Aix-Marseille Université

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Essais d'économie politique

Présentée par Marc Sangnier

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Aix-Marseille University

Research synthesis to obtain the *habilitation à diriger des recherches*

Essays in political economy

Presented by Marc Sangnier

Publicly defended on June 27, 2017

Jury:

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Contents

Avertissement

La plus grande partie des travaux pésentés dans cette synthèse sont le fruit de collaborations avec mes coauteurs, ce qui explique l'utilisation fréquente du pronom "we".

Notice

Most of the contributions presented in this synthesis have been writen with co-authors, what explain the use of the "we" pronoun.

Chapter 1

Introduction

This synthesis presents all my research activities since the start of my PhD. These research activities are organized around two main programs. The first broadly deals with cultural economics. It includes contributions whose first versions were part of my PhD dissertation—titled "Essays around social capital"—, but that changed a lot on the path to publication and were completed by other papers. My second research program is interested in political connections and uses so far only French data.

This introduction briefly summarizes the two main themes around which my research activities are organized. It also provides a presentation of a residual category of contributions that do not directly relate to consistently organized research agendas. Chapters 2 and 3 of this research synthesis provides detailed presentation of my two main research themes. Chapter 4 concludes by presenting two research projects.

1.1 Contributions to cultural economics

Scholars interested in the role of culture face two main questions. First, are there components of culture that matters for economic outcomes and, if yes, what are the affected outcomes? Second, how does culture form and how does it evolve? My contributions to cultural economics bring (mostly empirical) answers to both questions.

My four contributions to the first question of cultural economics—does culture matter for economic outcomes?—can be grouped in two pairs. Two of them provide additional evidence on the impact of social capital on economic activity. The two others show how values held by individual condition policy outcomes and shape social systems, respectively.

Most of the literature that investigates the relationship between trust and economic performance from an aggregate point of view has focused on growth or economic development, emphasizing the role of investment. So do I in Sangnier (2011) in which I document the co-evolution of social capital, measured as trust, and financial development over the twentieth century. In contrast, Sangnier (2013a) departs from the literature by looking at the aggregate relationship between macroeconomic volatility and trust. I show that higher trust is negatively and significantly correlated with macroeconomic volatility in a cross-section of countries. Blake and Sangnier (2011) investigates whether the within-country distribution of labor relations governs the effectiveness of changes in retirement incentives. A stylized model helps us to understand how the aggregate reaction of senior activity rate to a change in retirement incentives is conditioned by a country's distribution of working conditions. We then construct a panel of OECD countries within which we show that the elasticity of senior activity rate to retirement incentives is stronger as labor relations are of better quality and more homogeneously distributed. Finally, Algan, Cahuc, and Sangnier (2016) documents and rationalizes a twin peak relationship between trust and the size of the welfare state. We propose a model in which individuals' demand for redistribution is a function of their own civicness and of the perceived civicness of others citizens. We provide empirical evidence that demonstrate the robustness of the model's predictions both at the aggregate level, i.e. in a cross-section of countries, and at the individual level, i.e. using values surveys to document correlations between individuals' beliefs and support for the welfare state.

Beliefs held by individuals are either inherited, i.e. transmitted by peers or earlier generations, or updated following ones' life experience. My three contributions to the second question of cultural economics—how does culture form and how does it evolve?—documents the persistence of cultural traits, but also the sensibility of beliefs to shocks.

Couttenier and Sangnier (2015) builds on the idea that observed differences in beliefs across individuals might occur either because they have been exposed to different shocks or because they inherited different values. This papers offers a quantification of these two mechanisms' relative importance using values associated with the American Gold Rush myth.The American mining history is also at the heart of Couttenier, Grosjean, and Sangnier (2017). This paper documents a conditional positive relationship between mineral resources discoveries and interpersonal violence. Finally, Sangnier and Zylberberg (2017) adopts a rather different perspective relatively to the two preceding contributions. This paper indeed focuses on short term evolutions rather than long terms differences in beliefs held by individuals. It provides empirical evidence that citizens do revise their beliefs in the quality of leaders in the aftermath of protests.

1.2 Contributions to the analysis of political connections

Political connections refer to links between politicians and other economic agents. Such connections gained attention by economists as they might result into unfair or partisan policies. Since the seminal work by Fisman (2001), the literature essentially raises two empirical questions that deal with the identification of returns from connections and with the comparison of different types of connections. Assuming that such returns can be identified, another challenge consists in understanding why politicians favor some individuals over others. My three contributions to the analysis of political connections provide answers to these questions in the French context.

Coulomb and Sangnier (2014) uses the 2007 French presidential election to evaluate the value of friendship connections to the winning candidate, Nicolas Sarkozy, and to compare this figure to the value of the candidate's campaign platform. The 2007 French presidential election is also the central point of the analysis performed in Bourveau, Coulomb, and Sangnier (2016).

In this paper, we investigate whether political connections favor white collar crimes. We achieve this by observing the behavior of French listed firm's board members on financial markets and by comparing the observed behavior of Sarkozy's campaign contributors relative to other traders. Finally, Fabre and Sangnier (2016) documents the allocation of discretionary investment grants to French municipalities over the 2002–2011 period. Thanks to an original data set that contains the detailed curricula of all government's members, we compare yearly per capita grants received by municipalities depending on whether a current minister was elected or lived as a child in each city. Our findings advocate in favor of political career concerns as one of the main determinant of public expenditure targeting by politicians.

1.3 Miscellaneous contributions

In addition to the two already presented research agendas, my research activity also includes some uncategorized contributions, among which a contribution to the analysis of the scientific production process and two notes that provide a tool to allocate tasks between students and question the use of multiple choice questionnaires to evaluate students, respectively.

1.3.1 Inflation in academic economics

Most academic disciplines use a statistical threshold to discriminate between accepted and rejected hypotheses. In Brodeur, Lé, Sangnier, and Zylberberg (2016), we identify a strong behavioral bias in empirical research indicating that researchers respond to this threshold and modify their results to get published.

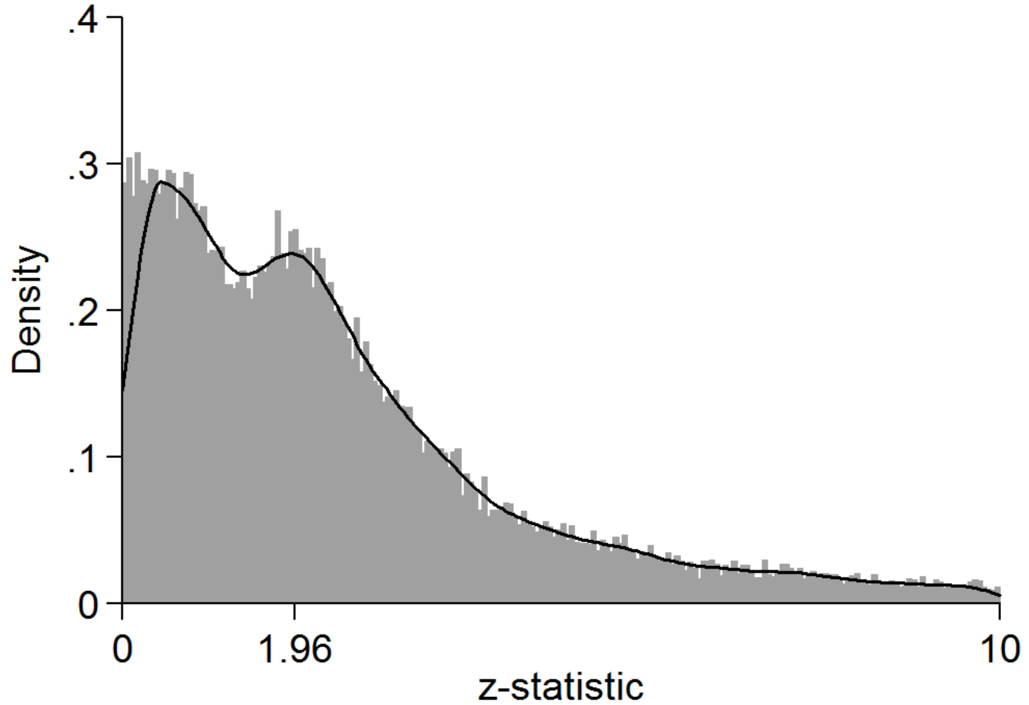
A standard empirical research process often consists in hypothesis testing. For example, consider a researcher—call him Marc—willing to test a hypothesis, e.g., that French politicians allocate public expenditure to please their partisans. Typically, Marc will collect data, examine the empirical correlation in the sample (how much money partisans receive with respect to other citizens) and extract one important statistics, the p-value. The p-value is the probability to observe the empirical correlation if the initial hypothesis is false, i.e. if French politicians only allocate public expenditure following efficiency considerations. With a high p-value, there is a non-negligible probability that the empirical observation is due to luck and not to a true relation. In contrast, with a low p-value, it is very unlikely that the empirical observation is due to luck.

For Marc, this p-value is extremely important: the academic community has agreed on a threshold below which a hypothesis is considered true, or an effect is considered significant. If the p-value is above 5%, Marc will not be able to conclude that French politicians unduly target public expenditure, and his research will probably not get published. If, instead, the p-value is below 5%, Marc will conclude that French politicians misbehave, and his research will have substantially more chances to be published.

Such selection on p-values distorts Marc's incentives. If, during his analysis, he is first confronted with a p-value of 13%, he may be tempted to try variations of his initial analysis, e.g., to analyze only part of the data or to adopt different specifications, until he gets the desired result and reaches a value below 5%. This behavior has been referred to as data fishing, data dredging or p-hacking. Importantly, if all researchers behave like Marc, there would not only be too many p-values below 5% in academic journals, but there would also be far too few p-values just above the 5% threshold.

Brodeur, Lé, Sangnier, and Zylberberg (2016) presents strong empirical evidence for this shortage of just-insignificant p-values. To achieve this, we collect the p-values published between 2005 and 2011 in 3 of the most prestigious journals in economics (the American Economic Review, the Journal of Political Economy and the Quarterly Journal of Economics) and we show a strong empirical regularity that is persuasive in Figure 1.1. The distribution of p-values has a two-humped camel shape with a first hump for high p-values, missing p-values between 25% and 10%, and a second hump for p-values slightly below 5%. Basically, there are misallocated p-values (about 20% of the p-values are missing—roughly the size of the valley between the two humps) that should have been between 25% and 10%, and that we can retrieve below 5%.

Figure 1.1 – Distribution of z-statistics published in academic journals.



Sources: AER, JPE, and QJE (2005–2011). A z-statistic equal to 1.96 corresponds to a p-value of 5%. See Brodeur, Lé, Sangnier, and Zylberberg (2016) for more details.

We relate this misallocation to some authors' and papers' characteristics. We find that the presence of a misallocation correlates with incentives to get published: the misallocation is lower for older and tenured professors compared to younger researchers. The misallocation also correlates with the importance of the empirical result in the publication prospects. In theoretical papers, the empirical analysis is less crucial, and, indeed, the misallocation is much lower. Finally, while the majority of researchers now use stars to highlight the significance of their results (p-values below 5%), some do not use them, and we find a much lower misallocation for the latter than for the former.

These results point to the existence of behavioral biases in empirical research induced by result-driven carrots (publication, media attention...). Such bias in Marc's case might be considered as quite innocuous, but hypothesis testing is widely used in psychology, medicine, political science, biology or economics to discuss the efficiency of a new drug, the effect of a policy, etc. Recent contributions such as Weiss and Wagner (2011), Nosek et al. (2012), and Miguel et al. (2014) discuss new practices for the scientific community that would either restrict the leeway in hypothesis testing, or break down the incentives to focus on positive results.

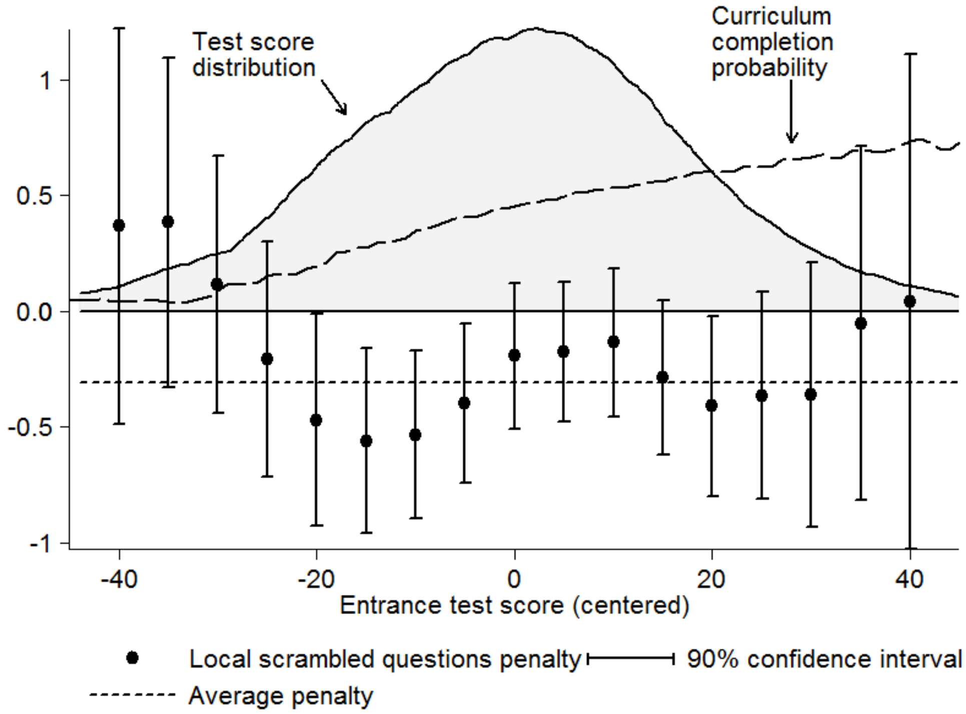
1.3.2 Tasks' allocation and scrambled questionnaires

My research activity also resulted in the production of two notes whose writing was motivated by concrete real world situations I faced while teaching.

Sangnier (2013b) presents a Stata command that intends to help instructors to allocate tasks between students. The command requires that individuals to which tasks will be allocated express ordered preferences over the alternative choices. It then draw individuals in a random order and allocate them with their preferred choice among remaining available items. A nice feature of this approach is that it produces a renegotiation-proof allocation as, once individuals are made aware of the resulting allocation, no one has any interest to exchange her item with another one. The command further allows the instructor to select better social allocations by generating a series of alternative allocations that can be compared using social welfare criteria such as a Rawlsian one for example.

Another teaching situation motivated the study presented in Raux, Sangnier, and van Ypersele (2017). This note provides evidence that students under-perform at scrambled multiple choice questionnaires relatively to logically ordered ones. We use tests taken by undergraduate students at Aix-Marseille University's Faculty of Economics and Business to estimate the scrambled questions penalty in a regression framework that explicitly account for students' skills thank to fixed effects. In accordance with part of the literature but in contrast to some contributions, we provide evidence of this penalty. We also further show that it mostly affects students with lower-intermediate skills as illustrated by Figure 1.2. These findings have impor-

Figure 1.2 – Scrambled questions penalty at different levels of students' skills distribution.



See Raux, Sangnier, and van Ypersele (2017) for more details.

tant implications in terms of fairness and call for practical recommendations such as the generalization of scrambled questionnaires, i.e. the removal of the logically ordered questionnaire that is traditionally taken by a fraction of students while their fellows face scrambled versions of the same set of questions.

Chapter 2

Contributions to cultural economics

This chapter details my contributions to cultural economics and attempts to point out links that exist between them.

As an academic discipline, economics is interested in the way humans organize themselves to live together and ultimately aims at understanding what makes societies better off. After the funding piece by North and Davis (1971), economists emphasizing the importance of institutions to explain economic performance have gained audience during the last quarter of the twentieth century. This approach do not deny the importance of classical explanations of economic performance—human and physical capital—, but rather stresses the previously under-estimated role of socially constructed frames in economic activity. Using words of North (1994), "*institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction*". Acemoglu (2008) defines institutions as "*rules, regulations, laws, and policies that affect economic incentives and thus the incentives to invest in technology, physical capital, and human capital*". This growing interest for the role of institutions has been accompanied by the birth of modern political economy. This approach underlines trade-offs faced by rational agents in specific institutional frameworks as well as the key role of society's structure to understand economic outcomes. In any society, individuals interact and belong to different groups. Such groups can be exclusively social, i.e. culturally grounded groups, or institutional groups, i.e. groups created following some institutional changes. Both the institutional context in which they evolve and the raw balance of power between groups determine economic outcomes. On top of that, institutional arrangements are themselves the products of past interactions between members of the society.

The cultural hypothesis started to enrich the political economy analysis at the turn between the previous and the current centuries. Already used in other social sciences, culture started to be seriously considered as a deep root of values, beliefs and preferences by economists. The core idea of the cultural approach in economics is that different groups of individuals may durably share different values, beliefs and preferences. This heterogeneity may subsequently account for large differences in institutional choices and economic outcomes.

The way preferences affect economic decisions stands at hearth of the classical rational economic paradigm: agents maximize their utility and choose actions or consumption accordingly; the utility level they reach depends on their preferences. In a first approximation, values can be considered as a slight variation around the concept of preferences. However, the idea of "values" also incorporate a dimension of moral judgment that may be used in decision-making process. Finally, beliefs refers to expectations formed by agents on actions undertaken by others. These concepts are yet not path-breaking with respect to the "standard" economic approach. The main contribution made by economists who built upon the cultural hypothesis is rather to emphasize the weight of culture in economic decisions and the way culture interacts with institutions.

Culture encompasses many concepts and dimensions. Among them, social capital—i.e. values that push individuals to cooperate, to act with reciprocity or empathy—and trust—i.e. some belief that pushes an individual to grant to another individual some decision power on an issue that may have both favorable and detrimental consequences for the former—appears to be relevant for economic development and attracted much of scholars' interest.

2.1 Does culture matter?

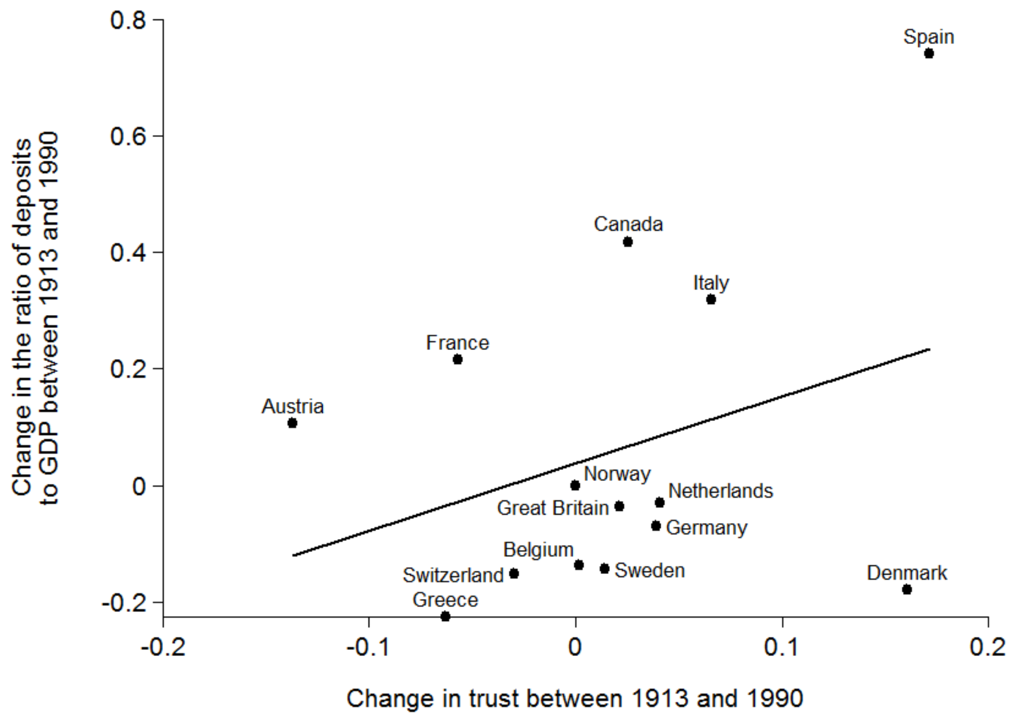
One of the main challenges faced by empiricists who investigate the role of culture for economic outcomes is identification. As beliefs are shaped by the context in which individuals live, any particular outcome might lead to the modification of beliefs, either because this lead individuals to update their beliefs and/or because they suddenly choose to rationally transmit different values to the next generation. Beliefs are in turn drivers of choices made when designing institutions. As a consequence, culture and economic outcomes arguably co-evolve.

I document such a co-evolution in Sangnier (2011). This paper documents the co-evolution of trust and financial development over the twentieth century. This focus obviously raises a data issue as it requires measures of both variables at distant points in time. The importance of finance warrants that such measures of financial development exist. In contrast, while values surveys are run since the eighties in developed countries, what enables scholars to observe today's trust, no data allow to proxy for interpersonal cooperation by the beginning of the preceding century. Algan and Cahuc (2010) managed to overcome this stumbling block by creatively using today's American values survey—the General Social Survey. These authors build on the assumption that migrants who leave a country at a given point in time hold the values that are mostly spread in that country at that time. They then settle in a new country and start transmitting their beliefs to their heirs. As a consequence, the early twentieth century's difference in trust between two European countries can be retrieved from the observed difference in reported trust of two Americans of different origins whose ancestors migrated by that time.

This approach makes it possible to proxy changes in trust across the twentieth century for 14 European countries and to match these changes to measures of financial development from Rajan and Zingales (2003), Mitchell (2003) and Flandreau and Zumer (2004). The paper's outcome is best illustrated by Figure 2.1 that plots the relationship between within country changes in trust and in the ratio of deposits to GDP. This positive relationship suggests that the two variables co-evolve, which is consistent with trust being at the hearth of financial operations. The paper further demonstrates that this relationship is robust to formal estimations that use country fixed effects and that account for covariates.

The idea of trust facilitating financial relations is also the key mechanism around which the stylized model presented in Sangnier (2013a) is built. In this simple model *à la* Aghion et al. (2010, 2012), investment is pro-cyclical for two reasons. First, expected long term returns increase as productivity increases. Second, increasing productivity fosters current returns and thus relaxes credit constraints, what allows entrepreneurs to invest higher amounts of money. This second effect implies that investment's pro-cyclicality decreases if credit constraints are relaxed, which might occur because of higher trust.

Figure 2.1 – Changes in trust and in the ratio of deposits to GDP.



See Sangnier (2011) for more details.

The way trust lessens credit constraints can easily be grasped by looking at a risk-neutral lender's expected profit. The latter can be written as:

$$E(\pi) = pD(1+r) + (1-p) \times C - D,$$

where C is offered as pledgable collateral, D is the issued debt, r is the interest rate, and p denotes the probability that the loan is repaid. This probability takes into account potential misbehavior by the borrower (e.g. insufficient efforts or conscious default on the debt), as well as the exogenous probability of success of the project. The lender will accept to lend if and only if its expected profit is positive. This condition can be written as:

$$D \leq \frac{1-p}{1-p-pr} C.$$

Assuming that the maximum amount the borrower can offer as collateral is its current wealth W, issued debt cannot exceed μW—the credit constraint—, where:

$$\mu \equiv \frac{1-p}{1-p-pr}.$$

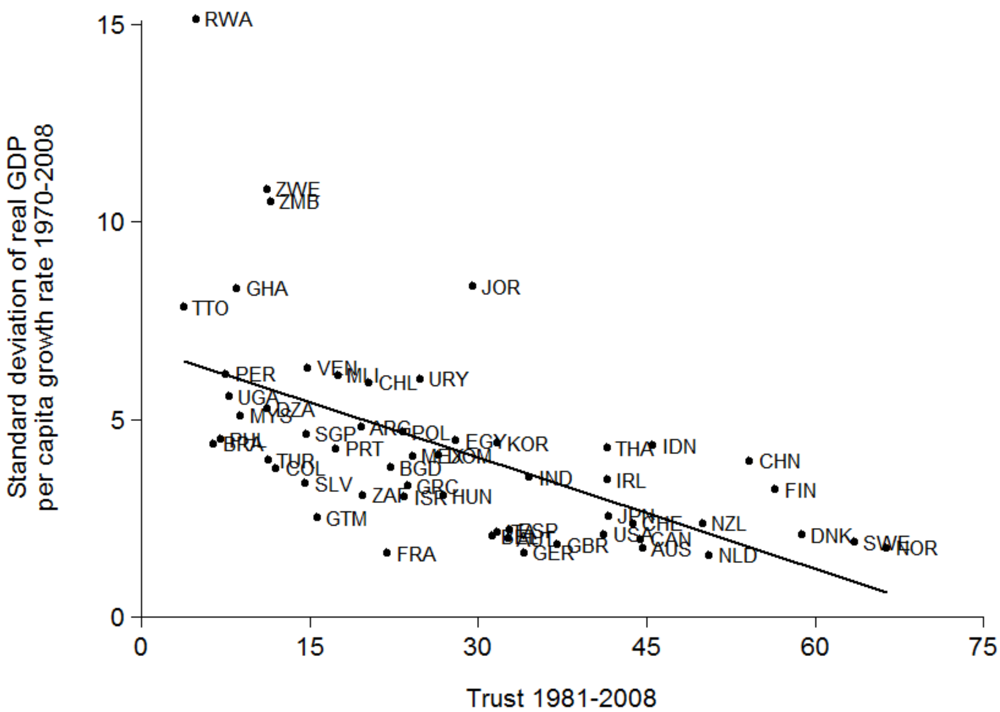
In a world of imperfect information, the probability p depends positively on the amount of trust t that the lender places in borrower's expected actions, i.e. $\partial p(t)/\partial t > 0$. Since μ is increasing in p, it is also increasing in t. In other words, increasing trust increases the maximum loan for a given borrower's wealth. Comparative statics implies that higher trust acts against investment's pro-cyclicality and thus lowers macroeconomic volatility.

I test the model's prediction in a cross-section of countries using three measures of macroeconomic volatility as regressions' dependent variables. Following a large literature, my explanatory variable of interest is the country-level share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*". The alternative answer is "*can't be too careful*". Estimates uncover a positive relationship between trust and macroeconomic volatility as illustrated by Figure 2.2. This relationship is found to persist when using inherited trust of American as an instrument for trust, as well as when accounting for other determinants of macroeconomic volatility such as institutional quality for example.

This paper's results suggest that trust reduces macroeconomic volatility by itself and not only by allowing to design better institutions. Thus, trust acts on top of formal institutions. This leaves open the possibility of a joint interpretation of institutions and trust, or norms of cooperation in general, these two variables mutually reinforcing, as already pointed out in Sangnier (2011).

The idea that norms or values interact with institutions and policy is precisely at the hearth of Blake and Sangnier (2011). This paper lays down a simple framework that highlights the trade-off faced by any senior worker

Figure 2.2 – Relationship between the standard deviation of real GDP per capita growth rate and trust.



Sources: World Values Survey and Penn World Table. See Sangnier (2013a) for more details.

who might benefit from some early retirement scheme as it is the case in all OECD countries. Such a worker balances costs and benefits of continuing to work or leaving her job without waiting longer. Net benefits of the decision mostly depends of a country' early retirement policy and of each individual idiosyncratic labor disutility. Those that suffer large labor disutility will obviously tend to retire earlier. This simple statement has however consequences as a country's senior activity rate will therefore depend on the distribution of labor disutility at the country level. Accordingly, the elasticity of that quantity to policy changes—such as modifying early retirement incentives—will depend on the distribution of labor disutility.

We test this prediction in Blake and Sangnier (2011) by investigating how the elasticity of senior activity rate varies with parameters of the distribution of labor disutility. We approximate the latter by the country-level distribution of the quality of labor relations. Our results, indicate that seniors' are more sensitive to changes in early retirement incentives in OECD countries that have better quality and more homogeneously distributed labor relations. Assuming that labor place organization is part of a country's culture as suggested by La Porta et al. (1997), these findings indicate that the efficiency of a country's policies heavily depends on that country's culture.

Yet, culture might not only condition policy outcomes. It might as well shape the design of institutions. For example, the literature as long argued that interpersonal trust allows to set up generous welfare states as citizens are confident that those who receive social benefits truly need them and won't shrink on job finding efforts (see Rothstein and Uslaner (2005) and Rothstein et al. (2010) among others). This idea explains relatively well why Scandinavian countries sustain high levels of redistribution. It however completely fails to account for the similarly high generosity of the welfare state in some Mediterranean countries such as France for example.

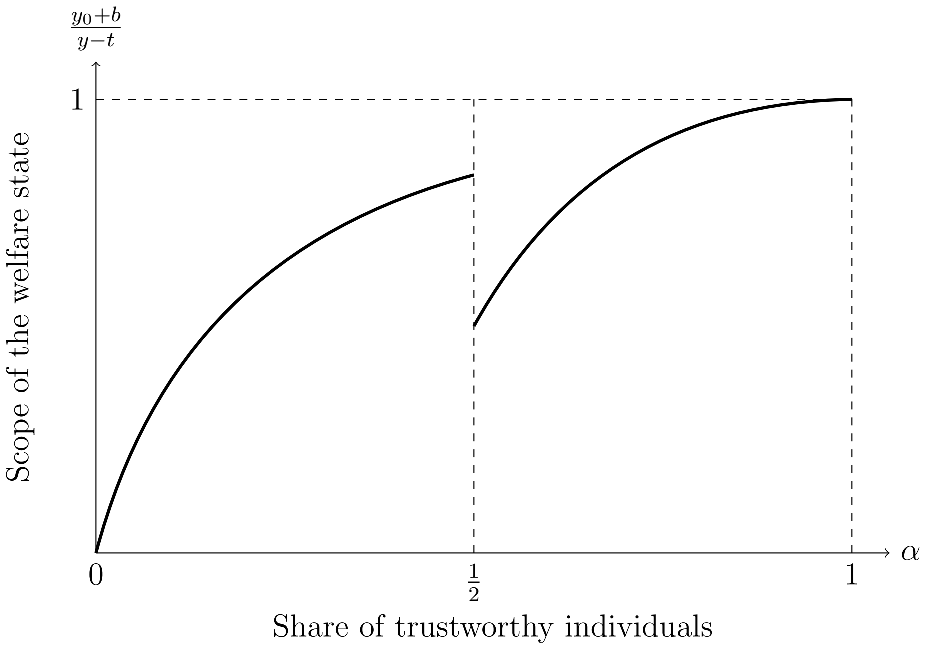
In Algan, Cahuc, and Sangnier (2016), we argue that the observed cross-country relationship between trust and the size of welfare states is not monotonic, contrary to the traditional claim, but can be visualized as twin peaks. We rationalize this claim thanks to a model in which individuals demand for redistribution is driven both by their expectations regarding the behavior of others and by their own civicness. The novel mechanism we point out is that uncivic citizens—the type who evade tax obligations and seek to receive undue social benefits—demand higher levels of redistribution than civic citizens since they expect to benefit from it while escaping the costs. This effects combine with the traditional opposing force—citizens being less inclined to support redistribution if they expected to be surrounded by uncivic ones—and leads to a twin peaks relation between trust and the size of the welfare state as represented by Figure 2.3. The first peak of the twin peaks relation appears at the point where political power shifts from untrustworthy to trustworthy citizens. This shift is associated with an immediate drop in support for the welfare state, since trustworthy citizens are less favorable to redistribution than untrustworthy citizens. The second peak appears when everyone is civic. In this situation, all individuals strongly support the welfare state because nobody cheats on taxes and social benefits.

We test the predictions and mechanisms of the model with both macro and micro evidence. We start by providing macro evidence for the twin peaks curve across OECD countries. In order to uncover the twin peaks relationship between the generosity of the welfare state and the share α of trustworthy individuals, we estimate the following model:

$$\begin{cases} z_i = a_1 + b_1 x_i + \varepsilon_i, \text{ if } x_i < \gamma, \\ z_i = a_2 + b_2 x_i + \varepsilon_i, \text{ if } x_i \geq \gamma, \end{cases}$$

where z_i is welfare state generosity, x_i is the spread of civic values or trust in country i, and γ is the breakpoint to be determined by the data. We estimate these equations using ordinary least squares regressions and bootstrapped standard errors to account for the small sample size. The optimal breakpoint is chosen as the value of γ that minimizes the overall residual sum of squares across both groups of observations. To determine the breakpoint endogenously, we use the method developed by Andrews (1993, 2003) building on Quandt (1960). This method is grounded in the observation that the correct test statistic is the maximum $\mathbb{F}$-statistic over the whole procedure—i.e. over all candidates' breakpoints—is unknown and does not

Figure 2.3 – The relation between the share of trustworthy individuals and the scope of the welfare state.

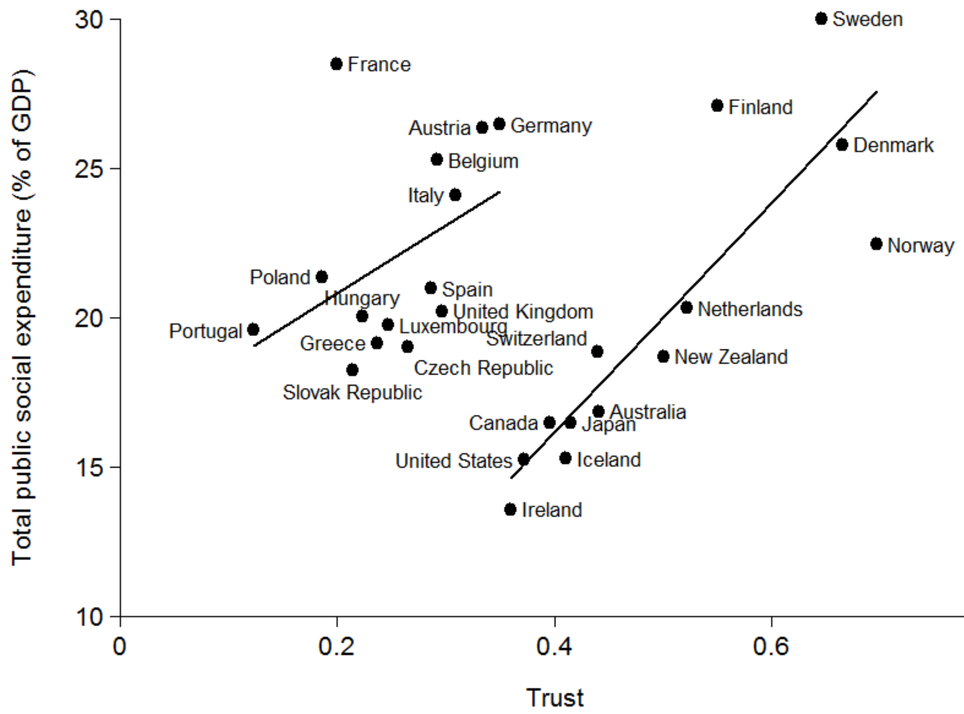


y and y_0 denote the high and low random levels of individual productivity. Individuals with high productivity must pay a tax t that is use to finance benefits b that are provided to those who have (or claim to have) a low productivity. α is the share of trustworthy individuals in the population. See Algan, Cahuc, and Sangnier (2016) for more details.

follow a standard distribution (see Hansen 2001 for a clear presentation). We thus construct p-values of this distribution using a bootstrap procedure as described by Diebold and Chen (1996).

We perform such piecewise linear regressions between various measures of the generosity of the welfare state and a handful of measures of trust and trustworthiness. We further check the robustness of the results by controlling for alternative variables that have been found to influence the size of the welfare state. All in all, we reject the hypothesis of a monotonous and continuous relation between trust, civism, and perceived corruption on one hand, and the size of welfare state on the other hand. In line with the prediction of our theoretical model, the evidence supports the existence of a twin peaks relation as illustrated by Figure 2.4.

Figure 2.4 – The twin peaks relationship between the generosity of the welfare state and trust.



Sources: World Values Survey and OECD Social Expenditure Database. See Algan, Cahuc, and Sangnier (2016) for more details.

We then test the main individual mechanisms of the model by using international social surveys. From the World Values Survey, we find that uncivic individuals support the welfare state more strongly than civic ones. In particular, individuals who declare that it may be excusable to claim government benefits to which they are not entitled or to avoid a fare on public transport, are found to support more generous social programs than trustworthy individuals who declare that there is never an excuse for cheating. From the European Social Survey, we also find that individuals who think that they are surrounded by people of a more trustworthy kind exhibit a stronger degree of support for the welfare state.

This paper's findings highlight the important role of culture and beliefs in the design of institutions and might explain why it is so difficult to reform the large welfare states of Continental European countries despite the widespread consensus that they are less effective and transparent than their counterparts in Nordic countries. This paper suggests that their large size is the consequence of an equilibrium in which the majority of the population is made up of untrustworthy individuals who exploit the advantages provided by the welfare state at the expense of a minority of trustworthy individuals.

The long-run sustainability of this equilibrium is, however, an open question as both trustworthy and untrustworthy individuals are better off when surrounded by trustworthy individuals. This suggests that all individuals could coordinate to invest in education in order to improve the civic spirit of their offspring, to the extent that education can improve civic spirit as suggested by Glaeser et al. (2007) and Algan et al. (2013) for example. This latter statement raises the more general question of the origins of beliefs and values held by individuals.

2.2 Cultural persistence and beliefs' update

Building on the idea that beliefs held by individuals are either updated following news arrival or transmitted by peers or earlier generations, the literature that investigates the origin of culture frequently attempts to estimate the relative weight of these different sources. These gave birth to two empirical challenges. The first consists in investigating whether individuals do update cultural norms they bear in the aftermath of events, and whether this eventually leads to the transmission of specific values over long periods of time—a concept that is often referred to as "persistence". The second challenge relies in the quantification of the relative importance of persistence and updates in the composition of beliefs held by a given individual.

Couttenier and Sangnier (2015) and Couttenier, Grosjean, and Sangnier (2017) document the long-lasting consequences of the American mining history on today's values and attitudes. *A history of American mining* was written by Rickard in 1932. Figure 2.5 presents this book's frontispiece and illustrates quite well the extent to which mining is associated with the concept of independence of individuals and individuals' self-reponsibility in the

American tradition. This book has been written "to give [...] something of that background the older men built up as they went along". The introduction argues that "in developing the mineral wealth of a continent [...] things do not "just happen"; they are brought about by men who have the wit to see and the courage to do. Our predecessors were men with these qualities. They [...] have left us a great heritage".

In Couttenier and Sangnier (2015), we take advantage of geo-referenced information on mineral resources' discoveries in the United States over the 1800–2000 period and provide evidence that mineral resources abundance is associated with lower support for redistribution. Using General Social Survey data, we show that individuals living in states with large mineral resources endowment are more opposed to redistribution than others. We undertake various tests and strategies to demonstrate the robustness of this result. In particular, we show that this empirical finding persists when various measures of individual or local income are taken into account. This strongly advocates in favor of mineral resources being associated with characteristics that goes beyond their transaction value and the already documented detrimental effect wealth has on the willingness to redistribute (see Romer (1975), Meltzer and Richard (1981), Piketty (1995), Alesina and La Ferrara (2005), Alesina and Angeletos (2005), and Alesina and Giuliano (2011) among others). Among such characteristics, it is worth noting the role of effort in the exploitation of mineral resources as suggested by the narrative of the American mining history.

We then examine how an individual acquires such values. We highlight two mechanisms through which mineral resources can foster ones' opposition to redistribution: either by transmission of values formed in the past, or by the exposure to mineral discoveries during individuals' life-time. We show that both mechanisms matter to explain respondents' preferences. We achieve this by estimating the following expression:

$$\text{Opposition to redistribution}_i = \alpha+\beta M_{s(i)}+\beta^{'} MO_{s(i),b(i)}+\gamma\mathbf{X}_i+\delta\mathbf{Z}_{t(i),s(i),b(i)}+\varepsilon_i,$$

where the dependent variable is our measure of opposition to redistribution

Figure 2.5 – Frontispiece of *A history of American mining* (Rickard 1932).

Stratton discovering the Independence.

for respondent i, interviewed at time t and living in state s. The variable $M_{s(i)}$ is the dummy that indicates the mineral status of the state. $MO_{s(i),b(i)}$ is a variable that is equal to 1 if there have been mineral resources discoveries in state s during the life of an individual born on year b. $\mathbf{X}_i$ is a set of individual observable characteristics and $\mathbf{Z}_{t(i),s(i),b(i)}$ contains time fixed effects, geographic characteristics, and state-level variables measured either at the moment of the interview or during respondents' early years. Finally, ε_i is the error term. Coefficient β' captures the exposure mechanism by comparing individuals who were exposed to a mineral resources discoveries during their life to those that did not. Coefficient β allows us to capture the transmission mechanism as the part of the overall relationship that is not mediated by the exposure to discoveries.

Estimates of β and β' allow us to assess the relative importance of the two mechanisms. A back-of-the-envelope calculation leads to the following conclusion: the exposure mechanism accounts for about 35% of the overall difference in preferences for redistribution between respondents who currently leave in states with or without mineral. All in all, these results suggests that both values acquisition channels do matter, but that what is inherited seems to play a slightly more important role.

Couttenier, Grosjean, and Sangnier (2017) further uses the distribution of mineral resources in the United States to study how the relationship between mineral resources and interpersonal violence is conditioned by state development at the time of resources discoveries. This paper's main hypothesis is that weak third-party enforcement of property rights gives rise to violence, particularly in the presence of valuable resources that can be appropriated. Such a phenomenon occurs because interpersonal violence and state enforcement are substitute ways of enforcing or defending property rights. Applying this idea to the context of mineral exploration in the US, we expect very different degrees of violence as a function of whether formal institutions are in place or not at the time of discovery. If valuable minerals are discovered when the rule of law is absent, as was the case in areas of the frontier that had not yet come under government control, interpersonal violence will be used to defend or enforce property rights or to build a reputation for being violent that will deter attacks. Violence will thus prevail where the state is absent. Interpersonal violence might then be transmitted as a norm of behavior.

The circumstances of mineral discoveries in the US provide an ideal natural experiment to examine this relationship. Mineral exploration in the US was the result of private and intense efforts, which were fueled by a legal specificity of the US where minerals are private property. The territorial expansion of the US government was driven by geopolitical factors, which were orthogonal to mineral discoveries according to Davis et al. (1972), even when the two processes occurred at the same time, such as in the West of the US in the second half of the 19th century. As a result, some mineral deposits were discovered before formal institutions were established, while others were discovered after.

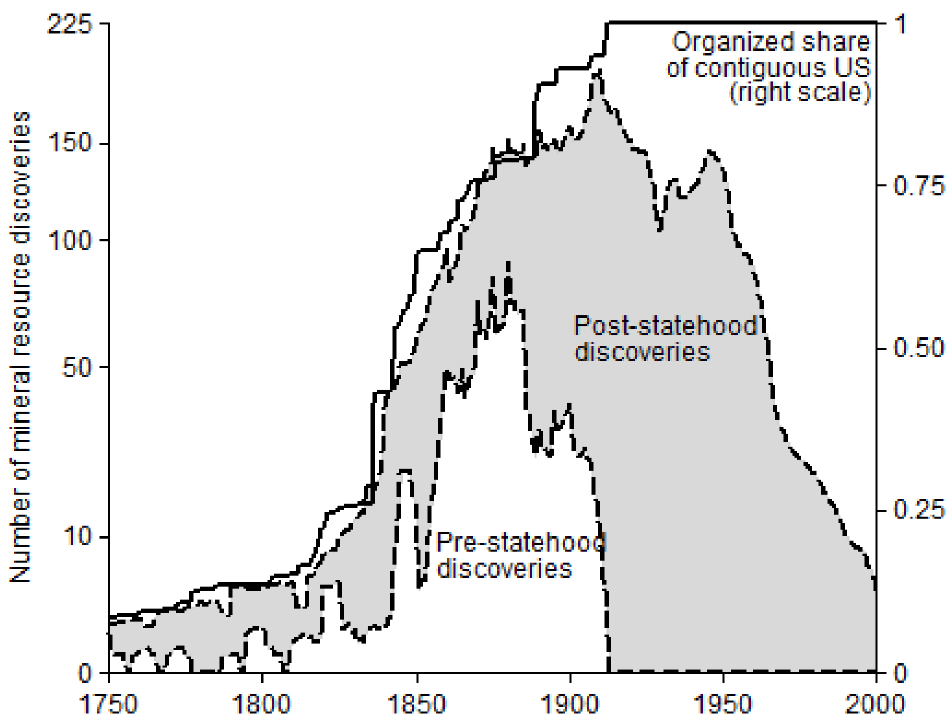
The Mineral Resources Data System provides information on the location and date of discovery of more than 17,500 mineral discoveries in the contiguous US since the 17th century. The Atlas of Historical County Boundaries, which documents the creation of (and subsequent changes in) the boundaries of administrative units in the US, enables us to assess whether each discovery occurred before or after the state was established at the very place where minerals are located. We then map this information into present-day counties and we record how many discoveries within a given county's physical boundaries occurred pre- or post-statehood, i.e. in the absence or in the presence of formal institutions. Figure 2.6 evokes the basic source of variation we rely on: some discoveries occurred before the land was politically organized, others after. This variation allows us to examine how the relationship between mineral resources and violence is moderated by the quality of formal institutions using both historical and contemporary measures of interpersonal violence.

We provide evidence of the above mentioned persistence. We achieve this by relying on 2000 county-level violent crimes data to document the long-lasting and positive association between pre-statehood discoveries and interpersonal violence. In contrast, post-statehood discoveries are not significantly associated with today's violence. To the best of our knowledge, our findings document for the first time the existence of a *homicide resource* *curse*, which, like other resource curses, is conditional on the quality of initial institutions.

The question of course arises as to what underlies the persistence of interpersonal violence. In other words, is it possible that different initial institutional conditions give rise to different trajectories and steady states of violence? The first candidate channel of persistence is the quality of institutions. If the absence of the state rewards individuals with a comparative advantage in violence, then these individuals will be able, through predation and intimidation, to secure a larger share of the surplus. A classic case of political capture may then arise when the state eventually arrives. The persistence of formal institutions implies that high levels of interpersonal violence may persist over time.

A second channel of persistence is culture. The economic environment,

Figure 2.6 – Contiguous US political organization and mineral discoveries.



Sources: Atlas of Historical County Boundaries and Mineral Resources Data System. See Couttenier, Grosjean, and Sangnier (2017) for more details.

including the quality of formal institutions, shapes cultural norms, which persist over time. Tabellini (2008) and Guiso et al. (2008) study the case of social trust and describe how parental transmission of preferences depends on the spatial pattern of external enforcement. If formal enforcement is weak, parents might transmit low trust in order to protect their children from situations in which they would be taken advantage of. This results in low social trust. The same argument can easily be extended to aggressiveness. If enforcement is weak at one period of time, the returns to interpersonal violence are high and parents will wish their children to internalize the benefits of using violence. Consequently, they will transmit norms that legitimize the use of force.

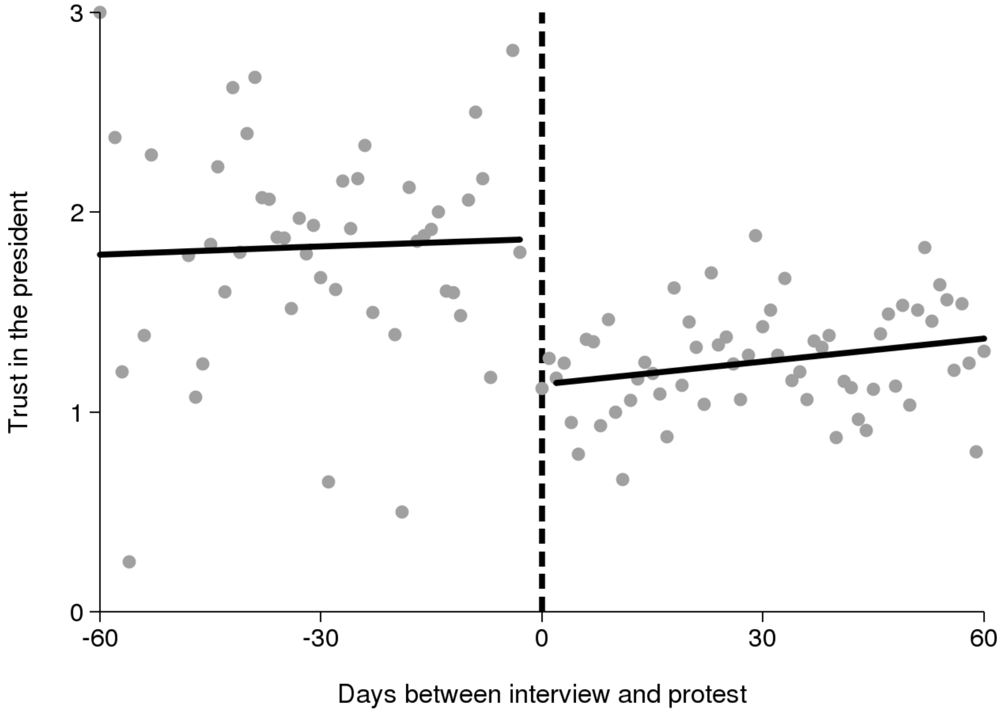
In most models of culture, differences in the initial quality of institutions give rise to different cultural norms that persist over time regardless of subsequent changes in the quality of institutions. However, perhaps a more realistic account is that weak institutions and violent social norms reinforce one another in a co-evolutionary process. In theoretical models by Tabellini (2008) and Belloc and Bowles (2013), institutional and cultural persistence are complements. This complementarity gives rise to multiple stable cultural-institutional equilibria. Bisin and Verdier (2015) show that cultural norms and formal institutions co-evolve, and that a temporary and exogenous shocks to the quality of institutions can trigger large differences in long-run institutional *and* cultural stationary states. Empirically, culture is generally identified as the residual effect of an historical shock or event, once the contemporaneous influence of formal institutions has been taken into account. Authors generally attempt to control for the quality of formal institutions by focusing on regional differences within a given country or by including country-level fixed effects in multi-country studies, based on the assumption that formal institutions vary at the country level. In this paper, we not only focus on a single country, the US, but also include state-level fixed effects, which absorb any unobserved potential heterogeneity in the quality of institutions across US states. Therefore, in the traditional understanding of the empirical literature on culture, any remaining variation associated with the historical shock that we study in this paper could be interpreted as evidence of cross-county differences in social norms that sustain the use of interpersonal violence. However, the recent literature on the co-evolution of culture and institutions highlights that the traditional empirical identification of culture and institution as separate channels of persistence is impracticable.

The persistence of violence implies that a relatively short term and quasi-exogenous variation in the institutional environment in which natural resources discoveries occurred can be associated with large and sustained differences in subsequent institutional and cultural developments. Our results are indeed all the more intriguing because we are dealing with short-lived differences in institutional quality, since all areas in our study finally came under the control of the US government. We control throughout the analysis for state-level fixed effects, which absorb any heterogeneity in today's institutional quality across US states. Any remaining variation in crime rates must therefore reflect variation in more local institutions or in informal norms that sustain the use of interpersonal violence. The interpretation of our results is that where mineral deposits were discovered before the state was in place, violence was a very valuable means of defending private property. Moreover, the shift in norms underlying the use of interpersonal violence was large enough to lock these areas in a cultural-institutional equilibrium characterized by high and persistent violence.

While Couttenier and Sangnier (2015) and Couttenier, Grosjean, and Sangnier (2017) focus on beliefs' long-term persistence, Sangnier and Zylberberg (2017) departs from these two papers by focusing on beliefs' update in the short-term. In this paper, we seek to quantify the evolution of trust toward the head of state and monitoring institutions in the immediate aftermath if social protests. We indeed assume that protests signal to citizens that leaders might be dishonest and/or that monitoring institutions fail to prevent leaders from misbehaving.

We test the previous hypotheses thanks to a very careful match between the Afrobarometer survey and a database on local conflicts and protests in Africa—the Armed Conflict Location and Event Dataset. We locate each of the Afrobarometer respondents and observe precisely whether protests or

Figure 2.7 – Average trust in the president as a function of time between interview and protest.



Sources: Afrobarometer and ACLED. See Sangnier and Zylberberg (2017) for more details.

riots have occurred in their immediate surrounding—we use a 20-km radius circle—over the days that immediately precede the interview. This allows us to undertake two identification strategies. First, we compare respondents that were interviewed before and after a protest as occurred. As shown by Figure 2.7, a very sharp discontinuity appears at the interview date. Trust in the president for respondents interviewed after a protest is significantly lower than for respondents interviewed before a protest, and there are no evident signs of anticipation from respondents. This approach provides suggestive evidence of the negative and sudden effect that protests have on trust in leaders, exploiting the interview timing only.

Our second identification strategy relies on the interaction of the geographical location of respondents and the timing of the survey. This offers room for heterogeneity in the immediate exposure to protests within the same region. Two residents of the same region may be differently exposed to protests depending on their exact location, and the protest and interview dates. We exploit this variation to estimate how reported trust in leaders and institutions evolves in the aftermath of protests. Formally, we estimate the following model using ordinary least squares:

$$y_i = \alpha + \beta \mathbb{C}_{jt} + \sum_{k=1}^{n} \gamma_k x_i^k + \sum_{k=1}^{m} \phi_k X_j^k + \mathbb{I}_r + \varepsilon_i,$$

where individual i lives in place j inside administrative region r of a country and is interviewed on day t. In the baseline specification, the variable y denotes the answer to some trust-related question. $\mathbb{C}_{jt}$ is the number of social conflicts within 20 km of place j during the two months immediately preceding the interview conducted at date t. Vector $\mathbf{x}$ is a set of observable characteristics of individual i. Vector $\mathbf{X}$ is a set of observable characteristics of place j such as past events, distance to the coast, population density, etc. $\mathbb{I}_r$ is a region$\times$round fixed effect for each first-level administrative country subdivision and each of the two rounds of the Afrobarometer, and ε is the error term. In this equation, the parameter of interest β captures how attitudes differ in places recently exposed to protests.

By estimating the above expression for different dependent variables, we provide evidence that trust in current head of state, as proxied by the president and the ruling party, deteriorates if a protest occurs in a respondent's neighborhood during the two months that precede the interview. In contrast, trust in the opposition party is higher following a protest. Evidence also speaks in favor of a negative revision of beliefs in the quality of monitoring institutions such as the police, the electoral commission and the parliament once a signal of social unrest has been observed.

As regards the amplitude of estimated effects, one more protest during the two months preceding the interview reduces trust in the president by 8% of the gap in trust in the president between places that never experience protests and those that do. The effect of one protest is equivalent to 50% of the gap of trust in the parliament between rural and urban areas. These rough comparisons suggest that the immediate impact of protests on trust in leaders and institutions is sizeable and of the same order of magnitude as long-run heterogeneity across locations or individuals with different characteristics (it is equal to the gap in reported trust due to gender).

Findings reported in Sangnier and Zylberberg (2017) show that, while beliefs, and trust in the state in particular, are likely to be heavily rooted in culture, they are also frequently updated and strongly affected by sudden signals. These results are consistent with those presented in Couttenier and Sangnier (2015): beliefs are not only static, they have a substantial dynamic component.

Chapter 3

Contributions to the analysis of political connections

This chapter details my contributions to the analysis of political connections and attempts to point out links that exist between them.

France ranks 23$^{\text{rd}}$ according to Transparency International 2015 corruption perception index. Yet, France remains a broadly under-investigated country by scholars interested in the functioning of the administrative and political systems. This literature indeed mostly focuses on the United States and developing countries. The relative under-investigation of France is best illustrated by Golden and Min (2013) whose literature review only lists one paper that studies France out of 158 contributions that investigate politicians' decisions in the allocation of public expenditure.

3.1 Returns from political connections

Coulomb and Sangnier (2014), Bourveau, Coulomb, and Sangnier (2016), and Fabre and Sangnier (2016) shed light on returns from political connections for different types of agents: firms, businessmen, and municipalities, respectively.

Coulomb and Sangnier (2014) is the first paper that simultaneously evaluate the impact of political majorities on the value of firms that would benefit from campaign platforms, and of those that are managed or owned by personal friends of the head of state. We use information on the abnormal returns of French firms and prediction-market data relating to election to provide these estimates. We focus on the months preceding the election and correlate the daily abnormal stock returns of firms belonging to different groups to changes in each candidate's victory probability in the 2007 French presidential election. We measure the latter thanks to prices of *winner-take-all* contracts linked to the victory of Ségolène Royal—the candidate of the largest leftist party—and Nicolas Sarkozy—the candidate of the largest rightist party. These contracts were offered by NewsFutures.com, a prediction-market company.

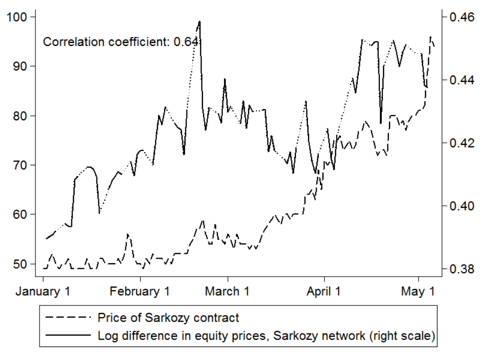
A prediction market is one in which Arrow-Debreu securities are traded, i.e. contracts that pay some pre-determined amount if and only if a certain event occurs at a certain point in time. When these contracts cover the election of a candidate, the prediction market provides expectations data concerning his chances of success. Under the efficient-market hypothesis, the prices of such winner-take-all contracts can be interpreted as the average probability of the candidate's victory as estimated by the market. This is the best prediction of future outcomes given the current stock of public information. Any change in the prices of these contracts then reflects the arrival of unexpected relevant political news. Prediction-market date actually help us to overcome the lack of counterfactual that most works on the impact of political majorities on the economy face.

We propose an analysis of the impact of political majorities on particular groups of firms and seek to uncover two potential transmission channels from politics to firm value: policy platforms and personal connections. To this end, we construct four different groups from the 120 largest firms listed on the French stock market. Two of these groups consists of firms that would benefit from the policies announced by Sarkozy and Royal. As in Knight (2007), we rely on the judgments of financial analysts to construct these groups. The third group consists of firms owned or managed by friends of Sarkozy. This group is constructed in two steps. First, we rely on two books written by journalists and political pundits (Chemin and Perrignon 2007, and

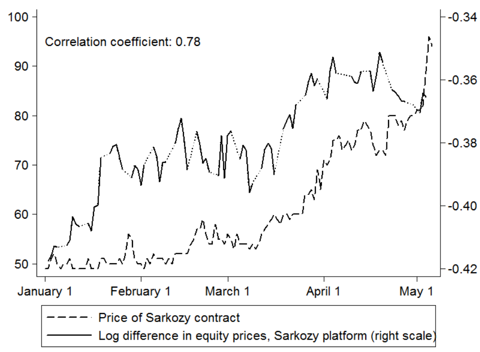
Dély and Hassoux 2008) to establish a list of businessmen who are connected to Sarkozy. We then look for the firms that these businessmen owned or managed during the first few months of 2007. The residual group gathers all firms that are not expected to benefit from platforms and that are not linked to Sarkozy through any friendship connection.

Figure 3.1(a) provides a visual representation of the correlation between the probability of a Sarkozy victory and the difference between the log prices

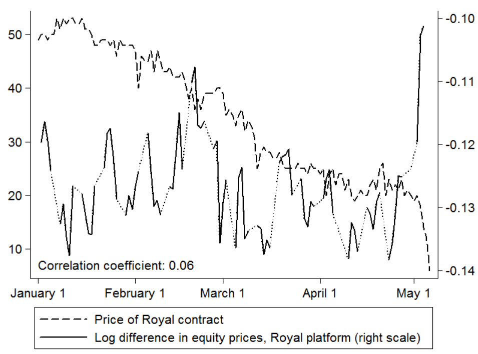
Figure 3.1 – Correlations between candidates' winning probabilities and group average stock prices.



(a) Firms listed in Sarkozy's network.



(b) Firms that would benefit from Sarkozy's platform.



(c) Firms that would benefit from Royal's platform.

The prices of Royal and Sarkozy contracts correspond to the price of the corresponding winner-take-all contract. Each sub-figure plots the log difference between the average price of firms belonging to the specified group and all other listed firms. See Coulomb and Sangnier (2014) for more details.

of firms listed in his network and those of all other firms in the SBF 120. The correlation is positive, suggesting that connections to Sarkozy matter for firm value. Figures 3.1(b) and 3.1(c) replicate this figure for firms that would benefit from the two policy platforms. While the correlation is clearly positive for firms that would benefit from the Sarkozy platform, the analogous relationship for Royal is less clear.

We formally analyze the size and the significance of these correlations thanks to the estimation of the following expression using daily firm-level observations from January 1st to May 6th 2007:

$$\begin{aligned}\tilde{\mathbb{R}}_{it} &= \beta_S \times \Delta\text{Sarkozy}_t + \gamma_S \times \mathbb{1}\left\{\text{Group}_g\right\}_i \times \Delta\text{Sarkozy}_t \\ &+\beta_R \times \Delta\text{Royal}_t + \gamma_R \times \mathbb{1}\left\{\text{Group}_g\right\}_i \times \Delta\text{Royal}_t \\ &+\alpha + \mathbb{I}_i + \varepsilon_{it},\end{aligned}$$

where $\Delta\text{Candidate}_t \in [0,1]$ denotes the daily relative change in Royal's or Sarkozy's victory probability, $\mathbb{1}\left\{\text{Group}_g\right\}_i$ is 1 if firm i belongs to group g (either the *Sarkozy network*, the *Sarkozy platform* or the *Royal platform*), $\mathbb{I}_i$ is a firm fixed effect, ε_{it} is the error term, and α is a constant. The parameters β_S and β_R capture the effects of changes in the winning probability of both candidates on all firms' abnormal returns. The parameters γ_S and γ_R then capture any additional effects of changes in both candidates' victory probabilities on firms in group g compared to a hypothetical, counterfactual, third-party administration.

Estimated coefficients suggest that the firms in Sarkozy's network are worth around 3% more due to his election. Similarly, firms that are thought to benefit from his platform outperform others by around 2%. Although less statistically-significant, the estimated coefficient of the effect of Royal's victory probability on firms that would benefit from her platform suggests that these firms would have enjoyed a 1% performance premium had she been elected. A back-of-the-envelope calculation yields an intuition of the economic importance of these effects by computing absolute changes in stock-market capitalization of the different groups due to the realization of their favorable political scenario. Taking firms' stock-market capitalization at the end of December 2006 as the starting point, the total excess value of each of the three groups due to the changes in victory probabilities provides an approximate value for the candidates' platforms and Sarkozy's network. This gives a figure for the latter of 16.29 billion euro, and that of the Sarkozy platform of 5.92 billion euro, whereas that of Royal's platform is 3.55 billion euro.

The main implication of this paper's results is that, from the perspective of a firm, the returns from connections to politicians are at least as large, if not larger, than the returns from the policies announced by the candidates.

Bourveau, Coulomb, and Sangnier (2016) also uses the context of the 2007 French presidential election. However, this paper departs from Coulomb and Sangnier (2014) by looking at how individual businessmen, rather than firms, can benefit from connections to politicians. We observe the behavior of board members of French listed firms before and after the election of Nicolas Sarkozy and investigate whether those who are connected to him change their behavior on financial markets. In particular, we construct measures of board members' trades information content and compliance with legal reporting requirements.

We observe the universe of board members of French listed firms and compare businessmen who are friends of Sarkozy or who contributed to his electoral campaign by making donations—the list of large contributors was leaked in 2012 by Mediapart, a French information website—to non-affiliated businessmen. Such a comparison is of course questionable as Sarkozy affiliates are likely to be different from other businessmen and are, after all, self-selected. We tackle this identification issue by construction alternative control groups made of businessmen who belong to the same boards as Sarkozy affiliates or of individuals selected thanks to a simple matching model.

Difference-in-differences estimates suggest that directors connected to Sarkozy tend to trade more on private information about their company's stocks after the victory of Sarkozy relative to a control group of non-connected directors. They also seem to become more likely not to comply with trades' legal reporting requirements, and appear to trade closer to their firm's results announcements.

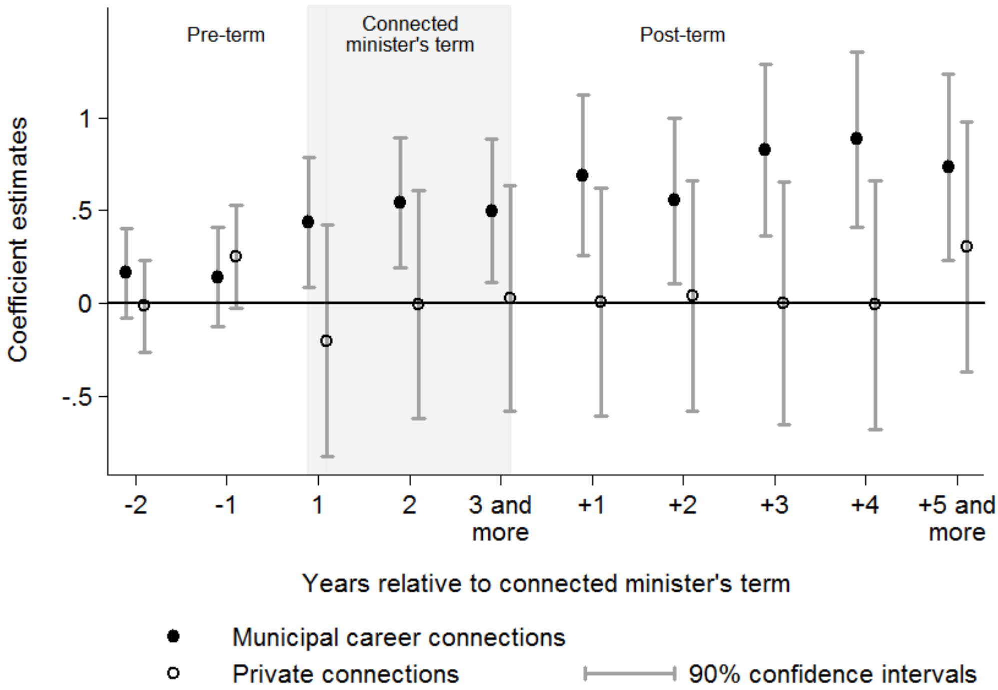
These findings are fully consistent with Becker (1968)'s classical model of criminality as a rational behavior. This approach considers crime as a rational activity whose expected costs depend on the probability of being caught and the severity of the punishment if convicted. In line with this approach, directors may be more likely to engage in fraudulent behavior if they believe that their connections provide them with some protection against prosecution. Such protection can pertain at different not-mutually-exclusive levels: their financial activities can be less monitored by financial regulation authorities; they can face a lower risk of prosecution; or they can obtain smaller penalties if prosecuted. In such a framework, we interpret the victory of Sarkozy as a shift in power of the politicians to which businessmen are connected.

While Coulomb and Sangnier (2014) and Bourveau, Coulomb, and Sangnier (2016) investigate whether private actors might benefit from political connections, Fabre and Sangnier (2016) focuses on returns from connections for municipalities. We achieve this within-the-administration analysis by looking at the evolution of discretionary grants allocated by the French central government depending on whether a municipality has connections with current ministers.

This study uses two comprehensive data sets. The first one contains the detailed accounts of French municipalities and enables us to precisely observe subsidies flows that accrue to French cities. The second has been constructed via an original data collection and contains the curricula of all French ministers that hold office between 2000 and 2012. The latter allows us to link ministers to municipalities along two criteria. On the one side, we consider that a private connection exists between a municipality and a politician if the latter lived there during his childhood. On the other side, we qualify a connection as political if a current minister has once been elected at a municipality's council. Together with ministers' terms and municipalities detailed accounts, these data helps us to identify governmental subsidies targeted to specific municipalities.

As illustrated by Figure 3.2, we find that municipalities that benefit from a political connection to a current minister receive about 50% higher discre-

Figure 3.2 – The dynamics of connections' returns.



Estimates are from an OLS regression of the log of yearly per capita discretionary investment grants received by a municipality from the central government on year and municipality fixed effects, and a series of dummy variables defined relatively to the term of the minister to which the municipality is connected. Standard errors are clustered at the municipality level. See Fabre and Sangnier (2016) for more details.

tionary grants by the time where the politician they are linked to reach office. In addition, this effect seems to persist once the politician as left office. This latter finding advocates in favor of top-level politicians being able to continue lobbying the administration even once they are not anymore officially in charge. In contrast, our estimates clearly indicate that private connections to not pay-off for municipalities.

3.2 Politicians' motivation

In addition to offering estimates of the returns of connections to government's members for municipalities, Fabre and Sangnier (2016) also shed some light on politicians' motivations to unduly direct public spending toward specific places—a phenomenon that is often called “pork barrel politics”. Indeed, while many contributions provided empirical evidence of this phenomenon in various institutional contexts, most of them fail to disentangle competing mechanisms as uncovered effects could go along with different candidate, and plausibly non-mutually exclusive, motivations such as politicians’ career concerns and kinship considerations.

To the best of our knowledge, this paper is the first to use a framework that enables to distinguish the different motivations that drive pork barrels economics. Empirical evidence we present support the view that politicians’ career concerns are the main driver of subsidies’ targeting. It is however worth keeping in mind that this finding might of course be specific to the French context and should not be taken as universal. Still, effects we uncover are sizeable since a back-of-the-envelope calculation suggests that subsidies’ targeting by French ministers represents a total amount of 30 million euro per year, what corresponds to 7.8% of the total budget allocated by the government to discretionary investment grants.

Our data also allow us to get additional insights about the concrete mechanisms at work. For instance, we show that French ministers only tunnel governmental expenditure. They do not seem to influence lower administrative tiers and to indirectly target subsidies controlled by the latter. We also provide evidence that ministers who are supposed to control smaller budgets perform as well as others in directing subsidies toward their preferred places. This advocates in favor of ministers using their relations within the government rather than the budget they directly control to favor specific municipalities. Additional results also allow us to show that subsidies’ targeting is rather precise as direct neighbors of politically connected municipalities do not benefit from any increase in the amount of grants they receive. We finally provide evidence that right- and left-wing ministers behave similarly once in office.

Chapter 4

Research projects

This chapter briefly sketches two research projects and briefly describes how they relate to my previous contributions.

4.1 Place names as bequest

Most of my contributions to cultural economics somehow discuss ways through which values are transmitted among individuals—either across peers or across generations. Place-naming practices are candidate tools to transmit values across time.

Toponymy, i.e. the study of place naming, investigates the reasons that motivate the choice of a name when the time to label a place arrives. This academic literature essentially consists in narrative analyses that highlight the motivations of decision makers. For instance, Azaryahu (1996) states that street names "are [...] participants in the cultural production of shared past [and] a powerful mechanism for the legitimation of the sociopolitical order." The choice of a specific name over alternative ones therefore obeys to strategic considerations that are linked to the will to spread specific values.

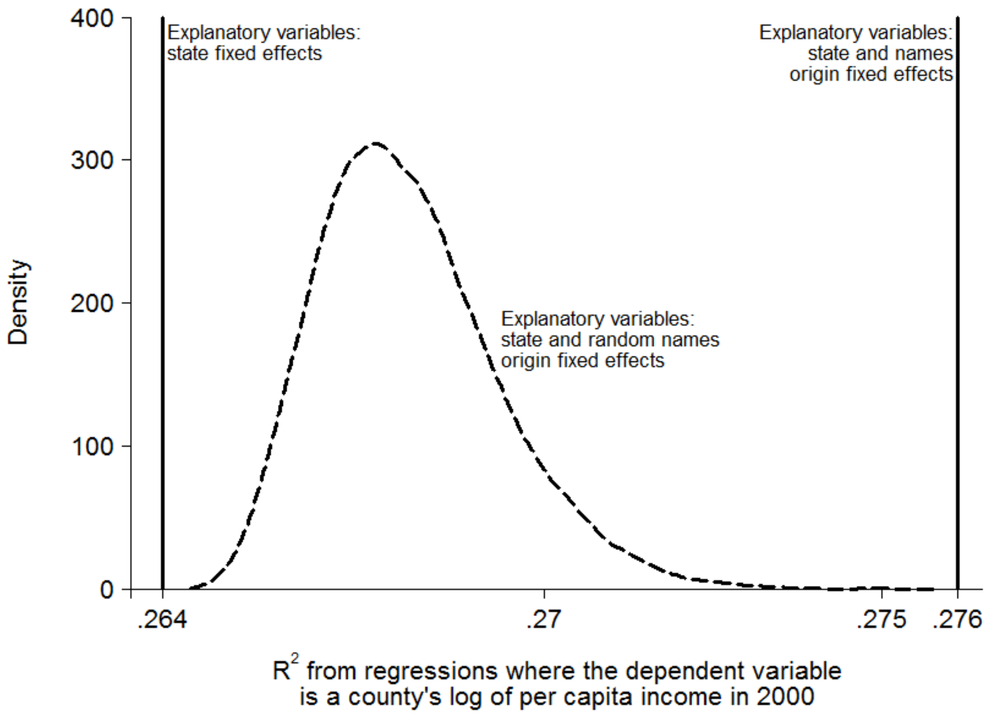
In this research project, I intend to provide a seminal quantitative evaluation of the impact of place names. In order to achieve this objective, I assembled an original data set that categorizes the universe of US counties depending on their name's origin or meaning. This categorization is based on Beatty (2001) and Kayne and Aiken (2005), two books that comment the history of American counties names. It enables me to relate each of today's county to a specific category of names.

Such categories are obviously arbitrary and can me modified according to needs. For example, the 16 categories I use so far include "religion related", "French name", "named after a local pioneer", "named after one of the US founding fathers", and "related to a natural resource" among others. In a first step of the analysis, I use categories to construct category fixed effects over which I regress the (log of) today's counties GPD per capita. Such a regression provides me with a R^2 of 6.5% that represents the sgare of today's differences in economic development that could be related to differences in counties' names. Such a difference might however be due to unobserved factors such as geography for example. The distribution of names is indeed not random as names come from historical events that neighboring counties often share. As a first approach to overcome this issue, I add state fixed effects to the set of explanatory variables and compare the resulting R^2 of that regression to R^2s obtained when using state fixed effects only or state fixed effects supplemented by name categories created by randomly reassigning county names within each state. The outcome of this approach is best illustrated by Figure 4.1 that plot the R^2s of interest after $10,000$ replications of this method.

Two conclusions can be drawn from Figure 4.1. First, county names explain up to 1.2% of the difference in today's economic development even when state fixed effects are taken into account. Second, this explanatory power is statistically significant as it does not correspond to that of randomly distributed names.

The next steps of this work in progress include using observable characteristics such as local natural resources availability to further account for confounding factors that might be correlated with the distribution of names and economic development. I will then relate county names to US Historical Census data in order to investigate how past political and economic conditions lead to choosing specific names. Finally, I will use the US General Social Survey to check whether individuals who currently live in specifically-named

Figure 4.1 – The explanatory power of county names.



counties are endowed with particular beliefs or values. In other words, I plan to test whether values transmission occurs through naming practices.

The emphasis of this project on the relationship between distant events and today's economic outcomes obviously relates it to the persistence literature and to Couttenier and Sangnier (2015) and Couttenier, Grosjean, and Sangnier (2017). This project also shares with Sangnier and Zylberberg (2017) the goal of uncovering a technological mechanism through which values and beliefs are modified.

4.2 Reviews manipulation

There is considerable evidence that consumers use online reviews to inform their decisions, and strong anecdotal evidence that firms manipulate this process by generating fake reviews or providing consumers with incentives to post positive online reviews (Kornish 2009). These phenomena have not gone unnoticed by economists and computer scientists.

Several economic researchers have began studying the occurrence of review manipulation, and its impact on consumers' welfare. For example, Mayzlin et al. (2014) empirically examine firms' incentives to create fake reviews in the hotel industry, and conclude that independent and small hotels are more likely to engage in review manipulation. These authors exploit differences in the institutional features of websites and relate their findings to organizations' structure as well as the market's structure. Expedia and TripAdvisor have different requirements to posting reviews, which determine the cost of posting a fake review. On TripAdvisor anyone can post a review whereas Expedia only permits consumers who have booked a room for at least one night and six months in advance to post a review. Li and Hitt (2008) examine the evolution of books' ratings over time and argue that this pattern can be explained by preferences: early adopters have preferences that are not representative of the population. In addition, Mayzlin (2006) and Dellarocas (2006) examine whether fake reviews increase or decrease consumers' welfare. Computer scientists have also began to develop algorithms that identify fake reviews. For example, Kornish (2009) examines the correlation between meta-reviews and reviews, while Ott et al. (2011) develop a textual algorithm to identify fake reviews. Despite these studies, however, much remains to be learned about consumers' decision making process, firms' incentives and the extent of review manipulation.

In this project (joint with coauthors), we propose an alternative method to examine the extent of review manipulation. Our framework relies on the hypothesis that consumers do not only base their purchasing decisions on the average rating of a product, but also on the latest reviews. As such, firms will have an incentive to manipulate their reviews in order to not only maintain their average rating, but also to ensure that the latest reviews are representative of the product's quality.

We propose to test this theory on the hotel industry. Our empirical strategy relies on comparing the distribution of hotels' reviews and the distribution of time between two reviews. In particular our method examines cases where very bad reviews (such as reviews that are two standard deviations below the average review score) are followed by very good reviews (such as reviews that are two standard deviations above the average review score), across different hotels and websites. Under the assumption that there is no review manipulation, and reviews are independently and identically distributed, the distribution of a bad review that is followed by a good review should reflect the underlying distribution of quality of the hotel. In contrast, if there is review manipulation, then the distributions will diverge. Additionally the time interval between the postings of an extremely negative review and an extremely positive review should be systematically different than other sequences of reviews (for example, a positive review succeeded by another positive review).

Our empirical analysis is motivated by the following four hypotheses that can be derived from a theoretical framework: (i) consumers do not only form beliefs about a hotel's quality from its average rating, but also from its latest reviews; (ii) firms do not only have an incentive the maintain the overall average of their reviews but also the average score of the latest reviews; (iii) the speed at which firms respond to negative reviews will depend on the level of demand in the market; (iv) the extent of review manipulation also depends on the cost of posting fake review.

The first hypothesis concerns the information that consumers use when making decisions. It implies that consumers infer different information from the overall ratings and the latest reviews. To take a stark example, consider two identical hotels A and B with the same overall rating of 3.5/5 stars. Suppose that the five latest reviews of hotel A are 1 star, while the latest reviews of hotel B are 4 stars. We posit that in this setting a consumer is likely to infer that hotels A and B are not of the same quality, but that hotel B is of greater quality. Given that the prices, services and amenities are identical across both hotels, consumers will therefore prefer hotel B over A.

Consumers' decisions making process should therefore influence how firms respond to negative reviews. Firms will not only have an incentive to maintain their overall rating, but also the average rating of their latest reviews. In other words, whenever a hotel receives a review that is extremely negative it is more likely to post one or two fake reviews that are extremely positive to counterbalance the negative review. Returning to the previous example, hotel A is likely to manipulate the reviews such that the latest 1 star reviews are not heavily weighted by consumers. There are many ways that firms can go about this. Either by asking employees, friends and family members to post positive reviews, by asking customers to post positive reviews, or by simply paying an outside agent to post fake reviews. In addition, we posit that under this framework hotels are likely to respond rapidly to an extremely negative review. As such, the time interval between an extremely negative review and a positive review will be much shorter than the time interval between, say, two positive reviews.

Furthermore, we posit that negative reviews are costlier during periods where there is a high demand for hotels' services, than in periods where the demand is low. As such, during periods of high demand, hotels with have a greater incentive to systematically manipulate their reviews so that they are representative of the quality of the hotel. And finally, as shown by Mayzlin et al. (2014), the extent of review manipulation will also depend on how costly it is to post fake reviews. These costs depend on the ease with which hotels' can create fake accounts, which vary across websites, as well as the negative impact on reputation and profits when hotels are caught deceiving consumers.

We propose to test these four hypotheses using an original data set of hotel reviews. To achieve this, we will use scrapping methods to gather information on reviews, such as their content as well as the dates and times they were posted. These two last variables will allow us to construct both the within-hotel order of reviews and the time gap between each review. Our empirical strategy relies on comparing the distribution of hotels' reviews and the time intervals between reviews. In particular our approach consists of examining the distribution of the sequences of reviews and the time between each posting.

In cases of very bad reviews our framework predicts that the following reviews will be extremely positive so as to counterbalance the negative review. As such, the distribution of reviews will not reflect the underlying distribution of a hotel's quality, but it will diverge from it. The probability of good review follows a negative review will be greater than that suggested by the empirical distribution of reviews. In contrast, under the assumption that there is no review manipulation, and reviews are independently and identically distributed, the distribution of a bad review that is followed by a good review should reflect the underlying distribution of the hotels' quality. Additionally, our framework predicts that the time intervals between an extremely negative and an extremely positive review should be systematically different than the time intervals between other sequences of reviews. As such the distribution of time between an extremely negative and an extremely positive review should have a lower mean and standard deviation than the distribution of time between other types of reviews.

To examine whether the degree of manipulation varies with the level of demand or with the costs associated with posting fake reviews, we propose two methods. First, to compare the distribution of bad reviews followed by good reviews across TripAdvisor and Expedia. It a well known fact that on TripAdvisor anyone can post a review whereas Expedia only allows consumers who have booked a room for at least one night and six months in advance to post a review. As shown by Mayzlin et al. (2014), there is less review manipulation on Expedia than on TripAdvisor, and so the probability that a good review follows a negative review on Expedia should more closely reflect the empirical distribution of reviews. Second, to compare the timing at which bad reviews are succeeded by good reviews. In periods of high demand, bad reviews are costlier to hotels and so they will have a greater incentive to manipulate reviews and will react faster to a negative review. To test this hypothesis we propose to compare the average time that it would take for a good review to follow a negative review, with the average arrival rate of reviews.

This projects relates to two of my previous contributions in the following ways. First, it will rely on scrapping methods similar to those use to gather some of the data used in Bourveau, Coulomb, and Sangnier (2016). Second, it will use methods that allow to uncover anomalies in distributions, as Brodeur, Lé, Sangnier, and Zylberberg (2016).

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