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**Factors Influencing the Brexit vote:
an Aggregate Analysis**

Author: Leonardo S. Alaimo

Factors Influencing the Brexit Vote: an Aggregate Analysis

Leonardo Salvatore Alaimo¹
Sapienza University of Rome

On 23rd June 2016, a referendum on Britain staying in the European Union was held. The electoral turnout was very high (72%) and 52% of the preferences were for Leave. Therefore, the referendum result confirmed the image of a country divided between Eurosceptics and pro-Europeans. The aim of this article is to highlight whether the vote was not only an expression of the opinion about the European Union, but also the clear manifestation of a malaise linked to the influence of other factors, such as the economic crisis and immigration.

INTRODUCTION: AN UNEXPECTED RESULT

The day after the Brexit vote, Great Britain and, in fact, all Europe woke up shocked when it became clear that the majority of voters had chosen to leave the European Union (EU). However, there were some indications that the referendum could have had this result.

Britain is the country where the term Euroscepticism was coined in the 1980s. Over the years, this sentiment has been manifested in politics, the media and public opinion. Several studies confirm that British public opinion and, in particular, the electorate has always been and continues to be deeply critical and sceptical about the relationship between the UK and Europe. For instance, the main findings of Eurobarometer - the EU sponsored public opinion survey - consistently show that in the UK public regard for EU membership is significantly lower than the EU average. For example, the results of the Standard Eurobarometer Survey of spring 2016 (EB85) indicate that 36% of British respondents have a negative image of the EU² (in the survey of spring 2015 - EB83 - the percentage was 28%). Concerning the future of the Union, British respondents are divided between pessimists (46%) and optimists (44%).

The way in which the referendum was achieved is another sign of this outcome. During the electoral campaign of 2015, David Cameron declared that if he was to be confirmed as Prime Minister, he would have proposed a referendum on the United Kingdom staying in the EU. He would do this in order to verify whether the electorate was still favorable to the issue. On 20th February 2016, Cameron, who was confirmed to the leadership after the elections of May 2015,

¹ PhD student at the Department of Social Sciences and Economics; Sapienza University of Rome. Email: leonardo.alaimo@uniroma1.it

² Only in Greece (51%), the Republic of Cyprus (41%) and Austria (37%) the percentages of people having a negative image of EU are higher than in UK.

announced that the referendum would be held on June 2016. He also declared that he would support the Leave if the EU did not accept a series of demands on foreign and economic policies. EU leaders accepted most of Cameron's demands, so he and the majority of his Government became strong supporters of Remain. In this way, Cameron's decision led to an internal fracture within the Conservative Party (that has been always soft Eurosceptic): on the one hand, the majority of the Government in favor of Remain; on the other hand, many leading exponents of the party (such as Boris Johnson and five ministers) supported Leave. A fertile ground for the growth of an anti-Government vote was created.

Did the "European theme" truly affect the electoral results? Was the choice of citizens actually the result of an interest and a real knowledge of the European issue? Alternatively, was Leave a resentful and reactive vote influenced by the main themes of the electoral campaign, primarily immigration and the economic crisis? Which demographic and socio-economic factors have had an impact on the electoral choices? In this paper, we will try to answer these questions and to provide a possible key to the Brexit vote.

The paper is structured as follows. Section 2 provides a presentation of main electoral results and a comparison between 1975 and 2016 referendum. Section 3 presents the hypotheses dealt with in this work. Section 4 describes the data, measures and methods used. Section 5 presents the main results of the analysis and section 6 the discussion.

A COMPARISON BETWEEN TWO REFERENDUMS: 1975 AND 2016

The decision whether the UK should leave or remain in the European Union was made through a referendum ("British exit" or "Brexit"), held on 23rd June 2016. The total number of voters was over 33 million (the highest since the 1992 General Election) and the turnout was the highest ever in the UK (72.2%) for a consultation involving Europe³. Leave got 51.9% of the share (17,410,742 votes), although Remain obtained 16,141,241 votes (48.1%).

Leave won in 263 of the 382 Local Government Districts (LGDs), obtaining the majority in almost all the districts of England and Wales. Although Remain won in 28 of the 33 LGDs of the London area, in all the Scottish ones and in Northern Ireland.

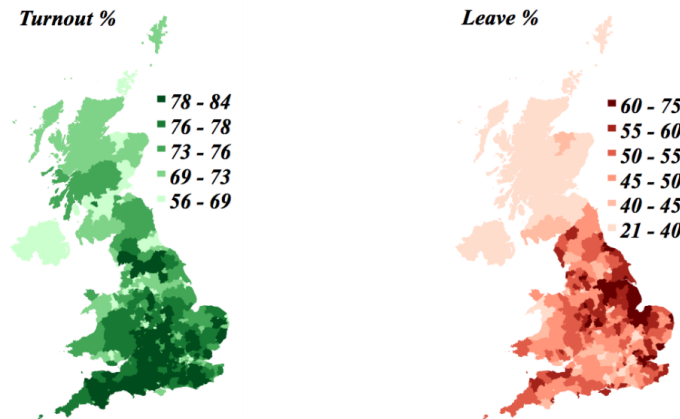
The 2016 referendum was the third one in history involving all the nations of the UK and the second one on the issue of staying within the "European system". Until the 1970s, referendums were unknown in Britain. They were not - and are still not - part of the regular decision-making process, but they have been - and continue to be - used to settle some important constitutional decisions. Though Britain and Europe have changed in time, in the analysis of Brexit it may be useful to start from the comparison⁴ with the previous referendum on the issue of European integration. Furthermore, this comparison could offer a possible explanation of the disbelief linked to the 2016 electoral result.

The so-called "Common Market Referendum", held on 5th June 1975, was the first national referendum in the history of the UK. The electorate had to vote yes

³ The average turnout of the European Parliament elections from 1979 to 2014 is 33.4%.

⁴ For the comparison, we used the data by region, not having them by LGD for the 1975 election.

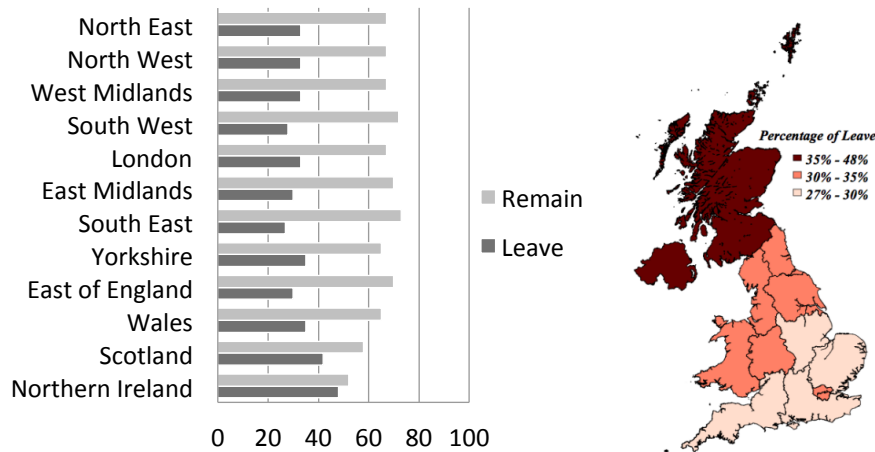
or no on the question: “Do you think the UK should stay in the European Community (Common Market)?”



Personal processing of the UK Electoral Commission Office data (www.electoralcommission.org.uk)

Fig. 1 – Referendum 2016: Turnout and Percentage of Leave by LGD

The valid votes were just under 26 million (with a turnout of 65%) and 67% voted on continued British membership of the European Community. As shown in Figure 2, the vote pro-Remain won, getting at least 65% of the votes in almost all the areas; only in Scotland (58%) and Northern Ireland (52%) this victory was more limited than the rest of the nation. The image that emerged was that of a country "strongly pro-European".



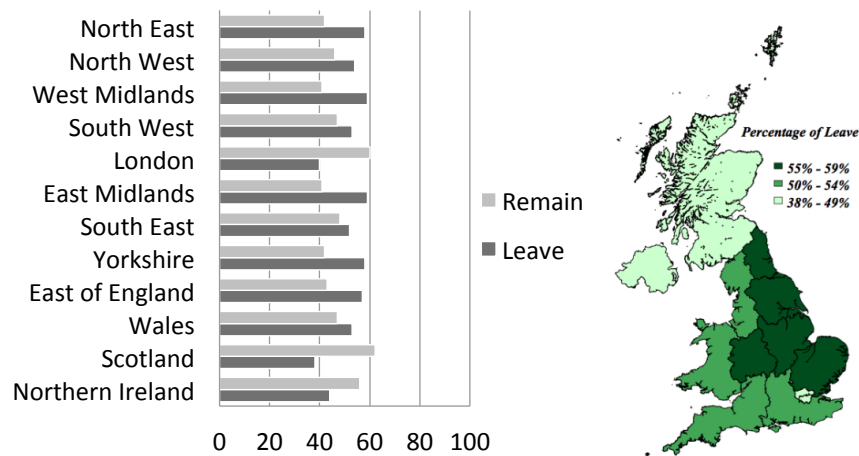
Personal processing of UK electoral data⁵

Fig. 2 – Referendum 1975: Percentage of Leave by region

According to Clarke, Goodwin and Whiteley (2017), two factors influenced the decision to stay in ECC. The first one was the so-called *British Disease*, an economic situation, plaguing England in the 1960s and 1970s, characterized by inflation, high unemployment, low productivity, industrial unrest and labor strife. The UK staying in the EEC was considered as a possibility to revitalize the internal economy. The second factor was the stability of the party system and the

⁵ We used the dataset available in *Elections in Britain. A Voter's Guide* (Leonard and Mortimore 2005).

strong sense of loyalty of British citizens to the main political parties, Conservative and Labour, which had recommended that the people vote to stay.



Personal processing of data from the UK Electoral Commission Office (www.electoralcommission.org.uk)

Fig. 3 – Referendum 2016: Percentage of Leave by region

In 2016, the situation is overturned, returning the image of the country to one divided between *Eurosceptics* and *pro-Europeans*. As shown in Figure 3, Leave won in all the regions of England (except in London) and in Wales: the highest percentages were recorded in the East Midlands (59%), West Midlands (59%), Yorkshire (58%) and the East of England (57%). The majority of the electorate voted to remain in the EU in Scotland (62%), in the London area (60%) and in Northern Ireland (56%).

THE BREXIT VOTE AND THE LITERATURE ON ITS POSSIBLE DETERMINANTS

The United Kingdom is the only Member State where people have been called to vote – moreover, on two occasions - regarding staying in the EU. However, in some other countries of the Union there have been several referendums on different aspects of European integration. So, there are many studies and a consolidated literature on this topic. Hobolt identifies three different theoretical approaches that explain how people vote in these referendums (2016). The *issue-voting approach* is related to the idea that the vote is the sign of people's attitudes towards European Union. The *second-order approach* considers the referendum a way by which people express their dissatisfaction with the political class and, in particular, the Government. The third approach considers the previous ones not mutually exclusive and takes into account the importance of the referendum campaigns in influencing the way in which citizens define their positions on the EU, judge the political class and, consequently, vote. We will try to frame the Brexit vote within this third theoretical perspective. The 2016 electoral outcome is the result of citizens' attitudes towards the British integration in the European system. At the same time, it expresses the dissatisfaction towards the Government and the political class. The electoral campaign has played a central role in influencing and determining the results, through the way in which it has covered

the key issues of the economic crisis and immigration. Obviously, since this analysis is based on aggregate data, we are unable to formulate a hypothesis about the factors influencing attitudes and voting behaviours of individuals. However, we can identify those factors that might have affected the overall result and which then led to the victory of Leave.

One useful starting point for explaining the results of Brexit referendum is to focus on the electoral issue: the relationship between the UK and the EU. This has always been a central and rather controversial issue in the British public debate. The media, public opinion and the political class have always been deeply critical and sceptical about the European integration. This position influences citizens' attitudes towards the Union, which is not only considered distant and inadequate to resolve everyday issues (immigration, unemployment, and so on), but it is often perceived as their major cause, by limiting the political and economic power of Great Britain. The 2016 vote was an expression of what Putnam has defined *politics of issues* (1993). The electoral outcome expressed civic involvement on the issue of the relationship between the UK and the EU. Thus, the vote was not influenced by partisanship or the possibility of obtaining immediate, personal benefits (what Putnam called *politics of patronage*): it was the clear and unambiguous way in which British citizens expressed their attitudes towards Europe. Putnam suggests that the referenda turnout reflects the *politics of issues* and can be used as an indicator of civic involvement. "*The primary motivation of the referendum voter is concern for public issues, perhaps enhanced by a keener than average sense of civic duty, so that turnout for referenda offers a relatively clean measure of civic involvement*" (Putnam 1993:93). Instead, the turnout of the elections with preference voting is the expression of the politics of patronage and can be used as an indicator of partisanship. At the same time, the preference-voting turnout can be used as a proxy to measure the dissatisfaction with the political class. *In countries where party identification is declining (such as in Britain, the United States and many others) turnout will decline over the long-term* (Heath 2007:513).

The electoral outcome created disbelief all over the world. While, in fact, it is clear that a large proportion of UK residents are sceptical about Europe, it is not clear enough that this position coincides with the wish to leave the EU. However, Euroscepticism should not be confused with this wish. Szczerbiak and Taggart have distinguished two different types of Euroscepticism (2008).

Hard Euroscepticism is where there is a principled opposition to the EU and European integration and therefore can be seen in parties who think that their countries should withdraw from membership, or whose policies towards the EU are tantamount to being opposed to the whole project of European integration as it is currently conceived.

Soft Euroscepticism is where there is not a principled objection to European integration or EU membership but where concerns on one (or a number) of policy areas lead to the expression of qualified opposition to the EU, or where there is a sense that 'national interest' is currently at odds with the EU's trajectory.

(Szczerbiak and Taggart 2008:7, 8)

"Britain is the home of the term Euroscepticism" (Spiering 2004:127). Before the referendum, it was thought that Soft Euroscepticism was the dominant position in British public opinion. For example, a report of the NatCen Social Research, published on February 2016 using data from the British Social Attitudes survey for the period July–November 2015, showed that while 65% of respondents were sceptical about the EU, only 30% supported the choice of leaving the Union. We want to try to identify some potential factors that have favoured the spread of Hard Euroscepticism leading to the victory of Leave. Many studies (Dodds 2016; Ford and Goodwin 2017; Gietel-Bastel 2016, Goodwin and Heath 2016; Matti and Zhou 2016; Picascia, Romano and Capineri 2016; Saunders 2016; Seaton 2016) have identified these factors in the main issues of the electoral campaign: immigration and economic crisis.

Immigration is the most important issue for public opinion in the UK, as shown by the aforementioned EB85⁶ and it was central for the Leave electoral campaign. Many post-voting analyses have tried to examine the link between immigration and electoral results. Most of these studies (Goodwin and Heath 2016; Picascia, Romano and Capineri 2016) focused exclusively on the presence of resident immigrants in the territory. In this way, they concluded that immigration was not significant in explaining the electoral results and that it was linked to the Leave by an inverse relationship: the higher the vote for the Leave, the smaller the presence of immigrants in the LGD. However, taking into consideration only the stock of immigrants resident in an LGD as an immigration indicator can lead to misleading conclusions. It is rather obvious that immigrants are concentrated in the richer areas with more job opportunities. Therefore, the inverse link between Leave vote and the presence of immigrants can probably be explained by economic factors. By more fully interpreting whether and by how much immigration influenced the vote, other aspects must be taken into account, first how the presence of immigrants is changed over the years.

As said previously, economic crisis was an important factor determining the result of the 1975 referendum: staying in the EEC was considered as a potential necessity to revitalize the internal economy. In 2016, the situation changed completely. The Leave electoral campaign, in fact, described the EU as the main cause - with immigration - of the economic crisis, limiting the autonomy of British economic choices. Thus, the EU became the ideal scapegoat on which people living in a situation of economic disadvantage because of the economic crisis could give vent to their frustration. This paper analyses the link between Leave and the economic crisis, taking into consideration the economic disadvantage dimension, defined from a set of economic indicators.

We try also to identify some of the main characteristics of the pro-Leave voter. Goodwin and Heath linked the victory of Leave to the so-called *left-behind voters* (2016). This is a class of voters where the changes to the British socio-economic structure have pushed them to the margin: "*older, working class, white voters, citizens with few qualifications, who live on low incomes and lack the skills that are required to adapt and prosper amid the modern, post-industrial economy*" (Goodwin and Heath 2016:325). According to this work, we analyse the

⁶ 38% of British respondents consider immigration the most important problem of their country.

relationship between the electoral results and the presence in the territory of people with the main characteristics of the *left-behind voters*.

DATA MEASURES AND METHODOLOGY

Referendum data originated from the Electoral Commission Office⁷ and was concerned with the turnout; count and percentages of voters in the 380 British LGDs. Results from Gibraltar and the Isle of Scilly were excluded from this analysis, because the absence of data on the studied variables made it impossible to compare these territorial units with the other ones. Northern Ireland was included in one single district. The demographic structure of the population was reconstructed on 30th June 2015, using the datasets *Population Estimates for the UK, England and Wales, Scotland and Northern Ireland* produced annually by the Office for National Statistics⁸. Economic and social variables come from the *Annual Population Survey (APS)*, a continuous sample survey providing a cover on households within the UK with the aim of providing local estimates for many important variables regarding many topics (for example, employment and unemployment, ethnicity, religion, health and education, etc.). The APS datasets comprise 12 months of survey data and are disseminated quarterly; the sample size is approximately 320,000 respondents. In this work we refer to the situation of 30th June 2016.

TABLE 1

DESCRIPTIVE STATISTICS OF THE DEPENDENT AND INDEPENDENT VARIABLES: SITUATION AT 30 JUNE 2015 IF NOT DIFFERENTLY SHOWN

Variable	Mean	SD	Min	Max
Proportion of votes to Leave 2016	0.53	0.10	0.21	0.76
Turnout 2016 Referendum perc.	73.71	5.08	56.25	83.57
Av. Turnout PE elections 2009-2014 perc.	35.37	4.18	23.38	47.14
Non-UK born presence in LGDs perc.	11.30	10.18	0.00	54.10
Non-UK born inflows in LGDs perc.	0.80	0.97	0.07	9.30
Diff. Non-UK presence in LGDs 2015-2005	3.32	3.54	-5.99	22.52
Diff. Non-UK inflows in LGDs 2015-2005	-0.09	0.49	-3.79	3.90
Economic disadvantage	0.00	1.00	-1.85	3.19
Male perc.	46.68	0.98	46.51	56.04
People over 65 years perc.	24.23	5.33	7.68	38.73
Workers without any qualification perc.	8.06	3.47	1.60	22.20
Population in thousands	171.34	143.51	8.76	1,851.62
GVA per head in thousands	23.95	14.12	10.98	221.10

We have studied the relationship between the fraction of total counted votes that was for Leave in any LGD (the dependent variable) and a set of socio-economic and demographic variables. The choice of variables has been influenced by the need to have data available at local level. We could not consider other variables potentially of interest - for instance the *religious concentration* - since

⁷ www.electoralcommission.org.uk

⁸ We used the latest data available, released on 26th June 2016 www.ons.gov.uk

they are not released by Local Government District. The descriptive statistics for the dependent and the 12 independent variables are listed in Table 1.

A hypothesis of this work is to evaluate if the vote pro-Leave was an expression of civic involvement and the clear way in which citizens expressed their position on European Union. We have used the turnout of the 2016 referendum as an indicator of civic involvement and the average turnout at the European Parliament elections in 2009 and 2014 as a measure of the partisanship.

For analyzing the effect of immigration on the Leave vote, this paper focuses, on the one hand, on the presence and inflows of non-UK born population resident in UK in 2015; on the other hand, on their variations in individual LGD in a 10-year time span. We have used four variables: the percentage of non-UK born resident population in England in 2015, the non-UK born inflows rate per hundreds resident population in 2015 and the variations of these two variables from 2005 to 2015.

To assess the effect of the economic crisis on the electoral outcome, we have used a variable defined *economic disadvantage*, constructed from a set of six variables, as shown in Table 2, through Factor Analysis. All these variables relate to a situation of economic difficulty: the higher their value, the worse the economic situation in the LGD and indeed the higher the economic disadvantage.

TABLE 2

EMPIRICAL MEASURES OF ECONOMIC DISADVANTAGE: ECONOMIC VARIABLES AT 30 JUNE 2016 IF NOT DIFFERENTLY SHOWN; FACTOR LOADINGS; EIGENVALUE; VARIANCE EXPLAINED; KAISER-MEYER-OLKIN TEST

Economic disadvantage	Factor Loadings
Unemployment rate	0.92
Inactivity rate	0.74
Workless Households - All unemployed 2015	0.81
Jobseeker's Allowance	0.91
Jobseeker's Allowance for over 12 months	0.67
Claimant Count Rate	0.95
Eigenvalue	4.25
Variance explained	0.71
Kaiser-Meyer-Olkin Test	0.83

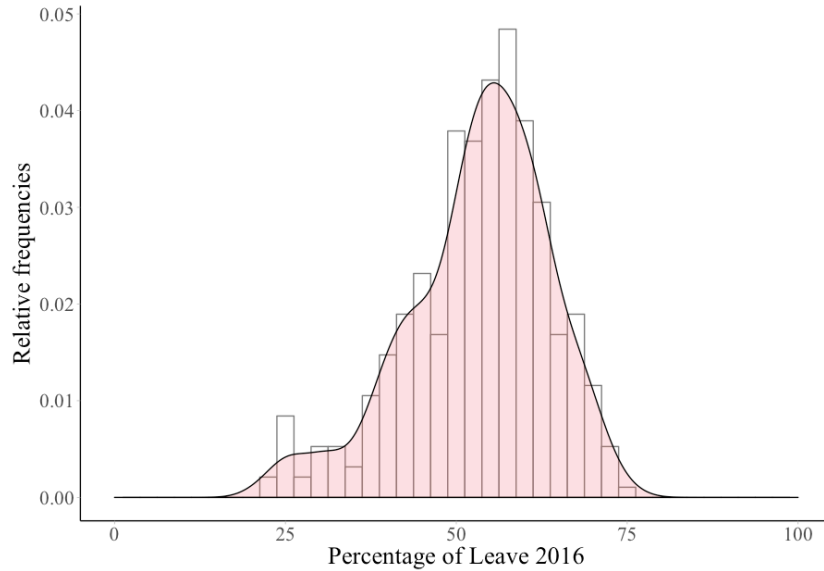
The set of demographic variables, selected from the main characteristics of the *left-behind voters*, includes the percentage of male population of electoral age, the percentage of people over 65 years of age and the percentage of workers without any qualification. We have considered two control variables, chosen to take into account the differences of LGDs: the amount of the population in thousands and the gross value added (GVA) per capita in thousands.

The dependent variable is linked to the independent variables through a regression model. The model used was chosen based on the nature of the dependent variable studied: a fractional response variable bounded (0,1). The histogram of the proportion of Leave, displayed in Figure 4, suggests that it does not follow a normal distribution as also confirmed by the Shapiro-Wilk W test, reported in Table 3.

TABLE 3

*SHAPIRO-WILK W TEST FOR NORMAL DATA*⁹

Variable	Obs.	W	V	Z	Prob > Z
Percentage of Leave	380	0.968	8.363	5.042	0.000

Fig. 4 – *Distribution of proportion of Leave votes by LGD with Kernel density plot*

According to a consolidated literature (Papke and Wooldridge 1996; Zhao, Chen and Schaffner 2001; Wooldridge 2002; Kieschnick and McCullough 2003; Ferrari and Cribari-Neto 2004; Baum 2008; Papke and Wooldridge 2008; Cook, Kieschnick and McCullough 2008), if we want to model a variable $0 \leq y \leq 1$ through a set of explanatory variables $X \equiv (x_1, x_2, x_3, \dots, x_k)$, the use of a linear model:

$$E(y | x) = \beta_1 + \beta_2 x_2 + \beta_3 x_3 \dots + \beta_k x_k$$

provides rarely the best description of $E(y | x)$ and is based on erroneous assumptions, although it is often the most common approach used by researchers.

According to Kieschnick and McCullough, the main problems associated with the use of a linear model for the study of this type of variables are mainly two (2003). The most stringent characterization of these models is that when they are used, implicitly assuming that the dependent variable distribution is normal. However, it is logical that the fractional response variables bounded (0,1) are not distributed normally, because they are not defined beyond their range, which is the domain beyond which the normal distribution is defined. Furthermore, the fact

⁹ The test is implemented by the command *swilk* of Stata 14, that can be used with $4 \leq n \leq 2000$ observations. The value reported under W is the Shapiro–Wilk test statistics. The p-value is based on the assumption that the distribution is normal; in our case, it is very small, indicating that we can reject that the percentage of Leave is normally distributed. The test also report V, which is more appealing index for departure from normality. The median values of V is 1 for samples from normal populations; large values indicate non-normality.

that these variables are observed only in a limited range implies that the function of the conditioned mean is non-linear and that the conditioned variance is a function of the mean.

In this paper, the model used was the *fractional logit regression model* developed by Papke and Wooldridge (1996). It does not have the limits of the linear one and it ensures all the fitted values will always be in (0, 1). For fitting fractional response variables, they consider this model:

$$E(y | x) = G(x_i\beta)$$

where $G(\cdot)$ is a known function satisfying the following condition:

$$0 \leq G(z) \leq 1 \quad \forall z \in \mathbb{R}$$

While one can use different specifications of $G(\cdot)$, the two authors use in their analysis the following logistic function:

$$E(y | x) = \frac{\exp(x_i\beta)}{1 + \exp(x_i\beta)}$$

The estimation procedure proposed and used by Papke and Wooldridge is a particular quasi-likelihood method, which consists of maximizing the Bernoulli log likelihood function:

$$l_i(b) = y_i \ln[G(x_i\beta)] + (1 - y_i) \ln[1 - G(x_i\beta)]$$

EMPIRICAL RESULTS

The four regression models are presented in Table 4. Model 1 includes the two variables selected as measure of civic involvement and partisanship; model 2 adds the control variables; model 3 adds the immigration variables and the economic disadvantage dimension; model 4 includes the demographic variables selected from the characteristics of the *left-behind voters*.

Turnout of the 2016 referendum and the average turnout of the European Parliament elections 2009-2014 are significant and have the expected effects in all four models. About the two control variables, the amount of the population is never significant; indeed, the gross value added per capita is significant and has the expected negative sign only in the model 2. The immigration variables are significant and have the expected signs, with the exception of the percentage of non-UK born population, which is never significant. The economic disadvantage dimension and the demographic variables are significant and have the expected effects in all the models.

DISCUSSION

The referendum turnout, considered an indicator of civic involvement, is highly related positively to Leave. This seems to indicate not only that the membership in the EU was and continue to be a very important issue in Britain, resulting in people who do not normally vote doing so, but also that, nowadays, civic involvement on this issue is largely specified in terms of the wish to leave the EU.

The average turnout of the European Parliament 2009-2014 is negatively related to pro-Leave vote. This variable can be considered a relatively clear measure of partisanship and dissatisfaction towards the political class. Then, in

those LDGs where there were higher levels of participation in election to European Parliament, there are higher levels of membership and loyalty to political parties. In the 2016 referendum, the majority of British parties supported the staying in the EU. In this way, the relationship between the average PE turnout and the electoral outcome seems to indicate that pro-Leave vote did not depend on parties' loyalty or membership. Leave can be considered a resentful vote, through which citizens have expressed their distrust towards the establishment, represented by the party system and the European Union.

TABLE 4

FRACTIONAL LOGIT REGRESSION MODELS OF PROPORTION OF LEAVE ON SOCIO-ECONOMIC AND DEMOGRAPHIC VARIABLES: MARGINAL EFFECTS; STANDARD ERRORS; OBSERVATIONS; AKAIKE INFORMATION CRITERION

Variable	Model 1	Model 2	Model 3	Model 4
Turnout 2016 perc.	0.0092*** (0.0017)	0.0062*** (0.0016)	0.0056* (0.0022)	0.0069*** (0.0020)
Average turnout 2009-2014 perc.	-0.0118*** (0.0019)	-0.0086*** (0.0018)	-0.0042** (0.0016)	-0.0051*** (0.0014)
Population in thousands		-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)
GVA per head in thousands		-0.0029** (0.0011)	0.0001 (0.0008)	0.0004 (0.0004)
Non-UK born presence perc.			-0.0015 (0.0009)	0.0007 (0.0009)
Non-UK born inflows perc.			-0.0465*** (0.0115)	-0.0659*** (0.0110)
Non-UK presence Δ 2015-2005			0.0094*** (0.0016)	0.0085*** (0.0015)
Non-UK inflows Δ 2015-2005			0.0374*** (0.0098)	0.0282*** (0.0069)
Economic disadvantage			0.0281*** (0.0082)	0.0264*** (0.0077)
Male perc.				0.0421*** (0.0069)
Workers without any qualif. perc.				0.0058*** (0.0014)
People over 65 years perc.				0.0061*** (0.0014)
Obs.	378	377	366	365
AIC	526.46	526.92	521.88	519.27

*Standard errors in parentheses. Constant included but not reported. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

Immigration and economic crisis had an important role in the definition of the electoral results. Regarding immigration, the analysis highlighted a difference among the variables taken into account, in relation to their effect on electoral outcomes. If we consider the variables about the situation of immigration in 2015 - presence and inflows of Non-UK born in 2015 - we observe that only the non-UK born inflows rate per hundreds resident population is significant. This variable is negatively related to the pro-Leave vote; this indicates that the Leave vote decreased in those LGDs where there were higher inflows of non-UK born

people. This result seems to confirm that immigration was not significant in explaining the Brexit vote and that it was linked to the Leave by an inverse relationship. However, taking into account the variation in the presence and the inflows of non-UK born in LGDs from 2005 to 2015, the situation is overturned: the results indicate that increases in these variations have a statistically significant positive relationship with the pro-Leave vote. This seems to suggest that the changes in the structure of population influenced the electoral outcome: the Eurosceptic vote was higher in those LGDs where the resident population has changed, due to the growth in the number and inflows of non-British population.

The vote for Leave increased there where there was higher level of economic disadvantage; this indicates that the economic crisis influenced the electoral results and that people probably considered the European Union as the main cause of the British economic problems, as sustained by the Leave supporters during the electoral campaign.

Our analysis confirmed the relationship between the *left-behind voters* and the pro-Leave vote; in fact, it increased where there were higher percentages of male population, people over 65 years and unqualified workers, which are some of the main characteristics of this type of voters.

CONCLUSIONS

Britain has always been sceptical about staying in the European Union. The 2016 referendum shows how this is a central issue for the British people and how the wish to leave the EU is largely widespread among citizens. Our analysis has highlighted how the issue of the relationship between the UK and the EU is central to public debate and very much felt by the citizens. At the same time, judgment on this relationship is influenced by several factors. In particular, immigration and the economic crisis have played a decisive role in defining the electoral results. In areas with high presence and inflows of non-UK population there have often been expressions of vote for remain in the European Union: as we said, this was probably explained by the fact that these areas were also the ones with more wealth and with better economic conditions. Leave had, instead, higher percentages in areas where more frequent changes in the population structure occurred, both in terms of presence and inflows of non-UK born population and in those where there were high levels of economic disadvantage.

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