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A Cultural Clash View of the EU Crisis

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Abstract

If voters of different countries adhere to different and deeply rooted cultural norms, when these countries interact their leaders may find it impossible to agree on efficient policies especially in hard times. Political leaders' actions are bound by a "conformity constraint" that requires them to express policies that do not violate these norms. This inhibits politicians from adopting the optimal policies as they may clash with either one or the other of the cultures of the interacting countries. We model this mechanism and argue that conformity constraints and cultural clash can help us understand the poor management of the Greek crisis and the resulting European Sovereign debt crisis. We show the conditions under which the introduction in Europe of a fiscal union can be obtained with consensus and be beneficial. Perhaps counter-intuitively, cultural diversity makes a fiscal union even more desirable.

Keywords: Conformity constraint, culture, debt crisis, fiscal union.

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‘Europe will be forged in crises and will be the sum of the solutions adopted for those crises’ (Jean Monnet).

1 Introduction

This paper looks at an understudied important source of political failure that stems from a cultural clash. The failure we focus on arises most clearly when two culturally distant populations must interact to solve a common problem. Hence it is inherently international, or, more generally, it has to do with the impact of domestic re-election or approval constraints on the strategies that political leaders play among themselves in the absence of a common agency. A political leader is constrained in terms of strategies by the cultural norms and beliefs of his electorate - what we call a “conformity constraint.” Leaders of a country cannot pursue strategies that go against these deeply rooted norms and beliefs even when doing so could be welfare-improving for their citizens. For example, it would be very difficult for India’s leaders to pass a law that forces Indian food firms to produce beef formula when a famine hits the country. Even if political representatives know this is the best policy from a nutritional point of view, it would simply fail to pass or if passed it would fail to succeed because it would not be followed by most of the people. Anticipating this reaction, the leader would just avoid proposing it. The conformity constraint would be binding. If this is the mechanism at work it would be hard to identify it in a domestic and culturally homogeneous context. The dilemma that the informed leader faces - impose the law and save millions of children or conform to people’s beliefs and let children die - would not be observed as the latter strategy would always be chosen and the alternative would never be on the table. Hence one cannot learn about the importance (and the costs) of this friction. This dilemma can instead be best appreciated when political leaders of different countries interact. In this case, the possibility that the optimal policy leads to a cultural clash, so that it is welcome to one of the two electorates but culturally opposed by the other, implies that, together with the dilemma of its adoption, it is on the table. We argue that such a friction can help us better understand Germany conduct in the management of the Greek (and more generally Europe’s) sovereign debt crisis. Germans and Germany reaction to the discovery in October 2009 that the previous Greek government cooked the books, hiding half of the government fiscal deficit, was to “punish” the Greeks by “denying timely help” when, according to various observers, early action would have contained the crisis. A survey by Emnid, a polling agency, in February 2010 reveals that nearly 70% of the Germans opposed aid to Greece. One of the consequences was a delay in the adoption of the rescue packages, an aggravation of the Greek crisis, a rise of

risk premia on the Greek debt which worsened Greece ability to repay the debt, and a propagation of the crisis to the other PIIGS (Portugal, Italy, Ireland, Greece and Spain). Ultimately the Greek crisis has threatened the very survival of the Euro, an event that according to many observers would have had extremely costly consequences not only for the Mediterranean countries in the Euro area but for Germany as well. Why would Germany be willing to run the risk of paying this cost? One answer is that the size of the cost is understated by German policy makers who do not understand the general equilibrium implications of their actions. We argue instead that German political leaders understand well the dangers of their actions and foresee the possible consequences of the “punishment” strategy for their own country (they are informed representatives), but are bound by a conformity constraint: the need to conform with the widely shared and deeply rooted cultural norms of their fellow citizens that, as we document in detail in Section 2, establishes punishment of the group “cheaters”, which in this case happen to be the Greeks.¹

In a recent article, Ardagna and Caselli (2012) have pointed out the difficulties of negotiations among heads of States at the European Council as a potential source of inefficient solutions for the Greek crisis, and they conclude that perhaps the best way to avoid negotiation-related political economy frictions would have been to let the IMF handle the Greek crisis. The type of political economy failures we identify are different and so is the solution: the failures stem from heterogeneous cultures, and the clash that this heterogeneity in culture creates would be best addressed by the creation of a new type of institution - like a fiscal union - free from the need to conform to the culture of any single country in the union. At the positive analysis level, we do not think the friction was (mainly) one of negotiation costs, because from the beginning the problem has basically been "what does Germany think", which therefore concerns more understanding Germany than understanding the negotiation process between Germany and others. At the normative analysis level, the cultural reasons why the Germans do not want to save the Greeks unless the Greeks' sovereignty is suspended have to do with moral hazard (cheating expectations), and hence Germany would have opposed such saving even through the IMF. On the other hand, a fiscal union, which means elimination of the game between sovereign States, finds Germany more willing to help because not threatened by future moral hazard and finds Greek debt "less" punished. In other words, while IMF would still make donors upset about helping out countries who could be prone to moral hazard, going for a fiscal union that requires management of fiscal policy by a European finance minister would avoid the inefficient punishments as well as the risk of moral hazard

¹Undoubtedly, political leaders may try to ease the conformity constraint by steering public opinion, but this usually takes time, which unavoidably delays action.

and hence the worries and cultural clashes.

By culture, people mean different things. For us a culture is represented directly by “what strategies people play”, which will allow us to trace its evolution using replicator dynamics (as in Boyd and Richerson, 1985 and 2005). This simple notion of culture refers to behavior in interactive situations² and captures a key aspect of cultural norms: they evolve very slowly compared to the speed of change of formal institutions, particularly those related to governance (Williamson, 2000). While culture evolves gradually institutions can jump - a feature that makes the creation of a new institution a viable response to a cultural clash. We will first show that evolution can bring a population where everybody has the same perception of the frequency of the various actions and reactions to multiple steady states. Depending on the initial conditions, an economy can either converge to a "cheat and forgive" equilibrium or to a "responsible actions and commitment to punish otherwise" equilibrium. We will often refer to these two equilibria as the Greek and German culture equilibrium, respectively.

The next step will be to study what happens when two populations playing different steady states and having different cultures merge into a highly integrated form of union in terms of market transactions. In Europe, a greater potential for cross-country matches as a reflection of lower transaction and mobility costs was arguably determined by the introduction of the common currency. Merging into a monetary union carries benefits in terms of enlargement of the total available opportunities due to economies of scale and scope (e.g. Baldwin, 2006) which translate in larger (expected) payoffs to interacting parties. The cost is the potential exposure to a cultural clash which increases with the cultural distance between the merging countries. On the other hand, a fiscal union carries benefits in terms of better management in the event of a clash at the cost however of loss in sovereignty, which we model as a cost unrelated to cultural distance. Though the creation of a fiscal union may be the best response to the cultural clash that in our view is at the root of the European sovereign debt crisis, it raises two questions. First, why was it not adopted in the first place when the Euro-area countries decided to merge into a monetary union? Second, why should it be appealing today given that it was disregarded before? We develop a model that can rationalize a historical pattern of this kind, but where the meaning of a fiscal union is super-stylized: in the model the choice of a common

²Therefore, we do not deal with the source of individual cultural values. An alternative modelling strategy would be to derive explicitly the adoption of cultural norms letting parents optimally choose the values to teach to their kids as in Tabellini (2008b) and Bisin and Verdier (2000b, 2001) or the beliefs to instill, as in Guiso, Sapienza and Zingales (2008), possibly accounting for learning through socialization (Bisin and Verdier, 2000a).

agency will just be the adoption of a common enforcement or punishment rule, and no other feature usually attached to a fiscal union will be necessary for the points we are going to make.

We show that ex-ante, provided the expected benefits from integration into a monetary union are sufficiently large, countries may agree to join a monetary union without a fiscal union – if the cost of losing sovereignty is large enough. Ex-post, the members of the union will observe the realized benefits from participation in the union, and if the latter are lower than initially expected (that is, a "crisis" realizes), then the cultural heterogeneity among the member countries may determine highly inefficient outcomes. Because national governments retain power and authorities on the important fiscal policy decisions, and they are subject to the conformity constraint, the interactions between Greeks and Germans result into excessive "cheating" (by the Greeks) and excessive "punishment" (by the Germans), with a generalized loss of welfare, which is increasing in the degree of cultural heterogeneity, and which cannot vanish rapidly given the inertia of cultural norms. In such circumstances countries may reconsider participation in the union facing either the choice of breaking up and reverting to a national currency equilibrium or otherwise considering the creation of a fiscal authority that can be endowed with any punish-forgive strategy the players agree to, hence giving a better chance of converging to a superior steady state and with lower transition costs. We show that there are parameter values for which evolution into a fiscal union is the preferred option. Interestingly, the space of parameters for which a fiscal union dominates a union without creation of a new enforcement authority increases with cultural difference.

Hence, the larger the cultural clash that induces larger differences in beliefs about punishing or enforcing probabilities, the more the trade-off should push towards advocating delegation of fiscal policy or more generally delegation to a third agent. Hence, the fact that Europe has countries with more heterogeneous cultures than it was the case in the US at the time of the Constitution should push towards an *fortiori* argument in favor of centralization of fiscal policy, rather than the other way round, which is the common sense.

The paper is organized as follows. In Section 2 we first show evidence of the Greek-German cultural difference, which opens up the possibility of political clash when the two cultures are exposed to each other. In Section 3 we present our model of the evolution of culture and institutions and obtain our main results. The model can: *a*) rationalize two steady states where two different cultures prevail (the "German" and the "Greek") and we can think of them as capturing the pre-monetary union situation; *b*) establish that the two economies clash when integrated with each other and the welfare loss of the clash increases with the cultural distance between the

merging countries. In Section 4 we use the model to study, in a very stylized way, the historical pattern of integration observed in Europe and single out the role played by cultural heterogeneity. We start showing that the two countries may choose to merge initially into a monetary union without a fiscal union to reap the economic benefits of a common currency while avoiding the political costs of surrendering fiscal autonomy (Section 4.2). However, a fiscal union that was initially ruled out may become again appealing when the monetary union is hit by an adverse shock (which we can think as mapping the Great Recession and the associated European sovereign crisis) and the cultural clash is given a chance to manifest its adverse effects; here we show that the appeal of the fiscal union increases with cultural distance (Section 4.3). In Section 5 we provide some evidence that cultural norms did in fact play a role in the way Germany has managed the Greek crisis and contrast the cultural clash explanation with alternative interpretations. In section 6 we discuss our theory and findings in relationship to the literature. Section 7 concludes.

2 Cultural Distance between Greece and Germany

We start by documenting a significant cultural distance between Germany and Greece - a precondition for the cultural clash.³ Table 1 panel A shows summary statistics on several measures of cultural traits in a sample of Germans and a sample of Greeks taken from the World Values Survey. We report about three sets of values and beliefs: measures of civic values, measures of cultural norms constructed by Tabellini (2008a) and a measure of people trust in other fellow citizens. The last two columns report the difference in these measures between Germany and Greece and the value of the t -test for the differences. The table documents a remarkable systematic difference between the values that are shared by the Germans and those shared by the Greeks: with the exception of whether accepting a bribe is justifiable (which is equally not justifiable in Germany as in Greece) all other values are highly statistically different in the two countries. The Germans tend to have higher civic values and stronger cultural traits (respect, obedience and control) that ought to encourage welfare enhancing social interactions (Tabellini, 2008a). Furthermore, the Germans tend to trust other Germans more than the Greeks trust other Greeks by a large margin (14 percentage points more).

However, these data do not say much on whether and how the two populations

³Similar differences (and potential clashes) can probably be documented for other bilateral comparisons between other northern and southern countries in the Euro zone (see Buetzer et al (2012) for evidence), but the Greece Germany clash is the most evident, as documented in the text.

differ in their attitudes when it comes to the decision to punish others, a feature which seems to have played a critical role in affecting Germany's position on how to manage the Greek crisis. Panel B sheds some light on this. It shows answers provided by the Greeks and the Germans to three questions asked in the European Social Survey that reveal their willingness to punish (or help the punishment of) wrongdoers. The first is: "How likely are you to call the police if you see a man get his wallet stolen ?", the second, "How willing are you to identify the person who had done it?", the third "How willing are you to give evidence in court against the accused?". Answers are provided on a scale from 1 to 4, ranging from "not at all willing" (coded 1) to "very willing" (coded 4).

On each of the three accounts the Germans are significantly more willing to punish wrongdoers than the Greeks. The difference appears neatly in Figure 1 which shows the distribution of the answers for the samples in the two countries. For example, 79% of the Germans compared to 59% of the Greeks are "very willing" to call the police and 70% of the Germans are "very willing" to identify the person compared to only 45% of the Greeks.

Yet, rather than reflecting different cultures the difference in willingness to report and collaborate with the police or the court may reflect other features - e.g. a more efficient German police which increases Germans motivation to collaborate as they can see the benefit of their effort. A very interesting experiment conducted by Herrmann et al. (2008) provides evidence that is free from this objection and is thus able to isolate the cultural difference. They run a public good game experiment using 16 comparable participant samples from countries around the world, including Greece and Germany. The public good game aims at mimicking situations that require some degree of cooperation to achieve a socially beneficial outcome - as with the financing of a public good. They endowed participants with 20 tokens and let them play in groups of four. Each participant had to decide how many tokens to keep for themselves and how many to contribute to a group project. As with typical public good games payoffs are such that keeping all own tokens was always in any participant's material individual interest, irrespective of how much the other three group members contributed. Besides the contribution decision, in one of the treatments of the games each participant was given also the possibility to punish each of the other group members after they were informed about the others' contributions to the public investment. The punishment was in the form of a monetary loss imposed on the punished by the punisher, who retained his anonymity.

When no punishment is available the Germans tend to contribute more to the public good than the Greeks, thus showing that the latter tend to free ride more frequently. The Germans produce more public good than the Greeks. When players

are given the possibility to punish the other players upon seeing their contributions, what they find is striking. The Germans overwhelmingly use part of their endowment to punish those who contributed less. The Greeks, on the contrary, not only do not punish those who free ride but tend instead to punish those who contribute more than them! That is, they exhibit what Herrmann et al. (2008) label antisocial punishment. Put differently, Germany seems to be characterized by a culture of responsibility and social punishment that endows people with behavioral rules that ask them to contribute to the public good and to punish those who do not, thus providing a mechanism to enforce cooperative behavior. In Greece it seems to prevail a weak culture of cooperation that justifies free riding behavior and where cooperators, not free riders, are given a hard time. It may not sound surprising that these two cultures may clash when forced to interact with each other as the management of a financial crisis under a common currency requires.

3 Model of Cultural Clash

In this section we develop an evolutionary theory of cultural divergence that could capture as an example the cultural differences described above, and we show that when the distant cultures have to mingle, the consequent cultural clash has important welfare consequences.

3.1 Big Picture and Setup

Given the strong evidence that culture evolves endogenously but slowly,⁴ and different cultures can coexist,⁵ we adopt a simple evolutionary model where indeed (1) multiple

⁴A growing literature provides models of how culture is transmitted and why it persists. In an earlier contribution (Bisin and Verdier, 2000a) cultural transmission is motivated by parents' desire to transmit to their children their own values. Tabellini (2008b) identifies the source of cultural persistence in the fact that parents use their own preferences in deciding which set of values to instill in their children. Guiso, Sapienza and Zingales (2008b) model persistence in trust beliefs as opposed to norms. A parallel empirical literature documents the persistence of cultural attitudes over several centuries by showing that current cultural traits are correlated with long-gone historical episodes (Nunn and Wantchekon, 2011; Voigtländer and Voth, 2012; Grosjean (2011); Alesina et al., 2011; Guiso, Sapienza and Zingales, 2013)) or across three or four generations (e.g. Tabellini, 2008a), Algan and Cahuc (2010).

⁵Coexistence of cultures is a common phenomenon documented for many countries. A few examples are the US "melting pot", modelled in Bisin and Verdier (2000a), Switzerland multiple religions (Basten and Betz, 2012), Italy's North-South cultural divide (Putnam, 1993).

individual strategies evolve slowly and (2) could coexist.⁶

We assume that behavior adjusts following replicator dynamics, as in Boyd and Richerson (1985, 2005). In our setup, as in many others with different frictions (see e.g. Tabellini 2008b), the existence of different cultures is described as existence of multiple steady states to such an evolutionary process. However, while there are many models of multiplicity of cultures as multiple equilibria or multiple steady states, the first innovation here is that we ask what happens when two different cultures have to "merge", for example due to an economic or monetary union of countries previously operating under a different steady state culture. Moreover, in contrast with the other models of culture multiplicity, we also endow the *leaders* of countries with different cultures with the ability to *agree* on a change of institutions if the respective countries merge. Our broad view is that while the cultures of populations evolve slowly, institutions can be subject to discontinuous jumps, even though the leaders themselves have to conform to their respective cultures when making such institutional choices. This, for instance, captures the construction of a common currency among a set of culturally heterogeneous European countries and is consistent with Williamson (2000) characterization of the speed of change of different types of institution.⁷

In line with the broad view described above, we first describe an economy as a set of bilateral interactions between pairs of agents that are programmed to play specific strategies, like in any replicator dynamics model; then we compute the steady states of economies that start from any initial combination of programmed strategies; then we describe the consequences of the cultural clash when the two cultures are merged due to economic integration or the introduction of a common currency. We leave the analysis of endogenous integration steps for section 4.

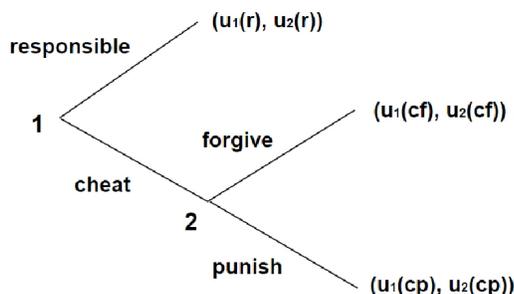
3.2 Typical bilateral interactions

We assume that an economy can be described as a set of bilateral principal-agent transactions. In each pair of players there is always one player who can choose between a *responsible action* (e.g. when an agent chooses the action desired by the principal without moral hazard or simply when an agent decides to respect the law in the presence of temptations to do otherwise) and a *cheating action* (e.g. when an

⁶In a game theoretic setting, it is clear that the meaning of culture can either be reconducted to strategies or to beliefs. We could obtain our results from both types of stylizations of culture, but the modeling of culture as strategies is the easiest one for us to handle.

⁷According to Williamson (2000), while cultural norms typically change at a frequency (in years) between 10^2 to 10^3 , governance institutions can change every 10 years.

agent shirks or falls for the temptation of dishonest short run gains); then there is always a second player (a principal or a counterpart in a contract of whatever kind or the State) deciding (or implementing) a reaction, which can be captured by the choice between *punishment* and *forgiveness*. The dynamic representation of this basic game of economic interaction is as follows:



Assumption 1: $u_1(cp) < u_1(r) < u_1(cf)$ and $u_2(cp) < u_2(cf) < u_2(r)$.

In words, this assumption says that a player finding herself in the position of player 1 (first mover) has a utility from cheating and being forgiven higher than the utility from responsible behavior, while for a player finding herself in the position of player 2 (principal) the order of utility levels for those action profiles are reversed. Moreover, for both players the least desirable action combination is when player 1 cheats and player 2 punishes, since in that case the cost inflicted by the first mover to the second is basically reciprocated by another costly action, potentially damaging for both players. Finally, in case of responsible behavior r , we assume for simplicity that the action by player 2 is payoff irrelevant: for example, if responsible behavior implies that no debt is accumulated, then it doesn't matter whether the other player is willing to lend to player 1 or not.

Under assumption 1 there are two Nash Equilibria: The first Nash Equilibrium, (c, f) , is subgame perfect; the other equilibrium, (r, p) , is not subgame perfect when player 2 moves after observing player 1's choice (it involves the ex ante non credible threat to punish after a cheating action by player 1).⁸

Responsible actions are in most interpretations associated with higher total welfare, hence we assume that

Assumption 2: $\sum_i u_i(cf) < \sum_i u_i(r)$.

⁸Note in fact that the strategy punish of the first column has to be interpreted as a commitment to punish after cheating, while after a responsible action of course there is nothing to punish, which explains why we are assuming that $u_i(rp) = u_i(rf) = u_i(r) \forall i$.

In words, the unique SPE of the game in the absence of commitment is suboptimal in the utilitarian sense. The equilibrium (c, f) is preferred by a player in role 1, but it does not maximize total welfare. Greatly simplifying matters, we can think of this equilibrium as the most likely equilibrium emerging in economic interactions among Greeks. On the other hand, we can think of the German cultural values as crucial ingredients to produce the ability to commit to enforce contracts, laws and responsibility, in a nutshell allowing to obtain the higher welfare Nash Equilibrium. When Germans interact among themselves, they understand that the credibility of punishment threats is high, hence no cheating, hence no inefficient punishments in equilibrium.⁹

If we observe that one Nash equilibrium is always played in a country and the other Nash equilibrium in another country, there are many senses in which we could say that the two countries display different cultures. If all agents in an economy are homogeneously convinced, when they are in player 1's position, that player 2 will not punish after a cheat, naturally the (c, f) equilibrium prevails. If everybody in the economy expects a player in player 2's role to punish, then responsible behavior prevails. However, when the economy is no longer homogeneous in beliefs, the expectations may differ and we need to study how do beliefs adjust over time. Similarly, and this is going to be the primary and most direct way to model cultural evolution, we can view a culture simply as a set of strategies that people use when playing in a role, rather than relating to beliefs.

In what follows we analyze the evolution of strategies starting from any initial condition in terms of culture, i.e. starting from any set of initial strategies (and, equivalently, we could do the same in the case of culture as beliefs).

3.3 Evolutionary Replicator Dynamics

Consider first an economy in isolation. Suppose that such an economy is large, in the sense that there are a large number of matches between players, or, equivalently, a large number of expected transactions, and in every such random match one player (random or not) is in the position of player 1 in the game form described above and the other one in the shoes of player 2.¹⁰

⁹The simpler way to formalize this in the standard world of rational agents is to allow for repetition of the game and see the different perceptions of commitment likelihood simply as different equilibria in the repeated game. We chose instead the evolutionary model for the reasons expressed above.

¹⁰It could be that in some types of transactions some agents are always first moving agents and others are always second moving principals, but the analysis applies to also all other more symmetric situations in which whoever moves first falls automatically in the role of player 1.

Pairs of individuals, one from the population of agents (role 1) and one from the population of principals (role 2), are randomly matched to play the game above. Each individual is programmed to play one of the two pure strategies available to her.

Denote by $x \in [0, 1]$ the fraction of first movers programmed to play Cheat, and by y the fraction of second movers programmed to play Forgive. A state of the world is fully characterized by the population split (x, y) . Starting from any initial population split (x, y) , we want to see how this population split evolves over time and whether it converges to a steady state.

Standard replicator dynamics logic implies that for any given population split (x, y) the proportion of individuals playing Cheat (x) will increase if and only if the payoff to playing Cheat is larger than the average payoff of first movers. More precisely, the relative change in x is proportional to the fitness of the strategy Cheat, i.e. the difference in payoffs between Cheat and the current average payoff of first movers, namely

$$\frac{\dot{x}}{x} = (u_1(cf)y + u_1(cp)(1 - y)) - (u_1(r)(1 - x) + u_1(cf)xy + u_1(cp)x(1 - y))$$

Likewise, according to replicator dynamics the relative change in y is proportional to the fitness of the action Forgive relative to the average fitness, namely:

$$\frac{\dot{y}}{y} = (u_2(cf)x + u_2(r)(1 - x)) - (u_2(r)(1 - x) + u_2(cf)xy + u_2(cp)x(1 - y))$$

where the first term is the payoff of Forgive against a proportion $(x, 1 - x)$ of first movers, the second is the average fitness or payoff of the population $(y, 1 - y)$ against a proportion $(x, 1 - x)$.

3.4 Steady States

Normalizing $u_i(cp) = 0 \quad \forall i$, the system can be written as

$$\begin{aligned} \frac{\dot{x}}{x} &= (u_1(cf)y - u_1(r))(1 - x) \\ \frac{\dot{y}}{y} &= u_2(cf)x - u_2(cf)xy \end{aligned}$$

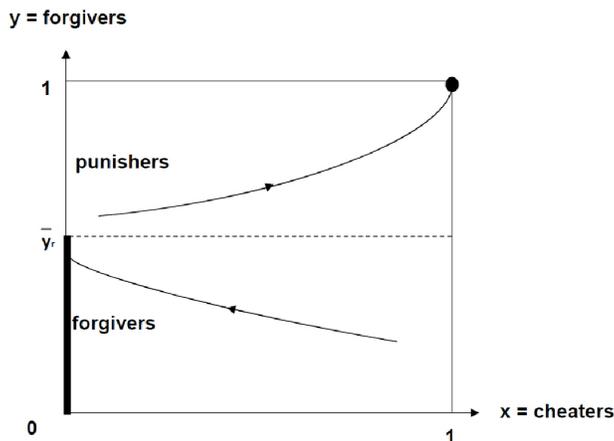
Starting from any initial interior population split (x_0, y_0) the system evolves in the following way: y increases always, x decreases (and eventually reaches zero) as

long as $y < \bar{y}_r$, with $\bar{y}_r = u_1(r)/u_1(cf)$, otherwise x increases (and eventually reaches one) if $y > \bar{y}_r$. Namely, a high enough population of Forgivers makes the Cheaters survive and thrive, a high enough population of Punishers makes the Cheaters die and the Responsible thrive.

Proposition 1 *For each country in isolation there are two types of steady states. **Steady state 1:** all Cheaters and Forgivers ($x_1 = 1, y_1 = 1$); and **Steady state 2:** all Responsible first movers and a critical mass $(1 - y_r)$ of Punishers ($x_r = 0, y_r \in [0, \bar{y}_r]$).*

Steady State 1 is what prevailed in Greece: any mutation, e.g. a small percentage of Punishers or of Responsible agents, would die out.

Steady State 2 is what prevailed in Germany: any mutation, e.g. a small percentage of Cheaters first movers would die out because they faced costly Punishment (this punishment is costly to the second movers).



3.5 Integration and Cultural Clash

Start from a situation in which the two countries - "Germany" and "Greece" in our exemplification - were examples of "closed homogeneous economies" that converged to the two steady states described above. Now merge the two populations, for example due to the higher economic integration caused by the introduction of a common currency. One consequence of sharing a common currency is that the political leaders of the various countries must interact more often to decide common policies, hence political leaders have bilateral relations as well. However, when they do so their utility function needs to *conform* to their cultural base.

The direct connection between the games played by citizens in every day-life match and the relationship between States is due to conformity constraints: the

German policy maker that plays in the column player role has to follow the culture of the German citizens, and the Greek policy maker has to follow the strategy of the Greek citizen/voter for the same reason. The shift from individuals to States could be done in many ways, but the use of the conformity constraints is the easiest. One way to microfound this assumption that the Greek politician and the German politician play a game similar to that of their citizens could go along the following lines: In an economic or political match where a German is in player 1's role, the corresponding outcome r is efficient; on the other hand, matches in which a Greek is in player 1's role, followed by a German, determine the worst possible outcome: Cheat-Punish. If every economy is a collection of bilateral matches, only Greek agents and German principals suffer the consequences of the cultural clash, and hence the sum of such situations can generate an aggregate imbalance that needs to be addressed by the political leaders. The Greeks behavior at the many levels of economic activities and irresponsible fiscal policy put the Germans in the position to decide whether to punish or not upon having reached the cheating node. The introduction of the common currency and the elimination of most frictions inhibiting cross-country matches, determine a situation in which economic interactions are often bilateral contracts between players from different cultures, i.e., between individuals that are programmed to play different strategies.

Given that all Greeks forgive and only a fraction y_r of Germans forgive, we can define $(1 - y_r) \in [1 - \bar{y}_r, 1]$ as a measure of *cultural difference*.

Proposition 2 *Total welfare from (monetary) integration is decreasing in the cultural difference $(1 - y_r)$*

This simple result establishes that the cultural clash due to economic integration of countries with separate authorities is costly, and the more so the greater the cultural differences, as it generates more Cheat-Punish welfare reducing matches. Later in section 5 we evaluate the evidence on such a phenomenon.

4 Cultural Clash and the Endogenous European Integration Steps

So far we have described an evolutionary model explaining that an integration step like that of the creation of a common currency has created a cultural clash with important consequences. In this section, we aim to provide a potential theoretical rationale for the integration choices made in Europe, as an extension of the basic

framework introduced in section 3, where the integration step was taken as exogenous. We now let the leaders of different countries (whose people have converged to different steady states) decide whether they want to merge their economies or not, and, in the case the answer is yes, whether they want to do so maintaining their respective sovereignty or whether they want to create a set of alternative authorities. We will show the conditions under which if new institutions are created the merging of cultures can lead to more beneficial coexistence and eventually convergence with respect to the case in which people and countries with different cultures insist to keep their own institutions. Finally, we will show that when technology, endowments, or the size of economies of scale are uncertain and subject to shocks, such an exogenous dynamics affect both the slow cultural changes and the discrete jumps in institutional choices in a way that can help us interpret the dynamics of European institutions from the end of the 20th century and current debates around institutional design. The frictions in managing the crisis are hard to understand without a model that can rationalize the sequence of steps that led European countries to choose a particular pattern of (sequential) integration where cultural heterogeneity is properly accounted for.

4.1 The Role of Economic Conditions

If merging the two economies provides no advantage in terms of economies of scale or scope or alike, no merging would be preferred because of the adjustment costs due to the costly Cheat-Punish matches occurring on the new path. We can see a benefit of merging the economies in the enlargement of the total available opportunities due to economies of scale or scope (as was stressed in the debate around the creation of the single currency, see Baldwin, 2006 for a review)). In any bilateral relation in the new merged economy this enlargement of the "cake" can be captured by a modification of the payoffs in the original payoff matrix, while keeping assumptions 1 and 2 satisfied. The advantage described below of choosing a fiscal union in addition, is that a fiscal union allows the creation of new institutions taking the role of principal in many relationships, and such a new set of principals can be endowed with any punish-forgive strategy the players agree to, hence giving a better chance of converging to a superior steady state and with lower transition costs. The cost is the loss of sovereignty. We will try to model this choice in the simplest possible manner, distinguishing the choice at an ex ante stage in which the economic advantages of a union are uncertain from an ex post stage in which the utility effects of economic union are known.

4.2 Monetary Union

If being in a monetary union involved *no* additional surplus creation, then forming a union without new institutions that could alter the cheat and punish frequency would make sense only for Greeks.

Proposition 3 *Absent surplus creation: 1. Greeks prefer a monetary union if there is a high enough share of German forgivers y_r . 2. Germans prefer no union.*

The intuition for the result is as follows. From matching with a German first mover Greeks always benefit, but from matching with German second movers they suffer an expected loss which is smaller the more Germans are able to forgive. Germans, although their loss is smaller the more they are able to forgive, always lose by matching with Greeks.

Hence, there needs to be some surplus creation to have a beneficial monetary union for all participants, and this surplus needs to be large enough for the Germans to prefer the monetary union. We parametrize this surplus creation by a multiplicative factor $\lambda \geq 1$, scaling up the utility of responsible actions. To see why it is reasonable to make the monetary union have a multiplier effect for responsible actions, consider a standard principal agent relation between a bank and a borrower. If a borrower cheats (runs away with the money) the utility of the cheater, if not punished, is the value of the money, which doesn't necessarily change after a monetary union; on the other hand, the economies of scale, reductions of transaction costs, lower frictions in all markets, greater possibilities of export for the countries who had a strong currency before the union, all these things make the probability of success higher for a borrower who invests the money on the proposed project responsibly. A second argument in favor of the idea that integration benefits disproportionately more the responsible agents follows naturally from our model: after the integration of the two economies, the cultural clash should affect mostly the cheaters, since their punishment rate will increase on average. In other words, if we decided to endogenize the relative shares of the extra surplus of the merger between responsible and cheating agents, the model itself would yield a share for responsible agents that must be strictly higher than that for cheaters, simply by consistency with the expected behavior in the various matches. Assuming $\lambda > 1$ only for responsible agents is just a normalization of this natural asymmetry.

Proposition 4 *With surplus creation, the monetary union is preferred by both countries for small enough heterogeneity between the two countries. With large enough surplus creation, both countries strictly prefer the monetary union for any level of heterogeneity.*

The above focuses on the short run costs of a monetary unions. In the long run the risk of a monetary union is the possible convergence to the inefficient steady state, which might happen if later in the evolution of the dynamical system the threshold \bar{y}_r is passed and the cheaters start to prosper again. The latter happens if the initial $y_0 = \frac{g+y_r G}{g+G}$ and/or $x_0 = \frac{g}{g+G}$ are large enough, so namely if the proportion of German forgivers and of Greeks is large enough relative to the total population.

4.3 Integration with Creation of a Central Authority

4.3.1 Crisis and Break-up

Suppose λ is subject to shocks. If λ is expected to be high ex-ante, then $y_r^G(\lambda)$ and $y_r^g(\lambda)$ are expected to be low and hence a monetary union (without creation of a new authority) is preferable. However, if λ after the monetary union is revealed to be low (e.g. a crisis happens), then a breakup would be the natural outcome. In particular, if $y_r^G(\lambda) > 1$, then no union is preferred to a monetary union.

4.3.2 Fiscal Union

A fiscal union eliminates the game between the two separate leaders with independent sovereignty. We assume for simplicity that this means that the new fiscal authority or enforcement authority is endowed with a fixed probability of forgiveness $y' > 0$ that the leaders agree on.

There exist parameter values under which both countries prefer to choose a new institution (fiscal union) that allows for an a fixed frequency of punishments $(1 - y')$. The higher the initial cultural difference $(1 - y_r)$, the greater the space of parameters where a fiscal union with exogenous forgiveness y' can be beneficial.

The creation of a fiscal union entails a cost which can be thought of as both the cost of creation of such an institution and the cost of lost sovereignty. This cost C is higher in good times (high λ), because when returns are high then there is more to redistribute for local constituencies by politicians.¹¹ We hence assume the cost function $C(\lambda)$ is increasing and unbounded.

¹¹The literature in political economy is full of seminal works emphasizing the importance of strategically targeting different groups in society – see e.g. Lindbeck and Weibull (1987), Dixit and Londregan (1995), Lizzeri and Persico (2001). So, the opportunity cost of the formation of a fiscal union for politicians who have to agree to form it is higher in good times, since in good times the incumbents can more easily orchestrate reelection through strategic targeting, which they won't be able to do once the purse of fiscal policy moves to a centralized ministry.

Proposition 5 *Both countries prefer the fiscal union to the monetary union if and only if $y' > y_r$ and λ is below a threshold.*

The benefit of a fiscal union is the short run avoidance of surplus destroying matches. The intermediate $y' > y_r$ cannot exceed $\bar{y}_r = \frac{u_1(r)}{u_1(cf)}$, because it would lead to the wrong steady state. Beyond the cost of losing sovereignty another long run cost of the fiscal union is that convergence to the steady state is slower the larger $y' \in [0, \bar{y}_r]$ as the evolution is:

$$\begin{aligned}\frac{\dot{x}}{x} &= (u_1(cf)y' - u_1(r))(1 - x) \\ \frac{\dot{y}}{y} &= u_2(cf)x(1 - y')\end{aligned}$$

hence both populations evolve slower towards the efficient steady state.

5 Evidence of Cultural Clash Consequences

In this section we aim to document that the cultural clash described in section 3 is likely to have played an important role in European Sovereign debt. We first briefly relate the mismanagement of the Greek crisis to the cultural clash; then we discuss various sources of evidence about the empirical relevance of the cultural clash elements; finally, we compare the cultural clash view with alternative explanations; we conclude this section with some references to the current debate on the necessity of common agencies determining banking union and fiscal union.

5.1 The mis-management of the Greek crisis

The Greek crisis, which subsequently triggered the European sovereign debt crisis, started after the announcement in October 2009 that Greece government deficit was twice as large as the figure reported by the previous government - de facto admitting that the government cheated on the budget. This announcement was immediately followed by a widening of bond yield spreads (Figure 4) vis a vis Germany, starting a confidence crisis. In a matter of months Greek government debt was downgraded to junk bond status (April 2010) and rates on bonds climbed reflecting that private capital market practically were no longer accessible for Greece, forcing a first aid package to Greece in May 2010. There is widespread agreement that governments in Europe mismanaged the crisis, showing first an unwillingness to intervene promptly

when the Greek crisis started and was still manageable and never willing to devote enough resources to make sure that intervention could be resolute (see among others, Johnson, 2010; Pisani-Ferry, 2012; Eichengreen, 2013; Wren-Lewis, 2013). Inefficient management was lately admitted by the IMF in a June 2013 strictly confidential report leaked to the Wall Street Journal. Besides recognizing that the plan understated the macroeconomic impact of the austerity measures imposed on Greece, it is stressed that frictions among the leading European countries were behind the late reaction. In particular, it appears that Germany was paralyzed and afraid of breaking a tabu: helping an euro area country that was very likely insolvent. As Rajan (2012) puts it “European politicians are failing Europe by being forever behind the curve. Why do they find it so hard to lead?”. The answer he provides to the question he raises is that when faced with novel problems that the public has never experienced before, policy makers may fail because they may not have the mandate to tackle them. Even if policy makers perfectly foresee the adverse consequences of a problem (such as a delayed reaction to the Greek crisis), it may be hard to convince the electors that it is worth incurring the short term cost of intervention (e.g. financial help to Greece). Lack of past experience prevents electors to assess the size of these costs and only an appreciation of the latter can convince them to offer the necessary consensus for policy makers to act. In other words, even if politicians are fully aware of the disaster that awaits if nothing is done...”they may have little ability to persuade voters: talk is cheap and, in the absence of evidence to the contrary, the status quo usually appears comfortable enough”. Rajan’s explanation rests on two ingredients: a) prompt action was not feasible for lack of consensus and the latter is needed to set policy in motion; b) voters may fail to see the general equilibrium consequences of their unwillingness to bear the short run cost of intervention which politicians can instead see. Our explanation provides a ground for both ingredients: voters reactions are guided by (automatic) application of cultural norms which, in the particular setting, proved dysfunctional in the presence of the cultural clash; politicians fail because, being subject to the conformity constraint, they cannot bypass the prevailing voters opinions.

5.2 Evidence in Favor of the Cultural Clash Explanation

5.2.1 Anecdotal evidence

There are several pieces of casual evidence pointing in the direction that cultural factors played a role in how Germany has handled the Greek crisis, some reported on newspapers other reported privately to us. For instance, French newspaper *Le Canarde Enchainé* reports that they heard France president Sarkozy saying off the

record "we are paying the cost of German orthodoxy" with reference to the German resistance to the second aid package to Greece (Le Canarde Enchainé, January 18, 2012). Also telling is the story reported by a Greek colleague of hours who teaches Economics in a German University in Frankfurt as it reflects the sentiment of the German population. After it became public that Greece cheated on the budget, his secretary recommended him to be much more careful in handling accounting matters; he was puzzled by the recommendation and he asked why. The answer was: "you know, you are Greek, and after this scandal...you and us better become more careful".

Even more surprising is what we have been told by an economist at the European Central Bank. He reported to us that some German colleagues were severely criticized and ostracized by their parents and relatives because in their view the European Central Bank was too lenient towards Greece, to the point that one of them had to consult a psychologist.

A third piece of casual evidence suggesting that cultural factors seem indeed to be an integral part of the way Germany has handled the Greek crisis is the following reconstruction of Thomas Wieser's interpretation of the German government behavior in the management of the crisis.¹² In private talks he has argued that all the problems that Europe has faced in dealing with the Greek crisis can be explained in terms of religious background, and has provided the following rationale. In countries with a relevant presence of Protestantism, such as Germany, moral and religious precepts are so severe that one will never be forgiven for his sins, nor will people grant forgiveness to the sinners. In Catholic dominated countries, such as Italy, Spain, Portugal and Ireland - four of the five PIIGS - behavior is such that if one sins he/she can always be forgiven if he/she repents and so make it into paradise. Finally, according to Wieser, Orthodox religion is so loose that in countries dominated by it - of which Greece is the leading one - if one sins there is not even a need for him/her to repent to make it into paradise. This story is perfectly consistent with ours but goes a step further, as it provides a rationale for *why* the Germans feel obliged to punish the Greeks (the "sinners") and why the Greeks cheated on the budget: their religious background, dominated by Protestantism in Germany and by the Orthodox church in Greece.

¹²Thomas Wieser is the Chairmen of the Economic and Financial Committee of the European Union; the committee prepares the economic agenda for the European Finance meetings and is thus exactly the place where negotiations on how to tackle the European sovereign debt crises take place.

5.2.2 Evidence from polls

We use two recurrent polls sponsored by public TV stations. The ARD, which runs the Deutschland-TREND survey, and the ZDF sponsors Politbarometer survey data gathering information on German citizens feelings and opinions about the management of the crisis as well as confidence and support for their leader Angela Merkel. Table 2 shows answers provided by participants in the polls to different type of questions asked at various points in time between 2010 and 2011; we have organized these questions in groups according to topic and numbered them for ease of reference. Some of these questions have been asked also at various times in 2012 with very similar patterns of responses. The first set of questions (1 to 6) shows people opinions about whether Greece deserves being helped and how Greece should be treated. Already in February 2010, few months after it became public that the previous Greek government cheated on the budget and when the debate was around the potential size of the aid required to avoid Greece default, a poll by Emnid reveals that 67% of the Germans oppose any aid (question 1). Again, in July 2011, when governments were discussing about the second tranche of transfers to Greece, the vast majority of the Germans (60%) is against giving Greece a second round of rescue loans (question 1) and in October they continue to express a negative opinion about whether the other European governments (not the German) should continue to give support to Greece. In addition, more than 80% report that Greece should be forced to leave the Euro if they did not accept the decisions on the euro rescue (question 3). The pattern of answers is consistent with the idea that the opinions of the Germans were guided by the desire to punish the Greeks (or Greece) for their Government deceptive behavior. Interestingly, we can exclude that this opinions are driven by stereotypes towards the Mediterranean countries because the vast majority of the Germans (70%) when asked in September 2011 support the idea that Germany helps economically Libya's reconstruction following the liberation war fought against Gaddafi (question 8). And we can also exclude that the opposition to support Greece reflects a generic punishment towards European countries with problematic public finances, because when the Germans are asked which country among the PIIGS should be allowed to continue to be part of the Euro area, only a minority of them report that Greece should remain in the Euro while the vast majority answers that Spain, Italy and Ireland should stay in the Euro (with percentages in support of each country equal to 77%, 73% and 67% respectively; question 5). It seems again that it is the desire to punish Greece that leads the vast majority of the Germans (77%, question 8) to dislike the expansion of the funds of the European Financial Stability Fund.

This is further confirmed by the Pew Research Center report who asks a sample of Germans to report whether they have a very favorable, somewhat favorable, unfa-

avorable or very unfavorable opinion of Greece and several other European countries. In the Spring of 2010, 70% of the Germans have an unfavorable opinion of Greece and this is even higher two years later in the Spring of 2010 (79%, Table 3). Germans have instead only mild unfavorable opinions towards Italy and Spain despite their troubled public finances: in the Spring of 2012, 33% of the Germans have an unfavorable opinion of Italy and 26 of Spain and these opinions are not different from those expressed in early 2010 when the sovereign debt crisis had not yet extended to these countries. Interesting, the judgement of the Germans vis à vis Italy and Spain is not different from the opinion they have of the British (Table 3, Panel A), again suggesting that Germans unfavorable opinion of the Greeks reflects a *specific* reaction in Germany to the cheating behavior of the Greek government rather than a judgement for the high level of debt of poorly performing economies during the European sovereign debt crisis.

These sentiments, besides being widespread among representative samples of the general population and thus very likely to reflect the opinions of the German median voter, are shared also by specific segments of the German population, namely the business community which was particularly sensitive to a quick resolution of the Greek crisis. As Figure 2 shows, the vast majority of the German managers (81%) think that the most serious risks for the German economy come from the euro crisis (Panel A); at the same time two out of three argue that the best response to this crisis is to impose heavier sanctions to the debt transgressors - that is to punish Greece.

These opinions, we argue, have to be followed by Mrs. Merkel who is bound by the conformity constraint. One then expects that if she conforms to the constraint this should be reflected in the consensus polls. Indeed, as Angela Merkel has insisted in her severe policy towards Greece¹³, approval of her policy has increased steadily: in September 2011 45% of the Germans were satisfied with the way Angela Merkel was handling the crisis; the proportion increases to 56% in November 2011 and 80% in the Spring of 2012 (question 9, Table 2). Interestingly, this is consensus towards Merkel not towards her party as the vote intentions show little change (Table 2, question 10). This is consistent with another implication of our story: whatever party or leader is in charge should be equally subject to the conformity constraint. Hence, political opinions should be little affected.¹⁴

¹³Mrs Merkel severe policy culminated in January 2012 in a proposal made informally to the other member countries of the Eurozone to appoint a European commissioner with veto power on budget decisions taken by the Greek government - Financial Times, January 27 2012 - as a condition for approving the new rescue plan; this proposal was subsequently openly supported by the President of the ECB -Spiegel, October 28 2012.

¹⁴Our model is consistent also with the fact that the Greek voters "punished" Papandreu in

Finally, if punishment by the Germans has played a role in the management of the crisis, then one would expect: a) that since people do not like to be punished, we should observe some resentment of the "punished" - the Greeks - towards the "punisher" - the Germans. This should be even more true if the culture of the punished is one of forgiveness rather than punishment, so that the latter will look unjust or excessive - another symptom of the cultural clash; b) the unfavorable opinions towards Greece should be stronger in countries with a stronger culture of punishment.

As for the first implication, according to the Pew Research Center May 2012 Global Attitudes Report, anti-German sentiment has become prevalent in Greece, where a majority (78%) has an unfavorable opinion of Germany, and nearly half (49%) of the Greeks say they have a very unfavorable view. This contrasts with the fact that in all the other countries sampled (except the UK) Germany scores the lowest fraction of unfavorable opinions (Table 3, Panels C-F). Greece is the only country where a majority (84%) thinks German Chancellor Angela Merkel is doing a bad job dealing with the economic crisis. And they are intensely critical: 57% say she is doing a very bad job and the Greeks are the least likely among Europeans surveyed to say the Germans are hardworking.

To provide some suggestive evidence on the second implication we correlate the share of people of different European countries that, according to Pew Research have an unfavorable opinion of Greece in the Spring of 2012 with the share of people that are ready to participate in punishing. As a proxy for the latter we use the share of people in each country that say they are very likely to call the police if they see a man get his wallet stolen (see Table 1, Panel B). As shown in Figure 3, though based on very few observations, the correlation is clearly positive (correlation coefficient = 0.57), and is thus consistent with this implication.

Before concluding we address a potential objection. Since the evidence discussed so far draws on views expressed in the months after January 2010, it may be argued that the unfavorable opinions that the Germans have of the Greeks vis à vis the other PIIGS reflect an anti-Greek sentiment of the Germans that pre-dates the crisis rather than the Germans cultural reaction to the deceptive behavior of the Greeks. And a similarly objection could be raised for the unfavorable opinions that the Greeks

2012 elections rather than the conservative party that was responsible for cheating on the budget and thus for the subsequent German reaction. One can interpret Greek voters behavior in terms of the anti-social punishment that characterizes Greece culture documented by Herrmann et al. (2008): they "punished" the person who revealed that cheating occurred rather than punishing the cheaters. This is not to say that this was the main driver of the vote; for instance, the Greeks may have voted against Papandreu also because they did not like his austerity policy.

have of the Germans. Unfortunately the questions summarized in the previous tables were only asked after the discovery that Greece cheated on the budget. To address this objection we use data on bilateral trust - that is the trust citizens in a European country have towards citizens of another European country - collected by Eurobarometer well before the Great Recession. In a sequence of surveys run up to 1995 Eurobarometer has asked participants in the survey the following question : "I would like to ask you a question about how much trust you have in people from various countries. For each, please tell me whether you have a lot of trust, some trust, not very much trust or no trust at all". Details about the surveys are reported in Guiso et al (2009). To summarize the answers we have computed the average percentage share of Germans and Greeks that report they trust a lot people of each of the other countries included in Eurobarometer. Table 4 shows this measures of trust for the average of all countries (last row) and for a selected group of countries that overlap as much as possible with those in Table 3.

Interestingly, 11% of the Germans report that they trust the Greeks a lot - a figure that is somewhat below how much the Germans trust on average people of all other European countries (16%), but higher than the trust they have towards the Italians (8%) and comparable to the trust they have towards the Portuguese (11%) and the Irish (13%). This suggests that there was no specific unfavorable view of the Germans towards the Greeks before the specific event - the cheating on Greece budget - that has triggered the crisis. Similarly, there was no pre-existing unfavorable Greek view towards the Germans: 18% of the Greeks trusted the Germans a lot, somewhat above how much the Greeks trusted other Europeans (last row of Table 4) and more than the trust the Greeks had towards the Italians, the British or the Portuguese. Thus, the Greeks unfavorable judgment towards the Germans in 2012 that we document in Table 3 is likely to reflect not a pre-existing Greek anti-German sentiment but the reaction to the German punishment.

5.3 Dealing with Alternative Explanations

In this section we discuss possible alternative and more standard explanations behind the inefficient delay in managing the Greek crisis. Our purpose is not to dismiss these factors and argue that they were unimportant, but rather to show that what we interpret as a cultural clash is not just the reflection of some other force. A first objection to our proposed explanation is that countries had different incentives to save Greece because they could have been differentially affected by a propagation of the Greek crisis; namely, the Mediterranean countries had stronger incentives to bail out Greece because they feared a contagion of the crisis while this fear was absent

in Germany. Hence, Germany could safely (and selfishly) oppose costly transfers for the German taxpayer, and the Germans hostile opinions towards Greece just reflects these economic incentives. To address this objection notice first that the different reaction of the Germans (and the position of the German government on the Greek crisis) compared to that of other European citizens/governments emerges soon after it becomes public that Greece cheated on the budget. As shown in Table 2, (first row), already in February 2010 the vast majority of the Germans oppose transfers to Greece. At the time, however, interest rate spreads show no evidence of a risk of contagion to other European countries, with or without budget problems. Figure 4 compares the spread on the Greek 10-year government bond with respect to the German Bund with that of the other PIIGS (Panel A) and of France (Panel B). Greece spread starts to increase right after the new Socialist government announced in October 2009 that the true deficit was about twice as large as the figure diffused by the previous government (the first vertical line). The spread of the other PIIGS, however, shows initially little change. For instance, up until March 2010, while Greece spread increases by about 300 basis points, Ireland spread is constant or slightly decreasing. The spread of PIIGS starts to increase in proximity of and right after the adoption of the first aid package in April-May 2010, suggesting that markets fear of contagion as reflected in the spreads was induced by a perceived failure of the bail out policy. Another and perhaps more compelling way to address the objection is to notice that it cannot explain the different views of the French and the Germans vis a vis Greece. France spread is essentially flat all through until June 2011, that is until the Greek crisis evolves into an Euro crisis. Until then, markets anticipate no risk of contagion to France. Hence, France and Germany are, along these dimension fully comparable. Yet, Germans sentiments are much more unfavorable to Greece than French sentiments already in the Spring of 2010: while 35% of the French have an unfavorable opinion of Greece the fraction of unfavorable is twice as large among the Germans (see Table 3, Panel A and Panel C). This is instead consistent with a German-Greek cultural clash, even more so in light of the fact the French have a weaker attitude to punish than the Germans - as shown by the willingness to participate in punishment (Table 1, Panel B).

A second concern is that the reaction of the Germans towards Greece compared to that of other European countries may just reflect a *lower* exposure of the German banks (and German investors) to the Greek sovereign debt, weakening any incentive Germany may have had to bail out Greece. However, the data tell a different story. At the beginning of 2010 while French and German banks were in Europe the most exposed to Greece, accounting for 66% of total Greek debt to European banks (split 41% French banks and 25% German banks). The banks of these two countries

together held 64% of the Greek government debt, of which 43% in the hands of German banks (Table 5). Thus, it was in Germany's interest, as much as France, to push towards a bail out of Greece, sharing the cost with the other European countries in proportion to their GDP. We see the opposite (it is Germany that more than France and the other EU countries that opposed the bailout). The culture-based explanation is instead consistent with the angry reaction of the Germans towards Greece once they discovered that the debtor hid his ability to repay by concealing the overall size of his debt. Models of betrayal aversion (Bohnet and Zeckhauser, 2004) indeed predict that individuals suffer a greater utility loss (and thus get angrier) when the loss springs from the mis-behavior of a person rather than nature; furthermore, sensitivity to betrayal is likely to vary across countries (Bohnet, Greig, Herrman and Zeckhauser, 2008) and be greater in countries where keeping promises (and punishing those who do not) is a key part of their culture, as it seem to be the case in Germany. Hence, *ceteris paribus* one would expect a stronger reaction in Germany than in France.

A final possibility is that Germany desire to "punish" Greece arises as an optimal strategy to discipline future moral hazard by the Greeks (and indeed by any other member of the union). Punishment may reflect an *ex ante* agreement among the members of the monetary union to discipline countries that with their behavior threaten the stability of the union. Without denying that moral hazard concerns may have played a relevant role in the reluctance of some of the European countries to help out Greece, we argue that it is unlikely that it can explain all without any role for cultural clash considerations. In fact, the moral hazard story, literally taken, implies that all countries should be involved and share the punishment strategy, which seems to be contradicted by the tougher German positions. Second, the moral hazard story has an implication for the time profile of Germans sentiments that differs from the cultural clash explanation. Under moral hazard, Germans' sentiments towards Greece should be mitigated by the introduction of the balance budget rules and more sever monitoring of *future* fiscal policies in member countries adopted with the Fiscal Compact agreement in the Spring of 2012. Under the cultural clash explanation because these sentiments are a reaction to the past behavior of the Greeks, they should either be constant or even amplified by the bail out packages decided meanwhile. The data in Table 3, Panel A seem to be more consistent with the latter than with the former explanation: if anything, Germans views towards Greece have deteriorated between the Spring of 2010 and that of 2012.

5.4 Current Debate on the Future of the Union

Section 4 has established that the choice by EMU countries to create a monetary union without a fiscal union can be justified in a scenario of optimism regarding the economies of scale/scope from the single currency. However, we have also shown that the presence of a cultural clash and a crisis together determine an impetus towards fiscal union. The current political debate in Europe is consistent with this implication of the theoretical model. Indeed, with the aggravation of the euro area crisis, the fiscal union seems to have become again a policy option, advocated by scholars (see, among others, Marzinotto, Sapir and Wolff (2011) and Ferguson and Barbieri (2012) and policy makers. Trichet (2011) was the first to openly speak about the creation of a European Finance Minister. Interestingly, and consistent with our model, the European Ministry of Finance, as Trichet stresses is “not necessarily a ministry of finance that administers a large federal budget”; its main role is in fact to move power from the national countries - Germany and Greece in our simplified set up - so as to avoid the impasse caused, in our interpretation, by the cultural clash. That the motivation for relying on a fiscal union to address the current euro crisis is not exclusively driven by an insurance motive, but by a governance motive, as in our model, is also supported by the German view on the issue. Germany conceives the fiscal union as a set of new rules that help prevent future crisis and clashes (see the view expressed by Ludger Schuknecht, the director general for Interlineation Fiscal, Financial and Monetary Policy at the German Ministry of Finance, 2013).

6 Discussion and relation to the literature

This paper is related to several strands of literature. First, it is related to a burgeoning set of studies on the role of culture in explaining differences in economic prosperity across countries and communities (see among others Greif, 1994; Landes, 1999; Mokyr, 2012; Tabellini, 2008a; Guiso, Sapienza and Zingales (2004, 20013); Roland, 2010; and Numm, 2012). These papers rely on the persistence of culture to explain enduring effects of old historical episodes on current differences in economic success. While we retain cultural persistence, we focus on the role that slow-to-change cultural norms and beliefs can play in dealing with shocks that are likely to occur at the business cycle frequency. Hence it bears a link with macroeconomics and the few papers that have attempted to insert culture into macroeconomic models (e.g. Akerlof, 2007) or test empirically whether culture can be a cause of macroeconomic imbalances (Buetzer et al, 2012). Furthermore, while most of these papers view cultural norms as affecting economic prosperity because they support cooper-

ation and thus facilitate exchange among people (e.g. Tabellini, 2008a; GSZ, 2004, 2012; Landes, 1999), or because they enhance individual motivation (Gorodnichenko and Roland, 2011a), or because they dictate directly individual behavior (Akerlof, 2007), in our case cultural norms affect macroeconomic outcomes because they act as a conformity constraint on policy makers, limiting their freedom to adopt the best policy in the given circumstances. This is a clear example of the more general view that we propose, that cultural norms can be a potentially important source of friction in political economy. These frictions need to be studied even if one had the general belief that the main source of cross country differences in prosperity stem from differences in institutions design (see e.g. Acemoglu and Robinson, 2012): in fact, the type of problems we identify and deal with relate to the consequences, rather than the causes, of cultural clashes.

Second, our work relates to various papers that rely on cultural distance to explain patterns of international trade (e.g. Guiso, Sapienza and Zingales, 2009; Fisman, Hamao and Wang, 2012). We highlight the fact that the conformity constraint is more likely to be identified when two (or more) cultures are merged - as when a pool of countries decide to enter an economic or monetary union - and thus a cultural clash can occur and become visible.

Third, the paper relates to a number of contributions that study the interplay between cultural norms (informal institutions) and legal norms (formal institutions) and their mutual influences. Several papers stress the fact that culture and legal institutions tend to coevolve (Tabellini, 2008b; Gorodnichenko and Roland, 2011b; Bisin and Verdier, 2012). In our model too in the long run institutions and culture may move together, but the process may be far from smooth. In our model institutions can change discretely - or at least at a much faster speed than culture. Hence, they may adjust in response to a potentially harmful cultural clash when a culturally heterogenous community is hit by a shock. Culture may subsequently and slowly adapt, possibly affected by the new institutional set up.

Finally, our contribution is related to the literature on the formation and integration of states and on fiscal union desirability. Like in the literature on the formation and integration of states (Alesina and Spolaore, 2003 and Spolaore, 2013) we also emphasize the trade off between economies of scale from merging economies and the costs of combining heterogeneous populations (in our case heterogeneity in cultures). We argue that the desire to improve the terms of this trade off provides a basis for a novel argument in favor of a fiscal union. Fiscal union can be beneficial for a variety of reasons; because it may produce greater equality (Morelli, Yang and Ye, 2012); because it provides stability and insurance (e.g. Luque, Morelli and Tavares, 2012; Fahri and Werning, 2012); or because it may have a discipline effect - in the sense

that when the policy is conducted at the union level the scope for local moral hazard by the participant countries is reduced. We stress the importance of fiscal union as a way of tempering and managing frictions in a culturally dis-homogeneous community that is already bound by a single currency or a free trade agreement. Said differently, faster to change institutions can be the solution to the costs imposed by slow to adjust cultural norms in response to a change in the environment.

7 Conclusions

Cultural norms can effect economic outcomes through several channels. In this paper we have highlighted a novel and thus far unexplored channel through which this can happen: culture can act as a conformity constraint on policy makers and this may result, in certain circumstances, in suboptimal outcomes. We show that this is likely to happen when two (or more cultures) have to face each other as when citizens and governments of different countries that belong to some economic union are forced to interact. The cultural difference and the different behaviors that each culture commands can result in a political clash. Though policy makers are bound by the cultural norms over which they have no control and that evolve slowly, they can still design common institutions which can temper the effects of the clash. We apply these ideas to shed light on the (mis)-management of the European sovereign debt crisis. Besides rationalizing the German/Greek contrast and why Germany has shown resistance to bail Greece out, our model has much more general features regarding the interplay between culture and institutions. In our set up the slow moving nature of cultural norms can speed up a process of institutional convergence when the cultural (and political clash) results in particularly costly outcomes.

About the desirability of a fiscal union, we have highlighted several conceptual points. First and most importantly, while usually a fiscal union's main role is taken to be that of providing insurance through countercyclical regional transfers, in our view a fiscal union performs another important role: it allows to replace multiple authorities subject to cultural clash (through the conformity constraint or more directly) with a unique new authority, hence facilitating convergence, commitment, and enforcement. Second, an important message of the paper is that the value of a fiscal unification is greater the higher the cultural heterogeneity.

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Appendix

Proof of Proposition 2. The payoff (average fitness) for a merged population (under a union (U)) characterized by (x_0, y_0) is for each mover:

$$\begin{aligned} U_1^U &= u_1(r)(1 - x_0) + u_1(cf)x_0y_0 \\ U_2^U &= u_2(r)(1 - x_0) + u_2(cf)x_0y_0 \end{aligned}$$

Hence total welfare is

$$U_T^U = (u_1(r) + u_2(r))(1 - x_0) + (u_1(cf) + u_2(cf))x_0y_0$$

If the populations of Greece and Germany are respectively g and G , and if Greece and Germany start from their respective steady states we have:

$$x_0 = \frac{g}{g + G}, \quad y_0 = \frac{g + y_r G}{g + G}$$

$$U_T^U = (u_1(r) + u_2(r)) \frac{G}{g + G} + (u_1(cf) + u_2(cf)) \frac{(g + y_r G)g}{(g + G)^2}$$

so it is decreasing in $(1 - y_r)$. ■

Proof of Proposition 3. Welfare before the union is (which can be broken down for the various types)

$$U_g = u_1(cf) + u_2(cf), \quad U_G = u_1(r) + u_2(r)$$

We need to analyze the gains from a union from the various types, Greek first and second movers:

$$U_{g1}^U = u_1(cf)y_0 + 0(1 - y_0), \quad U_{g2}^U = u_2(r)(1 - x_0) + u_2(cf)x_0$$

The *welfare gain* from a monetary union from the Greek perspective is

$$\begin{aligned} (U_g^U - U_g) &= (u_1(cf)y_0 + u_2(r)(1 - x_0) + u_2(cf)x_0) - (u_1(cf) + u_2(cf)) \\ 0 &= -u_1(cf) \left(\frac{(1 - y_r)G}{g + G} \right) + (u_2(r) - u_2(cf)) \left(\frac{G}{g + G} \right) > 0 \end{aligned}$$

Hence, we have $(U_g^U - U_g) > 0$ when $y_r > y_r^g$ with:

$$y_r^g := 1 - \frac{u_2(r) - u_2(cf)}{u_1(cf)}$$

The share of Punishers among Germans (i.e. the heterogeneity) needs to be bounded for Greeks to prefer the monetary union, but when $u_2(r) > u_1(cf) + u_2(cf)$ the constraint does not bind: the Greeks benefit from the monetary union regardless. German first and second movers after the union

$$U_{G1}^U = u_1(r), \quad U_{G2f}^U = u_2(r)(1 - x_0) + u_2(cf)x_0, \quad U_{G2p}^U = u_2(r)(1 - x_0) + 0x_0$$

We assume a German is a forger with chance y_r , so:

$$U_{G1}^U = u_1(r), \quad U_{G2}^U = u_2(r)(1 - x_0) + y_r u_2(cf)x_0$$

The *welfare gain* from a monetary union from the German perspective is always negative for any $y_r \in [0, 1]$

$$\begin{aligned} (U_G^U - U_G) &= (u_1(r) + u_2(r)(1 - x_0) + y_r u_2(cf)x_0) - (u_1(r) + u_2(r)) \\ &= -\frac{g}{g + G} (u_2(r) - y_r u_2(cf)) \end{aligned}$$

Hence, the condition $(U_G^U - U_G) > 0$ holds when $y_r > y_r^G$ with:

$$y_r^G := \frac{u_2(r)}{u_2(cf)} > 1$$

which is violated for any $y_r \in [0, 1]$. ■

Proof of Proposition 4.

$$\begin{aligned} U_g^U - U_g &= (u_1(cf)y_0 + \lambda u_2(r)(1 - x_0) + u_2(cf)x_0) - (u_1(cf) + u_2(cf)) \\ &= -u_1(cf) \frac{G(1 - y_r)}{g + G} + (\lambda u_2(r) - u_2(cf)) \frac{G}{g + G} > 0 \end{aligned}$$

Hence, we have $(U_g^U - U_g) > 0$ when $y_r > y_r^g(\lambda)$, with:

$$y_r^g(\lambda) := 1 - \frac{\lambda u_2(r) - u_2(cf)}{u_1(cf)}$$

$y_r^g(\lambda)$ is decreasing in λ and the constraint does not bind for high enough λ , namely:

$$\lambda := \lambda_g = \frac{u_1(cf) + u_2(cf)}{u_2(r)} \implies y_r^g(\lambda) = 0$$

As for the Germans we have:

$$U_G^U - U_G = (\lambda u_1(r) + \lambda u_2(r)(1 - x_0) + y_r u_2(cf)x_0) - (u_1(r) + u_2(r))$$

Hence, we have $(U_G^U - U_G) > 0$ when $y_r > y_r^G(\lambda)$, with:

$$y_r^G(\lambda) := -\lambda \frac{(u_1(r) + u_2(r)) \frac{G}{g} + u_1(r)}{u_2(cf)} + \left(1 + \frac{G}{g}\right) \frac{u_1(r) + u_2(r)}{u_2(cf)}$$

$y_r^G(\lambda)$ is decreasing in λ and the constraint does not bind for high enough λ , namely:

$$\lambda := \lambda_G = \frac{1 + \frac{G}{g}}{\frac{u_1(r)}{u_1(r) + u_2(r)} + \frac{G}{g}} \implies y_r^G(\lambda) = 0$$

In sum, if for some $\lambda \geq 1$, $y_r < y_r^G(\lambda)$, then the monetary union without a new fiscal authority would not be viable for the Germans. For any $\lambda \geq \max(\lambda_g, \lambda_G)$ a monetary unions is preferred by both countries regardless of the level of cultural distance between the countries $(1 - y_r)$. ■

Proof of Proposition 5. The fiscal union is preferred by both countries if the gain over the monetary union exceeds the cost of the union. Namely,

$$U_g^{FU} - U_g^U = (y' - y_r) u_1(cf) \frac{G}{g + G} > C(\lambda)$$

$$U_G^{FU} - U_G^U = (y' - y_r) u_2(cf) \frac{g}{g + G} > C(\lambda)$$

■

Table 1. Greece and Germany: cultural difference

In Panel A Variables are obtained from the 1999-200 World Values Surveys (WVS). Reported measures of civic values are based on the following question: "Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between, using this card." Answers are in the range 1-10, with 1 = "always justifiable" and 10 = "never justifiable" (after recoding the original answers). "Claiming government benefits to which you are not entitled"; "Avoiding a fare on public transport"; "Cheating on taxes if you have a chance"; "Accepting a bribe in the course of their duties". The principal component of civic values is extracted using these variables and three additional measures based on the following answers: "Lying in your own interest". "Throwing away litter in a public space"; "Speeding over the limit in build-up areas". Tabellini (2009) cultural capital indicators are constructed as follows: the variable *respect* is set equal to 1 if the respondent indicates the quality "tolerance and respect for other people" as being one of the top five qualities children are encouraged to learn at home. *Obedience* is the fraction of people that regards obedience as an important quality that children should be encouraged to learn. Finally, *control* is the answer to the question "Some people feel they have completely free choice and control over their lives, while other people feel that what we do has no real effect on what happens to them." Generalized trust is the answer to the classical WVS question "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" The number of observations are 3,036 for Germany and 1142 for Greece. In Panel B variables are obtained from responses given by a sample of German citizens and a sample of Greek citizens in the 2010 Wave II of the European Social Survey to the following questions: "Imagine that you were out and saw someone push a man to the ground and steal his wallet. How likely would you be to call the police? Would you be..."(possible answers coded from 1 to 4: not at all likely, not very likely, likely, very likely); "How willing would you be to identify the person who had done it? Would you be...(possible answers coded from 1 to 4: not at all willing, not very willing, willing, very willing); "And how willing would you be to give evidence in court against the accused? Would you be..." (possible answers coded from 1 to 4: not at all willing, not very willing, willing, very willing).

A. Civic values, cultural norms and trust beliefs

Variables	Germany	Greece	Difference Germany-Greece	t-test for the difference
<i>Measures of civic values</i>				
Claiming Government benefits you are not entitled to	9.00	6.96	2.04	24.7
Avoiding a fare on public transport	9.04	7.57	1.47	19.19
Cheating on taxes	8.63	7.83	0.80	9.27
Accept a bribe	9.06	9.07	-0.01	-0.14
<i>Tabellini (2009) cultural norms indicators</i>				
Respect	0.71	0.52	0.19	10.42
Obedience	0.14	0.11	0.03	2.51
Control	7.25	7.00	0.25	3.70
Unselfishness	0.09	0.26	-0.18	-13.32
<i>Beliefs</i>				
Generalized trust	0.38	0.24	0.14	7.58

B. Willingness to participate in punishment of wrongdoers

Variables	Germany	Greece	Difference Germany-Greece	t-test for the difference
<i>Measures of participation in punishment</i>				
How likely to call the police if you see a man get his wallet stolen?	3.75	3.47	0.28	16.61
How willing to identify person who had done it?	3.66	3.24	0.42	22.32
How willing to give evidence in court against the accused?	3.55	2.90	0.65	29.07
Variables	Germany	France	Difference Germany-France	t-test for the difference
<i>Measures of participation in punishment</i>				
How likely to call the police if you see a man get his wallet stolen?	3.75	3.60	0.15	8.35
How willing to identify person who had done it?	3.66	3.45	0.21	10.65
How willing to give evidence in court against the accused?	3.55	3.27	0.28	12.39

Table 2. Germans opinions during the crisis

The table shows the answers provided by a sample of Germans to questions concerning the management of the European sovereign debt crisis. Variables are obtained from two recurrent polls sponsored by public tv stations. The ARD, which runs the Deutschland-TREND survey, and the ZDF sponsors the Politbarometer survey (denoted Politb in the table). These are representative polls with a sample size of about 1000. The polls take place at a monthly (Deutschland-TREND) or biweekly (Politbarometer) frequency. These polls elicit attitudes towards people sentiments, political opinions and opinions about policy options for dealing with Greece and the European sovereign crisis.

Question n	Question wording	Yes	No
	<i>Support to Greece</i>		
1	"Should Greece receive financial aid?" (February, 2010, Emnid)	33%	67%
	Should Greece be given a second round of rescue loans? (June 2011, Politb)	36%	60%
2	Should the other European-States continue to support Greece? (October 2011, D-T)	42%	53%
3	Will Greece have to leave the Eurozone if it does not accept the decisions on the euro rescue? (November 2011, D-T)	82%	15%
4	Would Greek bankruptcy entail negative consequences for Germany? (September 2011, Politb)	30%	68%
5	Who should continue to be a member of the euro zone? (July 2011, Politb)		
	- Greece	47%	53%
	- Spain	77%	23%
	- Italy	73%	27%
	- Ireland	67%	33%
6	Do you think that new government in Greece helps overcoming the crisis ? (November 2011, Politb)	23%	60%
	<i>Support funding the European Financial Stability Fund</i>		
7	Should the funds of the EFSF be expanded? (September 2011, Politb)	20%	76%
	<i>Support to Libya</i>		
8	Should Germany support economically Libyas reconstruction? (September 2011, D-T)	70%	27%
9	<i>Support to Merkel</i>		
10	Are you satisfied with Angela Merkel's handling of the crisis? (Politb)		
	- September 2011	45%	65%
	-October 2011	51%	49%
	-November 2011	56%	44%
	- January 2012	63%	37%
	- Spring 2012 (PEW Global Attitudes Project, May 2012)	80%	20%
11	<i>Support to Merkel political party</i>	Christian Democrat	Social Democrat
	- Vote intentions: September 2011	35%	28%
	- Vote intentions: October 2011	32%	30%
	- Vote intentions: November 2011	34%	31%
	- Vote intentions: January 2012	35%	30%
	- Vote intentions: November 2012	39%	30%

Very unfavorable	22	13	23	7	7
Total unfavorable	67	43	54	28	28

F. Spanish view

Variables	Greece	Italy	France (Spring 2012)	Germany	UK
Somewhat unfavorable	33	28	20	13	17
Very unfavorable	32	12	10	8	9
Total unfavorable	65	40	30	21	26
			Spring 2010		
Somewhat unfavorable	30	11		10	
Very unfavorable	10	3		1	
Total unfavorable	40	14		11	

Table 4. Germany and Greece bilateral trust views before the clash

The table shows the fraction of Germans and Greeks that report that they trust a lot citizens of the other European countries. Trust is calculated from the average response to the following question asked in Eurobarometer in a sequence of surveys run up to 1995: "I would like to ask you a question about how much trust you have in people from various countries. For each, please tell me whether you have a lot of trust, some trust, not very much trust or no trust at all". The answers are coded in the following way: =1 (no trust at all), =2 (not very much trust), =3 (some trust), =4 (a lot of trust). Details about the surveys are reported in Guiso et al (2009). The last row is the average percentage share of Germans and Greeks that report they trust a lot people of all the other countries included in Eurobarometer and gives a summary measure of how much citizens of a given country trust citizens of their own or other countries.

Country receiving trust	Fraction of Germans trusting a lot	Fraction of Greeks trusting a lot
The Greeks	0.11	-
The Germans	-	0.18
The Italians	0.08	0.12
The Spanish	0.14	0.21
The Portuguese	0.11	0.17
The Irish	0.13	0.17
The French	0.21	0.26
The British	0.15	0.16
Other European countries	0.16	0.17

Table 5. Exposures of Germany and France to Greece and other PIIGS countries

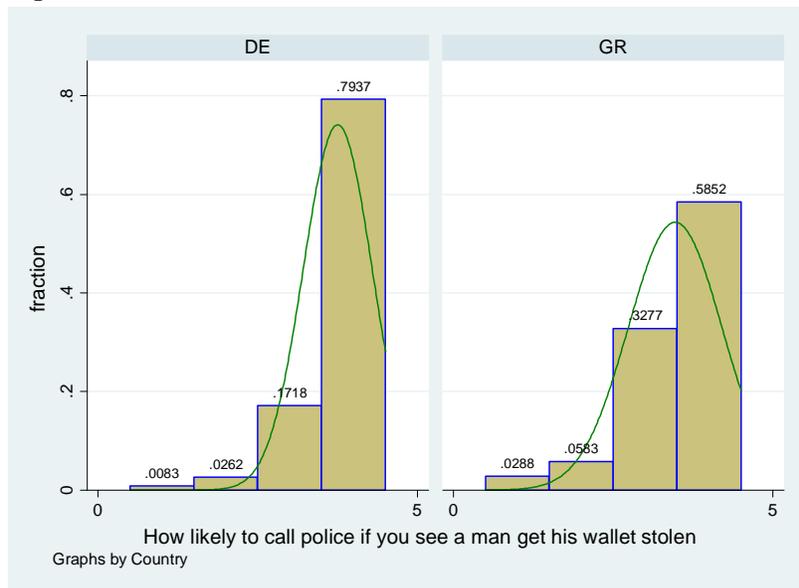
The table shows the value of the claims of German and France banks towards Greeks, Ireland, Portugal and Spain at the end of Quarter 4 2009. Data are in billions of US Dollars. *Source:* BIS Quartely Bulletin.

		<i>Claims toward</i>				Total claims to the four countries
		Greece	Ireland	Portugal	Spain	
<i>Claims of</i> Germany	Total	44.4	176.9	41.0	202.4	464.8
	Public sector	22.8	2.5	10.3	32.7	68.3
France	Total	108.3	84.8	52.0	248.2	493.3
	Public sector	30.6	6.1	20.8	48.1	105.6

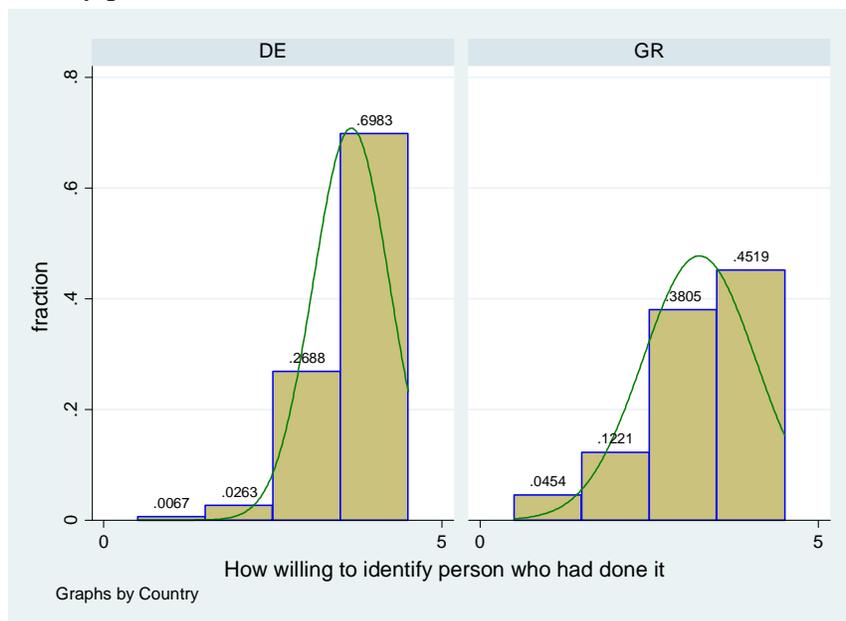
Figure 1. Differences in willingness to punish among Germans and Greeks

The figure shows the distribution of responses given by a sample of German citizens and a sample of Greek citizens in the 2010 Wave II of the European Social Survey to the following questions: “Imagine that you were out and saw someone push a man to the ground and steal his wallet. How likely would you be to call the police? Would you be”...(possible answers coded from 1 to 4: not at all likely, not very likely, likely, very likely); “How willing would you be to identify the person who had done it? Would you be...(possible answers coded from 1 to 4: not at all willing, not very willing, willing, very willing); “And how willing would you be to give evidence in court against the accused? Would you be...” (possible answers coded from 1 to 4: not at all willing, not very willing, willing, very willing). The histograms of the answers to the three questions are reported in Panel A, B and C respectively.

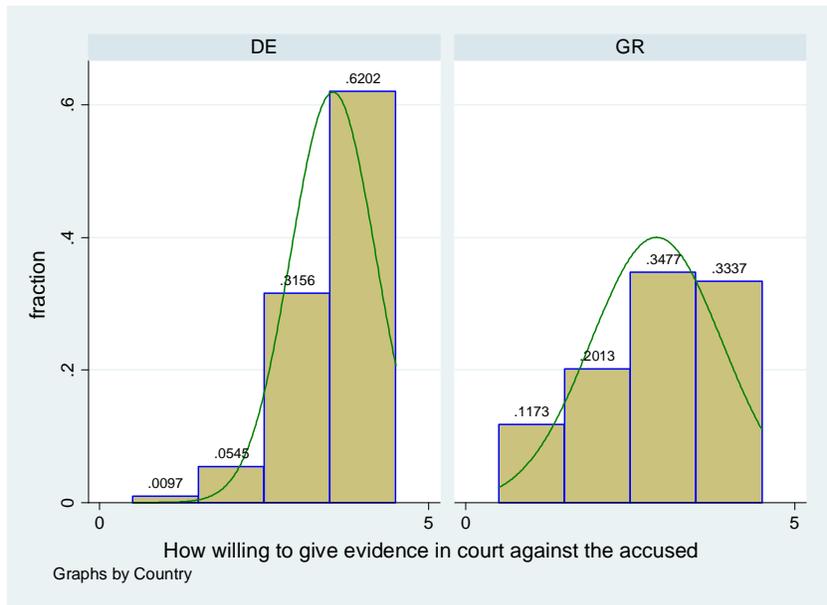
A. Willingness to call police



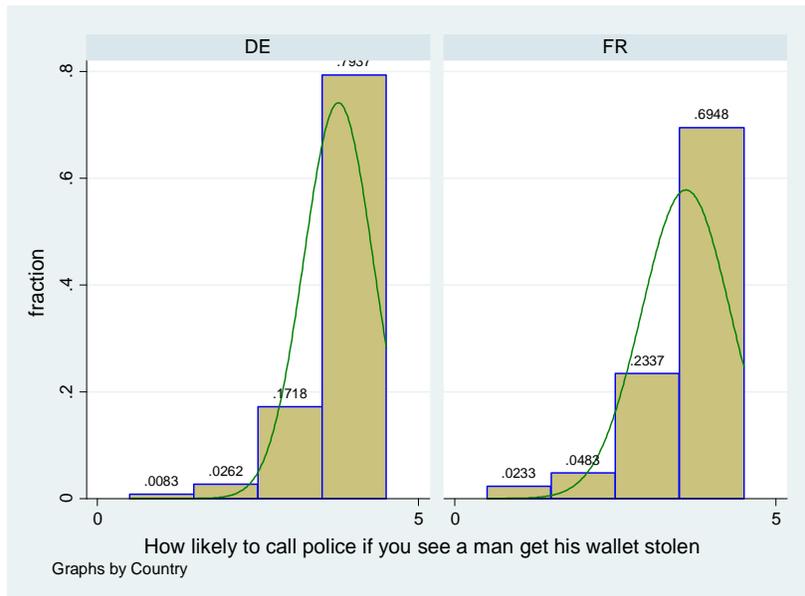
B. Willingness to identify person



C. Willingness to give evidence in court



France vs Germany



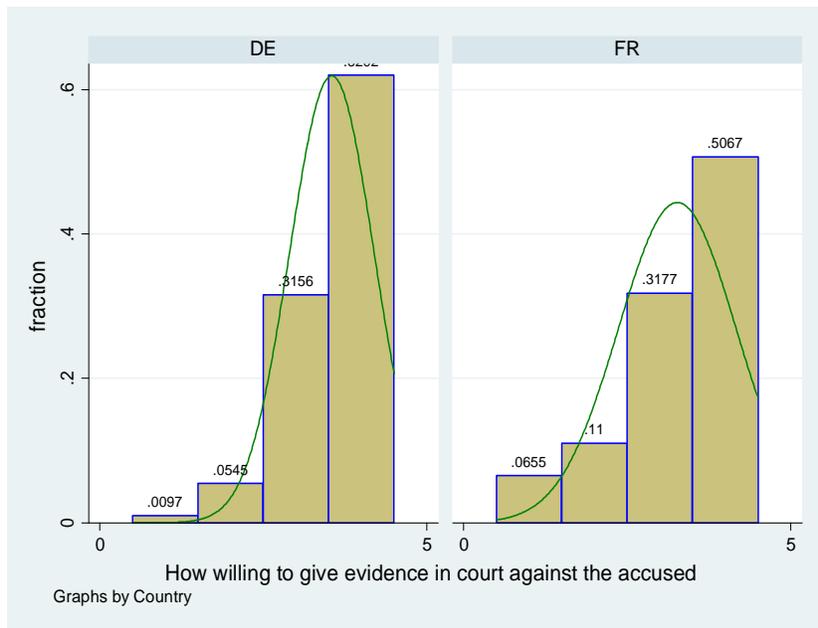
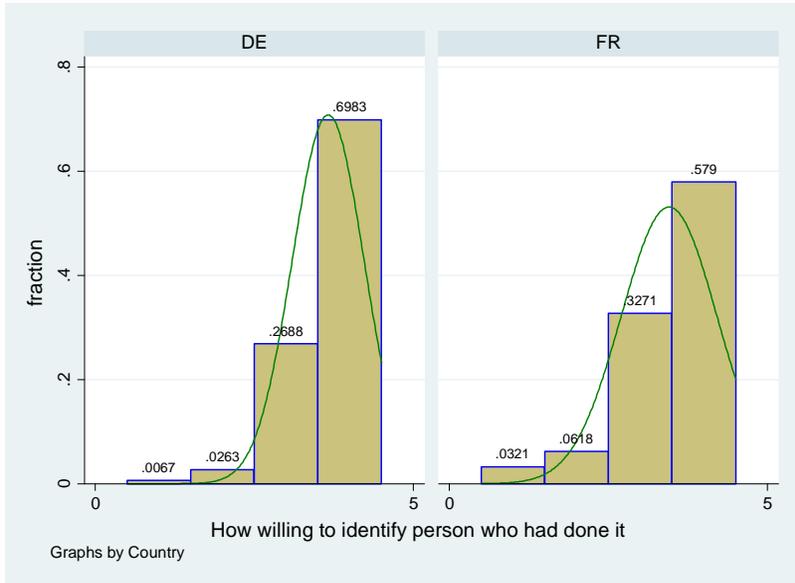
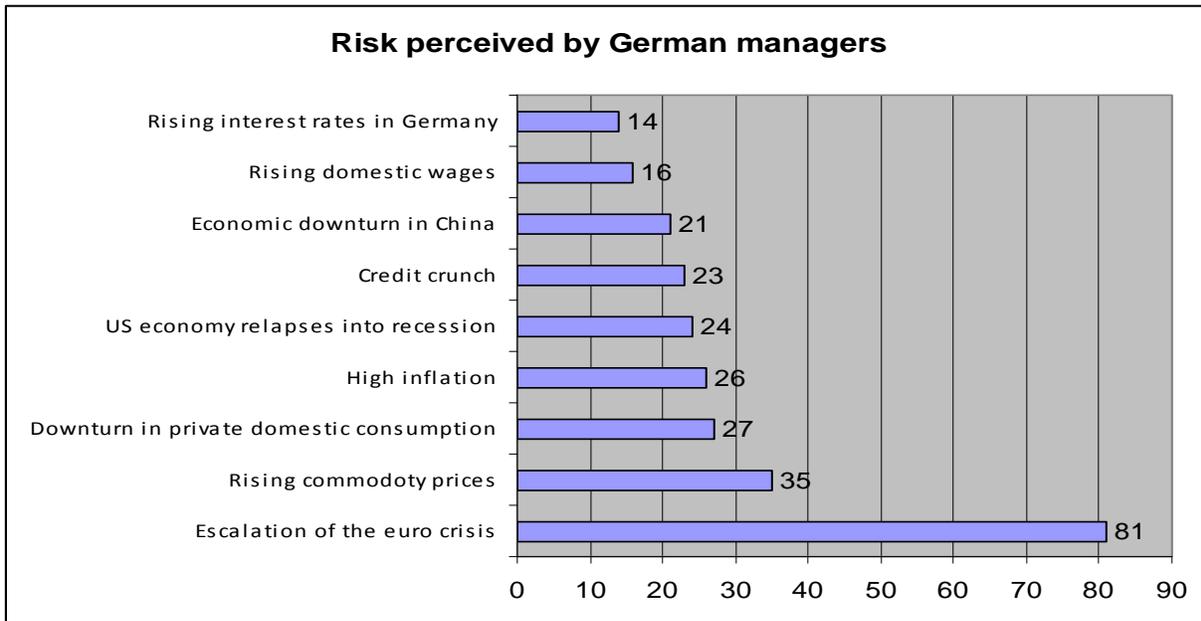


Figure 2. Risk and solutions for the Euro crisis perceived by German managers

The figures show the percentages of responses chosen by a sample of German managers interviewed in the December 2012 IFO German Managers Survey. Panel A shows the chosen answers to the questions: "Which risks do firms see for the economy?" Panel B the answers to the question: "Which solutions to the Euro crisis do firms prefer?" Multiple answers are possible. Responses from 655 companies from the manufacturing, constructions, trade and service sector: http://www.cesifo-group.de/portal/page/portal/ifoHome/a-winfo/d1index/80mgrbefr/_managerbefragung?item_link=mb-konjunktur-dez11.htm

Panel A : Risk perceived by German managers



Panel B : Preferred solutions for the euro crisis

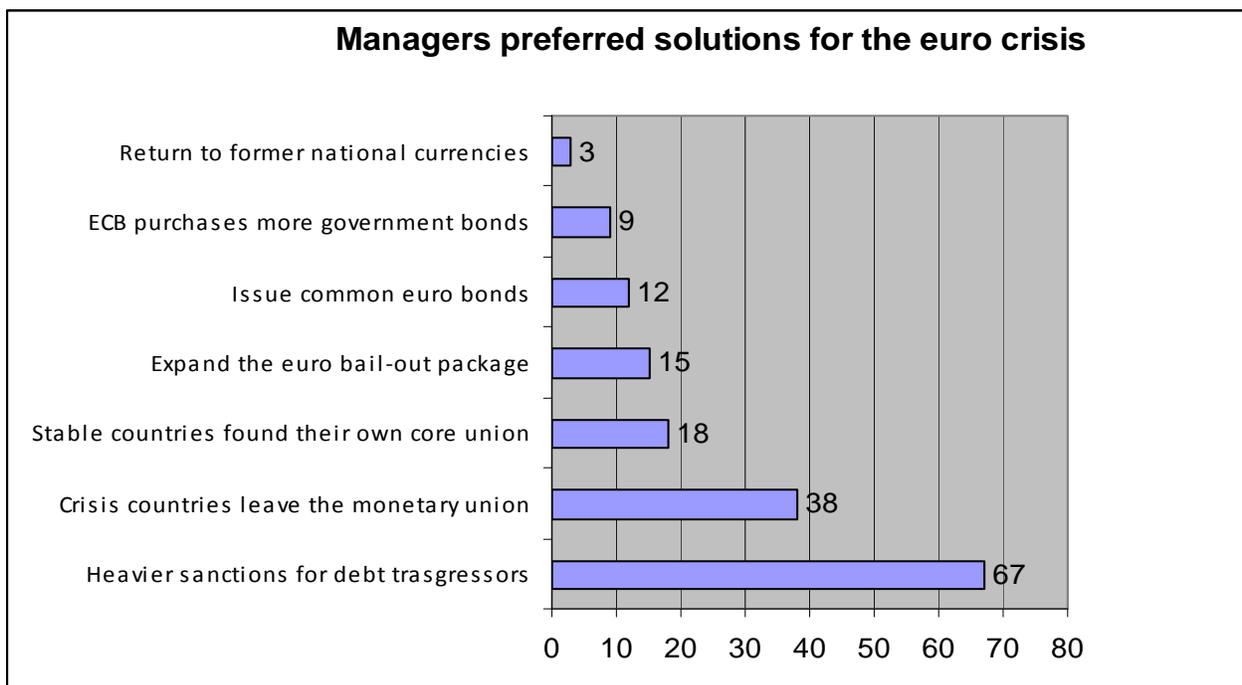


Figure 3. Unfavorable view of Greece and punishing attitude

The figure shows the relation between the fraction of people in some European countries with an unfavorable view of Greece and the attitude towards punishing in this country. The latter is measured by the fraction of people who answer “very likely” to the question: “Imagine that you were out and saw someone push a man to the ground and steal his wallet. How likely would you be to call the police? Would you be”...(possible answers coded from 1 to 4: not at all likely, not very likely, likely, very likely)” asked in the second wave of the European Social Survey. Correlation between the two variables is 0.57.

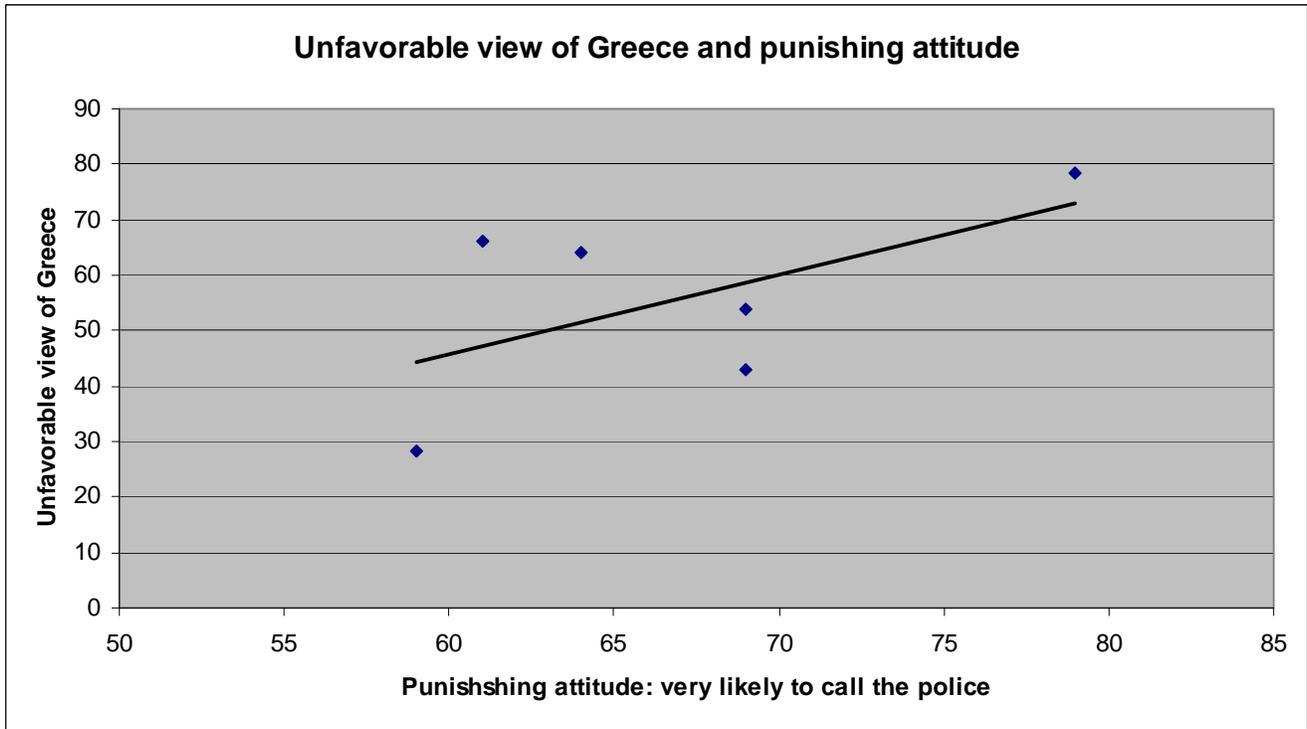
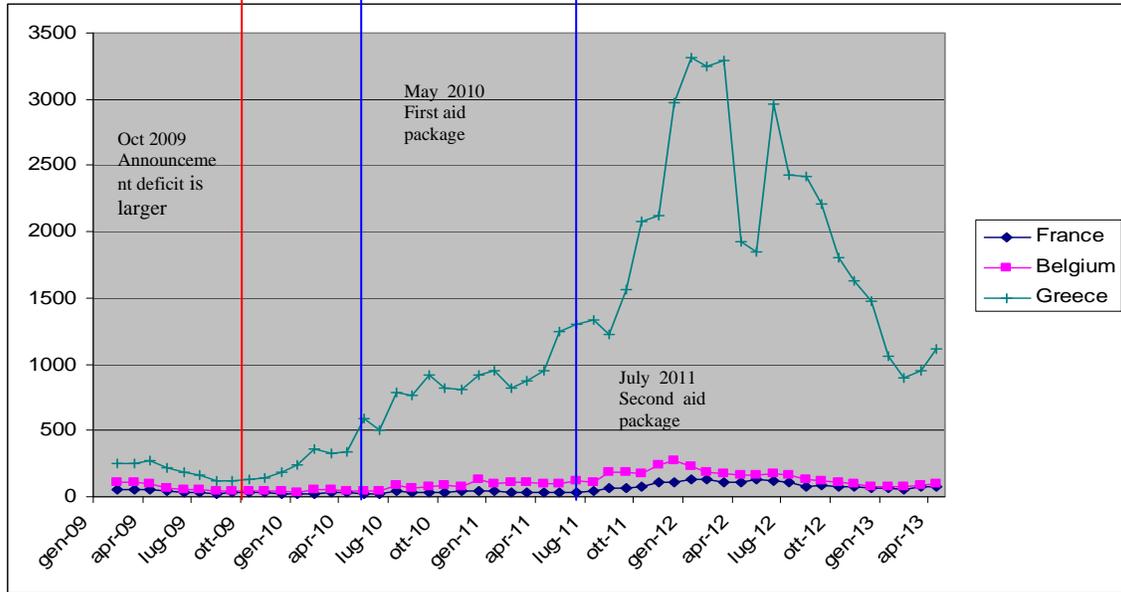


Figure 4. Interest rate spreads vis-à-vis the Germans Bund

The figure shows interest rates spreads on 10-years government bonds of Greece and a set of other European countries vis-à-vis the German Bund. Panel A compares Greece spreads with Belgium and France; Panel B Greece spreads with Italy, Spain and Portugal.

A. Greece spread versus France and Belgium spread



A. Greece spread versus Italy, Spain, Ireland and Portugal

