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Political Ideology and Economic Growth in a Democracy: The French Experience, 1871 - 2009

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Abstract. This paper examines the influence of political ideology on economic growth in the French democracy since 1871. It does so by addressing three main issues: the property and the reliability of a political ideology index in the long-run, the robustness of the relationship between ideology and growth and the specific channels through which political ideology affects economic performance. The main conclusion is that, compared with right-wing parties in power, left-wing governments have promoted equity at the expense of economic growth. It also appears that the main channel through which political ideology has impacted economic performance all along the French democratic experience is the budgetary tool (i.e. fiscal and redistributive policies) which influenced employment and income inequalities. By contrast, there seems to be less or even no empirical support for explanations based on the monetary policy or regulation, such as trade policies or the labor market regulation.

Keywords: French economic history; 19th century; 20th century; political ideology; partisanship; growth; government performance; fiscal policy; public spending; unemployment; inequality.

JEL classification : E6, O43, H11, N13

Idéologie politique et croissance économique en démocratie : L'expérience française, 1871-2009

Résumé. Cet article étudie l'influence de l'idéologie politique des gouvernements sur la croissance économique en France depuis l'établissement d'un régime démocratique stable en France en 1871. Pour cela, il soulève trois questions principales : (1) la fiabilité d'un indicateur d'idéologie politique en longue période, (2) la robustesse de la relation entre idéologie et croissance et (3) les canaux spécifiques par lesquels les gouvernements ont pu agir sur la croissance en longue période. La conclusion principale de l'étude empirique est que, compare aux gouvernements de droite, les gouvernements de gauche ont et tendance à favoriser l'équité sociale au détriment de la croissance. Il apparaît également que le principal canal de transmission entre idéologie politique et performance économique tout au long de l'expérience démocratique française est l'instrument budgétaire (politiques fiscales et de redistribution) qui a impacté la croissance à travers l'emploi et les inégalités de revenus. Cependant, il est difficile d'établir un effet permanent des politiques monétaires et de réglementation (politique commerciale et réglementation du marché du travail) sur la croissance française en longue période. Enfin cette étude empirique nous permet de saisir la quintessence de la droite et de la gauche en France à partir des politiques publiques qu'elles ont traditionnellement mis en place depuis près d'un siècle et demi.

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Mots clés: idéologie politique, croissance, performance du gouvernement, politique fiscale, dépense publique, chômage, inégalités, histoire économique française, XIX^{e} siècle, XX^{e} siècle.

Classification JEL: E6, O43, H11, N13.

1. Introduction

The present paper examines the effect of political ideology on economic growth in a democracy over long periods. To do so, we use annual data on France on the period 1871-2009. More precisely, we focus on the parliament's political ideology and its effects on economic performance and emphasize the underlying transmission mechanisms. It raises several questions: does ideology matter in economic policy-making? If it does, which ideology is more favorable to economic growth? Finally, how does political ideology impacts growth?

In view of the literature, the issue seems to have been traditionally neglected by economists. Indeed, political ideology is rarely taken into account in the explanations of economic growth. As proof of that, Sala-I-Martin et al. (2003) rank the 67 most common explanatory variables in the growth model literature without referring to any ideology variable. However, there are two strands of literature dealing with the influence of political ideology on economic variables. The oldest one that dates back to the 1970's and lies within the partisan and business political cycle framework while a more recent literature points at political ideology as an explanation of a wide range of public policies.

The original political business cycle theory (Nordhaus 1975) tends to deny any role of political ideology by assigning only electoral motivations to politicians. Therefore, both left-wing and right-wing governments are believed to artificially increase GDP growth before elections. As for the partisan approach (Hibbs 1977), it acknowledges a role for the government's political affiliation. Hibbs (1977) initially showed that, in 12 post-war capitalist democracies, leftist governments implemented expansionary fiscal and monetary policies to boost GDP growth and keep unemployment low, whereas right-wing ones first and foremost struggled against inflation. But the influence of these policies is, at least in the long run, neutralised by economic actors: under the rational expectation assumption, the voters immediately anticipate the policies' effects, thus making them ineffective. However, Alesina

(1987) showed that governments can have an impact on the national economy but it never lasts long because of the adaptive expectation assumption: economic actors rapidly correct their expectations. In that respect, there is a partisan effect on growth only during the first two years of electoral terms.

From the empirical viewpoint, Alesina (1988) confirmed his theory with a study on the United-States. Democrats and Republicans would record similar growth rates during the second part of their terms, but the former would perform better during the early years of the term, as they implement monetary (higher inflation) and expansionist budget policies (higher deficit and spending) that are not immediately expected by voters (Alesina 1988, p.36). Alesina et al. (1997, chapter 6, p.174) confirmed this finding for 18 OECD countries on the period 1960-1993. Finally, Dubois (2005) performed a similar test for the French case from 1979 to 2003 and established that growth decreased during one and half a year when a right-wing government was elected while it increased with the arrival of a left-wing government[3]. Thus Dubois confirmed the rational partisan cycle theory for France with a stronger partisan effect in favour of left-wing parties.

In the more recent literature, it is possible to identify two main kinds of studies that focus, each one, on a different part of the relationship between government's political affiliation and economic growth. The first one deals with the "politics matters" hypothesis, in other words the effect of government's affiliation on specific policies or political outcomes, such as public spending, economic, foreign and defence policies (Imbeau et al 2001)[4], fiscal policies (Perotti and Kontopoulos 2002; Tavares 2004; Reed 2006), economic freedom and especially labor market regulation (Botero et al. 2004; Bjornskov and Potrafke 2011a and 2011b) or trade policy (Dutt and Mitra 2005). On the other hand, a wide literature investigates the relationship between economic growth and economic variables that can be seen as political outcomes like, for instance, public spending and public debt (Nijkamp and Poot 2004; Facchini and Melki 2011)[5], tax policies (Razin and Yuen 1996; Mendoza 1997; Kneller 1999; Lee and Gordon 2005), income inequalities (Person et Tabellini 1994; Alesina and Rodrick 1994; Barro 1999, 2000; Voitchocsky 2005) or trade policy (Osang and Pereira 1996). However both literatures

[3] More precisely, Dubois (2005) established that the GDP growth rate decreased by 0.3% during the six quarters following the election of a right-wing government and increased by 0.5% during the same period under a left-wing government.
[4] See Imbeau et al (2001) for a meta-analysis of more than 600 cross-sectional studies.
[5] See Nijkamp and Poot (2004) for a meta-analysis and Facchini and Melki (2011) for the latest survey on the relationship between State size and economic growth.

seem to be mutually unaware and are thus not able to emphasize the total relationship from ideology to economic growth. Among the scarce works that make the connection, the paper of Bjornskov (2005)[6] is the first one to study the effect of political ideology on growth outside the framework of the political business cycle theories. He found for a panel of democracies on the 1975-2000 period, that countries to the right of the average experienced more growth compared to the lefty countries because of better legal systems and less government intervention. Accordingly, Bjornskov (2008) established for a similar panel that the higher the income inequalities are, the more a government shift to a right-wing ideology improves growth[7].

However, all the current empirical studies on the effect of ideology suffer from common pathologies mainly due to the fact that they are cross-sectional. Indeed, they compare the effects of governments' ideology either for a group of countries or for a set of states, provinces or regions inside a country. The main pathology would stem from "fairly short observation periods" that generally do not exceed 25 years and second from their "focus on a small group of countries" (Potrafke 2010, p.3). Imbeau et al. (2001, p.3) add that "partisan effects would be too subtle to ensure sufficient robustness of cross-sectional statistical estimations". They refer here to the difficulty of measuring the national differences among the various right-wing and left-wing ideologies of the countries of the studied panel[8]. Fourth, the literature on ideology and growth does not specify the various steps of transmission and the relative contribution of the different channels from ideology to growth. Finally the last concern comes from the unresolved identification issue. The bulk of the literature on the influence of ideology does not take seriously into account the problem of reversed causality into account, according to which the observed outcome such as GDP growth can also influence political ideology.

In the light of these arguments, the present paper provides a perspective that departs from the current literature. Indeed, it adopts an historical approach by using a time-series analysis focused on a single country, France, so as to study the issue of the economic effects of

[6] The countries ranked as right-wing experienced 0.25% additional growth per year compared to the left-wing ones (Bjornskov 2005, p.140).

[7] At the mean inequality level, a move from a center to a center-right government is associated with a 0.28 percentage points increase in the annual growth rate (Bjornskov 2008, p.306).

[8] For instance, by using the Database Political Institutions (DPI) (Beck et al. 2001) that measures the ideological orientation of the chief executive of 177 countries on the period 1971-2000, one can find the suspicious result that France was perceptibly more right-wing than the US between 1975 and 2000 (Bjornskov 2005, p.144).

political ideology. This is quite original since there is no long-period study on the topic for France and more generally for any countries. Moreover, focusing on the French democratic experience of almost one and a half century (1871-2009) leads us to propose a long term ideology index based on the works of the historians and not available in the current literature. Furthermore, a time-series analysis is automatically immune to the above mentioned main pathologies. Firstly, the length of the observation period 1871-2009 is safe from any criticism. Secondly, focusing on a single country clears the problem of the subtle differences in the national political ideologies. Thirdly, our model allows us to examine precisely the transmission mechanisms between ideology and growth. Fourthly, we discuss the identification issue and provide a device to tackle it properly. By doing so, this article paves the way for long-period analyses based on quantitative history, with even more reliable and accurate sources - such as the works of Maddison (1995, 2005) and Barro and Ursua (2008).

One of the major contribution of this article is to provide strong empirical support for the better performances of right-wing governments in terms of GDP growth during the French democratic experience. It seems that the effects are not direct but mediated by transmission channels such as public policies that affect macroeconomic variables which in turn influence GDP growth. The main channels seem to be the budgetary policy, public spending as well as the tax system that influence employment and the income inequalities and i*n fine* the GDP growth. However, monetary and trade policies do not pop up as transmission channels. Finally, far from denying the evolution of right- and left-wing parties since 1870, the article provides empirical evidence of a permanence of the ideological divide on some political issues for at least the last century.

The paper is structured as follows. Section 2 provides historical background on both the political life and the economic growth path in France and also outlines the theoretical hypothesis. Section 3 presents the data, develops the methodology used to build the ideology index and describes the empirical strategy. Section 4 presents the empirical tests and interprets the results. Section 5 concludes.

2. Historical background of political ideology and economic growth in France (1871-2009)

2.1 One of the oldest democracies

The French democratic experience is particularly relevant for our kind of study because the French regime is one of the oldest democracies in the world and thus provides long periods of analysis. Historically, France was the first European country to introduce universal male suffrage in 1848. After having experienced, in the wake of the French Revolution, two empires, three constitutional monarchies and two attempts of Republic, France adopted *de facto* in September 1870 a stable parliamentary republic with the Third Republic (1870-1940). But we chose to start our study only in February 1871, date of the first legislative elections of the Third Republic that appointed the National Assembly in charge of the preparation of a new constitution. But the regime was only really established in 1875 with the adoption of the *Wallon Amendement* (constitutional bill) and the constitutional laws. The National Assembly was and still is split in two chambers: an Upper one, the Senate and a Lower one, the House of Deputies, which is the sole institution elected by direct universal suffrage.

Te continuity of its democratic functioning is the first reason why we focus in this study on the Lower Chamber to assess the political ideology of parliament. A second reason is that the Third Republic is known to be the "Republic of deputies", leaving almost no room for the executive power (Goguel 1946). This bicameralist system characterizes the functioning of the French democracy until now, with the exception of the Vichy Regime (1940-1945). The Forth Republic (1946-1958) followed upon the previous one with roughly the same institutions. But under the Fifth Republic (1958-nowadays), the Parliament is composed of the Senate and the National Assembly, which became the Lower Chamber. By consequent, after 1958, we focus on the National Assembly to characterize the parliament's political affiliation.

2.2 One of the oldest ideological divides

The main difficulty with such a long period analysis is to identify a clear and constant divide between right and left. If after the 1930's and during the post-war society, the ideological divide is clearly structured around economic issues. By contrast, it that is far from being that obvious for the early years of the French democracy. Indeed, during the first three decades of the Third Republic, until the "*Ralliement*" of the Church to the Republic in 1898, the main ideological opposition is between a republican left in favour of a republican regime and secularization and a conservative right supporting a monarchist and religious government system. But in spite of the obvious ideological evolutions within the right- and left-wing parties all along our period, the issue of the permanence of a left-wing ideological divide has

been strongly debated among the historians and the analysts of the French political life. It appears, from the debates[9], that two trends have cohabitated all along the French democratic experience: on the one hand, the variety and the diversity of the political groups and parties and, on the other hand, the dualism of the fundamental (right/left) tendencies (Goguel 1946, p.19). The intensity of the divide is reflected in the electoral behaviour of the French voters, which tended to prove the existence and the permanence of a fundamental connection between all the lefts and all the rights. For instance, studying the votes in western France, Siegfried (1930) provides striking examples of stability of the relative weight of the two main tendencies since 1871. And the left-right divide seems to remain a touchstone in the French political landscape (Mayer 1997, p.15) and in general (Budge et al. 2001, p.22; Markussen 2008, p.342).

In the light of the history of the parties in France, the left-right divide seems to be over the labour market regulation, the denunciation of the harmful effects of the "*mur de l'argent*"[10] on social welfare, the necessity of a redistributive tax policy and the national interest of a colonial strategy with a civilizing purpose. On the contrary, the right, commonly called "the group of the established order", as opposed to "the movement group" (Goguel 1946), rather tended to control and keep order and the main economic equilibrium.

A brief outline of the political choices of the various left-wing governments since the consolidation of the French democracy allows us to confirm the presence of this ideological division and their historical permanence. The left has governed under the three republics, at the end of the 19th century with opportunistic republican coalitions, after the First World War with the *Cartel des gauches* (1924 – 1926, 1932 – 1934), before the Second World War with the *Front Populaire* (1936 – 1937) and under the Fourth and the Fifth Republic with socialist governments (1981 – 1995 and 1995 – 2002). If we focus on the composition of the Lower Chamber of the Parliament over the period 1871-2009, left-wing parties governed for 79 years, as compared to 55 years for right-wing ones. In spite of the evolution of the left-wing ideology through time, one can identify similarities in the policies implemented.

[9] The most emblematic authors that deny a connection among the rights and the rights are Aron (1957) and Rémond (1963) although the latter acknowledges that the tendency among historians is to underpin the thesis of a continuity or a gist of the lefts and the rights through time (Rémond 1963, p. 13-23).

[10] Expression of the 1920's referring to the opposition between the banking and financial circles and any economic and social reform in France.

In 1871, left and right were already opposed upon the debt due to the cost of war against Prussia (1970-1971) and *La Commune* (1871) and of the colonial strategy (Fridenson 2005, p.587; Becker 2005, p.313). As early as the 1870's and especially since Waldeck-Rousseau's government in 1899, the left developed its main issues (Duclert 2005, p.211) such as the regulation of working time and working conditions, wealth redistribution through tax[11] according to the Solidarist ideology (Audier 2010) and the denunciation of the « *mur de l'argent* ». Even though some governments such as Combes's one or the "*Bloc des gauches*" are often presented as socially shy (Candar 2005, 223), all the main laws on labor market (minimum wage, working time regulation and more generally labour market entrance and exit conditions) were adopted by lefty majorities in parliament[12]. According to other historians, the left seems to have been rather in favor of public spending, inflation (Fridenson 2005, p.589), nationalization of certain strategic public sectors, redistributive policies likely to decrease inequalities (Fridenson 2005, p.592 – 589) and a strict regulation of freedom of contract.

2.3 French growth

The French economy experienced two main critical stages until the Second World War: 1860-1890 and 1929-1939 (Asselain 1984a, p.172). On the contrary, from 1945 to 1973, it experienced a steady growth period, regularly upper than 5%. After that, the GDP growth slow downed and was even negative in 1993 and 2009. War played an important part in the evolution of the French growth at the end of the 19th century as well as during the 20th century.

The 1860-1890 years were called, before the crisis of 1929, "*la Grande Crise*"[13]. It fits approximately with the 1873-1896 Kondratieff cycle of the long-run prices decrease (Asselain 1984). In France, this stage began during the 1860's decade and was confirmed by the decrease in the GDP per capita during the 1880's (Lévy-Leboyer 1971). The origin of the decline was the American Civil War, the *phylloxera* plague that destroyed the harvest, the decreasing return on investment in the railways, the weight of the trade between France and Great Britain and the agricultural depression. The prosperous 1890-1913 period (Asselain

[11] Creation of the IRPP: http://piketty.pse.ens.fr/fichiers/public/Grasset2001/Annexes/AnnexeC.doc
[12] The working 6-hour day for children under 12 years old in 1874, the 11-hour day for the 16-18 children and women in 1892, the general 10-hour day, the working 6-day week in 1906, the working 48-hour week and the 8-hour day (*Bloc National*) in 1919, the 40-hour week in 1936 (*Front Populaire*), the creation of a minimum wage in 1950 by a left-wing coalition, the 39-hour week in 1982 and the 35-hour week in 1998 and 2000.
[13] "The Great Crisis"

1984a, Chapter 4) was followed by the 1914-1918 war and the rebuilding from 1918 to 1929. However, as early as 1924, the level of the French GDP and of the national income is back to its level of 1913 but growth is quite fast (Asselain 1984b, p.25). 1929 is obviously a date of break down followed by a recession and an imbalance period (1930 – 1935), which, contrary to numerous countries, lasted longer

Under the "Front Populaire"'s coalition, Blum's government reforms in 1937 only had temporary effects. The 1937 and 1939 increases did not make up the deep recession of 1938. The economic instability matched with a high political instability: the fall of Blum's government and the accession of Chautemps's in 1938. On the contrary, between 1945 and 1973, the annual GDP growth was high. On the period from 1949 to 1969, the average annual growth rate was 4,6% and 6,6% from 1969 to 1973 (Caron 1981, p.158). From 1975, like numerous European developed countries, France experienced very low growth rates compared to before and to other big formerly industrialized countries like Great-Britain or the United-States. Table 1, extracted from Fontvielle (1976, p.173), summarizes the main stages of French GDP growth.

Table 1. Production long cycles

High growth	Low growth	High growth	Low growth	High growth	Low growth	High growth	Low growth
1850-1868	1870-1889	1894-1913	1913-1921	1922-1941	1942-1946	1947-1973	1974-2009

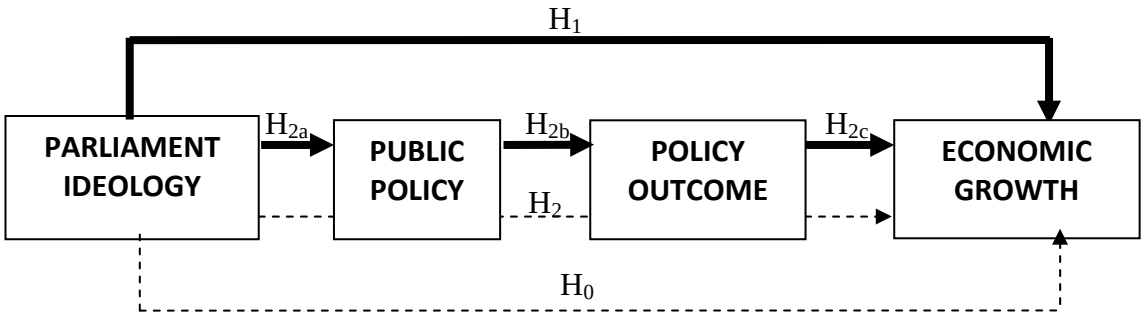
Source: Fontvieille (1976), p.173

2.4 The transmission mechanisms from political ideological to economic growth

The challenge is now to see whether government's political ideology and economic growth have been correlated over the last 140 years and to explore the transmission mechanisms. Figure 1 illustrates the theoretical relationship that will be tested. In view of the above listed differences in policy-making between the right- and left-wing governments, we can reasonably make the basic hypothesis they did not have the same performance in terms of economic growth, in other words political ideology affects growth (H_0, figure 1). If the basic assumption is verified, the relationship can be either direct (H_1) or indirect that is to say mediated by transmission channels (H_2). A direct effect could be explained, firstly, by a change in agents' expectations, who would modify their predictions about the future depending on whether right or left comes into power (Alesina 1988; Dubois 2005) or, secondly, by the fact that government's political ideology merely mirrors people's attitude towards labour or private property that determines directly the level of the national production

(Bjornskov 2005)[14]. The alternative hypothesis is the one of an indirect effect through the different policies implemented by left- and right-wing parties.

Figure 1: Transmission mechanism between ideology and growth



If we consider the hypothesis of an indirect effect, we need to dwell on the transmission mechanisms between ideology and the GDP level. Firstly, we can assume that the government in power does not react only to its environment but, first and foremost, makes real choices of public policies depending on its partisan orientation (first-stage of the indirect transmission channel (H_{2a}, figure 1). This assumption is in contrast with the purely opportunist behavior of politicians of the rational business cycle theory (Nordhaus 1975). Indeed this theory leaves no room for public interest in the politicians' objective function, that is to say for "consistent sets of normative statements as to best or preferred states of the world" (Kalt and Zupan 1984, p.281)[15]. That corresponds to a purely instrumental vision of rationality.

Then the different policies implemented are alleged to lead to different macroeconomic outcomes in terms of inflation, employment, inequality. It corresponds to the second stage of the indirect transmission mechanism (H_{2b}, figure 1). This hypothesis is in line with the debate on the ability of the governments to have an impact on economic variables, which is denied

[14] The second explanation is less relevant since, as it is discussed in section 3.2, our ideology index is quite different from the voters' ideology.

[15] The whole definition provided by Kalt and Zupan (1984, p.281) is: "Pure ideology, if it exists at all, is the manifestation of altruism in the political sector. [...] Indeed ideology appears to typically center around the equity side (rights and distributional assignments) of the economists' equity-efficiency dichotomy; […] In the jargon of recent research, the pur-ported social objectives of political actors have been termed "ideology." Political ideologies are more or less consistent sets of normative statements as to best or preferred states of the world. Such statements are moralistic and altruistic in the sense that they are held as applicable to everyone, rather than merely to the actor making the statements. Accordingly, political ideologies are taken here to be statements about how government can best serve their proponents' conceptions of the public interest".

by Wagner (1977). Finally, the last step of the indirect effect lies in the fact that these outcomes are supposed to affect economic growth (H_{2c}, figure 1).

However, because of the difficulty to collect data over our observation period or of their unavailability, our study is limited to a narrow number of transmission channels. We only focus on the main political tools and policy outcomes of the State's intervention. First, the macroeconomic variable, inflation, can be influenced by the State's monetary policy through interest rates or money supply. Second, public spending, public deficit and tax system are budgetary tools that can influence macroeconomic variables such as income distribution or employment through labor costs. Employment can also be influenced by the State's third tool, regulation, through the labor market regulation (entry and exit conditions). Finally, the openness of an economy is mainly determined by the government's trade policy.

3. Data and empirical strategy

3.1 Data

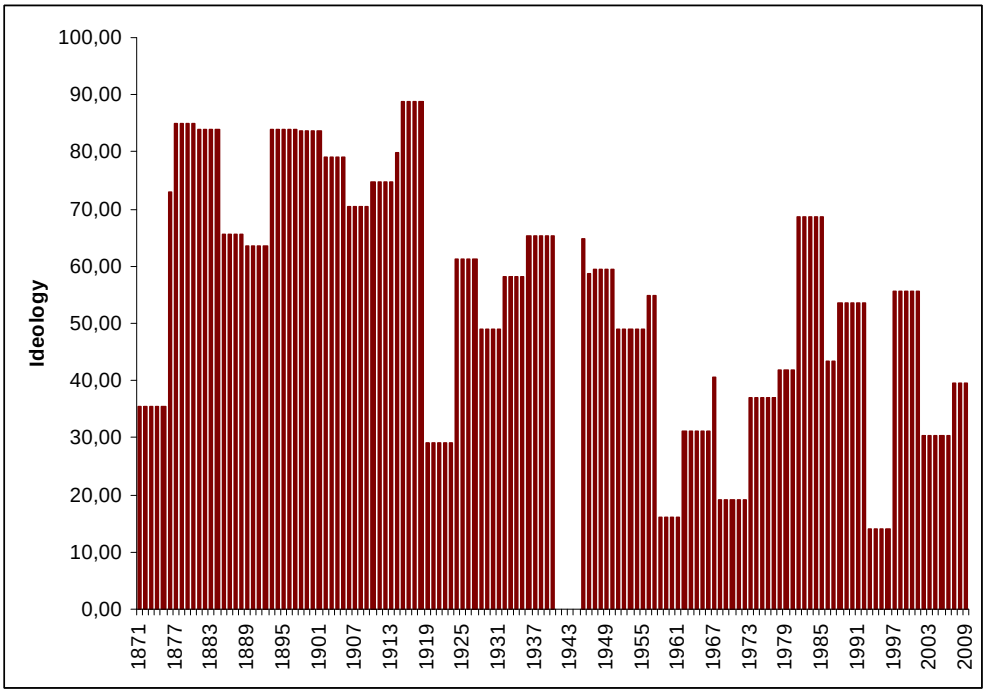
To examine the effect of political ideology on the French economic growth, we gathered annual data from the quantitative economic history works carried out on France. The list of variables (definition and source) is provided in Appendix A.

3.1.1 Building the Ideology index and the explained variable

First of all, we built our own index to measure parliament's political ideology on a yearly basis over the period starting from the Third Republic to nowadays. This index is based on the composition of the Lower Chamber of the Parliament, which holds the legislative power. We thus examine the Chamber of Deputies' composition over the Third and Forth republic and the National Assembly over the Fifth Republic. As we noticed earlier, even if the Third Republic began in 1870, we start our index in 1871, date of the first legislative elections in the Third Republic. Consequently, we built a continuous variable (*Parliament ideology*) indicating the percentage of left-wing seats in the Chamber. It is distributed between 0 and 1; 0 reflecting the absence of left-wing members in the Lower Chamber, and 1, a Chamber totally filled with left-wing deputies. An immediate difficulty comes from the identification of the orientation of a given party, especially as some of them, mostly from the left, moved from the extreme left to the centre-right. To classify the various majorities, we use several sources provided by historians (see Appendix A).

Concerning the issue of the ideology intensity inside the wings, we do not use the method of Beck et al. (2001) which ranks the French parties along a left-right axis, therefore allowing for the distinction between extreme and moderate parties. By doing so, we would not have been able to identify the ideology of the majority in the Chamber since France was often governed by either left-of-centre or right-of-centre coalitions. Moreover, this method would reserve an unjustified special treatment for the moderate parties since they participated in the formation of the majorities but they have also been very active inside these. Additionally, we did not include in our index the few independent deputies ("*Non-Inscrits*") after we verified that their presence would not influence the colour of the majority. Furthermore, for the data on election years, during which the majority in the parliament may shift, we decided as a convention to consider the composition of the outgoing Chamber, that is to say the percentage of left-wing deputies before the election[16].

Figure 2. Evolution of the Ideology index for the French parliament from 1871 to 2009



In addition, to tackle the tricky issue of the Vichy regime (1940-1944), we decided to classify this period as much as righty as lefty[17]. It lead us to the assumption that, during these years,

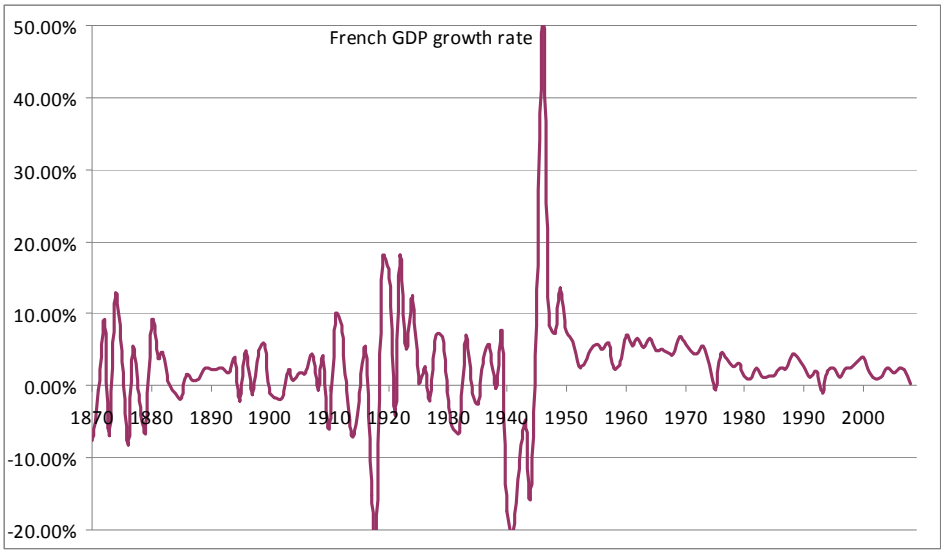
[16] We verify in the tests that that this convention does not influence our results by testing the ideology variable that refers to the incoming Chamber during the election years.

[17] Indeed left-wing politicians (Pierre Laval, Angelo Tasca) as well as right-wing politicians (Pierre-Etienne Flandin) and communists (Marcel Deat) took part in the Vichy government.

the Chamber was balanced between the two political ideologies. Therefore the variable *Parliament ideology* is coded 0,50 from 1941[18] to 1945. The index allows us to build a bar chart (Figure 2) summarizing the French political life from 1871 to 2009 as well as the changes in power[19].

The explained variable is the French annual GDP growth rate (*French Growth*) between 1871 and 2009 (figure 3). To our knowledge, Maddison's website[20] is believed to be the most reliable source among the long-term data available for the French GDP. We compared it with the data of Toutain (1997) only available from 1890 and saw no obvious discrepancies, thus confirming the relevance of Maddison's data for our study (Appendix 2).

Figure 3. French GDP growth rate (1869-2009)



3.1.2 The explicative variables

As far as the explicative variables are concerned, we use a basic growth model proposed by Alesina et al. (1997, chapter 6) in which the national growth in *t* is explained by the national growth in *t-1* and the external growth in *t*[21]. Thus, in our baseline equation (1), we propose to explain the annual French GDP growth by the national GDP growth of the previous year, the

[18] In line with our convention regarding the outgoing Chamber.
[19] We also suggest, in our empirical analysis, to use a dummy variable (*Parliament Ideology Dummy*) that takes the value 0 when the majority of the Chamber is right-wing and 1 when it is left-wing. Therefore, this index is not available for the Vichy period.
[20] http://www.ggdc.net/MADDISON/oriindex.htm
[21] We voluntarily do not use in our baseline equation variables, such as human capital or national economy degree of openness, that could be endogenous to our model. Indeed, the former could result from a political choice of the government to invest in education and the latter can mirror the government's political ideology towards trade policy, such as illustrated by Nollen and Iglarsh (1990) or Dutt and Mitra (2005).

European GDP growth of the year and our Parliament Ideology index. The variable *European Growth* comes from Maddison's data and aggregate the annual GDP growth rate of France's eleven main European trade partners excluding France. These two growth variables are naturally expected to positively influence the French growth rate. We also include dummy variables for the years of war (Prussia, "*la Commune*" in the early 1870's, World War 1 and 2) and post-war years to control the catching-up effect:

$$G_t = a_0 + a_1 G_{t-1} + a_2 E_t + a_3 I_t + a_4 W_t + \varepsilon_t \quad (1)$$
$$\qquad\qquad (+) \qquad (+) \qquad (?)$$

with G_t representing *French Growth* of the *t* year, *E* the *European Growth*, *I* P*arliament Ideology*, *W* a vector of dummy variables for war and post-war years and ε the error term.

3.1.3 The transmission variables

To test the hypothesis of an indirect relationship between polticial ideology and growth, we use two types of transmission variables that come from several databases (see details in Appendix A). In a first step, we use macroeconomic variables that stand for the second-step transmission channels (see figure 1). Firstly, to approximate the government's trade policy we use the degree of openness of the French economy (*Economy Openness*) which is given by the volume of trade divided by GDP, the data being supplied by Asselain and Blancheton (2005). Secondly, the data on inflation used as proxy for the monetary policy come from Piketty's website[22] and OECD databases. Thirdly, the data on unemployment being not available fot the whole period, we use total employment (*Total Employment*) found in Bourlies et al. (2010). It measures the average number of workers and is highly correlated with unemployment. Fourthly, we include a variable of income inequality to measure the structure of inequalities and which is said to be more accurate than single aggregate indexes such as Gini to capture the effect of inequalities on growth (Voitchocsky 2005). Also, based on the data provided by Piketty's website, we use the highest centile of declared revenues for income taxes (*Top-end Inequality*) to measure the level of the highest national incomes.

At last, we use variables of central State's public expenditure, excluding the expenditure on Social Protection and those of local public authorities since they do not directly depend on the government, and because various kinds of public spending seem to have different effects on

[22] http://piketty.pse.ens.fr/fichiers/public/

growth. For instance, while the role of the total public spending is much debated, the empirical studies of the 1980's and 1990's show that social protection increased growth while the tide turned from the late 1990's (Arjona et al. 2002). Consequently, we build a variable (*State Spending*) of public spending made of the annual consumption of the central State, such as voted in the parliament and found in the budget bill. Another variable (*State Size*) represents the spending of the central State as a share of GDP.

Then we use variables that describe actual policies and correspond to the first-step transmission channels. We have at our disposal data on fiscal policies such as the total as well as capital and labour tax rates available on Piketty's website. We also use a dummy variable for the labour market regulation (*Labour Regulation*) built by attributing the value 1 to the parliamentary majorities that implemented new legislations aimed at decreasing the working time. All these variables are presented in detail in Appendix A.

3.2 Empirical strategy

Our empirical strategy, based on Mo (2001), uses the MCO method[23] to decompose the different steps of transmission and the relative contribution of each transmission channel. In a first set of regressions, we estimate the above baseline equation (1), to make sure of the existence of a relationship, either direct or indirect, between political ideology and economic growth and then provide some robustness checks. It allows us to test our basic hypothesis (H_0, figure 1). In a second set of regressions (equation 2), we include in the previous equation the macroeconomic outcome variables that stand for the second-step transmission channels in order to emphasize their effect on economic growth (H_{2c}). The estimation of equation 3 measures the effect of public policies adopted by the parliament on the relevant macroeconomic outcomes identified as potential transmission channels. In other words, this estimation estimates the effect of the first-step transmission variables on the second-step transmission variables (H_{2b}). Finally, the relationship represented by equation (4), is estimated by regressing the variables associated with public policies on the ideology index to show the effect of parliament on the policies implemented (H_{2a}). To summarize, the model estimated is composed of the following equations:

$$G_t = a_0 + a_1 X_t + a_2 I_t + a_3 O_t + \varepsilon_t \quad (2)$$

[23] We cannot assess a system of equations through a 3SLS method because the observation periods of the three equations do not match exactly.

$$O_t = b_0 + b_1 Y_t + b_2 I_t + b_3 P_t + \mu_t \quad (3)$$

$$P_t = c_0 + c_1 Z_t + c_2 I_t + \eta_t \quad (4)$$

with G_t standing for the French GDP growth rate of the t year, X and Y, Z three vectors of control variables, I the parliament ideology, O the vector of the policy outcome variables that correspond to the second stage transmission variables and P the vector of first stage transmission variables that correspond to the public policies variables and ε, μ and η the error terms.

By substituting (3) in (2), it comes:

$$G_t = (a_0 + a_3 b_0) + a_1 X_t + a_3 (b_1 Y_t + b_3 P_t) + (a_2 + a_3 b_2) I_t + (\varepsilon_t + a_3 \mu_t) \quad (5)$$

With ($a_3 b_2$ I) the indirect effect of *Parliament Ideology* on *French Growth* through the second-step transmission channels.

And by substituting (4) in (5), it comes:

$$G_t = (a_0 + a_3 (b_0 + b_3 c_0)) + (a_1 X_t + a_3 (b_1 Y_t + b_3 c_1 Z_t) + (a_2 + a_3 (b_2 + b_3 c_2)) I_t + (\varepsilon_t + a_3 (\mu_t + b_3 \eta_t)) \quad (6)$$

With ($a_2 I$) the direct effect of political ideology on economic growth and [$a_3 (b_2 + b_3 c_2) I$], its indirect effect through the two steps of the transmission channels.

Therefore, four sets of OLS times-series regressions have to be run. However, using annual data with OLS raises a concern, especially for the first and second sets of regressions: ideology and macroeconomic transmission variables are measured across the same period than growth. We are thus potentially subject to the problem of identification - i.e. ideology, or one of the other independent variables -, and growth may be endogenously determined. First, concerning the equation (1), although our ideology index measures the political inclination of the representatives and not of the voters, members of the Low Chamber are elected by universal suffrage. Thus, the index is at least partly correlated to the votes of the voters who,

according to the hypothesis of economic voting, can take into account the government's growth performance when casting their ballot. But this hypothesis is neither theoretically nor practically a source of endogeneity in our study.

Indeed, first, a prominent literature shows that the representatives, when voting in parliament, most often deviate from the preferences of their constituency (Kau and Rubin 1979 and 1993; Mueller 2003). Thus the parliament's ideology shall differ from the population's ideology. Another reason of this difference is due to the election system, which can create a gap between the percentage of votes and of the seats received by a party. Second, the economic voting hypothesis, studied by Lewis-Beck (1983) and Lewis-Beck and Nadeau (2000) for the French case, suggests that good economic conditions tend to benefit to the incumbent government irrespective of its political leaning. It rules out the threat of reversed causality in our case. It seems to be confirmed during the Third Republic in France. Franck (2011) supplied empirical evidence on the fact that the victories of left-wing coalitions in the five first elections of the French democracy were due to income shocks at the local level caused by rainfalls, giving credence, like a big strand of the empirical literature, to the assumption of voters' irrationality (Patty and Weber 2007; Wolfers 2007)[24]. However, as a precaution and following Mo (2001 p.70), we checked for the absence of endogeneity for the first two sets of regression.

However, the literature on these issues does not pay much attention to the risk of simultaneity bias and does not provide appropriate instrumental variables for ideology[25]. In this paper, we use the average number of hours worked per year, per worker (labelled *Working Time*) from Bourlies et al. (2010). Indeed, since the laws decreasing working time were almost systematically voted by left-wing majorities in parliament, the *Working Time* variable is supposed to be lower during left-wing terms while economic growth depends at least as much on productivity as on the number of worked hours. in order to test for endogeneity, we perform a Hausman test (Maddala 1992, p.395). We first regress *Parliament Ideology* on our instrument and the set of exogenous independent variables of our baseline regression. Then, after having checked the significance of our instruments ($p<0.01$), we include the predicted value of the error term in the baseline growth equation along with the *Ideology* variable and

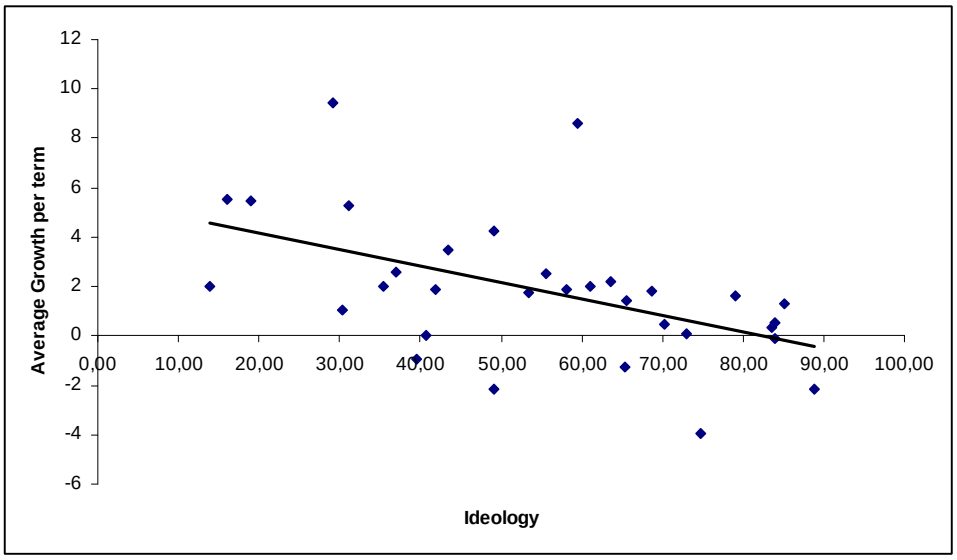
[24] For the same theoretical grounds as the first set of regressions, the assumption of endogeneity between ideology and the transmission variables can obviously be put aside.
[25] Except for in Bjornskov and Potrafke (2011a) who used a variable of government employment to study the effect of political ideology on economic freedom.

the other independent variables. Since the predicted values are not significant (p=0.88), the endogeneity assumption can be rejected.

In the second battery of regressions, in which the effect of the potential transmission variables, such as total employment, economy openness or inflation on growth is tested, we still have an endogeneity problem: economic growth rate could also impact these macroecomic variables. Therefore, we perform Granger causality tests for each transmission variable and the *French Growth* variable and we find a clear one-way Granger causality from the macroeconomic variables to GDP growth, except for inflation that clearly turns out to be determined by growth (see Appendix 3). This leads us to exclude the control of inflation (i.e. the monetary policy), from the transmission channels through which governments can influence economic growth.

4. Results

Figure 4. GDP growth and Parliament Ideology (term average) 1871 – 2009



At first sight, the French economic growth seemed to be higher under the legislatures with a right-wing majority in the parliament over the 1871-2009 period. In fact, on average, the growth rate under a right-wing majority at the Lower Chamber is almost 4% while it is only 2.40% under a left-wing one. The trend is obvious if we look at a basic regression of the average growth rate per term on the average ideology index of each term (figure 4). However, this insight needs to be empirically tested to conclude on its robustness. Following our

empirical strategy, we performed a first set of regressions to evaluate the role of parliament ideology on French growth (H_0).

4.1 Estimation of the baseline regression and robustness checks

Since we deal with macroeconomic time series, we have to verify if they are stationary over time and, if they are not, remove the seasonal component from the series. In order to treat our data, we first carried out a Phillips-Perron unit root test and then made each series stationary following Bourbonnais (2010). In the following regressions we use annual dummies to capture the outliers and to pass the Jarque-Bera test (normality of the residuals). A Box-Pierce test is also performed for each regression to guarantee the absence of auto-correlation of the residuals.

The robustness of the relation between growth and political ideology (equation (1)) is estimated and checked in Table 2. We voluntarily do not use a lag structure for the ideology variable since, by construction, we already implicitly accounted for the potential lagged effect of political ideology i.e. the fact that policies take time to translate into economic growth rates[26]. The raw estimation of our baseline regression is in the first column. As expected and according to Alesina et al. (1997), the lagged *French Growth* and *European Growth* impact on the *French Growth* is significant and positive while *Parliament Ideology* turns out to have a significant and negative influence. A 10% increase in the number of left-wing seats in the Lower Chamber of the parliament (that is to say 57 additional seats nowadays) would reduce French growth by nearly 0.2 percentage point.

We then perform a set of robustness checks. Column 2 first shows that the role of *Parliament Ideology* is unchanged when we use term averages (as shown in figure 4) and control for wars and Vichy regime. We then repeat the baseline regression by slightly changing our ideology index. We first use (column 3) an alternative index that does no longer take into account the composition of the outgoing Chamber but of the incoming one to attribute to a newly elected chamber the economic growth of its election year. The role of the ideology variable remains unchanged. Finally, we measure (column 4) political ideology with a dummy variable (0 for a

[26] Indeed, our ideology index matches with the composition of the outgoing chamber. It is equivalent to one lag. Moreover, since the measure of ideology does not change over the length of a Chamber's term, we test for the same composition of the parliament on the growth performance for each year of its term, thus allowing for a maximum 5-year lagged effect. Finally, we cannot include in a same regression several lagged ideology variables in the same regression because of multicolinearity problems.

Table 2. Regression Results. Estimation and robustness checks of the relation between growth and ideology
Heteroskedastic White type standard errors

	1	2	3	4	5	6	7
Dependant Variable	Annual French GDP growth rate						
French Growth (t-1)	0.06** (2.02)	0.29*** (5.41)	0.05** (2.03)	0.07* (1.96)	0.05** (2.06)	0.12** (2.09)	0.02 (0.74)
European Growth	0.99*** (11.49)	0.61*** (5.00)	0.98*** (11.59)	0.99*** (11.49)	0.98*** (11.60)	1.01*** (8.64)	1.01*** (9.01)
Parliament Ideology	-1.95** (2.17)	-1.98*** (2.82)			-2.17** (2.41)	-3.39** (2.05)	-2.61** (2.53)
Incoming Parliament Ideology			-1.93** (2.14)				
Parliament Ideology Dummy				-0.44 (1.26)			
Political Cycle	NO	NO	NO	NO	NO	NO	YES
Republic	NO	NO	NO	NO	NO	YES	YES
Observations	138	35	138	133	133	138	138
Adjusted R-squared	0.955	0.992	0.951	0.942	0.922	0.936	0.918
F-statistic	80.27	487.19	76.13	70.70	51.87	61.96	49.32

Note: *Absolute value of t statistic in brackets; *** p<0.01, ** p<0.05, * p<0.1*

right-wing majority and 1 for left-wing one) and the effect of ideology disappears. To make sure that this conclusion is not due to the mechanical exclusion of the Vichy years from the observation period, we perform again regression 4 without the observations under the Vichy regime and the findings remain robust (column 5). It would imply that the percentage of left-wing or right-wing deputies above majority is more important than the mere partisan affiliation of the majority in the Chamber to explain growth. That leads us to the conclusion that the stronger a majority in the parliament, the more it influences growth, probably because

it has more means to govern according to its ideology[27], that tends to substantiate the hypothesis of an indirect effect through policies.

We also check for the stability of the relation over the observation period, first by performing a Cusum test (Appendix 4) that concludes in favour of the stability hypothesis and second by controlling the effects of the changing political institutions under the three Republics (column 6). We notice that our basic ideology variable is still significant and is even more negative than before. Finally, we check that what we consider as the ideology effect does not stem from an electoral cycle meaning that the former government, whatever its political ideology, could artificially increase growth just before the election to be more popular. Therefore, we integrate an electoral variable in the baseline equation that takes the value 1 during election years. This variable turns out not to be significant unlike the parliament's ideology. More generally, we check for the effect of each year of the terms by including dummy variables (column 7) and found that none was significant. It thus confirms the absence of electoral cycle. This first step leads us to accept H_0, in other words political ideology does affect economic growth. Moreover, the absence of effect of a dummy measure of parliament ideology and the absence of electoral cycle tend to rule out the hypothesis of a direct effect (H_1) or at least the hypothesis a effect through the voters' expectations.

4.2 The effects of the second-step transmission channels on economic growth

In the second battery of regressions presented in Table 3, we include new variables to the baseline equation in order to identify the effect of potential second-step transmission channels on GDP growth (H_{2c}). the baseline regression is presented again in column 1 of table 3. In column 2, we include *Economy Openness*, believed to reflect the government's trade policy. It actually has a strong positive impact on national growth. Moreover, not only does ideology still have an impact on growth but it is even strengthened by this new variable Firstly, this conclusion is in accordance with the prolific empirical literature suggesting that trade has a large and robust positive effect on income (Frankel and Romer 1999) or that import tariffs reduce growth (Osang and Pereira 1996)[28]. Secondly, as the coefficient of parliament ideology is not reduced when we include this variable, we can conclude that trade policy, as approximated by economic openness, does not seem to be a transmission channel through

[27] It is all the more possible given that some decisions issues are not voted by simple but qualified majority.
[28] That can also be connected with the literature according to which trade liberalisation has a positive effect on growth in the long run (Foster 2008, p.545; Sala-I-Martin et al. 2003; Sachs and Warner 1995; Wacziarg and Welch 2003).

which political ideology has traditionally worked on growth in France. This conclusion is in contrast with the evidences provided by the empirical literature on the U.S. (Dutt and Mitra 2005). We can thus assume that there is no clear left/right ideological divide in France over trade policies issues. Therefore, we keep the variable in our baseline regression.

Table 3. Regression Results. Effect of the second-step transmission channels on growth
Heteroskedastic White type standard errors

	1	2	3	4	5	6	7	8
Dependant Variable	Annual French GDP growth rate							
French Growth (t-1)	0.06**	0.10**	0.10**	0.10**	0.06	0.09***	0.13*	0.15***
	(2.02)	(2.12)	(2.03)	(2.02)	(1.45)	(4.63)	(1.77)	(6.55)
European Growth	0.99***	0.85***	0.85***	0.84***	0.84***	0.81***	0.03	0.43***
	(11.49)	(8.02)	(7.95)	(7.65)	(5.97)	(9.89)	(0.20)	(4.32)
Parliament Ideology	-1.95**	-2.39**	-2.23**	-2.25**	-1.64	-0.48	1.84	-1.74
	(2.17)	(2.40)	(2.12)	(2.51)	(1.28)	(0.58)	(0.88)	(1.64)
Economy Openness		0.24***	0.25***	0.24***	0.39***	0.13**	0.81***	0.39***
		(2.91)	(2.98)	(2.95)	(4.08)	(2.52)	(6.76)	(6.35)
Public Spending				-1.22				
				(0.79)				
State Size					-15.62***			-9.63***
					(5.38)			(5.05)
Total Employment						81.46***		69.30***
						(4.38)		(2.89)
Top-end Inequality							43.57***	11.63**
							(4.55)	(2.57)
Observation	138	138	119	119	119	119	91	91
Adjusted R-squared	0.955	0.941	0.945	0.941	0.901	0.973	0.868	0.957
F-statistic	80.27	67.68	80.17	65.46	61.24	126.67	46.70	90.98

Note: *Absolute value of t statistic in brackets; *** p<0.01, ** p<0.05, * p<0.1*

Before adding any other variables, we perform again the augmented baseline regression (column 2) on a shorter period, from 1891 to 2009 (column 3). Indeed, this is the biggest common period for which the other transmission variables are available and we need to compare the ideology coefficient in the augmented baseline regression with the ones including potential transmission variables. We can notice in column 3 that the relationship is unchanged.

According to the fourth regression (column 4), central State's public spending has a negative but not significant effect on growth. However, if we use central State's public spending as share of total GDP, the negative effect becomes significant (column 5). This is consistent with the large majority of the empirical literature on the relationship between government's size and growth (Nijkamp and Poot 2004; Facchini and Melki 2011)[29]. This is also not contradictory with the theoretical literature, according to which public spending initially promotes growth when it secures individuals rights (police, law, defense). Yet, beyond a certain level, it becomes unproductive (Mueller 2003, p.550) and detrimental to growth (Tabellini 2005; Gwartney et al. 1998; Bernholz 1986, 2000; Barro 2000). We focus here on central State's spending because Facchini and Melki (2011) find that in France for the same period, the total public spending (central State, social protection and local public authorities) as a share of GDP has an insignificant impact on growth if we consider a linear model because there is an U-inverted relationship between both.

The contrasted effect on growth of central State's spending and of total public spending can be explained by the fact that, from 1945, the effect of the former is counterbalanced by the ambiguous effect of social protection spending on growth (Zhang 1995), which represents the huge majority of the total spending after the Second World War. And the bulk of the social protection is composed of health spending, supposed to improve workers' productivity and therefore GDP's level. Our results are consistent with Reinhart (1999) who provides evidence that longer lives, due to health spending, are associated with faster economic growth whereas higher government spending lowers growth for any life expectancy. Additionally, our fifth regression (column 5) shows that including State's size makes the ideology coefficient

[29] This is more obvious in the survey proposed by Facchini and Melki (2011) because they focus only on studies connecting public spending and GDP growth contrary to Nijkamp and Poot (2004) who consider the effect of a wider range of government's activities on growth.

undistinguishable from zero at any reasonable level of significance. In other words, controlling for this political choice reduces any direct impact of parliament ideology on growth to zero. This suggests that the impact of the government' political ideology on economic growth may in fact be mediated by the political choice of the level of public spending[30].

As to the level of employment, we find that the *Total Employment* variable has a significant and positive effect on growth (column 6)[31]. Our employment variable also cancels the role of the ideology variable and can consequently be identified as a potential second-step transmission variable. Finally, the sign of our measure of the highest incomes (*Top-End Inequalities)* is as predicted by Voitchocsky (2005, p.274)[32] positive. It suggests that redistributive policies – such as progressive taxation and social welfare – are likely to facilitate growth through their impact on the bottom of the distribution and to inhibit growth through their impact on the top of the distribution (Voitchocsky 2005, p.290).

Over our observation period, data on the lowest incomes are unfortunately not available but *Top-end Inequalities* play a significant and positive role on growth (columns 7). Our results match Padovano and Galli (2001) who found a negative relationship between growth and effective marginal income tax rates for 23 OECD countries from 1951 to 1990. As we already pointed out, this variable removes the role of ideology and we can thus reasonably assume that political ideology has an impact on the domestic product through the second-step channel (i.e *Top-End Inequalities*) probably through the first-step channel of tax rates. Thus, our T*op-end inequality* variable, albeit not as complete as an aggregated index, allows us to avoid the debates in empirical studies on the virtues of inequalities (Person et Tabellini 1994; Alesina and Rodrick 1994; Barro 1999, 2000).

In view of these first two sets of tests, we can reasonably conclude that parliament's political ideology matters in economic growth all along the French democratic experience, from 1871 to nowadays (H_0). More precisely, we found robust evidence that first a left-wing majority in the Lower Chamber of the parliament would be noticeably less favourable to growth and

[30] The insignificance of lagged growth in this regression can be explained by the correlation of State's size and lagged growth since they are both relying on GDP.
[31] On a shorter period that excludes the war periods, we also found that the unemployment rate had indeed a significant negative influence on growth.
[32] " Top-end inequality appears to have a positive effect on growth while inequality further down the income distribution appears to be inversely related to growth" (Voitchocsky 2005, p.274).

second that more than the mere colour of the majority, the scope of the majority would matter. We have also identified State's size, total employment and top-end income inequalities as second-step transmission channels i.e. the economic variables through which ideology affects growth (H_{2c}). Moreover, since the introduction of these transmission variables totally removes the effect of ideology ($a_2 I = 0$), we can assert that political ideology has no direct effect on economic growth and works only through transmission channels, according to the hypothesis (H_2). At last, according to the method of Mo (2001), the coefficients of Table 2 allow us to stress that the main macroeconomics variables would be the top-end inequalities ($a_3 b_2 = 3.04$), far before employment market ($a_3 b_2 = 1.05$) and public spending ($a_3 b_2 = 0.62$). From now on, we still have to explore the first-step channels, that is to say the public policies through which governments actually impact macroeconomic variables (H_{2a} and H_{2b}).

4.3 The second-step transmission variables

Until now we looked at the effects of political ideology on the observed outcomes, which, except for public spending, governments cannot directly influence. Therefore, we now consider parties' actual policies, that is to say the first-step transmission channels, especially budgetary and regulatory policies. Indeed, monetary policy, as approximated by inflation in our analysis, does not significantly explain growth and thus does not seem to be a relevant transmission channel. This is confirmed by table 4, in which we estimate the effect of political ideology and control variables on the above listed transmission channels. Indeed, the regression of inflation on parliament's ideology, with controls of the effects of imported inflation with variables such as *Oil Price* and *Economy Openness*, reveals that ideology has not influenced inflation (column 1, table 4). In other words, there is no ideological divide between left and right on the inflation issue. This strengthens the idea that inflation has not been a transmission channel during the last century in France[33].

Concerning the study of the other transmission channels, the two-steps method (estimating equations (3) and (4)) is not adapted for the *State Size* variable since public spending is a political choice *per se*, contrary to the employment and inequality variables that require a study of the transmission mechanisms between ideology and them. Therefore, for the *State Size* variable, we use the original single step of transmission method developed by Mo (2001)

[33] This is in contradiction with the main predictions of partisan theory according to which, under left-wing governments, unemployment is lower and inflation higher (Hibbs 1977). Or, in the words of Alesina 1987: left-wing parties weight more unemployment than inflation.

that is to say we directly estimate equation (4) with *State Size* as dependant variable. It should also be noted that, since the data on the first-step transmission channels and control variables used for the following sets of tests are not available for the whole observation period, the study of the first step of transmission is generally circumscribed to the last century.

Table 4. Regression Results. Effect of ideology on the second-step transmission channels
Heteroskedastic White type standard errors

Dependent Variable	1	2	3	4
	Inflation	State Size	Total Employment	Highest Income
Constant	0.90 (1.09)	0.09 (1.44)	0.01*** (3.28)	0.08*** (3.74)
Parliament Ideology	-0.04 (-1.50)	0.13** (1.98)	-0.01*** (3.42)	-0.06** (2.25)
Oil Price	0.04 (1.04)			
Economy Openness	0.003*** (2.93)			
Total Population		-0.72 (0.29)		
Total Employment		0.88 (1.48)		
Average Wage			0.70 (1.48)	
Post/War Dummy	YES	YES	YES	YES
Republic Dummy	YES	YES	YES	YES
Observation	103	96	99	81
Adjusted R-squared	0.960	0.688	0.591	0.548
F-statistic	46.60	31.04	11.93	14.91

Note: *Absolute value of t statistic in brackets; *** p<0.01, ** p<0.05, * p<0.1*

4.3.1 Public Spending

We now look at the effects of political ideology on the budgetary policy by starting with public spending. In order to isolate the effect of parliament's ideology on public expenditure, the *State size* variable is regressed on our ideology index and control variables such as total

population[34] allegedly influencing positively public expenditure and total employment in the absence of data on poverty. It comes out that ideology is the only significant explanatory variable of State's size (table 4, column 2). It confirms that central State's public spending is a transmission channel through which government impacts growth whereas total public expenditures as a share of GDP (including social protection and local administration) are not correlated with our ideology index. This would support the thesis that parliament's ideology has an impact on economic growth through State's spending more than through social protection and public local authorities spending. Indeed, social protection spending steadily evolved, whatever the government in power, after the creation of the French Social Security system in the wake of the Second World War. Therefore, while a consensus emerged on the absolute necessity of social protection among left and right-wing governments after 1945, according to our findings an ideological divide on central State's spending would have emerged at the beginning of the last century. In other words, in spite of the undeniable evolution of the lefts and rights over our period, a clear ideological divide has remained on at least one aspect of the budgetary policy: the central State's spending.

4.3.2 Total Employment

We now estimate the effect of ideology on *Total Employment* by controlling wages costs with a variable on the average wage[35]. As expected, the ideology index has a significant and negative effect on employment (table 4, column 3). We then include in the previous equation variables approximating actual policies on labour cost (equation (3)). The first one on the regulation of the legal working time turns out to not be significant (table 5, column 2) while the second one, the labour tax rate, has a negative and significant (but only at the 10% level) impact on *Total Employment* and reduces the significance of the *Ideology* variable (table 5, column 3). We can thus conclude that, over the last century, the parliament has indirectly hindered total employment, partly through higher tax rates on labour that consequently pop-up as a first-step transmission channel in our analysis. That is accordance with Siebert (1997) who shows that labour market regulation rigidifies it and thus deters employment creation.

[34] Source: Maddison website
[35] Source: Piketty website

Table 5. Regression Results. Effect of the first-step transmission channels on Total Employment
Heteroskedastic White type standard errors

Dependent Variable	1	2	3
	Total Employment		
Constant	0.01*** (3.28)	0.01 (3.31)	0.01*** (3.37)
Parliament Ideology	-0.01*** (3.42)	-0.01*** (3.45)	-0.01*** (2.71)
Average Wage	0.70 (1.48)	0.69 (1.49)	0.01** (2.12)
Labour Regulation		0.13 (0.85)	0.17 (1.15)
Labour Tax			-0.07* (1.90)
Post/War Dummy	YES	YES	YES
Republic Dummy	YES	YES	YES
Observation	99	99	99
Adjusted R-squared	0.591	0.590	0.603
F-statistic	11.93	11.08	10.93

Note: *Absolute value of t statistic in brackets; *** p<0.01, ** p<0.05, * p<0.1*

In table 6, we estimate equation (4) with P_t as *Labour Tax* (column 1) and then as *Labour Regulation* (column 2). The results show a correlation between left-wing parliaments and each of both variables[36]. It confirms Bjornskov and Potrafke (2011a and 2011b) that found a similar relationship between political ideology and labour market regulation as well as tax policy for Canada and the US. It also validates Botero et al. (2004, p.1365) who found, for 85 countries over 70 years, that the political power of the left is associated with more stringent labour regulations and that the latter comes with higher unemployment.

[36] Concerning labour regulations, six out of the eight legislatures that decreased working time were left-wing. Moreover, one of the two right-wing chambers that legislated on working time did it under a left-wing republican government in 1874. Labour market regulations implemented by left-wing governments are believed to have protected insiders but made outsiders entrance more difficult.

Table 6. Regression Results. Effect of ideology on the second-step transmission channels
Heteroskedastic White type standard errors

Dependent Variables	1	2	3	4
	Labor Tax	Labor Regulation	Capital Tax	Total Tax
Constant	-0.01* (1.88)	0.03 (0.17)	0.21*** (18.53)	-.003 (0.37)
Parliament Ideology	0.03*** (4.50)	0.53* (1.72)	0.07*** (4.04)	0.02* (1.87)
Post/War Dummy	YES	YES	YES	YES
Republic Dummy	YES	YES	YES	YES
Observation	99	99	81	81
Adjusted R-squared	0.826	0.144	0.922	0.527
F-statistic	34.26	4.31	136.15	18.88

Note: *Absolute value of t statistic in brackets; *** p<0.01, ** p<0.05, * p<0.1*

4.3.3 Top-end Inequalities

Finally, we perform the same process with the outcome *Top-end Inequalities*. We first estimate equation (3) without the first-step transmission channel. We find that ideology negatively influences the inequality variable (column 4, table 4). When we add variables approximating actual policies[37], we find that the total tax level does not affect inequalities (column 2, table 7) unlike the tax rate on capital which has a significant and positive effect on the variable for the highest incomes (column 3, table 7). Moreover, including the *Capital Tax* variable decreases the effect of parliament's ideology. It suggests that the former is a first-step transmission channel from parliament ideology to *Top-end Inequalities* for at least the last 80 years. This transmission role is confirmed when we estimate equation (4) for both variables in table 6 (column 3). Column 4 (table 6) shows the positive effect of ideology on the total tax level although the latter cannot be considered as a first-step transmission variable. These results on the less favourable effect of a right-wing political ideology on growth through taxes and income inequalities are totally in accordance with the literature, on the one hand, on political ideology as a determinant of fiscal outcomes (Perotti and Kontopoulos 2002; Tavares 2004; Reed 2006) and, on the other hand, on the rather negative role of tax level on growth

[37] Source: Piketty website.

(Kneller et al 1999; Lee and Gordon 2005). Our findings complete this literature by suggesting a possible channel, the top-end inequalities, through which tax system can affect growth.

Table 7. Regression Results. Effect of the second-step transmission channels on Highest Incomes
Heteroskedastic White type standard errors

Dependent Variable	1	2	3
	Highest Incomes		
Constant	0.08*** (3.74)	0.08*** (3.77)	0.12*** (4.25)
Parliament Ideology	-0.06** (2.25)	-0.06** (2.04)	-0.05* (1.70)
Total Tax		-0.21 (0.89)	-0.18 (0.79)
Capital Tax			-0.18* (1.79)
Post/War Dummy	YES	YES	YES
Republic Dummy	YES	YES	YES
Observation	81	81	81
Adjusted R-squared	0.548	0.545	0.574
F-statistic	14.91	13.01	12.98

Note: *Absolute value of t statistic in brackets; *** p<0.01, ** p<0.05, * p<0.1*

Our empirical findings also lead us to sustain that, roughly, over the last century, leftists implemented on average higher fiscal policies (total tax as well as capital and labour taxes) and stricter labour market regulations than right-wing majorities. However, out of the four variables, only labour and capital taxes come out in our analysis as first-step transmission channels from political ideology to respectively total employment and top-end inequalities and *in fine* indirectly to economic growth. It leads us to believe that the most efficient, or at

least the most used transmission channels by the French governments during the last century rely on the (fiscal and redistributive) budgetary policy more than the monetary or regulatory tools. However, we presume that budgetary policies are not the only effective transmission mechanism since their incorporation in equation (3) does not totally remove the effect of the ideology variable on macroeconomic outcomes. However, we lack long period data on the other policies to go deeper into the study of the first-step transmission mechanisms.

We can conclude, once we have established the effect of macroeconomic outcomes such as State's size, total employment and income inequalities on growth and thus confirmed H_{2c}, that parliament's ideology has at least partly influenced these variables. Indeed, we provided empirical evidence that the macroeconomic variables stemmed from actual political choices (H_{2b}) mainly about fiscal and redistributive policies. Indeed, to a certain degree, labour and capital tax rates influenced total employment and incomes distribution. By contrast, we did not find any effect of the other political decisions such as working time regulation. Finally, the last sets of regressions allowed us to identify the differences in the policies implemented by left and right-wing governments (H_{2a}) and thus to contribute to the debate among historians and political scientists on the (dis)continuity of the lefts and the rights in France since 1870. Far from providing a clear-cut answer to this debate, we noticed that there have been some differences in the policy-making for at least a century between the parties labelled as "left" and "right". Even though we found no empirical evidence of an ideological divide on issues such as inflation, trade policy or total public spending, either because of a consensus between both tendencies or because the lefts (and the rights) deeply evolved on these issues over time, it is however possible to identify constant differences in the policy-making on fiscal issues, State's size and labour market regulations. This confirms both the thesis that rights and lefts have evolved over time and the idea of a long-lasting right-left ideological divide at least on some issues. That also allows to grab the gist of the left or the lefts (and the right(s)), based on an ideology of equity, both through redistribution and taxation, since the beginning of the French democracy.

5. Conclusion

The paper analyzed the influence of the legislative power's political ideology on economic growth all along the French democratic experience. Even though we totally share Bjornskov (2005, 2008) caution on the fact that leftists were less favorable to growth, the present long-time series analysis on France confirmed the role of ideology as an indirect determinant of

growth and the inferior performance of left-wing majorities in terms of growth but superior in terms of equity. Even if this paper is one of the first empirical attempts to tackle this highly controversial issue, using a time-series analysis comforts our findings. Firstly, it has considerably increased the observation period and secondly it has hindered the problems of comparability between the various national economic and political contexts inherent to a cross-sectional analysis and took into account the institutional singularities of a country. Secondly, the estimation of a model that decomposes the transmission stages and channels enabled a better understanding of the transmission mechanism from political ideology to economic growth. That allowed us to confirm the role of the traditional channels emphasized by the existing literature but also to put the light on other channels.

Indeed, the current paper went deeper than the current literature into the transmission channels through which government's political ideology affects growth. For instance, it has specified the apparent harmful role of public spending on growth and tackled new channels. While the trade and monetary policies did not come out as transmission channels in our analysis, the fiscal policy, especially the labor and capital tax rates, seemed to be the main channel through which economic growth has been impacted; i.e. via the level of employment and the incomes distribution. Due to the novelty of these results and the difficulty to find appropriate data on long period, these findings would require additional analysis for a better understanding.

Another novelty of the article was the way we have dealt empirically with the seminal debate among the analysts of the French political life on the continuity and the relation between the various (right-) left-wing parties since the establishment of the Third Republic. Our results gave credence to the proponent of the continuity within lefts and rights by showing that, in spite of an undeniable ideological evolution of each party, a left-right ideological divide has persisted over some issues for a century. However, our findings also put into question the assertion, often sustained by historians, that lefty governments went for more inflationist policies than right-wing ones. It has also distinguished itself from the literature that maintains that the left would create inflation and the right unemployment. This would either emphasize a French specificity or merely put forward that this opposition in the policy-making is historically situated and not valid for more than a century.

Besides this contribution to the literature on the determinants of growth, our article provided a new way to tackle another controversial issue on the responsibility of political leaders in the economic decisions of a country. It is in contradiction with the thesis that governments cannot influence national macroeconomic variables (Wagner 1977) and that politicians only behave purely opportunistically. It restores general interest in policy-making through the normative dimension of ideology (North 1990, p.23, note 23)[38].

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[38] "*By ideology I mean the subjective perceptions (models, theories) all people possess to explain the world around them. Whether at the micro-level of individual relationships or at the macro-level of organized ideologies providing integrated explanations of the past and present, such as communism or religions, the theories individuals construct are coloured by normative views of how the world should be organized*" (North, 1990, 23, note 23).

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Appendix

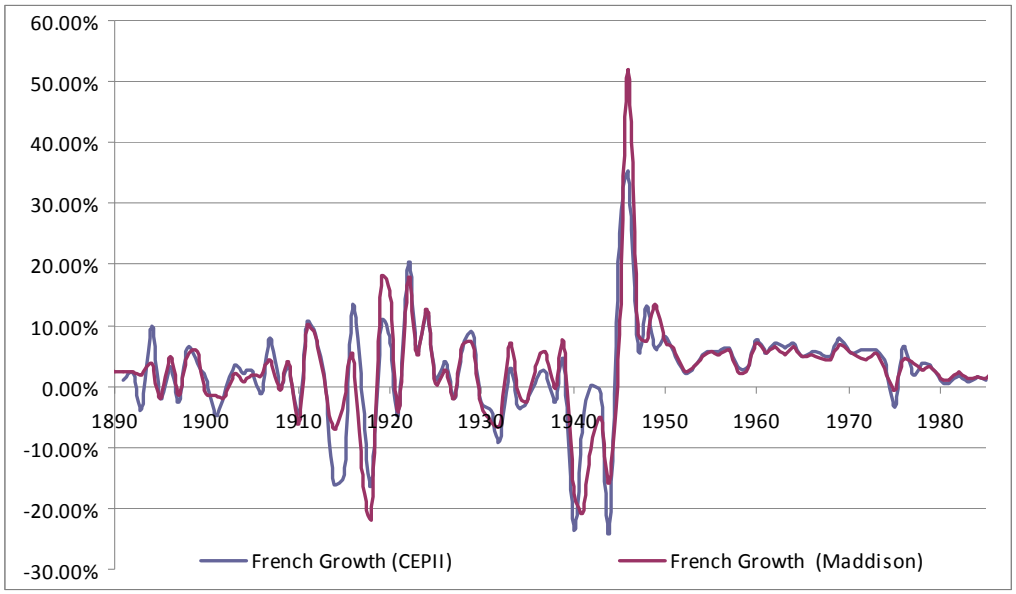
Appendix A. Data Presentation

Parliament Ideology	*Percentage of the left-wing deputies in the Lower Chamber of the Parliament (Chamber of Deputies for the 3rd and 4th Republic and National Assembly for the 5th Republic) excluding French overseas departments and territories and excluding the independent*
Source 1	Website of the French National Assembly (http://www.assemblee-nationale.fr/histoire/index.asp)
Source 2	Laurent de Boissieu' s website (http://www.france-politique.fr/)
Source 3	Goguel (1946)
Source 4	Rémond (1963)
French Growth	*France annual GDP growth rate*
Source 1: 1871-2008	Maddison's website (http://www.ggdc.net/MADDISON/oriindex.htm) : Historical Statistics of the World Economy: 1-2008 AD- Table 2: GDP levels-France GDP in million 1990 International Geary-Khamis dollars
Source 2: 2009	National accounts- INSEE (National Institute of Statistics and Economic Studies) : France GDP, million 2000 euros
European Growth	*Europe annual GDP growth rate*
Source 1: 1871-2008	Maddison's website (http://www.ggdc.net/MADDISON/oriindex.htm) : Historical Statistics of the World Economy: 1-2008 AD- Table 2: GDP levels-GDP Total 11 Western Europe (Austria, Belgium, Denmark, Finland, Germany, Italy, Netherlands, Norway, Sweden, Switzerland, United-Kingdom), million 1990 International Geary-Khamis dollars
Source 2: 2009	EUROSTAT(http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/National_accounts_%E2%80%93_GDP) : European Union GDP, million 2000 euros
Economy Openness	*Degree of openness of the French economy, given by the sum of the importations and exportations as a percentage of the GDP*
Source 1: 1871-2002	Asselain and Blancheton (2005): goods importations as a percentage of the (current price) GDP, goods
Source 2: 1960-2009	World Bank: the volume of trade as a percentage of GDP
Inflation	*Inflation rate*
Source 1: 1900-1999	Thomas Piketty's website (http://piketty.pse.ens.fr/fichiers/public/Grasset2001/Livre/TabChap1.xls)
Source 2: 1999-2009	OECD website (http://www.oecd.org/statisticsdata/)
Total Employment	*Ln(Average number of workers per year)*
Source	Bourlies, R., Cette, G., Lopez, J., Mairesse, J. and Nicoletti, G. (2010)

Highest Incomes	*Ln(Average income of the top end decile)*
Source	Thomas Piketty's website (http://piketty.pse.ens.fr/fichiers/public/Grasset2001/Livre/TabChap2.xls)
Public Spending	*Ln(Central State's spending excluding Social protection and local public authorities)*
Source	Article 7 of the bill voted by the parliament on the yearly budget (article 7 du projet de loi portant sur règlement définitif du budget de l'exercice de chaque année)
State Size	*Central State's spending as a percentage of GDP)*
Source	see Public Spending and Franch Growth
Total Tax	*Total tax rate*
Source	Piketty's website
Capital Tax	*Capital tax rate*
Source	Piketty's website
Labour tax	*Labour tax rate*
Source	Piketty's website
Average Wage	*Ln(Average annual net wage per wage-earner)*
Source	Thomas Piketty's website (http://piketty.pse.ens.fr/fichiers/public/Grasset2001/Livre/TabChap1.xls)
Labour Regulation	*Dummy coded 1 for the legislatures that implemented working time regulations (Working 6-hour day for the under 12 years old children in 1874, 11-hour day for the 16-18 children and women in 1892, the general 10-hour day, the working 6-day week in 1906, the working 48-hour week and the 8-hour day in 1919, the 40-hour week in 1936, the 39-hour week in 1982 and the 35-hour week in 1998 and 2000)*
Oil price	*Crude oil price barrel*
Source	website (http://www.ioga.com/Special/crudeoil_Hist.htp)
Total Population	*Ln(French total population)*
Source	Maddison's website (http://www.ggdc.net/MADDISON/oriindex.htm) : Historical Statistics of the World Economy: 1-2008 AD- Table 1: Population Levels, 1 AD - 2030 AD
Working Time	*Average number of hours worked per year, per worker*
Source	Bourlies, R., Cette, G., Lopez, J., Mairesse, J. and Nicoletti, G. (2010)

Note: *All the variables were converted in constant 1998 Euros*

Appendix 2: French GDP growth rate (1891-1985) according to two different sources



Appendix 3. Granger Causality Tests

Null Hypothesis:	lags	F-Statistic	Probability
State Size does not Granger Cause French Growth	6	3.42288	0.00373
French Growth does not Granger Cause State Size		1.81094	0.10252
State Size does not Granger Cause French Growth	7	5.06188	4.8E-05
French Growth does not Granger Cause State Size		1.59332	0.14405
Openness does not Granger Cause French Growth	2	4.78550	0.00985
French Growth does not Granger Cause Openness		1.12621	0.32736
French Growth does not Granger Cause Openness	3	1.16549	0.32556
Openness does not Granger Cause French Growth		2.75828	0.04497
French Growth does not Granger Cause Openness	4	0.97797	0.42211
Openness does not Granger Cause French Growth		2.57059	0.04107
French Growth does not Granger Cause Total Employment	3	1.26646	0.28956
Total Employment does not Granger Cause French Growth		2.60449	0.05553
French Growth does not Granger Cause Total Employment	4	0.94773	0.43952
Total Employment does not Granger Cause French Growth		3.54580	0.00933
French Growth does not Granger Cause Total Employment	5	0.87140	0.50309
Total Employment does not Granger Cause French Growth		2.12821	0.06789
Inflation does not Granger Cause French Growth	4	1.84803	0.12374
French Growth does not Granger Cause Inflation		2.92732	0.02355
French Growth does not Granger Cause Inflation	5	4.32026	0.00118
Inflation does not Granger Cause French Growth		1.47838	0.20167

Appendix 4. Cusum test (Check for the model stability)

