

What drives the French discontent?

Eva Davoine *

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Abstract

Analyzing the Yellow Vest mobilization and voting outcomes from the 2007, 2012, and 2017 French presidential elections, I argue that proximate socioeconomic, political and psychological factors relate to the recent rise of French discontent. Precisely, I study the correlation between four determinants (economic insecurity, taxation, public service delivery and loneliness) and French discontent. I measure this discontent through support for the Yellow Vest movement, populist parties and absenteeism using administrative data at the communes level. Out of these four factors, I find a clear relationship between variations in the employment rate and rising French discontent. To explore causality, I use a Bartik instrument and identify the role of changes in employment demand. I find that these changes are strongly related to both the Yellow Vest mobilization and the support for right wing populist parties. In line with the political economy literature that connects adverse economic conditions to support for extreme politicians, my results imply that labor market shocks are a substantial determinant of the French discontent.

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1 Introduction

1.1 Motivation

Why did the Yellow Vests revolt? Was the movement triggered by the rise of the gas tax after which the first wave of demonstrations took place? Was it caused by the overall tax burden? Were the participants mainly unemployed individuals or very low paid workers? Was the mobilization stronger in places that experienced a sharp decline in public service delivery? Are the Yellow Vests lonely people who used this movement as a way to renew social ties? Or was the support for this movement related to more deeply entrenched, more long-term historical and cultural processes?

In recent years, France has seen an unexpected rise of discontent. After the French Presidential Elections in 2017 that were marked by alarmingly high abstention rates and record support for Marine LePen, this discontent culminated with the still ongoing Yellow Vest crisis. Even if unhappiness and populism seems to spread all over continental Europe with parties like the the Five Star movement in Italy, AfD in Germany, Freedom Party in Austria, Jobbik in Hungary, Golden Dawn in Greece, Swedish Democrats in Sweden, Law and Justice in Poland, France has expressed a unique anti-establishment feeling with the Yellow Vest crisis. It is also important to note that even if Marine Le Pen's National Front did not win the presidential election in 2017, the party came first in the 2014 European elections and in the first round of the 2015 regional elections.

Several factors can explain the rise of this discontent, which I have decided to measure in three ways: the Yellow Vest mobilization, the abstention rate as well as the electoral success of far-left and far-right parties. These three dependant variables are indeed good proxies of the French discontent. Each of them represents a part of the French society that is feeling left behind and has risen against the establishment, the current political and legal system, and national institutions. Indeed, one of the main claim of the Yellow Vest movement is the implementation of a citizens' initiative referendum (*référéndum d'initiative citoyenne, RIC*), which aims at giving more weight to the people in the law making process. They also ask for the abolishment of the *École nationale*

d'administration, which trains French officials and is one of the main symbols of the French elite establishment. The Yellow Vest claims overlap with the programs of populist parties. Moreover, as documented by Algan et al. in a CEPREMAP and CEVIPOF note [2], a significant part of the Yellow Vest supporters voted for an extreme right or left party in the 2017 Presidential election. Abstention is also weakly correlated to participation in the movement. For all these reasons I take three dependent variables as measures of discontent : the Yellow Vest mobilization, support for far-right or left political parties and the abstention rate.

Among the factors that may explain the rise of this movement, one can distinguish between proximate, contemporaneous factors and persistent, historical determinants. The first kind, that I analyzed in this paper, comprises all current political and socioeconomic conditions that may impact an individual living conditions. The second type relates to the effects of the long-run cultural persistence of political ideology. Even though this latter may play a significant role in this rising discontent, I argue, in this paper, that recent economic and political conditions should definitely not be ignored when attempting to explain the French discontent. I therefore analyze four of these potential short-term underlying causes.

The first factor emphasizes the role of economic insecurity. Even though the economic crisis has impacted France to a lesser extent than some of its European counterparts, the recovery was much longer and with long-term consequences on employment. Indeed, the employment rate increased at a much slower rate during the Great Recession. Moreover, employment dynamics have been highly uneven in France. Regions where the Yellow Vest were the most mobilized had, over the period 2006-2015, experienced on average a 1% lower employment rate than were they did not (Figure 2).

In this paper, I argue that employment is key to understand the rise of the French political dissatisfaction. There has also been a substantial heterogeneity in evolution of employment within sectors. For example, employment rates in the agricultural or intermediary sector have evolved similarly in living areas where Yellow Vest events occurred and in areas where those events did not take place. However, since the 2011, craftsman

employment rates have evolved much slower in areas where Yellow Vest events took place. (Figure 2). Indeed, in living areas where a Yellow Vest event occurred, the craftsman employment rate remain steady from 2009 to 2011, while it increased by 0.2% over the same period in living areas where no event occurred. Moreover, employment rates are always higher in living areas where no Yellow Vest movement occurred, except for the worker employment rate which is 1% higher on average in living areas where the Yellow Vest mobilized.

The second explanation I investigate is the burden of taxation. Originally, the Yellow Vest crisis exploded after the implementation of a new tax on gas. I am not investigating the effect of this reform itself, as Boyer et al. (2019) [7] have already done it. Yet, I am looking at the impact of the taxation burden in general and assess its impact on general discontent.

The third potential driver of the French discontent could be the decreasing availability and quality of public service delivery. Indeed, as reported by *Le Figaro* [19], post offices are the ones which have disappeared the most out of all amenities, decreasing by 11.5% from 2012 to 2017. Less than one French city out of five is now equipped with a post office. As most of the discontent is coming from mid-city areas that are losing inhabitants, and therefore also public services, it is an important feature to look at.

Lastly, the fourth factor I analyze is loneliness. Following the same pattern of the precedent point, unhappy people often live in areas where places of socialization have been closing one after another. Hence, protesting together in the context of the Yellow Vest crisis was a way for lonely people to weave social bonds again. In the movie *J'veux du Soleil* directed by François Ruffin , several participants in the Yellow Vest movement explain that they made new friends, and some even found a job or got married.

1.2 Result Preview

In this paper, I study the relationship between employment, taxation, public service delivery as well as loneliness and the Yellow Vest mobilization, the abstention rate, and the support for populist parties in France at the city level. After briefly describing my

measures of mobilization and employment rate data, I start my analysis by studying the correlation between these four potential factors and my three outcome variables at the city level. A key takeaway is that all four factors are somehow correlated to local discontent. I also use an instrument variable approach, a Bartik instrument, that isolates the effect of employment demand to advance on causation. As many individuals may not work in the city they reside, I realize this analysis at a bigger geographic unit level, the living areas. The idea is to study the role of variation in employment demand, mainly driven by the economic crisis and other local shocks on the labor market, on the measures of discontent: mobilization during the Yellow Vest movement, populism, and abstention. Overall, I find a large effect of the variations in employment on discontent. Economic insecurity has fueled dissatisfaction with the French political system and a deep resentment from citizens against the inability of the current government to protect them against economic risks. In this sense, this evidence is consistent with the first explanation that links the rise of dissatisfaction in France to economic factors. Some very interesting work has already illustrated that the Yellow Vest movement developed to a large extent as a reaction to specific reforms introduced in recent years, such as the reduced speed limit on national roads or the rise in the gas tax (e.g., Note CREST [7]). However, I stress the essential role employment shocks have played during the 2007-2015 period in shaping the economic landscape from which the Yellow Vest movement emerged

First, I carry a descriptive analysis of the evolution of the Yellow Vest movement and argue that I should restrict the analysis to only Yellow Vest events that took place in November or December 2018. I also describe the evolution of employment from 2007 to 2015, looking at the differences between places where Yellow Vest protest occurred and places they didn't. There is an evident difference in employment between the two.

Second, I examine the impact of the four potential drivers of expressed discontent : employment, taxation, public service delivery and loneliness at the city level. The econometric analysis compares cities within department and controlling for the size of urban areas and quadratic population. Employment is associated to less Yellow Vest mo-

bilization, lower abstention rate and less support for extreme parties. While I introduce several controls in my OLS regression (such as variations in populations, in the number of retired inhabitants or also average city income), there are always concerns that the estimates may be biased because of endogeneity. To identify a causal effect, I therefore focus on only one of the four factors mentioned earlier: the effect of employment on the mobilization, the abstention rate and the support for populism. Indeed, not only does this variable seem always highly correlated with my outcomes in the OLS regressions, but the link between labor market and discontent effect is also widely documented by the literature. Algan et al. (2017) [3] have for example shown that unemployment was a key determinant of the rise of populism in Europe. I thus develop a two-stage-least-squares (2SLS) analysis, where I “instrument” the increase in demand in living area employment with a Bartik approach. Taking data on employment disaggregated at the city level and at the four digit level according to the naf. 2008 classification, I take the initial share of each employment sector and multiply it by the sectoral growth over the period. To avoid any bias, I use a leave-one-out approach. Hence, my Bartik instrument predicts the variation in employment at the city level without taking into account the variations of this specific city. I then aggregates this data at the living area level, as it seems reasonable to assume that a significant part of workers do not work in the city they reside. At the living areas level, the variations in employment rate from 2007 to 2015 are quite low, increasing on average only by 0.8% over the period. Yet, the variable has substantial variability across the sample of almost 1600 living areas that I work with, going from -6.4% to 13.4%. The variability is also much different looking at whether a Yellow Vest event occurred or not in the living area considered (Figure 2).

There is a strong “first-stage” relationship between the Bartik instrument and the variation in employment, suggesting that the Bartik approach predict employment rate pretty well. The second stage estimates that the variations of employment stemming from shift in demands on my three measures of discontent are statistically significant (and quite similar to the OLS estimates). The magnitudes are considerable: a 0.45 percentage point decrease in employment increases the probability of Yellow Vest protests by 6.7

percentage point. An increase in the employment rate is also strongly associated with a decrease in support for Marine Le Pen party. However, it has no effect on abstention, and a positive effect on far-left support. Note that in my analysis I take as a proxy for discontent the Yellow Vest mobilization, abstention and extreme voting. To go even further, one could look directly at expressed life dissatisfaction and general lack of trust (in other people, in the institutions...). As I conduct the analysis at the city level and living area level, I was not able to do this analysis. Yet, a micro-level analysis at the individual level could deeply enrich this present paper and confirm if as evidenced by the literature, a low level of trust is also a component of the general French discontent.

1.3 Structure

The paper is structured as follows. In Section 2, I discuss related works and position this paper in regards to the literature. In Section 3, I discuss the data and present a preliminary analysis of the main patterns on the Yellow Vest mobilization, and the employment rate. In Section 4, I first present the panel OLS estimates exploring four potential groups of variables that may relate to the Yellow Vest mobilization, abstention and the voting patterns. In Section 5, I focus on the effect on the employment rate on these outcomes. To identify a causal effect, I use a Bartik instrument and report 2SLS estimates, assessing the effect of a variation in employment demand on the Yellow Vest mobilization, abstention and support for extreme right and left French parties. I conclude in Section 6 discussing the key takeaways and policy lessons.

2 Related Literature

This paper is related to several strands of the literature, first and foremost, to the research on the political economy of expressed popular discontent. As the Yellow Vest crisis is quite specific to the French context but is a direct consequence of the country's political context, I first aim to complement the existing literature on populism, the most analyzed form of discontent. A number of recent empirical works has tried to

explain support for populist parties looking at traditional objective economic variables. For example, Otto and Steinhardt (2018) [16], Barone et al. (2016) [6], Becker et al. (2017) [18], and Halla et al. (2017) [12] have looked at the potential correlation between immigration rates and support for populism in different European countries. Another strand of literature has focused on the effect of international trade exposure. Colantone and Staning (2016) [9] assess the impact of Chinese imports on support for the Leave option during the Brexit referendum in the UK and Dippel et al. (2015) [10] on support for extreme-right parties in Germany over the period 1997-2009. Moreover, Malgouyres (2017) [15] estimates a positive impact of import competition exposure on the local electoral success of the far-right in France. Similarly, Autor et al. (2016) [5] evidence higher political polarization and support for Trump in US counties that were affected the most from China's entrance to the World Trade Organization. They also relate this trade effect with the local political party initially in office, to analyze the effect of a potential persistence of cultural or political ideology on elections outcomes. Even though I am not analyzing this dimension in this paper, I am aware that historical factors may explain a significant part of voting outcomes. Indeed, Cantoni et al. [8] relates the support for the Nazi party in 1933 during municipal elections to the vote for the German right wing populist party, the AfD in the 2017 federal elections.

Others authors have also argued that neither of these traditional variables were highly satisfactory to fully characterize the current political landscape and have therefore investigated the ability of subjective assessment to predict elections results. For example, Inglehart et al. (2016) [13] look at how personal cultural values (anti-immigrant attitudes, mistrust of global and national governance, support for authoritarian values, and left-right ideological self-placement) combined with several social and demographic factors, can provide consistent explanations for support for populist parties. Similarly, Anduiza and Rico (2016) [4] argue that support for populism might be driven by a perception of personal economic deprivation more than by the overall country GDP growth. More recent literature, inspired by Putnam's (2000) influential work [17] has specifically focused on the role of social trust. For example, Algan et al. (2018) [1] have shown that

the level of individual life satisfaction and interpersonal trust were determining factors of votes outcome during the 2017 French Presidential Election. More specifically they show that low levels of life satisfaction and low levels of interpersonal trust is associated with stronger support for Marine Le Pen, while a low level of satisfaction but a high level of trust was associated with the Mélenchon vote. These findings suggest that welfare, more than traditional economic measures influence voting behavior. Fetzer (2018) [11] has precisely investigated this hypothesis, establishing that political dissatisfaction is strongly and causally associated with an individual's or an area's lack of exposure to welfare reforms in UK since 2010.

To reconcile these two strands of the literature, I examine the impact of both traditional and non-traditional factors on the French discontent. Indeed, I investigate the impact of classical economic measures such as employment and taxation but also of local welfare measures such as public service delivery and loneliness on discontent, which may be more related to an individual's perception and values rather than to his actual economic surroundings.

In line with conventional wisdom and case-study evidence, I show that high levels economic insecurity fuels discontent. In this regard, this work also relates to empirical studies quantifying recovery after severe economic downturns. Recent work by Algan et al. (2017) [3] relates the sharp increase in political extremism and the associated drop of trust in political institutions to the severity of the economic downturn during the Great Recession using region-level European data. Unlike this study, I focus my analysis on France, using cities and living area-level data. Also, the authors focus on the impact of the crisis, in particular the sizable rise in regional unemployment, while I am estimating the effect of variations in employment on the overall 2007-2015 period. Finally, using a Bartik and not like them the construction share, I develop an instrumental variable approach to identify causal effects and the specific contribution of economic factors to the rise of the Yellow Vest movement, absenteeism and support for extreme parties. I found, echoing Algan et al. results, that economic insecurity explains a substantial share of the rise of discontent in France.

Even if the Yellow Crisis is a quite recent phenomenon, some studies have already been published this paper departs therefore from these scarce existing previous works. First, the CEPREMAP and the CEVIPOF [2] have analyzed the key characteristics of the movement. They found that support for the movement is widespread across French society at the end of 2018, but mainly driven by two third of the workers and craftsman employment category. This study also evidences that the Yellow Vest are more likely to live in French North-East or South-West regions, in other words La diagonale du vide labelled as such by Hervé LeBras [14] as these regions are deserted by the French population. Politically, they also show that the supporters of the movement have already expressed their discontent during the 2017 Presidential Election. Indeed, they are a mix of different voter profiles : mainly Marine Le Pen's supporters, but also a large share of Jean-Luc Mélenchon voters and absentees. Moreover, the authors document that people supporting the Yellow Vest movement display lower levels of life satisfaction and interpersonal trust. Algan et al. (2018) [1] has also documented that people displaying low levels of trust and life satisfaction are more often supporters of the French extreme right parties, while extreme left voters have low levels of life satisfaction but high levels of interpersonal trust. These evidences support my analysis: French discontent was expressed in different ways during the 2017 election, and this discontent is now concentrated in the Yellow Vest movement. The last point that is evidenced in the Algan et al. study is that Yellow Vest supporters did not participate in the Grand Débat, organized by the current government as a way to address the Yellow Vest crisis, evidencing once again the reject of the current institutions.

I also lean on the work produced by the CREST, the very first research published on the subject. They use mobilization data from two sources: off-line data published by the *blocage17novembre.fr* website as well as on-line data from Facebook during the first month of the crisis. The data I use to study mobilization comes from different sources: I use both data from the *Ministère de l'intérieur* and from the *giletjaune.fr* website. Moreover, my paper can be seen as complimentary to theirs as I conduct my analysis at the *Communes et Bassins de Vies* level, which are smaller levels of desegregation

than the ones used by the CREST (*Zone D'Emploi* and *Département*). Moreover, I also differ from them as I conduct my analysis in differences over time, while they do it in level. They also focus mainly on unemployment and recent reforms (increase in gas tax, decrease of the speed limit on national roads), while my study encompasses a much wider strand of variables (public services delivery, loneliness, taxes) and focus on employment.

This paper contributes to the existing literature in at least three aspects. First, it analyzes a very recent phenomenon that has not been much explored yet. Second, as this paper draw a link between economic insecurity and discontent, it complements and extends Algan et al. (2018) [1] findings on Europe. Not only do the results confirm theirs, but the analysis also link the rise of populism and political extremism to new form of expressed discontent. Third, this paper fits to the research agenda on the political economy of France, and could have important policy implications for the French government to tackle these unprecedented waves of revolts.

3 Data

I use data from various sources. First, data on the Yellow Vest mobilization comes from both the *Ministère de l'intérieur* and the *Lesgiletsjaunes.fr* website. These two sources do not convey the same information about the Yellow Vest mobilization: the events they report overlap for less than half of them. Indeed, the governmental data reports declared demonstrations, while the website is based on the Yellow Vest declaring themselves events they organized, such as undeclared meetings around roundabouts. Moreover, governmental data was collected by the *Préfectures*, which may differ in their willingness to report such events. To get rid of a potential bias that may arise because of different levels of reporting among *Préfectures*, I add department fixed effect when I estimate the effects on my mobilization measure. Moreover, as both datasets are noisy, I decided to take both sources into account and created a dummy for Yellow Vest mobilization that is equal to 1 if at least one of the two datasets reports an event at the

city level. Second, abstention and voting data come from the *Ministère de l'intérieur* and are publicly available on the website *data.gouv.fr*. Third, I use fiscal data from the *Balances Comptables des communes* available on *data.gouv.fr* as well. Fourth, I use the *Base des équipements* and demographic data, that are publicly available on the INSEE website, the French national institute of Statistics. Lastly, I use employment data from two sources: INSEE and Acoess. I built my Bartik instrument with the Acoess dataset, as the employment data were disaggregated at a very low level of sector classification. The employment data from Insee are however the one I use as a control in my exploratory section and in the first stage of my 2SLS regression. Both datasets are highly correlated; I collected all these data at the city level and built a data set of around 36000 observations. Some cities have been deleted from the sample because of geographic changes during the study period (2007-2017). For the second part of my analysis, I then merge these data and conduct the analysis at the *Bassins de Vies* level, which is less disaggregated, but which is also a more reasonable level to use to identify the effect of the employment rate on discontent. Indeed, many people do not work nor did not mobilize in the city they reside in, given that many towns in France are very small.

3.1 The Yellow Vest mobilization

I use two noisy measures of the Yellow Vest mobilization. Figure 1 shows the evolution of the mobilization from the very first Saturday of protest, on the 17th of November, until February. Over this period (and even after), the Yellow Vests gathered every Saturday to protest. As it can be seen on Figure 1, the movement was very spread at the earlier stage of the mobilization, more than 2000 events are reported, gathering 75 000 participants in November. While the number of events has diminished greatly over time, the number of participants has remained high, peaking at 75 000 participants again on the 26th of January. This feature evidences that starting 2019, the Yellow Vests have decided to gather in central strategic locations, most of the time in big cities (Paris, Lyon, Bordeaux, Toulouse...). I therefore decided to focus my analysis on the first two months of the movement, where location variability is much higher, reflecting

places with higher levels of discontent.

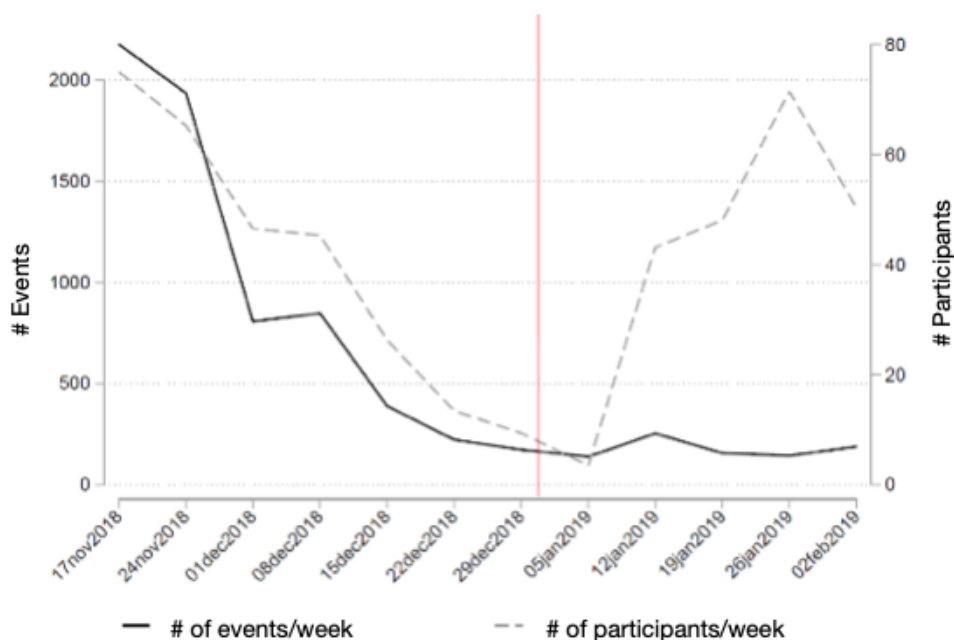


Figure 1: Yellow Vest mobilization

3.2 Employment rate

Figure 2 plots the evolution of total employment and employment by sector, emphasizing the differences in living areas where a Yellow Vest movement took place and in living areas where such an event did not (for individuals aged between 15 and 64 years old) between 2006 and 2015. A living area where a Yellow Vest event occurred is considered as such if at least one Yellow Vest event was reported in a city within the living area either by the governmental or the Yellow Vest database.

Figure 2 reveals the considerable variation in the dynamics of the employment rate. Before 2011, the overall employment rate has grown very little, by around 0.3% in 6 years. In the post crisis period, the overall employment rate has increased at a slightly higher pace, 0.5% from 2011 to 2015. Yet, there is great variation across employment sectors. If the total employment rate has increased, it has decreased among farmers

and workers. Trends between living areas where a Yellow Vest event occurred and living areas where such an event did not are most of the time similar across time, except among the craftsman socio-professional category. Indeed, in living areas where a Yellow Vest event took place, craftsmen seem to have been much more affected by the crisis than in places where Yellow Vest did not gathered. Indeed, craftsmen's employment rate remain steady from 2009 to 2011 in places where a Yellow Vest event took place, while it increased by 0.3% in places where no protests were organized. Another key feature of these graphs is that overall and sector-specific employment rate is always higher in living areas where no Yellow Vest events occurred, except among workers. These findings echo the study realized by the CEVIPOF, as it documents that workers are the larger social group supporting the movement. This sector is also the only one to have* experienced a decrease in the employment rate, which has declined by 2% from 2006 to 2015, evidencing why this group of people are likely to be particularly unsatisfied. This first analysis of the employment rate brings up at least two very interesting features. First, the Yellow Vests might be craftsmen that were impacted by the Great Recession. Second, the Yellow Vests also seem to be workers, but in their case, the discontent seems to be associated to a much longer lasting phenomenon: the decrease of employment in these sectors brought by the de-industrialization and factory outsourcing.

4 Descriptive Analysis

In this section I analyze the role of employment on the three measures of discontent: the Yellow Vest mobilization, the abstention rate and votes in favor of non-mainstream parties. I report the within-department correlations at the city level that assess whether employment, taxation, public service delivery and loneliness relate to the Yellow Vest crisis. I also report correlations that assess the relation between these four factors and voting or abstentions patterns.

I carry out first difference estimations that associate differences in the various discontent outcomes with analogous differences in employment, taxation, public service

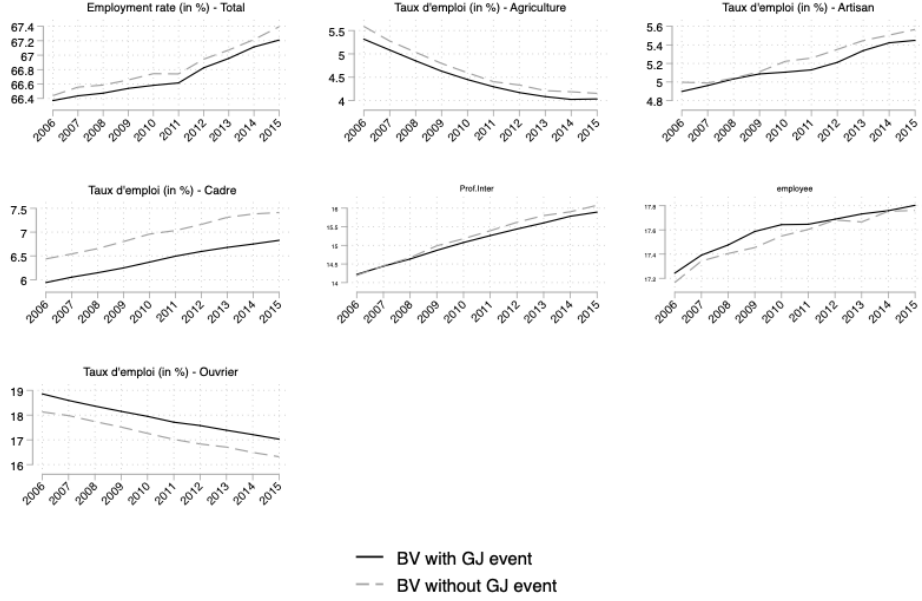


Figure 2: Employment rate by sector

delivery and loneliness at the city level. This method is used to control for cities heterogeneity. I estimate the following first difference equation:

$$\Delta y_{it} = \beta_1 \Delta x_{1it} + \beta_2 \Delta x_{2it} + \beta_3 \Delta x_{3it} + \beta_4 \Delta x_{4it} + \gamma \Delta w_{it} + \sum_{l=1}^k \mu_l FE_{i,l} + \Delta u_{i,t}$$

where Δy_{it} are the different outcome variables I consider in city i , and during the time interval t . In the case of the Yellow Vest mobilization, it is not in difference as the movement only took place in 2018. In the case of the abstention, I consider the difference in these variable between the 2007 and 2017 elections at the city level. In the case of extreme voting, I consider the differences in votes outcome for populist parties between the 2012 and 2017 elections. For this last outcome, I do not take the 2007 election results, as the extreme leaders were not the same than in more recent elections, which could potentially add extra noise in the analysis. Δx_{1it} is the variation in employment rate. Δx_{2it} are the different independent variables related to taxation. Δx_{3it} are the loss of public services. Δx_{4it} are the loss of places of socialization. The β 's are the coefficient of interest. $\Delta u_{i,t}$ is the error term, and standards errors are robust. I use

such a first-difference estimation to address the problem of omitted variables. Indeed, the FD estimator avoids bias that could be caused by some omitted, time-invariant variables. When the outcome variable is the Yellow Vest mobilization, I however need to add department fixed effect, $FE_{i,l}$, as there is no variation over time of this variable. Moreover, as this measure is reported by the *Préfectures*, information may differ from one department to another. For all outcomes, I also add urban area unit. The size of the urban unit may indeed play a significant role in discontent, as small and isolated place are more likely to be economically less dynamic.

Yet, I still need to control for time-variant variables. Δw_{it} are the different control variables I introduce in the regression. Specifically, I control for variations in self-employment, average revenue and population. This last control is necessary particularly for the Yellow Vest outcome, as an event is more likely to emerge if there is enough people to participate in it. I also control for the share of retired people. Indeed, it has been shown that this population is less likely to abstain. In the Yellow Vest context, they may also have participated more because one of the main claims of the movement concerns the retirement age. It is also a way to control for local economic dynamism as one might expect that communes populated largely by retired people have different characteristics. It is for example less likely that such a city would need a kinder-garden.

I therefore examine the role of employment, taxation, public service delivery on the three measures of discontent. Specifically, I use data from November and December 2018 for the Yellow Vest mobilization, as well as the variations between 2007 and 2017 in communal abstention rates and in voting shares for extreme parties. Support for right wing populism is defined as the difference in votes between the 2012 and 2017 elections for Marine Le Pen's party. Support for far left populism is defined as the difference in votes between the 2012 and 2017 elections for three parties: *Force Ouvrière*, *Nouveau Parti Anticapitaliste* and *La France Insoumise*.

It is important to note that in all the tables shown below the R2 remains fairly low. The independent variables explains at most only 0,24 of the outcome variations, even when introducing controls and fixed effect. This result is not surprising. The

political economic and welfare economic literature have widely documented that individual heterogeneity was driving most of the variation in these kinds of outcome. City characteristics are, consistently with the existing literature, play a much smaller role in individuals behavior.

Table 1-6 presents these estimates. In Table 1, 3 and 5, the first column presents estimates for the within-department correlation between the independent variables and the Yellow Vest movement. The second column presents estimates between the independent variables and the difference in abstention rate. In the third and fourth column I add urban area fixed effects, and control for quadratic population in the fifth and sixth column. In Table 2, 4 and 6, the first column presents estimates for the correlation between the independent variables and the support for right wing populism. The second column presents estimates between the independent variables and support for far-left parties. The third column sums far-right and far-left parties support. The fourth, fifth and sixth column presents the same estimates with urban area fixed effects. The last three columns includes control for quadratic population.

Table 5 and 6 are reported separately from the previous tables because data on schools and cultural places were not included in the INSEE dataset reporting the equipment variations from 2012 to 2017. I had to build a dataset manually to study the variation of these equipment, which may have introduce some extra noise.

The first difference coefficients on employment are significant in all panels of Table 1. A one percentage point increase in the employment rate is associated with a 20 percentage point decrease in the Yellow Vest mobilization, a 1.55 percentage point decrease in the abstention rate. Table 2 estimates on extreme voting are also negative.

The first difference coefficients on taxation are less stable. An increase in the housing tax (TH) seems negatively associated to the Yellow Vest mobilization but positively to the abstention rate. It is also non significantly associated with extreme left voting. Variation in firms taxes (CFE) are negatively associated to the Yellow Vest mobilization and the abstention rate. Yet, an increase in CFE is positively correlated with extreme right, but also overall extreme voting.

Table 1: Employment & Taxation - Communes - First Difference Analysis

| | (1) | (2) | (3) | (4) | (5) | (6) |
|------------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|
| | Yellow Vest event | Δ Abstention 07-17 | Yellow Vest event | Δ Abstention 07-17 | Yellow Vest event | Δ Abstention 07-17 |
| Economic insecurity | | | | | | |
| Δ Employment rate | -0.199*** (-8.17) | -1.555** (-2.53) | -0.146*** (-6.34) | -1.108* (-1.81) | -0.0554** (-2.52) | -0.693 (-1.13) |
| Δ Self-employment | 0.114 (1.56) | 3.175 (1.34) | 0.118* (1.73) | 2.706 (1.15) | 0.0172 (0.27) | 2.436 (1.03) |
| Δ log pop 10-15 | 0.00845 (0.61) | -1.278*** (-6.86) | 0.0243* (1.89) | -1.307*** (-7.06) | 0.0114 (0.88) | -1.467*** (-7.91) |
| Log Average Income 2011 | 0.0159* (1.95) | -1.375*** (-13.64) | -0.0768*** (-9.57) | -2.210*** (-20.89) | -0.0515*** (-6.49) | -2.137*** (-20.46) |
| Taxation Burden | | | | | | |
| Δ +64 years old | -0.000950 (-0.35) | -0.110 (-1.34) | -0.00150 (-0.58) | -0.101 (-1.23) | -0.00149 (-0.59) | -0.108 (-1.32) |
| Δ Taxable households | 0.0369 (1.50) | -0.260 (-0.42) | -0.0260 (-1.10) | -0.905 (-1.48) | -0.00600 (-0.26) | -0.286 (-0.47) |
| Δ TH rate | -0.00375*** (-3.59) | 0.0521*** (3.01) | -0.00192** (-1.98) | 0.0624*** (3.64) | -0.000122 (-0.13) | 0.0685*** (4.01) |
| Δ CFE rate | -0.00344*** (-7.04) | -0.0110* (-1.85) | -0.00214*** (-4.69) | -0.00590 (-1.00) | -0.00150*** (-3.45) | -0.000191 (-0.03) |
| Δ log contributions | -0.0129*** (-2.87) | -0.00291 (-0.06) | -0.00838** (-2.15) | 0.0269 (0.52) | -0.000751 (-0.21) | 0.0604 (1.18) |
| Department FE | ✓ | | ✓ | | ✓ | |
| Urban Area FE | | | ✓ | ✓ | | |
| Quadratic population control | | | | | ✓ | ✓ |
| R2 | 0.04 | 0.01 | 0.17 | 0.04 | 0.24 | 0.05 |
| Observations | 31656 | 31649 | 31656 | 31649 | 31656 | 31649 |

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 2: First Difference - Employment & Taxation

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|------------------------------|-----------------------|----------------------|-----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 |
| Economic Insecurity | | | | | | | | | |
| Δ Employment rate | -0.0164 (-0.03) | -0.357 (-0.66) | -0.374 (-0.50) | -0.185 (-0.30) | -0.181 (-0.34) | -0.366 (-0.49) | -0.379 (-0.61) | 0.0464 (0.09) | -0.332 (-0.45) |
| Δ Self-employment | -11.28*** (-4.55) | 5.769*** (2.68) | -5.514* (-1.89) | -11.12*** (-4.49) | 5.588*** (2.60) | -5.530* (-1.90) | -11.01*** (-4.45) | 5.463** (2.53) | -5.551* (-1.91) |
| Δ log pop 10-15 | 1.351*** (7.27) | 1.495*** (8.38) | 2.845*** (11.43) | 1.370*** (7.38) | 1.466*** (8.26) | 2.836*** (11.39) | 1.427*** (7.66) | 1.340*** (7.62) | 2.767*** (11.11) |
| Log Average Income 2011 | -1.307*** (-13.48) | -0.589*** (-7.00) | -1.896*** (-16.07) | -0.860*** (-8.40) | -1.056*** (-11.87) | -1.916*** (-15.43) | -1.060*** (-10.41) | -1.083*** (-12.65) | -2.143*** (-17.51) |
| Taxation Burden | | | | | | | | | |
| Δ +64 years old | -0.00188 (-0.02) | 0.0103 (0.14) | 0.00838 (0.08) | -0.00851 (-0.10) | 0.0198 (0.26) | 0.0112 (0.11) | -0.0121 (-0.14) | 0.00656 (0.09) | -0.00550 (-0.05) |
| Δ Taxable households | -3.840*** (-6.09) | -3.637*** (-6.65) | -7.478*** (-9.92) | -3.528*** (-5.60) | -3.984*** (-7.29) | -7.513*** (-9.95) | -3.533*** (-5.57) | -3.475*** (-6.36) | -7.008*** (-9.24) |
| Δ TH rate | -0.0357** (-2.07) | 0.0303** (2.16) | -0.00542 (-0.26) | -0.0403** (-2.34) | 0.0335** (2.40) | -0.00674 (-0.32) | -0.0420** (-2.44) | 0.0382*** (2.75) | -0.00376 (-0.18) |
| Δ CFE rate | 0.0121** (1.99) | 0.000357 (0.08) | 0.0125* (1.79) | 0.0110* (1.81) | 0.000991 (0.22) | 0.0120* (1.71) | 0.00884 (1.45) | 0.00648 (1.41) | 0.0153** (2.18) |
| Δ log Contributions | -0.245*** (-4.61) | 0.0998** (2.45) | -0.145** (-2.29) | -0.254*** (-4.76) | 0.112*** (2.76) | -0.142** (-2.25) | -0.271*** (-5.11) | 0.129*** (3.18) | -0.142** (-2.24) |
| Department FE | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Urban Area FE | | | | | | | | | |
| Quadratic population control | | | | | | | | | |
| R2 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 |
| Observations | 31656 | 31656 | 31656 | 31656 | 31656 | 31656 | 31656 | 31656 | 31656 |

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The first difference specification in Table 3 also yields a significant relationship between the lack of public service delivery and discontent. I report the effects of loosing equipment between 2012 and 2017 at the city level. The idea behind this method is that a negative variation in an equipment is more likely to decrease people living conditions, than a positive variation is likely to increase them. The term "Loosing" means that the city was equipped in 2012 with one of several specific equipment but is not in 2017. The loss of public services is associated with strong support of discontent measures. Indeed, loosing a train station (not equipped with high speed rails), a maternity, an emergency service, or a school (kinder garden, primary, middle or high school) is positively correlated with the Yellow Vest mobilization and the abstention rate. Table 4 shows that the relationship between the loss of public service delivery and extreme voting is less clear. A potential explanation for that, is that support for populism at presidential election may not be driven by an individual local environment. Looking at local election outcome could be a way to analyze this point further. The loss of certain kind of equipment, such as a small grocery store or a mini-market also predict higher Yellow Vest mobilization and abstention. If these equipment do not relate directly to public service delivery, their presence may be influenced by the general city dynamics. They also are not directly related to loneliness but they may be to a certain extend, be considered as a locations were people interact and bond socially.

To characterize loneliness, I look at the evolution and loss of social spaces. Particularly the disappearance of a movie theatre seems to be particularly associated with the Yellow Vest mobilization. Movie theatres can be seen as a proxy for loneliness as it is a place where people meet. However, the effect is once again less clear on extreme voting, potentially for the same reason as before: loneliness is a feeling that arise from local isolation and may not drive an individual presidential vote. Further research is therefore needed to better characterize the impact of loneliness on discontent in France. Indeed, the movie *J'veux du soleil* [20] directed by François Ruffin collects testimony from Yellow Vests and reveals that loneliness was what pushed people to gather on roundabouts for so long. By participating in the protest people could make friends, discuss their situation

and realize that many people were sharing their opinions. Some Yellow Vests even found a job or got married. Using opinion data could be a way to enrich this analysis.

Table 3: Public Service Delivery - Communes - First Difference Analysis

| | (1) | (2) | (3) | (4) | (5) | (6) |
|------------------------------|-----------------------|---------------------------|----------------------|---------------------------|----------------------|---------------------------|
| | Yellow Vest event | Δ Abstention 07-17 | Yellow Vest event | Δ Abstention 07-17 | Yellow Vest event | Δ Abstention 07-17 |
| Equipment: | | | | | | |
| Losing Bank | 0.0249 (1.40) | -0.135 (-0.80) | 0.0231 (1.36) | -0.152 (-0.92) | 0.00483 (0.29) | -0.335** (-2.02) |
| Losing Butcher's shop | 0.0170 (1.61) | 0.0962 (0.87) | -0.00314 (-0.30) | -0.0351 (-0.32) | -0.0121 (-1.19) | -0.163 (-1.50) |
| Losing Bakery | -0.0335*** (-4.07) | -0.0984 (-0.79) | -0.0208** (-2.49) | 0.00984 (0.08) | -0.0128 (-1.57) | -0.0145 (-0.12) |
| Losing Bureau Post Office | 0.00674 (0.65) | 0.410*** (4.00) | 0.00414 (0.40) | 0.408*** (3.96) | -0.0203** (-1.98) | 0.184* (1.79) |
| Losing Relay Post Office | 0.0168 (0.68) | 0.110 (0.39) | 0.0258 (1.18) | 0.142 (0.51) | -0.00504 (-0.26) | -0.0416 (-0.15) |
| Losing Train Station | 0.0487* (1.67) | 0.822*** (3.25) | 0.00224 (0.08) | 0.457* (1.84) | -0.0215 (-0.76) | 0.358 (1.47) |
| Losing Nurse | -0.0336*** (-3.40) | 0.292* (1.87) | -0.0164 (-1.61) | 0.381** (2.45) | 0.00136 (0.14) | 0.440*** (2.81) |
| Losing Maternity Hospital | 0.349*** (3.70) | 1.818** (2.50) | 0.249*** (3.03) | 0.145 (0.22) | 0.0777 (0.95) | -0.215 (-0.33) |
| Losing Pharmacy | 0.0411 (0.94) | 0.512 (1.35) | 0.0287 (0.70) | 0.495 (1.30) | 0.0321 (0.74) | 0.370 (0.96) |
| Losing Emergencies | 0.276*** (3.18) | 1.525** (2.14) | 0.141* (1.80) | 0.472 (0.68) | -0.00706 (-0.09) | -0.160 (-0.23) |
| Losing Grocery Store | 0.0177* (1.84) | 0.396*** (3.87) | -0.00326 (-0.36) | 0.256** (2.52) | -0.0114 (-1.27) | 0.132 (1.31) |
| Losing Mini Market | 0.186*** (9.05) | 1.270*** (9.60) | 0.0923*** (4.81) | 0.615*** (4.78) | 0.0300 (1.61) | 0.292** (2.28) |
| Losing Supermarket | 0.146*** (4.14) | 0.784*** (3.24) | 0.0527 (1.54) | 0.0718 (0.31) | 0.0404 (1.17) | 0.0653 (0.28) |
| Department FE | ✓ | | ✓ | | ✓ | |
| Urban Area FE | | | ✓ | ✓ | | |
| Quadratic population control | | | | | ✓ | ✓ |
| R2 | 0.04 | 0.01 | 0.17 | 0.04 | 0.24 | 0.05 |
| Observations | 31656 | 31649 | 31656 | 31649 | 31656 | 31649 |

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4: First Difference - Public Service Delivery

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|------------------------------|---------------------------|--------------------------|---------------------------|---------------------------|--------------------------|---------------------------|---------------------------|--------------------------|---------------------------|
| | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 |
| Equipment: | | | | | | | | | |
| Losing Bank | -0.471*** (-3.07) | 0.132 (0.94) | -0.339* (-1.85) | -0.467*** (-3.04) | 0.129 (0.93) | -0.338* (-1.85) | -0.453*** (-2.93) | -0.0183 (-0.13) | -0.471*** (-2.58) |
| Losing Butcher's shop | -0.115 (-1.13) | 0.138 (1.56) | 0.0228 (0.18) | -0.0657 (-0.64) | 0.0967 (1.09) | 0.0310 (0.25) | -0.0576 (-0.56) | -0.0464 (-0.53) | -0.104 (-0.84) |
| Losing Bakery | -0.0490 (-0.39) | 0.134 (1.20) | 0.0849 (0.55) | -0.0900 (-0.71) | 0.177 (1.59) | 0.0873 (0.57) | -0.148 (-1.17) | 0.162 (1.47) | 0.0141 (0.09) |
| Losing Post Office | -0.343*** (-3.51) | 0.185** (1.96) | -0.158 (-1.27) | -0.352*** (-3.61) | 0.201** (2.13) | -0.150 (-1.21) | -0.319*** (-3.27) | 0.0177 (0.19) | -0.302** (-2.43) |
| Losing Relay Post Office | 0.136 (0.47) | -0.132 (-0.60) | 0.00345 (0.01) | 0.102 (0.36) | -0.0980 (-0.45) | 0.00380 (0.01) | 0.107 (0.38) | -0.173 (-0.81) | -0.0662 (-0.20) |
| Losing Train Station | -0.394 (-1.53) | 0.353 (1.60) | -0.0407 (-0.14) | -0.231 (-0.92) | 0.171 (0.79) | -0.0599 (-0.20) | -0.199 (-0.80) | 0.0778 (0.36) | -0.122 (-0.40) |
| Losing Nurse | -0.237 (-1.51) | -0.0713 (-0.55) | -0.309 (-1.61) | -0.271* (-1.72) | -0.0303 (-0.24) | -0.301 (-1.57) | -0.348** (-2.21) | -0.00345 (-0.03) | -0.352* (-1.85) |
| Losing Maternity Hospital | -1.719*** (-5.22) | 1.045** (2.56) | -0.673* (-1.93) | -0.791*** (-2.84) | -0.0216 (-0.06) | -0.813** (-2.40) | -0.609** (-2.02) | 0.00225 (0.01) | -0.606* (-1.73) |
| Losing Pharmacy | -0.534 (-1.54) | 0.570* (1.90) | 0.0364 (0.09) | -0.541 (-1.56) | 0.577* (1.91) | 0.0360 (0.09) | -0.535 (-1.55) | 0.461 (1.54) | -0.0738 (-0.19) |
| Losing Emergencies | -0.802*** (-2.76) | 0.639* (1.76) | -0.163 (-0.36) | -0.367 (-1.30) | 0.221 (0.65) | -0.146 (-0.32) | 0.00273 (0.01) | -0.146 (-0.44) | -0.143 (-0.31) |
| Losing Grocery Store | -0.338*** (-3.60) | 0.104 (1.30) | -0.234** (-2.07) | -0.278*** (-2.95) | 0.0439 (0.55) | -0.234** (-2.07) | -0.271*** (-2.88) | -0.0801 (-1.01) | -0.351*** (-3.12) |
| Losing Mini Market | -0.194* (-1.76) | 0.274*** (2.92) | 0.0795 (0.64) | 0.0741 (0.69) | -0.0238 (-0.26) | 0.0504 (0.41) | 0.241** (2.22) | -0.310*** (-3.49) | -0.0693 (-0.56) |
| Losing Supermarket | -0.273 (-1.15) | 0.317 (1.55) | 0.0443 (0.17) | 0.0490 (0.21) | -0.00188 (-0.01) | 0.0471 (0.18) | 0.0327 (0.14) | -0.149 (-0.77) | -0.116 (-0.45) |
| Department FE | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Urban Area FE | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quadratic population control | | | | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 |
| R2 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 |
| Observations | 31656 | 31656 | 31656 | 31656 | 31656 | 31656 | 31656 | 31656 | 31656 |

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Public Service Delivery Loneliness - Communes - First Difference Analysis

| | (1) | (2) | (3) | (4) | (5) |
|------------------------------|---------------------|---------------------------|---------------------|---------------------------|---------------------|
| | Yellow Vest event | Δ Abstention 07-17 | Yellow Vest event | Δ Abstention 07-17 | Yellow Vest event |
| Equipment | | | | | |
| Losing Kinder Garden | 0.138*** (11.57) | 0.924*** (8.35) | 0.0774*** (7.21) | 0.446*** (4.19) | -0.00610 (-0.80) |
| Losing Primary School | 0.0395*** (4.63) | -0.157 (-1.44) | 0.0312*** (4.16) | -0.166 (-1.57) | 0.0144** (2.07) |
| Losing Middle School | 0.153*** (3.00) | 0.827** (2.56) | 0.122*** (2.69) | 0.542* (1.71) | -0.0232 (-0.88) |
| Losing High School | 0.396*** (13.18) | 1.727*** (8.49) | 0.298*** (10.90) | 0.929*** (4.84) | 0.0946*** (5.60) |
| Losing Theater | -0.136 (-0.74) | -0.357 (-0.17) | -0.186 (-1.27) | -1.300 (-0.77) | -0.187* (-1.83) |
| Losing Movie Theater | 0.437*** (13.83) | 1.727*** (8.13) | 0.327*** (11.40) | 0.948*** (4.68) | 0.0945*** (5.03) |
| Department FE | ✓ | | ✓ | | ✓ |
| Urban Area FE | | | ✓ | ✓ | |
| Quadratic population control | | | | | ✓ |
| R2 | 0.10 | 0.02 | 0.19 | 0.04 | 0.24 |
| Observations | 31656 | 31649 | 31656 | 31649 | 31656 |

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6: First Difference - Public Service Delivery & Loneliness

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|------------------------------|---------------------------|--------------------------|---------------------------|---------------------------|--------------------------|---------------------------|---------------------------|--------------------------|---------------------------|
| | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 |
| Equipment | | | | | | | | | |
| Losing Kinder Garden | -0.421*** (-4.68) | 0.317*** (3.98) | -0.104 (-1.01) | -0.151* (-1.70) | 0.0532 (0.69) | -0.0981 (-0.94) | 0.0810 (0.90) | -0.232*** (-2.94) | -0.151 (-1.41) |
| Losing Primary School | 0.330*** (3.10) | -0.0396 (-0.44) | 0.290** (2.32) | 0.330*** (3.12) | -0.0335 (-0.38) | 0.296** (2.37) | 0.387*** (3.66) | -0.111 (-1.26) | 0.276** (2.20) |
| Losing Middle School | -0.921*** (-4.33) | 0.604*** (3.00) | -0.317 (-1.20) | -0.758*** (-3.67) | 0.423** (2.07) | -0.335 (-1.26) | -0.229 (-1.09) | -0.0574 (-0.29) | -0.286 (-1.07) |
| Losing High School | -0.776*** (-4.91) | 0.791*** (5.75) | 0.0144 (0.08) | -0.296** (-1.96) | 0.333*** (2.58) | 0.0369 (0.21) | 0.471*** (2.97) | -0.371*** (-2.83) | 0.0995 (0.53) |
| Losing Theater | -1.436** (-2.01) | 1.704 (1.51) | 0.267 (0.35) | -0.763** (-2.47) | 1.023 (1.10) | 0.260 (0.33) | -0.472 (-1.58) | 0.890 (1.01) | 0.418 (0.61) |
| Losing Movie Theater | -1.575*** (-12.79) | 0.847*** (5.29) | -0.727*** (-4.39) | -1.151*** (-9.67) | 0.432*** (3.15) | -0.719*** (-4.38) | -0.121 (-0.90) | -0.497*** (-3.50) | -0.618*** (-3.46) |
| Department FE | | | | | | | | | |
| Urban Area FE | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quadratic population control | | | | | | | | | |
| R2 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 |
| Observations | 31656 | 31656 | 31656 | 31656 | 31656 | 31656 | 31656 | 31656 | 31656 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5 Focus on unemployment

Second, I discuss an instrumental-variable approach that aims to identify causal effects and then report the 2SLS estimates.

The strong relationship linking employment with discontent evidenced in the previous section do not necessarily imply a causal relationship. By exploiting within-department variation, I control for features that may shape discontent and employment. However, I cannot rule out that some omitted factors drive the correlation. Reverse causation is another concern, though the 2018 Yellow Vest crisis could not have impacted the employment rate during the 2007-2015 period. Moreover, few would argue that it was the rise of absenteeism or support for populist movements which drove variation in employment since 2007. Another concern is error-in-variables which is likely to be non-negligible. The Yellow Vest mobilization measures are noisy even though I combine information provided by two different data sets to reduce the noise.

I use a Bartik instrument to estimate the causal effects of employment on support for the Yellow Vest movement, abstention rates and votes for populist parties. Consider the cross-sectional structural equation linking outcomes to employment growth:

$$y_{i,(t-1,t)} = \alpha + \beta x_{i,(t-1,t)} + \epsilon_i$$

where y_l is the change in the different outcomes of interest between t and $t-1$ in location i , x_i is the employment growth rate between t and $t-1$, and ϵ_i is a structural error term that is correlated with x_i . The estimate of interest is β , but if I estimate it directly by OLS it will be biased. I therefore use the Bartik instrument and estimate $\hat{\beta}$. The Bartik instrument combines two accounting identities. The first is that employment growth is the inner product of industry shares and local industry growth rates:

$$x_{i,(t-1,t)} = \sum_{l=1}^k (z_{ik,t-1} g_{ik,t-1,t})$$

where z_{ik} is the share of location i 's employment in industry k , and g_{ik} is the growth rate of industry k in location i . The second is that I can decompose the industry-growth

rates as:

$$g_{ik,(t-1,t)} = g_{k,(t-1,t)} + \tilde{g}_{ik,(t-1,t)}$$

where g_k is the industry growth rate and \tilde{g}_k is the idiosyncratic industry-location growth rate. When I compute g_k I therefore compute the national growth rate in a given sector without taking into account the growth rate induced by location l . The Bartik instrument is the inner product of the industry-location shares and the industry component of the growth rates; formally:

$$B_{i,(t-1,t)} = \sum_{l=1}^k (z_{ik,t-1} g_{k,t-1,t})$$

where y_l is the change in the different outcomes of interest between t and $t-1$ in location i , x_i is the employment growth rate between t and $t-1$, and ϵ_i is a structural error term that is correlated with x_i .

Our identification strategy is based on two assumptions. First, the growth in employment predicted by the Bartik instrument should be related to the variation in employment rate that is documented by the INSEE data. I test this assumption below and show that this is indeed the case. Second, in my difference specification, shifts in employment demand, captured by the Bartik, should affect discontent via its impact on employment only. While one could come with alternative stories, it seems reasonable to assume that any “reduced-form” association between a relatively high variation in employment demand predicted by the Bartik and changes in discontent reflects its role in employment rate changes.

5.1 First-stage. The Bartik and the employment rate.

I start the 2SLS analysis with an examination of the “first stage” relationship between the variation in employment and the growth predicted by the Bartik from 2007 to 2015. Table 7 reports specifications associating employment and the Bartik. Column 1 reports differences specifications, and Column 2 reports these estimates controlling for the population. The coefficient associating the Bartik to employment rate is highly significant

in all specifications. The most conservative estimate (in Column 2), where I control for population size implies that a 10 percentage point increase in employment demand predicted by the Bartik is associated with a 0.6 percentage point increase in employment rate .

Table 7: First-Stage

| | (1) | (2) |
|-----------------|--------------------------------|--------------------------------|
| | Δ Employment rate 07-15 | Δ Employment rate 07-15 |
| Bartik 07-15 | 5.423*** (6.04) | 5.538*** (6.11) |
| Population 2007 | | ✓ |
| R2 | 0.027 | 0.029 |
| Observations | 1,563 | 1,563 |

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2 Reduced-Form. The Bartik and discontent.

I now turn to the “reduced-form” difference specifications that associate measures of discontent to the shift in employment rate predicted by the Bartik. The merit of these specifications is that the shift in employment share from 2007 to 2015 cannot be related to the Yellow Vest mobilization, except for its impact on employment demand, established by the First stage. Shifts in the employment rate predicted by the Bartik are also unlikely to be related to changes in turnout or voting patterns, other than through the employment channel. Tables 8 and 9 reports the panel estimates. I find a strong and significant relationship between the Bartik instrument and the Yellow Vest mobilization. This result holds even when controlling for the population. The coefficient in Column 1 implies that a one percent increase in the employment rate predicted by the Bartik is associated with a 72 percentage point decrease in Yellow Vest mobilization. It has however no effect on change in turnout but a similar effect on voting for far right parties.

The size of this estimate may appear unusually big. It is because the employment rate do not vary a lot over the period, as it increases by only 0,8 % on average. The distribution of the Bartik is therefore very concentrated (see Appendix).

Table 8: Reduced-Form - Yellow Vest and Abstention

| | (1) | (2) | (3) | (4) |
|-----------------|----------------------|---------------------------|----------------------|---------------------------|
| | Yellow Vest event | Δ Abstention 07-17 | Yellow Vest event | Δ Abstention 07-17 |
| Bartik 07-15 | -0.721*** (-3.08) | 0.573 (0.71) | -0.856*** (-3.54) | 0.605 (0.75) |
| Population 2007 | | | ✓ | ✓ |
| R2 | 0.006 | 0.000 | 0.011 | 0.011 |
| Observations | 1,632 | 1,632 | 1,563 | 1,563 |

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Reduced-Form - Extreme Votes

| | (1) | (2) | (3) | (4) | (5) | (6) |
|-----------------|---------------------------|--------------------------|---------------------------|---------------------------|--------------------------|---------------------------|
| | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 |
| Bartik 07-15 | -6.493*** (-6.89) | 4.033*** (5.76) | -2.460** (-2.26) | -5.244*** (-5.57) | 3.755*** (5.40) | -1.490 (-1.40) |
| Population 2007 | | | | ✓ | ✓ | ✓ |
| R2 | 0.033 | 0.021 | 0.004 | 0.081 | 0.082 | 0.003 |
| Observations | 1,632 | 1,632 | 1,632 | 1,563 | 1,563 | 1,563 |

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.3 2SLS. Employment rate and discontent.

We proceed to the 2SLS estimates that combine the “reduced-form” estimates with the first-stage relationship. Tables 10 and 11 present 2SLS first difference estimates, controlling or not for population size. In all specifications, employment (instrumented by the employment growth predicted by the Bartik) has a statistically significant effect

on the Yellow Vest mobilization and on the variation in voting for far right parties. The coefficient is higher than in the OLS estimates (see Appendix). A 1 percentage point decrease in employment is associated with a 15 percent increase in the probability of a Yellow Vest event to occur. Yet, I find no significant impact of employment on the turnout rate and a positive effect on support for far-left parties. Variations in employment rate are therefore a strong correlate of at least two measures of discontent : the Yellow Vest mobilization and the support for extreme right parties.

Table 10: 2SLS - Yellow Vest and Abstention

| | (1) | (2) | (3) | (4) |
|--------------------------------|----------------------|---------------------------|----------------------|---------------------------|
| | Yellow Vest event | Δ Abstention 07-17 | Yellow Vest event | Δ Abstention 07-17 |
| Δ Employment rate 07-15 | -0.149*** (-3.07) | 0.168 (1.14) | -0.155*** (-3.21) | 0.109 (0.76) |
| Population 2007 | | | ✓ | ✓ |
| Observations | 1,563 | 1,563 | 1,563 | 1,563 |

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 11: 2SLS - Extreme Votes

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------------|---------------------------|--------------------------|---------------------------|---------------------------|--------------------------|---------------------------|
| | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 |
| Δ Employment rate 07-15 | -1.115*** (-4.37) | 0.811*** (4.45) | -0.304 (-1.50) | -0.947*** (-4.14) | 0.678*** (4.12) | -0.269 (-1.36) |
| Population 2007 | | | | ✓ | ✓ | ✓ |
| Observations | 1,563 | 1,563 | 1,563 | 1,563 | 1,563 | 1,563 |

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

6 Conclusion

In this paper, I connect the economic insecurity of 2007-2015 with the recent rise of discontent in France. The analysis, which exploits within-department variation across all French cities that have experienced different labor market shocks, reveals that the

economic, political and psychological factors in France are interconnected.

In the first part of the analysis, I document the main patterns of the evolution of French sector specific employment, the Yellow Vest mobilization, the abstention rate and the voting for extremist parties. The increased anti-establishment claims, expressed through support for the radical left, far right but also through absenteeism has culminated in the Yellow Vest crisis.

Second, I examine the role of economic insecurity, taxation, public service delivery and loneliness on three measures of discontent: the Yellow Vest mobilization, vote in favor of anti-establishment parties and turnout. I conduct this analysis at the city level, and control for department fixed-effect for the mobilization outcome only. Changes in employment are significantly related to the Yellow Vest mobilization and the abstention rate. I therefore chose to investigate this specific feature further. To push on causation, I use the shifts in employment predicted by a Bartik instrument for changes in employment demand over the 2007-2015 period. The variations in employment predicted by the Bartik are a significant (positive) correlate of shifts in the employment rate. The 2SLS specifications show that the component of employment variation explained by the Bartik is also a significant correlate of support for the Yellow Vest mobilization and right wing populist parties. In contrast, employment and turnout are not significantly related, similarly to the results of Algan et al.

These results imply that the rise in discontent in France, materialized by the Yellow Vest mobilization, and the support for right wing populism are strongly related to variations in the labor market, and much less to the taxation burden, public service delivery or loneliness as many commentators, and policy-makers have argued. Particularly, the employment rate is related to the rise in expressed discontent, in others words, the Yellow Vest mobilization of active support for far-right populist parties rather than passive discontent, such as absenteeism. This immediately leads to another rationale for policy. Indeed, the discontent that emerged from economic insecurity had non-negligible broader short-term and long-term impacts. The Yellow Vest demonstrations were indeed very costly for the government, in terms of infrastructure but also in terms of the labor

force employed for security. Moreover, the rising support for populist parties may also have persistent damaging effects on the French democracy and economy.

There are important lessons and policy implications from these results on French discontent. Economic insecurity, particularly over the 2007-2015 period, and the inability of the French government to cope with its devastating economic consequences, has led to a dramatic rise in discontent in France, putting democracy at risk. It is, according to this paper, the most important concern to take into consideration while designing policies aiming at solving the discontent crisis.

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7 Appendix

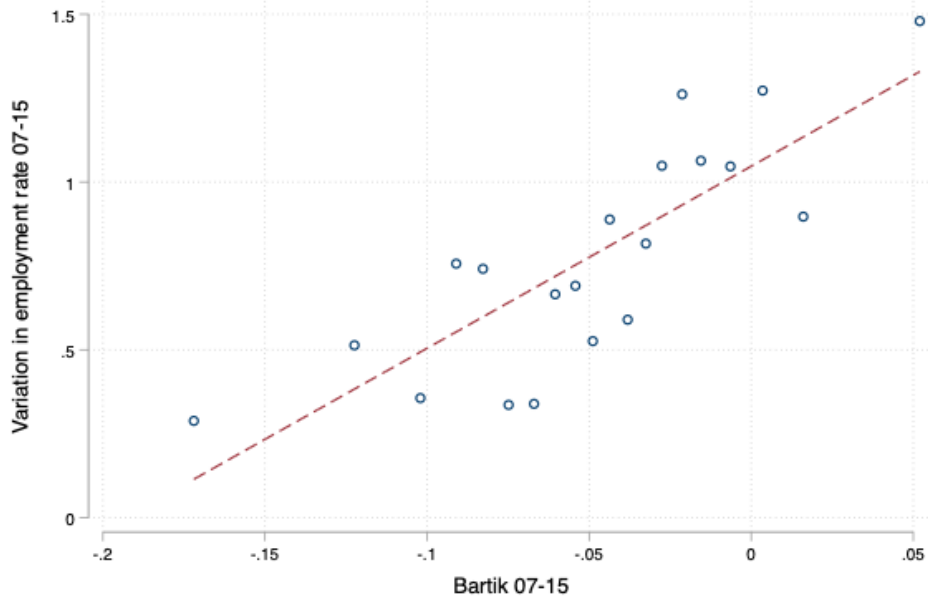


Figure 3: Employment rate and Bartik

Table 12: Summary Statistics - Communes - First Differences Analysis

(1)

| | Mean | 1st quartile | 3rd quartile | Sd | Obs |
|------------------------------|--------|--------------|--------------|------|-------|
| Outcomes | | | | | |
| Yellow Vest Event | 0.082 | 0.000 | 0.000 | 0.27 | 36846 |
| Δ Abstention 07-17 | 3.922 | 1.450 | 6.481 | 4.43 | 34907 |
| Explanatory Variables | | | | | |
| Δ Employment rate | 0.006 | -0.019 | 0.031 | 0.05 | 35396 |
| Δ Non-salarié | 0.002 | -0.002 | 0.006 | 0.01 | 35390 |
| Δ log pop 10-15 | 0.000 | -0.063 | 0.051 | 0.13 | 35390 |
| Log Rev Moyen 2011 | 9.982 | 9.826 | 10.119 | 0.24 | 36110 |
| Δ pop +64 | 0.112 | -0.055 | 0.283 | 0.38 | 34900 |
| Δ nb imposables | -0.087 | -0.114 | -0.062 | 0.05 | 34780 |
| Δ taux TH | 0.750 | 0.004 | 1.320 | 1.56 | 33396 |
| Δ taux CFE | 0.344 | -0.360 | 1.402 | 4.43 | 33396 |
| Δ log charges | 0.088 | -0.020 | 0.225 | 0.42 | 35101 |
| Losing Banque | 0.010 | 0.000 | 0.000 | 0.10 | 36846 |
| Losing Boucherie | 0.026 | 0.000 | 0.000 | 0.16 | 36846 |
| Losing Boulangerie | 0.023 | 0.000 | 0.000 | 0.15 | 36846 |
| Losing Bureau Poste | 0.025 | 0.000 | 0.000 | 0.16 | 36846 |
| Losing Relais Poste | 0.005 | 0.000 | 0.000 | 0.07 | 36846 |
| Losing Gare (no TGV) | 0.004 | 0.000 | 0.000 | 0.06 | 36846 |
| Losing Infirmier | 0.017 | 0.000 | 0.000 | 0.13 | 36846 |
| Losing Maternité | 0.001 | 0.000 | 0.000 | 0.03 | 36846 |
| Losing Pharmacie | 0.002 | 0.000 | 0.000 | 0.04 | 36846 |
| Losing Urgences | 0.001 | 0.000 | 0.000 | 0.03 | 36846 |
| Losing Epicerie | 0.033 | 0.000 | 0.000 | 0.18 | 36846 |
| Losing Superette | 0.014 | 0.000 | 0.000 | 0.12 | 36846 |
| Losing Supermarche | 0.004 | 0.000 | 0.000 | 0.06 | 36846 |
| Losing Maternelle | 0.035 | 0.000 | 0.000 | 0.18 | 36846 |
| Losing Primaire | 0.040 | 0.000 | 0.000 | 0.20 | 36846 |
| Losing Collège | 0.003 | 0.000 | 0.000 | 0.05 | 36846 |
| Losing Lycée | 0.007 | 0.000 | 0.000 | 0.08 | 36846 |
| Losing Théâtre | 0.000 | 0.000 | 0.000 | 0.01 | 36846 |
| Losing Cinéma | 0.006 | 0.000 | 0.000 | 0.08 | 36846 |
| Observations | 36846 | | | | |

Table 13: Summary Statistics - Communes - First Differences Analysis

(1)

| | Mean | 1st quartile | 3rd quartile | Sd | Obs |
|------------------------------|--------|--------------|--------------|------|-------|
| Outcomes | | | | | |
| Yellow Vest Event | 0.082 | 0.000 | 0.000 | 0.27 | 36846 |
| Δ Abstention 07-17 | 3.922 | 1.450 | 6.481 | 4.43 | 34907 |
| Explanatory Variables | | | | | |
| Δ Employment rate | 0.006 | -0.019 | 0.031 | 0.05 | 35396 |
| Δ Non-salarié | 0.002 | -0.002 | 0.006 | 0.01 | 35390 |
| Δ log pop 10-15 | 0.000 | -0.063 | 0.051 | 0.13 | 35390 |
| Log Rev Moyen 2011 | 9.982 | 9.826 | 10.119 | 0.24 | 36110 |
| Δ pop +64 | 0.112 | -0.055 | 0.283 | 0.38 | 34900 |
| Δ nb imposables | -0.087 | -0.114 | -0.062 | 0.05 | 34780 |
| Δ taux TH | 0.750 | 0.004 | 1.320 | 1.56 | 33396 |
| Δ taux CFE | 0.344 | -0.360 | 1.402 | 4.43 | 33396 |
| Δ log charges | 0.088 | -0.020 | 0.225 | 0.42 | 35101 |
| Losing Banque | 0.010 | 0.000 | 0.000 | 0.10 | 36846 |
| Losing Boucherie | 0.026 | 0.000 | 0.000 | 0.16 | 36846 |
| Losing Boulangerie | 0.023 | 0.000 | 0.000 | 0.15 | 36846 |
| Losing Bureau Poste | 0.025 | 0.000 | 0.000 | 0.16 | 36846 |
| Losing Relais Poste | 0.005 | 0.000 | 0.000 | 0.07 | 36846 |
| Losing Gare (no TGV) | 0.004 | 0.000 | 0.000 | 0.06 | 36846 |
| Losing Infirmier | 0.017 | 0.000 | 0.000 | 0.13 | 36846 |
| Losing Maternité | 0.001 | 0.000 | 0.000 | 0.03 | 36846 |
| Losing Pharmacie | 0.002 | 0.000 | 0.000 | 0.04 | 36846 |
| Losing Urgences | 0.001 | 0.000 | 0.000 | 0.03 | 36846 |
| Losing Epicerie | 0.033 | 0.000 | 0.000 | 0.18 | 36846 |
| Losing Superette | 0.014 | 0.000 | 0.000 | 0.12 | 36846 |
| Losing Supermarche | 0.004 | 0.000 | 0.000 | 0.06 | 36846 |
| Losing Maternelle | 0.035 | 0.000 | 0.000 | 0.18 | 36846 |
| Losing Primaire | 0.040 | 0.000 | 0.000 | 0.20 | 36846 |
| Losing Collège | 0.003 | 0.000 | 0.000 | 0.05 | 36846 |
| Losing Lycée | 0.007 | 0.000 | 0.000 | 0.08 | 36846 |
| Losing Théâtre | 0.000 | 0.000 | 0.000 | 0.01 | 36846 |
| Losing Cinéma | 0.006 | 0.000 | 0.000 | 0.08 | 36846 |
| Observations | 36846 | | | | |

Table 14: Summary Statistics - Bassins de Vies - Bartik Analysis

| | Mean | 1st quartile | 3rd quartile | sd | Obs |
|--------------------------------|--------|--------------|--------------|------|------|
| (1) | | | | | |
| Outcomes | | | | | |
| Yellow Vest event | 0.686 | 0.000 | 1.000 | 0.46 | 1666 |
| Δ Abstention 07-17 | 4.676 | 3.709 | 5.728 | 1.57 | 1633 |
| Δ Ext. Right 12-17 | 3.166 | 1.889 | 4.175 | 1.84 | 1633 |
| Δ Ext. Left 12-17 | 5.426 | 4.426 | 6.299 | 1.41 | 1633 |
| Δ Ext. Votes 12-17 | 8.593 | 7.248 | 9.834 | 2.04 | 1633 |
| Δ Employment rate 07-15 | 0.794 | -0.193 | 1.671 | 1.67 | 1586 |
| Bartik 07-15 | -0.050 | -0.078 | -0.018 | 0.05 | 1632 |
| Log pop 2007 | 6.547 | 5.823 | 7.147 | 0.99 | 1586 |
| Observations | 1666 | | | | |

Table 15: OLS - Yellow Vest and Abstention

| | (1) | (2) | (3) | (4) |
|--------------------------------|---------------------|---------------------------|---------------------|---------------------------|
| | Yellow Vest event | Δ Abstention 07-17 | Yellow Vest event | Δ Abstention 07-17 |
| Δ Employment rate 07-15 | -0.00496 (-0.68) | 0.0721*** (2.93) | -0.00500 (-0.68) | 0.0740*** (2.96) |
| Population 2007 | | | ✓ | ✓ |
| R2 | 0.000 | 0.006 | 0.001 | 0.017 |
| Observations | 1,586 | 1,564 | 1,586 | 1,564 |

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 16: OLS - Extreme Voting

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------------|---------------------------|--------------------------|---------------------------|---------------------------|--------------------------|---------------------------|
| | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 | Δ Ext. Right 12-17 | Δ Ext. Left 12-17 | Δ Ext. Votes 12-17 |
| Δ Employment rate 07-15 | 0.0188 (0.68) | -0.0350 (-1.56) | -0.0162 (-0.53) | 0.0138 (0.49) | -0.0309 (-1.39) | -0.0172 (-0.56) |
| Population 2007 | | | | ✓ | ✓ | ✓ |
| R2 | 0.000 | 0.002 | 0.000 | 0.058 | 0.064 | 0.002 |
| Observations | 1,564 | 1,564 | 1,564 | 1,564 | 1,564 | 1,564 |

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$