertainty is resolved" (Julio and Yook, 2012, p. 2), more specifically firms may choose to delay investments when fearing a negative change in macroeconomic policy, taxation, monetary policy or the general macroeconomic environment. The results of this analysis find that normal political process and the possibility of policy changes when facing elections do influence firm's investment decisions, and furthermore changes in the degree of uncertainty lead to cycles in investment expenditures.

Building on these results, and following Nordhaus' political business cycle concept, according to which politicians stimulate aggregate demand before elections in order to stimulate fast economic growth and reduce unemployment, Alesina, Cohen and Roubini (1992) state two important points: opportunistic political cycles take the form of short run manipulations of policy instruments close to elections; retrospective voting is consistent with rational behavior, meaning the well-known tendency of voters to

judge the incumbent's performance based on pre-electoral economic conditions is not an irrational strategy. Implication of these two statements is that "the incumbent government has an incentive to signal its competence by engaging in pre-electoral manipulation of policy instruments." (Alesina, Cohen and Roubini, 1992, p. 8) Expectations when posing this question lean towards level of entrepreneurial activity decreasing before an election year as a response to an uncertain environment followed by an increase once this uncertainty is perceived to be removed.

3. DATA AND VARIABLES

Our dataset comes from Global Entrepreneurship Monitor dataset, in particular their Adult Population Survey. The Adult Population Survey is a comprehensive questionnaire, administered to a minimum of 2000 adults in each country, designed to collect detailed information on the entrepreneurial activity, attitudes and aspirations of respondents. The GEM dataset provides survey-based data. According to Desai (2017), the advantage of using this type of data is to find a comparable and somewhat standardized measure of entrepreneurship across countries. Arguably, some measures may overestimate the actual level of entrepreneurial activity present in a country, but it still provides a picture of real entrepreneurial potential since it includes people who are already engaging in early phases of the entrepreneurial process. While the data present other advantages, that is for example it does not require a distinction between formal and informal entrepreneurship, the voluntary nature of this questionnaire and the relatively young age of the GEM dataset, given that the first observations available are from 1999 and include a reduced set of countries, pose some limitations to the research. Nevertheless, a wide range of research has spawned from the availability of this particular dataset.

Data regarding elections was taken from *Parties and Elections in Europe*, a website that catalogs all election characteristic across Europe since 1945.

In the end our sample is composed of 16 countries across a range of 16 to 21 years per country, which amount at 3,056 observations. Control variables were retrieved from the Index of Economic Freedom, World Governance Indicator and World Development Indicator databases. For each country-year pair, we observe government

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spending characteristics, levels of corruption, the amount of domestic credit to private sector by banks as well as unemployment and GDP per capita.

Table 1 presents descriptive statistics for all variables in the estimation, including a brief description, their *source, and* values for mean, standard deviation, minimum and maximum.

Table 1: Descriptive Statistics

Variable	Description	Source	Mean	Std. Dev	Min	Max
TEA	Total Entrepreneurial Activity, measured as percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business	GEM	6.17	2.05	1.40	12.40
Election Year	Dummy variable, equals 1 if there was an election during the year, 0 otherwise	Based on *Parties and Elections in Europe*	0.25	0.44	0.00	1.00
Election Year Change Party	Dummy variable, equals 1 if there was an election during the year and the leading party changed, 0 otherwise	Based on *Parties and Elections in Europe*	0.10	0.30	0.00	1.00
Government Spending	Government spending /GDP	EFI	47.03	6.55	27.45	57.74
Corruption	Perception of the extent to which public power is exercised for private gain. Score ranges from -2.5 to 2.5; reversed order multiplying by -1 (-2.5 = least corrupt; 2.5 = most corrupt)	WGI	-1.44	0.79	-2.47	0.19
Domestic credit to private sectors	Financial resources provided to the private sector by other depository corporations (deposit taking corporations except central banks)	WDI	99.86	41.00	2.29	201.26
GDP per capita	GDP per capita is gross domestic product divided by midyear population. Taken in US Dollars	WDI	10.59	0.49	9.30	11.42
Unemployment	Share of labor force that is without work but available for and seeking employment (% of total labor force)	WDI	8.41	4.66	2.12	27.47

TEA for the majority of the countries in the sample exhibits a decrease in the years following 2008 followed by an increase after 2012-2013. While this common behavior is attributable to the global economic crisis, it is interesting to note how the peak levels of entrepreneurial activity throughout the sample manifested itself in the years successive to this crisis.

Interestingly, when looking at the average of total entrepreneurial activity, the values of countries which successfully adopt a welfare-type governmental structure do not deviate significantly from the average of the sample. Particularly, using Hendrekson, (2005) definition of Denmark, Sweden, Norway and the Netherlands as "the most extensive welfare states" (p. 22), we find a mean value of TEA to be 5.03%, 5.74%, 7.55% and 7.49% respectively.

Interpretation of the election year and election year change party indicators is not as straightforward due to the nature of the variables themselves. Notable features are the lower mean and standard deviation of the interaction term, which demonstrate how throughout the sample election years with a change in the leading role are not as common as the subsistence of the previous leadership.

Figure 1 shows the last election year for all countries in the sample, where the straight line is used to represent the dummy variable Election Year.
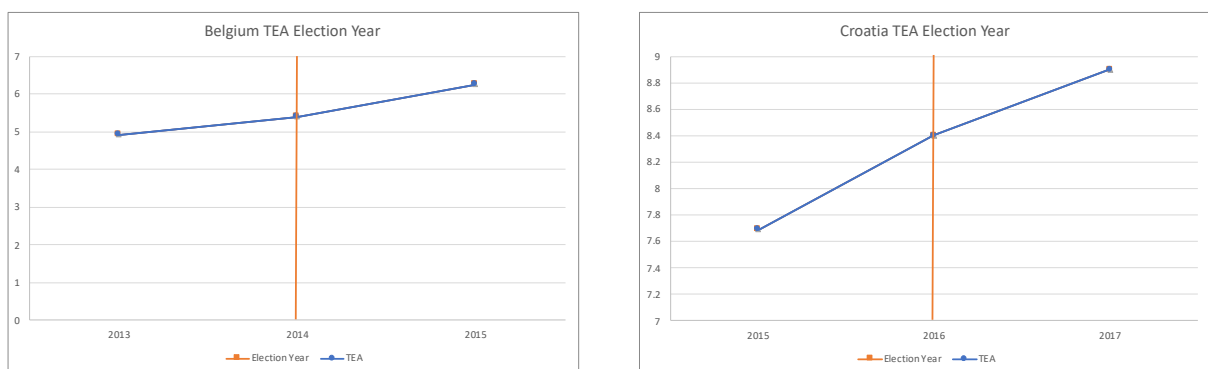
Figure 1: Country TEA Election Year
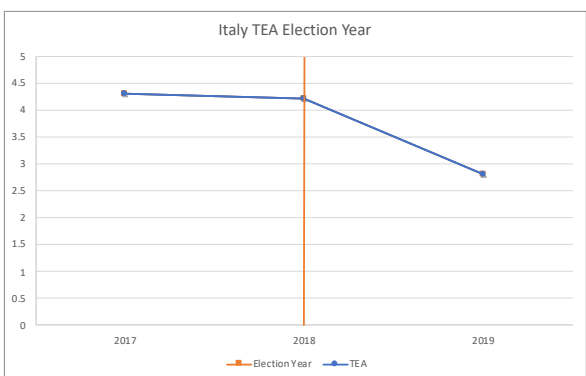
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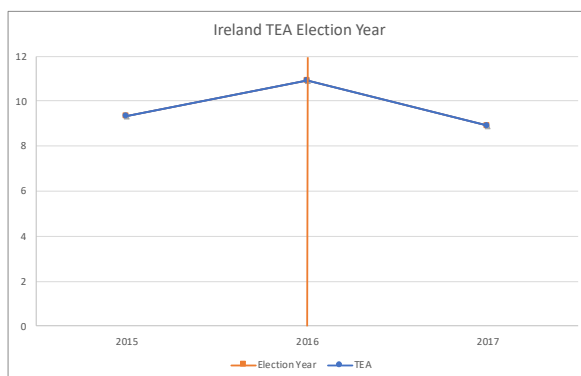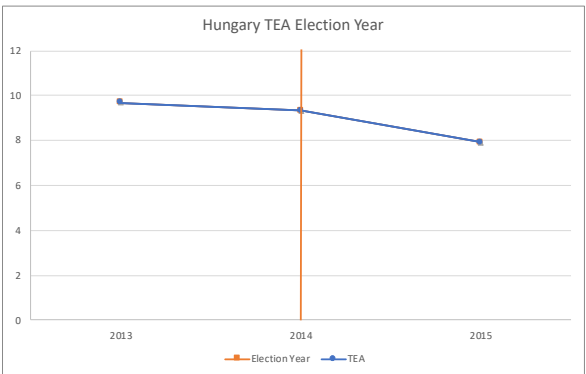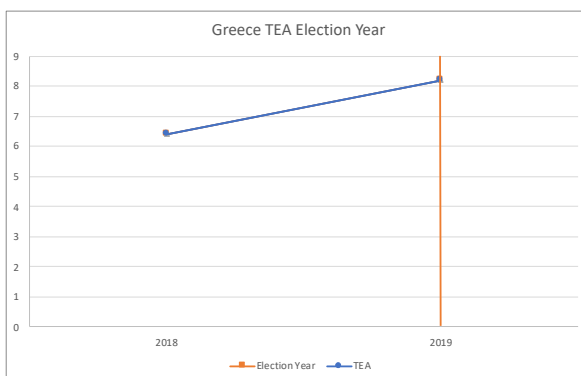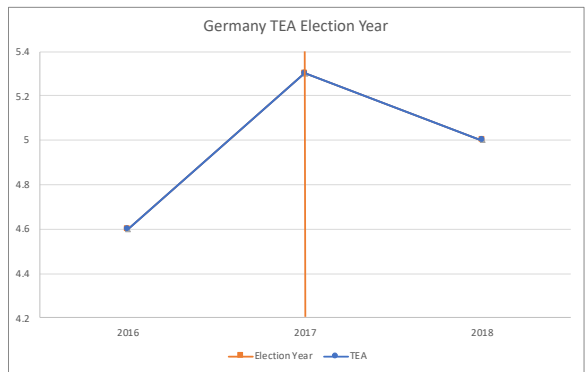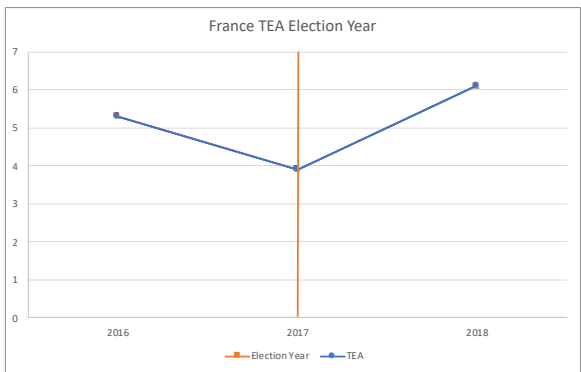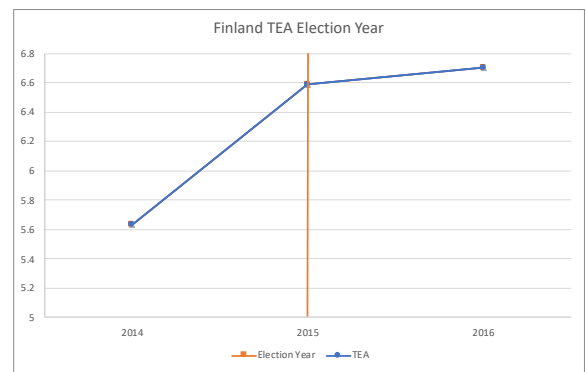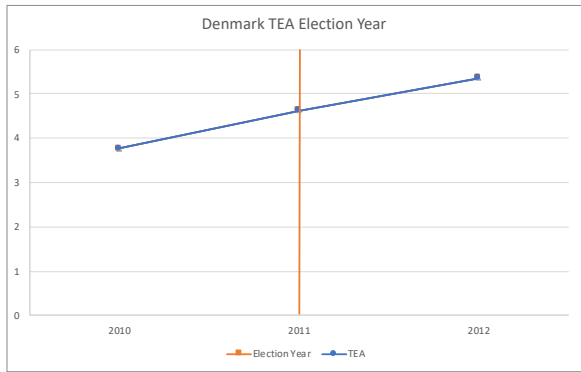
Figure 1: continued
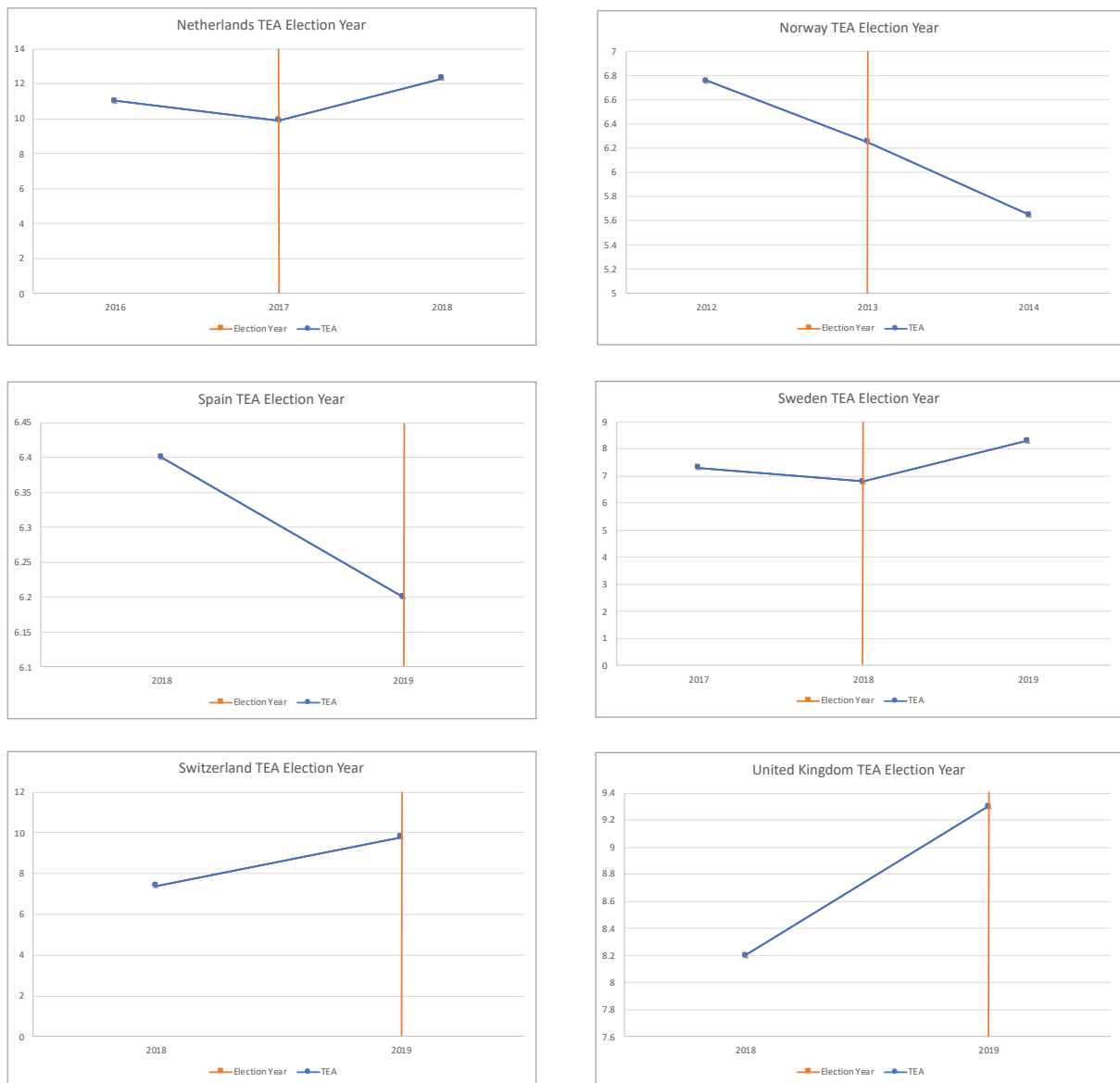
Visually, there is no common pattern identifiable within the sample. While countries such as France, Hungary, the Netherlands and Norway exhibit a decrease in TEA the year before the election, other countries like Denmark, Finland, Germany and Ireland experience an increase in entrepreneurial activity before elections.

The same can be said for the year after elections: Belgium, Croatia and Sweden experience a rise in entrepreneurial levels while Germany, Hungary and Italy show a decrease.

As previously mentioned, government spending has been included as a proxy for entrepreneurial levels in previous research. It presents a mean value of 47.03% with a standard deviation of 6.55% throughout the sample.

Regarding corruption, it is interesting to observe how the mean value is negative and the maximum value reached by this variable is only slightly superior to zero. When recalling the construction of this variable, the interpretation of the values collected is an overall low level of corruption within the sample. Though this could ultimately represent an accurate depiction of reality, it is important to remember that, in this research, corruption is defined based on perception, meaning it could suffer some home-country bias.

Domestic credit to private sector was used to capture the dimension of financing new business venture. The decreasing trend in this value, common to all the sample, is attributable to the increasing popularity of new financing methodologies, such as online crowdfunding, which are slowly substituting the financing role generally attributable to banking institutions.

Lastly, GDP per capita and unemployment offer some space for interpretation. While the GDP variable appears to have very little variability, as highlighted by the low standard deviation, the opposite can be said for unemployment levels. The latter suffers from an increase post-2008 in all countries, however the large gap between minimum and maximum values is attributable mainly to two countries: Greece and Spain, which respectively average to 16.47 and 15.87. Low variability of GDP per capita is somewhat expected, as these values aim to capture macroeconomic tendencies which, arguably, can be difficult to capture in a limited number of years.

4. METHODOLOGY

Our identification strategy pursues two objectives: first, we want to identify how entrepreneurial activity might change according to political activity and more precisely elections. To do so we lay down a pooled OLS regression with i indexing countries and t indexing years such that:

$$EA_{it} = \alpha + \theta EY_{it} + X'_{it-1}\lambda + \varepsilon_{it} \quad (1)$$

Where i denotes the country and t denotes the year.

EA is the dependent variable and captures the level of entrepreneurial activity. More specifically we include the Total Entrepreneurial Activity, defined as the percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business.

Our variable of interest is EY, a dummy capturing the fact that year t is an election year in country i. X is a vector of controls for country i at year t-1, to minimize reverse causality. The vector X mainly follows the approach taken by the previous studies. We include a control variable for corruption. This variable is taken from the World Governance Indicator and reflects the extent to which public power is exercised for private gain. The decision to control for corruption was taken as it can increase financial costs for new businesses by including additional expenditures which were previously not predicted due to their nature and can also redirect funds away from otherwise productive investment decision-making. The relevance of this variable is due to the fact that it has a greater impact on new firms more than on already established ones, since the former most likely have not developed yet a sufficient level of networking or know-how which could foster an adaptation process, meaning it could also play a vital role in their survival. Government spending as a percentage of GDP was also included as a control variable in the analysis. The variable was taken from the Economic Freedom Index and may capture different effects on entrepreneurial activity: on one hand, greater government expenditure, if efficiently allocated, could result in better inputs and conditions deemed favorable for entrepreneurial activity and therefore create an incentive for the levels of this activity to rise; on the other hand, greater stability introduced by welfare programs, as debated by Henrekson (2005), could reduce the willingness to undertake the risks associated with entrepreneurial activity Furthermore, controlling for the amount of domestic credit supplied by banks to the private sectors was done with the objective to capture one dimension of the availability of credit for entrepreneurial activity. The variable of unemployment is constructed based on the share of labor force that is without work but available for and seeking employment, as taken from the World Development Indicator. The reasoning behind the inclusion of this variable is because unemployment can act as a motivational factor for

some individuals to seek new opportunities through entrepreneurial activity. Finally, following Bjørnskov and Foss (2008), including GDP per capita was done to control for potentially important effects of overall economic development.

Because we have panel data, we are able to use a fixed effect analysis

$$EA_{it} = \beta_2 EY_{it} + X'_{it-1}\lambda + a_i + \delta_t + \varepsilon_{it} \ (2)$$

The fixed effect model identifies those variables which are time-invariant and replaces them with the term α_i, which represents a unique value for each individual or unit in the panel. The term α_i is the fixed-effect term related to countries unobservable characteristics: it represents the time-invariant characteristics of country i which are impossible to measure. The model also adds one more term, δ_t, which is a time specific intercept: it captures differences in the outcome Y which vary across time periods but not across individuals. When applying this model and all other models that leverage a fixed effect methodology, the errors are clustered at a country level.

It is important to note that elections might have a lagged or a lead impact due to the added risk brought by electoral uncertainty. For example, entrepreneurial activity may decrease in the year previous to elections as entrepreneurs likely hesitate and either postpone their business decision or overall undertake an exit strategy if the uncertainty is deemed to be too high. This effect should then reverse once the uncertainty is resolved. To evaluate this issue, we include several dummies capturing 2 years before and after the election year were included, such that:

$$EA_{it} = \beta_1 + \sum_{m=-1}^{m=+1} \delta_m EY_{it+m} + X'_{it-1}\lambda + \varepsilon_{it} \ (3)$$

Where EY_{it-m} is a dummy that captures the situation m year before the election taking place in country i at date t. We extend equation (3) to include fixed effect and the interaction term election year x change party.

Finally, we provide a final model capturing the effect of election year, changing party, and whether such effect changes with time elapsed before and after election in equation (v), accounting for year and country fixed effects.

$$EA_{it} = \beta_1 + \sum_{m=-1}^{m=+1} \delta_m EY_{it+m} + \sum_{m=-1}^{m=+1} \gamma_m EY_{it+m} \times PC_{it+m} +$$
$$X'_{it-1}\lambda + a_i + \delta_t + \varepsilon_{it} \qquad\qquad (4)$$

4. RESULTS

First step taken was to model an OLS regression and fixed-effects model using all variables previously listed.

VARIABLES	(1) TEA	(2) TEA
EY	0.0556	0.0556
	(0.249)	(0.117)
Government Spending	-0.128***	-0.0378
	(0.0183)	(0.0436)
Corruption	-0.201	0.453
	(0.264)	(0.944)
Credit to Private Sector	-0.00511	0.00422
	(0.00330)	(0.00617)
GDP per Capita	-0.335	7.077*
	(0.379)	(3.591)
Unemployment	-0.0289	-0.0382
	(0.0318)	(0.0735)
Constant	16.30***	
	(4.025)	
Time Fixed effect	No	Yes
Country Fixed effect	No	Yes
Observations	278	278
R-squared	0.175	0.647
Adj. R-squared	0.157	0.587

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Table 2: Model 1

Table 2 shows the results when using pooled OLS estimation and the fixed-effect model. In both models, the term election year is positive and non-significant. Government spending is negative and significant when using a linear estimation, meaning there is a decrease in TEA when government spending levels rise, but loses significance with the fixed-effect model. Interestingly, corruption is positively related with TEA in the fixed-effect model, along with the domestic credit and GDP per capita controls, though only the latter exhibits statistical significance. Lastly, unemployment is non-significant and negative in both linear and fixed-effect estimation.

Next, we lag and lead one year the election year dummy variable; results are displayed in *Table 3*

VARIABLES	(1) TEA	(2) TEA
EY	0.167	0.0487
	(0.283)	(0.177)
EY-1	0.136	-0.0565
	(0.278)	(0.146)
EY+1	0.351	0.0986
	(0.276)	(0.210)
Government Spending	-0.125***	-0.0333
	(0.0184)	(0.0448)
Corruption	-0.158	0.518
	(0.266)	(0.910)
Credit to Private Sector	-0.00468	0.00581
	(0.00336)	(0.00664)
GDP per Capita	-0.301	7.377*
	(0.380)	(3.596)
Unemployment	-0.0312	-0.0408
	(0.0319)	(0.0719)
Constant	15.68***	
	(4.056)	
Time Fixed effect	No	Yes
Country Fixed effect	No	Yes
Observations	276	276
R-squared	0.175	0.647
Adj. R-squared	1.151	0.584

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Table 3: Model 2

When observing the values of the lagged and lead terms, we see that by using the fixed-effects model the EY-1 term is negatively related to TEA and the EY+1 is positively related. This would confirm what we hypothesized in this dissertation, however neither of these terms are statistically significant. Control variables exhibit largely the same behaviour as in Table 1, with government spending negative and significant in the OLS estimation and GDP per capita positive and significant in the fixed-effect models.

We then add the interaction term change party, dummy variable which takes the value of 1 if the election year ended with a change in the leading party and 0 otherwise. Objective is to capture whether the added uncertainty resulting from a new political leadership influences entrepreneurial activity.

Results are displayed in *Table 4*:

VARIABLES	(1) TEA	(2) TEA
EY	0.262	0.0941
	(0.304)	(0.125)
EY * PC	-0.527	-0.0993
	(0.447)	(0.280)
Government Spending	-0.127***	-0.0375
	(0.0183)	(0.0436)
Corruption	-0.175	0.461
	(0.265)	(0.949)
Credit to Private Sector	-0.00524	0.00427
	(0.00330)	(0.00616)
GDP per Capita	-0.315	7.096*
	(0.379)	(3.579)
Unemployment	-0.0254	-0.0377
	(0.0319)	(0.0738)
Constant	16.06***	
	(4.028)	
Time Fixed effect	No	Yes
Country Fixed effect	No	Yes
Observations	278	278
R-squared	0.179	0.647
Adj. R-squared	0.158	0.585

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$
Table 4: Model 3

Notably, both in the linear and fixed effects estimation election year is positively related with TEA while election year change party is negatively related, meaning entrepreneurial activity does actually suffer from the increase in uncertainty as a result of new political leadership. It is important to note however that both terms are not statistically significant in the estimation. Once more we see how GDP per capita is significant using fixed-effects and government spending using linear estimation. The other controls do not exhibit any extremely different behaviour than in previous estimations: observing the unemployment term, for example, we can see how in all three estimations presented this far it has been negatively related with the dependent variable, meaning an increase in unemployment levels is harmful to overall entrepreneurial activity levels, and statistically non-significant.

Fourth step is to lag and lead one year both election year and the election year change party term; results are displayed in Table 5:

VARIABLES	(1) TEA	(2) TEA
EY	0.366	0.0772
	(0.333)	(0.172)
EY-1	0.267	-0.0612
	(0.334)	(0.217)
EY+1	0.474	0.154
	(0.323)	(0.200)
EY * PC	-0.536	-0.157
	(0.453)	(0.361)
EY * PC-1	-0.402	-0.0683
	(0.450)	(0.421)
EY * PC+1	-0.308	-0.202
	(0.452)	(0.381)
Government Spending	-0.123***	-0.0405
	(0.0185)	(0.0498)
Corruption	-0.102	0.474
	(0.269)	(0.930)
Credit to Private Sector	-0.00500	0.00541
	(0.00337)	(0.00613)
GDP per Capita	-0.269	8.207**
	(0.381)	(2.948)
Unemployment	-0.0245	
	(0.0322)	

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Constant	15.30***	
	(4.068)	
Time Fixed effect	No	Yes
Country Fixed effect	No	Yes
Observations	276	276
R-squared	0.183	0.646
Adj. R-squared	0.149	0.578

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$
Table 5: Model 4

The lagged and lead terms of election year once again show how entrepreneurial activity decreases the year before an election and increases the year after, although they are also non-significant in this estimation. The same can be said for the lagged election year change party interaction term, however the lead term is also negative, meaning entrepreneurial activity continues to decrease even after the elections if there is a new party in charge, possibly due to the added risk faced when such an event occurs. Finally, we add a new variable named uncertainty to the estimation using data from Nordsieck, W. (1997) *Parties and Elections in Europe* retrieved from http://www.parties-and-elections.eu. To construct this variable, first we multiply the percentage gap between winner and runner-up of the election by the turnout. This results in an average value of 4.76%. We then create a dummy variable which takes the value of 1 if the winning party won with less that 4.76% margin and 0 otherwise. The goal is to capture the added level of uncertainty when the political win is perceived to be unexpected.

Results for this estimation are displayed in *Table 6*:

	(1)	(2)
VARIABLES	TEA	TEA
EY	0.371	0.0832
	(0.335)	(0.176)
EY-1	0.271	-0.0604
	(0.335)	(0.196)
EY+1	0.483	0.168
	(0.325)	(0.216)
EY * PC	-0.519	0.0917
	(0.571)	(0.317)
EY * PC-1	-0.180	0.358

	(0.573)	(0.374)
EY * PC+1	-0.497	0.102
	(0.571)	(0.370)
Uncertainty	-0.0300	-0.446
	(0.695)	(0.649)
Uncertainty-1	-0.418	-0.804*
	(0.693)	(0.439)
Uncertainty+1	0.374	-0.566
	(0.693)	(0.643)
Government Spending	-0.123***	-0.0343
	(0.0187)	(0.0435)
Corruption	-0.102	0.507
	(0.272)	(0.917)
Credit to Private Sector	-0.00497	0.00669
	(0.00339)	(0.00632)
GDP per Capita	-0.285	7.675*
	(0.384)	(3.652)
Unemployment	-0.0259	-0.0312
	(0.0324)	(0.0717)
Constant	15.47***	
	(4.093)	
Time Fixed effect	No	Yes
Country Fixed effect	No	Yes
Observations	276	276
R-squared	0.185	0.653
Adj. R-squared	0.141	0.579

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Table 6: Model 5

Interestingly, the lead election year change party interaction term, though still non-significant, changes sign when including the uncertainty term: EYCP+1 is now positively related with TEA, exhibiting the same behaviour as the election year term. While the uncertainty and uncertainty+1 term are both non-significant, the lagged version of the term is significant at a 10% level. Ultimately, this signifies that when there is an unexpected winner of an election, TEA levels are negatively affected the year before such election takes place.

To perform a robustness check, we substitute Total Entrepreneurial Activity for Necessity Total Entrepreneurial Activity (NTEA) and Opportunity Total

Entrepreneurial Activity (OTEA). It is important to mention that these variables were only introduced in the GEM dataset as of 2001 and therefore some country-year pairs[2] analysed when estimating TEA were lost when estimating the following models.

Both variables are taken from the GEM database; in particular, NTEA is defined as the percentage of TEA which is driven by necessity motives, and OTEA as the percentage of TEA which is driven by opportunity motives.

Results for OTEA, displayed in *Table 7*, show how both using linear and fixed-effects methodology the explanatory variable does not show any statistical significance, however we find that the lead term of election year is now negatively related with TEA, while the lagged term is negatively related, subverting what was previously shown in all estimations where this term was present.

VARIABLES	(1) OTEA	(2) OTEA
EY	0.188	-0.002
	(0.274)	(0.182)
EY-1	0.203	0.087
	(0.228)	(0.18)
EY+1	0.127	-0.016
	(0.229)	(0.13)
EY * PC	-0.175	0.175
	(0.371)	(0.267)
Government Spending	-0.085***	-0.005
	(0.015)	(0.037)
Corruption	-0.041	0.459
	(0.220)	(0.880)
Credit to Private Sector	-0.002	0.006
	(0.003)	(0.006)
GDP per Capita	0.445	5.984**
	(0.381)	(2.08)
Unemployment	-0.046*	-0.081
	(0.026)	(0.052)
Constant	4.496	
	(3.354)	
Time Fixed effect	No	Yes
Country Fixed effect	No	Yes
Observations	275	275

[2] Denmark, Finland, France, Germany, Italy, United Kingdom for the years 1999-200; Belgium, Norway, Spain and Sweden for the year 2000

R-squared	0.199	0.621
Adj. R-squared	0.172	0.552

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Table 7: Model 6

When looking at results for NTEA, shown in *Table 8*, we find more variables to be significant in both models:

	(1)	(2)
VARIABLES	NTEA	NTEA
EY	0.141	0.125*
	(0.136)	(0.068)
EY-1	0.251**	0.176***
	(0.113)	(0.058)
EY+1	0.038	-0.016
	(0.113)	(0.036)
EY * PC	-0.203	-0.253*
	(0.184)	(0.138)
Government Spending	-0.049***	0.004
	(0.008)	(0.012)
Corruption	-0.017	0.132
	(0.109)	(0.218)
Credit to Private Sector	-0.007***	0.003
	(0.001)	(0.002)
GDP per Capita	-0.637***	2.236**
	(0.156)	(0.858)
Unemployment	0.031**	0.02
	(0.013)	(0.017)
Constant	10.504	
	(1.659)	
Time Fixed effect	No	Yes
Country Fixed effect	No	Yes
Observations	275	275
R-squared	0.389	0.776
Adj. R-squared	0.369	0.735

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Table 8: Model 7

In the OLS estimation, while election year and election year + 1 are both positive and non-significant, election year-1 is positive and significant at a 5% level, underlining

how the year before a political election takes place, the percentage of Total Entrepreneurial activity driven by necessity increases. As for previous linear models, government spending is negative and significant. In addition, also Credit to Private Sector, GDP per capita and unemployment are negative and significant. This is because a reduction in availability of credit, overall macroeconomic condition and unemployment rate have the effect of creating a "push" towards entrepreneurial activity. When observing the fixed-effect model, we find election year to be positive and significant, along with election year-1 and EECP. Of the control variables, only GDP per capita is significant in both estimations, although it is negatively related with NTEA in the linear model while positively related in the fixed-effects model.

5. CONCLUSION

This dissertation uses a sample of 3056 observations spanned across 16 countries within a range of 16 to 21 years per country to examine the relationship between Total Entrepreneurial Activity and political uncertainty as measured by the presence of an election during the year and whether that election resulted in a change at a leadership level.

After gathering the sample, we estimate an OLS linear regression to capture the effects of the variable EY on total entrepreneurial activity and find no statistical confirmation of such a relationship.

Next, we lag and lead one year the EY variable to see if the effects of political uncertainty are felt before or after the elections and once more find no evidence when using a linear estimation.

Third step is to apply a fixed-effect model clustering the error at the country level in order to see whether by removing the errors tied to the country we find evidence of statistical dependance.

Subsequently, we add the interaction term EY*PC to capture the additional effect of a party change in the election year and lag and lead one year the variable to test whether a new leading party would increase the level of uncertainty perceived by entrepreneurs Finally, we add the uncertainty term to capture if the leading party one with a large margin on the runner-up or if the election was close and perform a robustness check using necessity and opportunity entrepreneurship.

Findings show how entrepreneurial activity is negatively affected by the uncertainty term lagged one year, therefore proving how political uncertainty does impact entrepreneurial activity.

Furthermore, when looking at necessity entrepreneurship we find that its levels reduce in the year before an election and increase during the election year. Interestingly, when there is a change in the leading party, necessity entrepreneurship no longer increases during the election year but instead decreases in levels.

These findings partially confirm our initial hypothesis: TEA does decrease in the years prior to an election but however there is no statistical evidence of a rise in the years post elections.

For the purposes of future research, it would be interesting to analyze if and how the relationship changes when the new political ideology is diametrically opposite to the previous one, for example when a political party whose policies are viewed as entrepreneurial-friendly gets succeeded by a political party whose ideology is opposite. Some limitations to this research remain as, though within the sample the election term is that of four years, in the real world this regularity is not necessarily present. As an example, countries such as the Netherlands and Croatia held successive election in 2002 and 2003 and in 2015 and 2016 respectively. This lack of consistent patterns in election timing could undoubtably influence the results obtained within the estimation. Furthermore, though the nature of the data allows to easily capture both the formal and informal aspect of entrepreneurial activity, it is accompanied by some shortcomings such as the consistent availability throughout one country, along with the relatively young age of the GEM data collection methodology.

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