MACROECONOMIC IMBALANCES: A QUESTION OF TRUST?

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In this paper, we address the question of whether cross-country differences in civic capital, notably interpersonal trust, have contributed to the build-up of macroeconomic imbalances over the last three decades. We analyse the link between a stylised index of economic imbalances (a combination of the government budget balance, the inflation rate and the current account balance) and trust, alongside other measures of civic and cultural capital, obtained from value survey data for 65 advanced and emerging countries. For the whole set of countries, we find robust empirical evidence for a negative and significant relationship between interpersonal trust and macroeconomic imbalances which may therefore partly reflect underlying heterogeneity in civic capital. Within the euro area, differences in trust exist although they are not particularly large from an international perspective. With the nexus between trust and macroeonomic imbalances being equally robust we can attribute one fifth of the variation in intra-euro area imbalances to differences in interpersonal trust. Euro area membership does not appear to have weakened the link between the two variables which suggests that monetary union and EU fiscal rules have not constrained the transmission mechanism.

1   Introduction

Macroeconomic imbalances have become an essential element of the narrative of the sovereign debt crisis in the euro area. While a few years ago the discussion focused on whether imbalances matter at all in a currency union, it is now commonly acknowledged that financial, fiscal and economic imbalances have contributed to the crisis. Policy instruments designed to prevent and correct excessive imbalances have been introduced.[1] At the same time, the notion that cross-country differences in values and norms have played a role in the build-up of economic imbalances has entered the debate. For example, Greenspan (2011) notes that *"euro-north has historically been characterised by high saving rates and low inflation, the metrics of a culture that emphasises longer-term investments rather than immediate consumption. In contrast, negative saving rates – excess consumption – have been a common feature of Greece and Portugal since 2003"*.[2]

Against this background, in this paper we investigate the broader question of whether cultural traits affect the emergence or persistence of macroeconomic imbalances. We focus on interpersonal trust as the main proxy for civic capital (cf. Guiso *et al.*, 2010) and six other cultural traits we deem relevant in this context. Unlike most of the existing literature on trust and economic

outcomes (e.g., Algan and Cahuc, 2010; Knack and Keefer, 1997; Tabellini, 2010), we therefore do not look at the link between trust and *economic growth* (or economic development) but between trust and *economic imbalances*. Our main hypothesis is that higher interpersonal trust, as a well measurable indicator of a broader set of underlying values and preferences, reduces macroeconomic imbalances. To measure macroeconomic imbalances we consider three economic indicators, (i) the government budget balance, (ii) the inflation rate and (iii) the current account balance. On the basis of these three indicators, we construct an imbalances index for a large set of advanced and emerging countries, *i.e.*, going well beyond the euro area. Figure 1 presents some first preliminary evidence which suggests a link between interpersonal trust and economic imbalances.

The notion that culture matters in explaining economic outcomes is certainly not new. As early as 1905, Max Weber postulated a causal effect of religion on the development of capital which has been subject to a large body of research ever since (Barro and McCleary, 2006; Guiso *et al.*, 2006). Tabellini (2010) analyses the impact of culture on economic development and finds that culture is the main channel through which distant history impacts on institutional and economic outcomes. Many studies relating culture to macroeconomic performance focus on trust as main indicator. Algan and Cahuc (2010), for example, look at the impact of US immigrants' descendants' trust and show that inherited trust had a direct impact on growth in the twentieth century.

Taking the research on culture and economic outcomes one step further, this paper empirically addresses three main questions. *First*, do cross-country differences in inter-personal trust affect macroeconomic imbalances, *i.e.*, the government budget balance, the inflation rate and the current account balance? *Second*, does the level of trust between euro area countries vary, and, if so, how significant is this variation compared to the rest of the world? *Third*, does euro area membership weaken the link between trust and macroeconomic imbalances, possibly by introducing rules and institutions that foster sustainable economic policies at the national level?

The starting point of our narrative is the characterisation of macroeconomic imbalances as an inter-temporal shift of resources. The fiscal laxity associated with high public deficits, the over-consumption or over-investment associated with high current account deficits (where these deficits do not reflect expectations of higher future growth) and high inflation can all be regarded as processes that attempt to shift resources from the future to the present. Policy makers and citizens transfer the burden of paying for goods from which the current majority gains to the future, often onto the shoulders of future generations. This is a kind of *inter-temporal collective action problem*. We conjecture that societies are better able to overcome such problems and to focus on long-term public goods when higher levels of interpersonal trust prevail, that is, when the society's civic capital is more developed (cf. Guiso *et al.*, 2010).

In our analysis, we proceed in three main steps. First, we document global differences in trust using decade-level data from the World Values Survey (WVS) and the European Values Study (EVS) starting in 1980. We extend our analysis by considering six additional traits that we deem potentially relevant in the context of explaining economic imbalances (honesty, obedience, confidence in individual self-determination, competition affinity, work ethic, importance attached to thrift). While trust and honesty are proxies for civic capital, the other traits capture a broader notion of norms and beliefs that we refer to as civic culture. Given the limited data availability and the fact that these traits tend to persist over time (cf. Guiso *et al.*, 2006), we use decade-level averages, *i.e.*, one observation for the 1980s, the 1990s, and the 2000s. In the second step, we analyse to what extent civic culture is associated with economic imbalances. To this end, we first present cross-correlations between our cultural traits and their association with the imbalances

Figure 1

Trust and Macroeconomic Imbalances
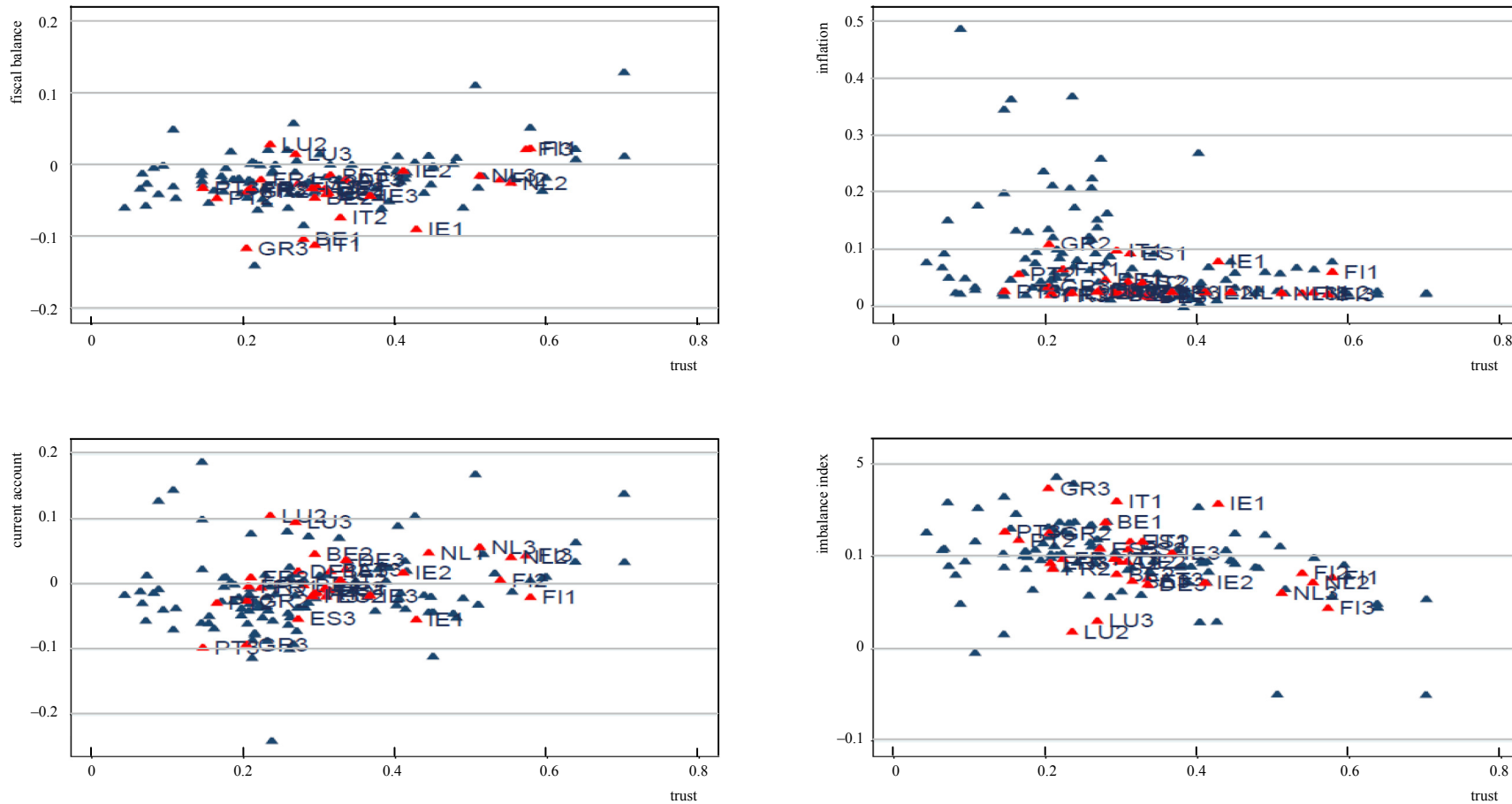
Notes: The values represent observations per country and decade (1980s, 1990s and 2000s). EA12 countries are colored and labelled. Current account and fiscal balance are expressed as ratios to GDP. The Imbalance Index is constructed using the standardised 2000-10 average of (i) the inflation rate minus (ii) the fiscal balance in percentage of GDP minus (iii) the current account in percentage of GDP, where each component has also been standardised (for details, see Section 4.1).
Source: IMF WEO, World Values Survey and own calculations.

index. We then focus on trust and estimate its impact on the imbalances index, employing both Ordinary Least Squares (OLS) and Instrumental Variables (IV). In the third and final step, we focus on the euro area only. We interact trust with dummies for euro area low-yield and high-yield countries to see whether euro area membership attenuated or amplified the effect of trust on economic imbalances.[3]

The biggest challenge in this strand of literature is to isolate the impact of civic capital from those of other factors, notably institutions, and to address the issue of reverse causality. While civic capital likely affects economic outcomes, there could also be a feedback mechanism through which economic outcomes reinforce and shape certain values and preferences. In our analysis, however, this issue should be less of a concern. First, we only look at a relatively short time horizon of three decades and values like interpersonal trust tend to be very slow-moving. Second, while economic growth and development may indeed impact on individual norms and preferences, it is less clear in what way economic imbalances would impact on such values. Nevertheless, we employ instrumental variables to address possible issues of reverse causality. Moreover, we explicitly control for the quality of institutions, as well as people's confidence in them, to identify the effect of civic capital on economic imbalances over and above the influence of institutions. We also control for other potential explanatory variables, where relevant, such as income and education.

For the entire country sample we find strong evidence of a link running between interpersonal trust and economic imbalances. While we do detect differences in trust between euro area low-yield and high-yield countries in the data, these differences are not large by international standards and typically not statistically significant. Finally, we find no evidence that the euro has had any impact on the link between trust and imbalances. Focusing on euro area imbalances, we find that controlling for differences in trust removes around one fifth of the differences between low-yield and high-yield countries in our measure of imbalances.

The paper is organised as follows. Section 2 clarifies the concept of culture in our work and explains the focus on civic capital and trust. Section 3 briefly describes the transmission channels through which trust is expected to impact on economic imbalances. Section 4 outlines the construction of the imbalances index, the measurement of our variables of civic culture, and the choice of control variables and instruments. The empirical approach is discussed in Section 5. Section 6 presents the baseline results at the global level. Section 7 discusses the results specific to the euro area. Section 8 concludes.

2   Culture, civic capital, and trust

2.1   *Definitions*

The Oxford English Dictionary defines culture as "*the ideas, customs, and social behaviour of a particular people or society*" and, more relevant in our context, as "*the attitudes and behaviour characteristic of a particular social group*".[4] To be more specific, we are interested in civic capital which Guiso *et al.* (2010) define as "*those persistent and shared beliefs and values that help a group overcome the free rider problem in the pursuit of socially valuable activities*". Civic capital is similar to the concept of social capital developed inter alia by Putnam (1993), which enables individuals to effectively collaborate in a group in order to reach common goals. Although civic

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[3]   As will be discussed in detail in Section 7, we define as euro area low-yield countries those original eleven euro area countries (plus Greece which joined in 2001) with a long-term sovereign credit rating of AA or higher. Accordingly, euro area high-yield countries are those with a long-term sovereign credit rating of BBB+ or lower.

[4]   "Culture" (2013. At: Oxforddictionaries.com. Retrieved January 14, 2013, from http://oxforddictionaries.com/definition/english/culture

capital is a collective concept, it has its roots in individual values, attitudes and preferences. Papademos (2007) speaks of "*values*" that "*can affect markets and economic performance both directly and indirectly, that is by shaping the features, objectives and functioning of institutions*".

In this paper we consider the following values and norms: (i) interpersonal trust as the main proxy for civic capital, (ii) honesty, (iii) obedience, (iv) confidence in individual self-determination, (v) competition affinity, (vi) work ethic, and (vii) importance attached to thrift.[5] With the exception of honesty, the latter six traits do not directly measure civic capital. Yet, they matter for our analysis since they measure a more general form of cultural capital, or civic culture, that may impact on economic imbalances. We use the term civic culture as a broader reflection of values and norms in society and not in its narrower sense pertaining to participatory issues. As will be discussed in greater detail in Section 4, we expect all seven traits, with the exception of obedience, to reduce economic imbalances. In the choice of our traits we have been guided by the literature on culture and economic outcomes. Tabellini (2010) inter alia uses interpersonal trust, obedience and confidence in individual self-determination to measure culture and its impact on the economic development in the regions of Europe. Knack and Keefer (1997) look at honesty when analysing the impact of civic capital on growth and investment rates. Phelps (2006) stresses the positive impact of a population's willingness to work hard (work ethic) and their acceptance of a free market economy (competition affinity) on national economic outcomes like labour productivity and the employment rate. Guiso *et al.* (2006) analyse the importance of a population's preference for thrift on national saving rates.

2.2   Why trust?

Our analysis focuses on trust as main proxy for civic capital for several reasons. First, the significance of trust for economic interactions has been well established in the literature, both theoretically and empirically. Trust matters because "*virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time*" (Arrow, 1972). In a high-trust environment, any kind of economic interaction will be observed more frequently and carried out at a lower cost. This can be attributed to trust reducing uncertainty, thereby lowering contract and control costs. Higher levels of interpersonal trust can also reduce principal-agent problems, increase investment in physical and human capital, and promote innovation (Knack and Keefer, 1997). In addition, trust may impact on cross-border movements of goods and labour (Spring and Grossmann, 2013). Trust is also used as main proxy for civic capital (Guiso *et al.*, 2010) and social capital (Zak and Knack, 2001) since a person's dispositional tendency to trust others is considered key to overcome social coordination failures. Put differently, the degree to which people trust each other should be a good indicator of a society's ability to internalise the general interest. This is because contributions to a public good hinge on the degree to which people trust their fellow citizens that these contributions will be put to productive means.[6] In the same vein, interpersonal trust impacts on economic outcomes through better institutions and improved government performance (Putnam, 1993). For instance, Knack (2000) shows that higher levels of trust enhance political participation and decrease rent-seeking.

Second, it can be argued that trust is considerably correlated with the other cultural traits considered above. We expect trust to be positively correlated with *honesty*. An individual who

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5   Their exact measurement is explained in greater detail in Section 4 and in the Appendix.

6   Herrmann *et al.* (2008) show dramatic differences in behaviour across countries using a controlled experiment. Participants in high-trust countries such as Germany or Switzerland tended to contribute more than participants in low-trust countries such as Greece or Turkey. Moreover, participants in high-trust countries had a higher inclination to punish non-contributors whereas a large number of participants in low-trust countries paradoxically even punished those who did contribute.

places high trust in other people and expects them to behave in an honest way is more likely to be honest in her interactions with other individuals herself. On the other hand, trust should be negatively correlated with *obedience* since high levels of inter-personal trust increase the confidence in other individuals' actions and reduce the need to insist on strict obedience. In a principal-agent situation characterised by low levels of trust, however, the principal should demand stricter obedience from the agent. Likewise, in a low-trust environment, interpersonal interactions are likely to be structured in a more rigid, hierarchical way. This tends to restrain the room for personal development, thereby reducing the belief in individual self-determination. We therefore expect a positive relation between interpersonal trust and the belief in *individual self-determination*. We also expect trust to be positively correlated with the acceptance of free market forces (*competition affinity*). Lower trust in others should increase the perceived need to reduce free competition, be it in the economy or at work. This is because the perceived probability that counterparts in economic interactions will cheat is higher in low-than in high-trust environments, so that competition cannot be expected to lead to efficient outcomes. Moreover, higher trust should go hand in hand with a more pronounced *work ethic*, *i.e.*, with individuals' willingness to work hard. For instance, in high-trust environments employees will trust that their work will be adequately rewarded. Finally, we expect a positive link between the *importance attached to thrift* and generalised trust: if individuals believe that the government will guarantee savings and that the risk of expropriation is negligible, saving will become more attractive and thrift valued. Furthermore, higher levels of trust may facilitate the implementation of sustainable policies and thus positively impact on public savings. However, in principle the effect of higher readings of trust on national saving rates is ambiguous. In societies with low levels of generalised interpersonal trust people may have an incentive to save more if they believe that they (and their children) cannot rely on anybody but close family members. In our sample, the former effect outweighs the latter markedly as we will show in Section 4.2.

Third, we use trust due to reasons of data quality. While people may deliberately misreport their true convictions in surveys to look good in the eyes of the interviewer, they may have little incentive to lie about their levels of trust towards others. For example, measures of honesty in values surveys tend to be upward biased because interviewees may be reluctant to reveal morally questionable ("bad") behaviour, particularly if it is illegal. Lastly, and not surprisingly in view of the arguments presented above, trust outperforms all other variables in explaining macroeconomic imbalances as will be discussed in the empirical section.

2.3   Origins of trust

The level of trust in a society is not exogenously given. Delhey and Newton (2005) analyse the origins of trust in sixty countries and find that countries with high levels of trust tend to exhibit ethnic homogeneity, Protestant religious traditions, good government, relatively high GDP per capita and income equality. In explaining long run levels of trust, the literature emphasises the role of religion and history (such as legal origin, slavery, or foreign occupation). Putnam (1993), for instance, claims that the hierarchical structure of the Catholic Church, and its focus on traditional virtues like obedience and the acceptance of one's destiny in life, has discouraged the formation of trust in Italy. La Porta *et al.* (1997) extend this argument to other hierarchical religions, such as Eastern orthodox and Islam. Protestantism, on the other hand, as described in Weber's Protestant Ethic, is the archetype of a non-hierarchical religion, associated with higher levels of trust. Considering the strong path-dependency of norms and values prevailing in a society, another important factor in explaining contemporaneous levels of trust is the structure and quality of institutions in the distant past (Tabellini, 2010).

In this paper, however, we remain agnostic about the origins and formation processes of trust and the other cultural variables we consider since they are not of immediate relevance in the context of our empirical analysis. While we take the existing levels of trust as given, in a second step we employ religion and legal origin as instruments for trust to alleviate concerns about reverse causality.

3   The impact of trust on macroeconomic imbalances: potential transmission mechanisms

What is the mechanism through which trust impacts on economic imbalances? We start from the characterisation of macroeconomic imbalances as an inter-temporal shift of resources. "Bad" imbalances, brought about by policy choices and indicated by large fiscal and current account deficits and high inflation rates, can be considered a form of sub-optimal redistribution of wealth from future to current generations, as well as from the future to the present within the same generation (cf. Alesina and Perotti, 1995). This is essentially an *inter-temporal collective action problem*. We argue that the main channel through which higher readings of interpersonal trust impact on imbalances is a society's increased ability to overcome such collective action problems. Higher levels of trust help individuals and politicians enhance the care of current generations for future generations when the two are not directly related through parental links. That is, trust induces agents to internalise the future costs of their action. Following this line of reasoning, we predict that trust impacts on each of our three imbalances indicators, *i.e.*, the general government balance, the inflation rate and the current account.

We expect higher levels of interpersonal trust to be associated with lower fiscal deficits. Reforms aimed at fiscal consolidation are easier to implement when interpersonal trust between citizens and social groups is high (Alesina and Drazen, 1991). Moreover, higher interpersonal trust decreases tax evasion (Feld and Frey, 2002) and activities in the informal sector (D'Hernoncourt and Méon, 2008). Both phenomena can be considered collective action problems in the sense that a particular individual action, such as evading taxes, has social costs that are not internalised by the individual. They are more likely to occur in a low-trust environment where citizens are less convinced (i) that their fellow citizens will play by the rules and pay taxes themselves and (ii) that their government will make efficient use of the tax revenues.

We expect higher levels of interpersonal trust to be associated with lower inflation rates. Higher trust leads policy makers and society as a whole to place more emphasis on price stability as a long-term public good. In the words of Gordon (1975), high-trust environments would thus reduce both the "*demand for*" and the "*supply of*" inflation. The "*demand for inflation*" would decrease as groups that might potentially benefit from inflation, e.g., beneficiaries of public programmes who are opposed to the reduction of public expenditures, exert less political pressure to pursue inflationary policies. The "*supply of inflation*" would decrease as a response to lower "*demand for inflation*" but also through institutions shaped by the higher level of civic capital, such as an independent central bank or a wage bargaining system that allows for downward wage flexibility. Indeed, as regards wage inflation, high-trust environments should make it easier to ensure that wage developments are kept in line with productivity developments and facilitate the downward adjustment of wages where necessary.

We expect higher levels of interpersonal trust to be associated with lower current account deficits. Higher readings of trust may reduce a country's current account deficit by mitigating collective action problems in the implementation of structural reforms. Labour market reforms or reforms aimed at the liberalisation of goods markets, for example, should help increasing a country's competitiveness and improve the current account balance. With higher levels of trust citizens and interest groups are more likely to accept the costs of reform since they expect others to

do the same.[7] This is also due to the fact that, in high-trust environments, individuals are more likely to accept long-term compromises and economic strategies as they have longer time horizons (Tabellini, 2010).

4   Data

Our dataset comprises decade-level data between 1980 and 2010 for 65 advanced and emerging economies. Table 1 provides the full list of countries covered. A description of all variables used in this paper and their sources can be found in Table 16 and Table 17 in the Appendix. Table 18 provides summary statistics for most below mentioned variables which may facilitate the interpretation of the regression results in Section 6.

4.1   Measuring macroeconomic imbalances

We construct a stylised macroeconomic imbalances index:

$$Imbalance_{it} = -fb_{it} + \pi_{it} - ca_{it} \tag{1}$$

where *fbt* is government net lending in percentage of GDP, *πt* is the inflation rate, and *cat* is the current account of the balance of payments in percentage of GDP. Furthermore, each component is standardised to account for different variances. An increase in the index signals an increase in macroeconomic imbalances, by which we mean a higher fiscal deficit, a higher inflation rate, and a higher current account deficit. Since this implies a normative statement on the desirable sign and size of the components, we present alternative variants below. However, as we show in the estimation, the results do not hinge on the exact specification of the index.

For robustness we consider five variants of our imbalances index. In the second version of the index, we include inflation in absolute values, based on the recognition that the benefits of low inflation disappear when inflation turns negative (*Imbalance*2). In the third version, we include the current account balance in absolute terms since very high current account surpluses may also signal the existence of imbalances (*Imbalance*3).[8] In the fourth version, we remove the current account balance altogether (*Imbalance*4), thereby leaving only the variables on which governments have more direct influence and in the fifth version we remove inflation from the index (*Imbalance*5). The sixth version squares all components to resemble a loss function which is particularly sensitive to both large surpluses and deficits (*Imbalance*6).

A number of caveats apply. First, we recognise that the choice of indicators is debatable and that alternative measures could be included in the index. In particular, imbalances are a matter of stock, not flow, variables. We consider the public deficit instead of public debt because it is the deficit that ultimately drives the stock of public debt. A high level of public debt is not worrisome as such, as long as the government runs a large enough primary surplus. For the same reason, and also considering measurement problems and issues of data availability, we include the current

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[7]   For example, the role of low interpersonal trust in impeding product market reforms in Italy is illustrated by Eichengreen (2012): "*There is lack of trust among the social groups called on to make sacrifices. Italian taxi drivers would be prepared to allow more competition if they were sure that Italian pharmacy owners were willing to do likewise. But if issuing more taxi medallions reduces cab drivers' earnings, while pharmacists succeed in vetoing pro-competition measures to lower the cost of their services, the taxi drivers will end up worse off and the pharmacists will be enriched, which hardly seems fair*".

[8]   Although the European Commission's Macroeconomic Imbalance Procedure attaches a greater degree of urgency to tackling current account deficits, as opposed to surpluses, its surveillance covers both. While a high current account deficit may signal an unsustainable external debt position, a high surplus may reflect weaknesses in domestic demand (European Commission, 2012).

Table 1

List of Countries

Algeria	Finland	Malaysia	Singapore
Argentina	France	Malta	Slovakia
Australia	Germany	Mexico	Slovenia
Austria	Greece	Morocco	South Africa
Belgium	Hong Kong	Netherlands	Spain
Bosnia-Herzegovina	Hungary	New Zealand	Sweden
Brazil	Iceland	Nigeria	Switzerland
Bulgaria	India	Norway	Taiwan
Canada	Indonesia	Pakistan	Thailand
Chile	Ireland	Peru	Turkey
China	Israel	Philippines	Ukraine
Croatia	Italy	Poland	United Kingdom
Cyprus	Japan	Portugal	United States
Czech Republic	Korea	Romania	Venezuela
Denmark	Latvia	Russia	
Egypt	Lithuania	Saudi Arabia	
Estonia	Luxembourg	Serbia	

Table 2

Variants of the Imbalances Index

$Imbalance1_{it} = -fb_{it} + \pi_{it} - cait$
$Imbalance2_{it} = -fb_{it} + |\pi_{it}| - cait$
$Imbalance3_{it} = -fb_{it} + |\pi_{it}| + |cait|$
$Imbalance4_{it} = -fb_{it} + \pi_{it}$
$Imbalance5_{it} = -fb_{it} - ca_{it}$
$Imbalance6_{it} = (fb_{it} * 100)^2 + (\pi_{it} * 100)^2 + (ca_{it} * 100)^2$

account balance (flow), leaving aside the net international investment position (stock). Additionally, one could include other measures of competitiveness, e.g., unit labour costs, export market shares or the real effective exchange rate, or the level of private debt in the imbalances index. Second, different weights could be given to the different components, instead of using a simple average, to reflect the fact that an in-or decrease of one percentage point in one indicator does not matter to the same extent as a similar change in another indicator. However, the case for doing so is not clear cut and, to avoid arbitrariness, we consider that equal weights are a reasonable starting point. Third, the inclusion of the inflation rate as an imbalance indicator might pose questions. For example, inflation differentials in the euro area could simply reflect wage convergence, that is, a process of catching up by the high-yield with the low-yield countries, rather than unsustainable developments.

In the Appendix (Table 19) we report the correlation matrix between *Imbalance* (and its variants), its various components, and alternative macroeconomic imbalance indicators of possible relevance. As we would expect, the components are strongly correlated with each other. *Imbalance* is positively correlated with its five variants and the inflation rate and negatively correlated with the fiscal balance and the current account balance. We also add the net international investment position as percentage of GDP to the correlation matrix, as well as an indicator of institutional quality which is discussed in detail in Section 4.3. The net international investment position is negatively correlated with Imbalance and *Imbalance*2. Surprisingly, it is not correlated with the current account balance. The quality of institutions appears to be negatively correlated with *Imbalance*4 and the inflation indicator, suggesting that institutional quality matters especially to contain inflation.

When ranking advanced countries according to Imbalance in the past decade in Table 3, the euro area countries that are currently under an EU/IMF adjustment programme appear at the bottom while the euro area low-yield countries, Switzerland and the Scandinavian countries display a much better performance. This is visualised by Figure 2 in the Appendix. Our index thus seems to be a reasonably good measure of a balanced economy.

4.2   *Measuring civic capital and civic culture*

To measure civic capital, *i.e.*, interpersonal trust and honesty, and the other traits of a society's civic culture that were introduced in Section 2, we make use of survey data from the World Values Survey (WVS) and the European Values Study (EVS). WVS and EVS are large-scale, cross-national longitudinal surveys that are well established in the literature. The EVS covers mainly Western European countries; surveys were carried out in 1981, 1990, 1999 and 2008. The WVS emerged out of the EVS; survey waves date from 1990, 1995, 2000 and 2005. The questions in the two surveys have been harmonised to allow for their integration and cover four broad topics, *i.e.*, family, religion and morality, work/leisure and broader societal issues. WVS and EVS cover 96 countries, with at least 1000 respondents in each country.

There are obvious drawbacks to working with values surveys. The usual caveats apply regarding possible sampling errors and response bias. The authors of the WVS correct for the fact that more highly educated, more urbanised persons tend to be over-sampled in the surveys by attaching different weights to different groups in the data (Inglehart, 2000). Another issue is that surveys may tend to measure individuals' marginal, time-dependent, preferences, rather than more stable values (Beugelsdijk and Maseland, 2011). Moreover, the aggregation of individual preferences at country-level ignores within-country differences in civic capital and culture that may be significant.

<div align="right">**Table 3**</div>

Imbalances Index Country Ranking: Advanced Economies

Rank	Country	Index Value	Rank	Country	Index Value
1	Norway	−3.78	18	Japan	−0.16
2	Singapore	−2.08	19	Australia	−0.10
3	Hong Kong	−1.73	20	France	−0.08
4	Switzerland	−1.72	21	Slovenia	0.01
5	Luxembourg	−1.70	22	Italy	0.05
6	Finland	−1.34	23	Estonia	0.14
7	Sweden	−1.33	24	United Kingdom	0.14
8	Denmark	−1.09	25	Ireland	0.20
9	Taiwan	−1.03	26	United States	0.29
10	Netherlands	−0.91	27	Spain	0.33
11	South Korea	−0.87	28	Czech Republic	0.37
12	Germany	−0.68	29	Cyprus	0.54
13	Canada	−0.63	30	Malta	0.65
14	Belgium	−0.58	31	Iceland	0.76
15	Austria	−0.53	32	Portugal	0.81
16	Israel	−0.25	33	Slovakia	0.90
17	New Zealand	−0.21	34	Greece	2.02

Notes: The imbalances index is measured as the standardised 2000-10 average of (i) the inflation rate minus (ii) government net lending in percentage of GDP minus (iii) the current account in percentage of GDP, where each component has also been standardised. See also Table 2. Advanced economies are identified according to IMF classification.

For each trait included in our analysis, we consider the replies to between one and three relevant survey questions. We aggregate the available annual data to decade-level data (using the average observation in each decade) and thus have three observations per country, for the 1980s, 1990s and 2000s, respectively.

It follows a brief discussion of how our variables are constructed; further details can be found in Table 17 in the Appendix.

Trust. We measure interpersonal trust using the question "*Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?*". *Trust* is the percentage of respondents in each country replying "*Most people can be trusted*". Knack and Keefer (1997) point to the ambiguity of this question depending on whom respondents refer to when thinking of "*most people*". Respondents in low-trust environments are likely to deal relatively less often with strangers and more often with friends or members of their family, as compared to respondents in high-trust environments. The variation in the replies might hence be reduced if respondents regard "most people" as the people that they interact with.

When measuring trust, a distinction needs to be made between generalised and personalised trust. While generalised trust refers to trust in persons that are randomly drawn from the societal sample, personalised trust refers to trust in persons the respondents have a specific relationship with, e.g., family members, colleagues, friends. Results for these two types of trust may differ markedly. In this paper, we are interested in generalised, interpersonal trust only. As discussed at length in Section 2, we expect interpersonal trust to attenuate imbalances. High levels of personalised trust, on the other hand, may be indicative of a society where the provision of and contribution to public goods is limited: trust and cooperation tend to be restricted to interactions among family members and friends. For an overview of different trust levels across Europe see Figure 3.

Honesty. We measure honesty using the first principal component of the replies to the question "*Is it justifiable to cheat on taxes / avoid fare on public transport / fail to report damage you have done accidentally to a parked vehicle?*". This variable measures the extent to which individuals attempt to increase their own benefits irrespective of potentially negative social externalities of their actions (Guiso *et al.*, 2010). In countries where honesty is underdeveloped tax evasion, for instance, is likely to be more pronounced, as are corruption and fraud. The resulting increase in transaction and enforcement costs tends to increase inefficiencies in the economy. Low-honesty countries are therefore likely to be associated with high imbalances indices. The risk of biased replies is high for this question, potentially leading to an under-reporting of the justifiability of the mentioned actions and artificially high levels of honesty. Because of this measurement problem, we rely on trust as proxy for civic capital; in principle, honesty should also be a good indicator of civic capital.

Obedience. We measure obedience using the survey question "*Which quality do you consider to be especially important to teach your children?*" and take the first principal component of the percentage of mentions of "*obedience*" and "*independence*" (the latter enters with a negative sign). The relationship between obedience and macroeconomic imbalances is ambiguous. On the one hand, a certain willingness to follow orders is a necessary pre-condition to ensure the implementation of decisions taken and a smooth collaboration in any working environment. This leads Phelps (2006) to assume a positive impact of obedience on labour productivity. Tabellini (2010), however, observes that "*coercive cultural environments stifle individual initiatives and cooperation within a group*" and may lead to the implementation of decisions that are considered wrong or inefficient.

Control. To measure control, we make use of the question "*How much freedom of choice and control you feel you have over the way your life turns out?*". Control essentially measures the belief in individual self-determination, referring to individuals' conviction that their life is primarily controlled by themselves rather than by exogenous factors and that individual effort is likely to pay off. Individuals that are "*highly motivated to succeed and view economic success as related to their deliberate choices [...] are more likely to work hard, to invest for the future and to innovate and undertake new economic initiatives*" (Tabellini, 2010). A high level of control could thus decrease macroeconomic imbalances.

Competition affinity. We measure the general acceptance of competition in a country with the first principal component of the replies to the questions "*how would you place your view on a scale from 1 to 10*", ranging from "*competition is good*" to "*competition is harmful*", and "*people can only get rich at the expense of others*" versus "*wealth can grow so there is enough for everyone*". A population with positive attitudes towards competition should be more likely to favour competition, and therefore market liberalisation, in product and labour markets. Phelps (2006) uses acceptance of competition as one of various attitudes to explain employment, labour participation rates and labour productivity.

Work ethic. To measure work ethic we take the first principal component of (i) the percentage of respondents who mention "*hard work*" when asked which quality they consider to be especially important to teach their children and (ii) the percentage of respondents who say that work is "*very important*" in their lives. Work ethic is meant to capture individuals' intrinsic motivation to work (Phelps, 2006). In societies where work is central to individuals' lives, and where individuals define themselves via their work, they can be expected to be more motivated and hardworking. A good work ethic may increase productivity, thereby increasing competitiveness and possibly contributing to an improvement in the current account balance.

Propensity to save. We measure propensity to save using the survey question "*Which quality do you consider to be especially important to teach your children?*" and take the percentage of mentions of "*thrift, saving money and things*". It is fair to assume that the degree of importance individuals attach to thrift impacts on their savings decisions, and consequently affects overall private saving. Guiso *et al.* (2006) empirically confirm the positive impact of thrift on national savings rates, although their results are less clear when they use instruments rather than standard OLS. Thrift can thus be expected to impact on a country's current account balance. It may also affect the level of public debt, provided that voters' preferences are reflected by the incumbent government.

Overall civic culture. To obtain a summary measure and gauge of civic culture, we take the first principal component of all seven variables. As shown in Table 20, we find that overall civic culture is positively correlated with all seven values (in particular with work ethic, trust and honesty) apart from obedience, where the correlation is strongly negative, as expected.

Table 20 also provides the correlations between the seven traits. In line with our expectations, and the discussion in Section 2, trust is positively correlated with control and honesty, and negatively with obedience. Unexpectedly, the correlation with work ethic is not statistically significant, while the correlation with competition affinity and the propensity to save is negative. It is noteworthy that household saving rates, measured as the percentage of savings to disposable income, are negatively correlated with trust, suggesting that low levels of interpersonal trust may induce precautionary saving behaviour on the individual level. However, this does not translate into higher saving rates on aggregate (and thereby lower imbalances) since trust and gross national saving, measured as gross national income less total consumption plus net transfers, are positively correlated with each other. This implies that gross national saving is primarily driven by public saving which in turn is strongly associated with interpersonal trust.

4.3 Controls

In our empirical analysis we employ a number of potentially relevant control variables to alleviate the risk of omitted variable bias and test the robustness of our results. While time dummies and real GDP per capita are always included in the baseline estimation, further controls comprise the quality of institutions, confidence in national institutions, latitude, the age dependency ratio, educational attainment, financial openness, financial development, a communist past dummy, and the oil trade balance to GDP ratio.

Income. Real GDP per capita (PPP converted, at 2005 constant prices) should be correlated with the imbalances index, as well as with civic capital, due to a self-reinforcing mechanism (cf. Knack, 2000). If high levels of civic capital are conducive to economic growth as postulated in the literature (e.g., Guiso *et al.*, 2006 and 2010), the resulting higher level of income serves as a reward mechanism, upholding and strengthening values like trust and honesty. In the regressions real GDP per capita is scaled to units of $1000 without undergoing further transformation since the relationship between trust and real GDP appears linear in the non-transformed data.

Institutional Quality. Apart from direct effects, trust can have indirect effects on macroeconomic imbalances via a number of variables, particularly the quality of institutions. It is therefore crucial to include institutional quality as a control. We use the International Country Risk Guide (ICRG) indicator of "Quality of Government" as a proxy for institutional quality.[9] The ICRG indicator consists of the mean values of the three ICRG variables corruption, law and order, and bureaucratic quality (Teorell *et al.*, 2011).[10] Controlling for institutions should allow us to assess to which extent institutional quality intermediates the impact of trust on macroeonomic imbalances.

Confidence in national institutions. Interpersonal trust could also influence economic imbalances through its link with trust towards institutions, with transmission mechanisms similar to those described above. Brehm and Rahn (1997), for example, consider confidence in national institutions as closely related to interpersonal trust. This is because people that have higher trust in their fellow citizens and expect them to accept and comply with government policies are more likely to accept those policies themselves and therefore trust institutions. To ensure that we capture the impact of interpersonal trust on imbalances in addition to the impact that confidence in national institutions may have, we use a WVS question that inquires about the degree of confidence that respondents have in various institutions. We measure *confidence in national institutions* with the following question: "*I am going to name a number of organizations. For each one, could you tell me how much confidence you have in them: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all?*" We then construct our *confidence in national institutions* indicator from the first principal component of respondents' answers regarding "*parliament*" and "*judicial system*". These two institutions have been covered in the EVS Questionnaire since the first wave in 1981 and are therefore appealing for reasons of data availability. Moreover, we consider them good indicators of the public's prevailing sentiment towards institutions, regardless of religious or political beliefs. Indeed, correlations with other confidence measures, such as confidence towards the government, the police or the social security system, turn out highly significant and positive (at 0.72, 0.63 and 0.68, respectively) across the whole sample. Likewise, we find a strong and statistically significant correlation (0.43) between interpersonal trust and confidence in national institutions, which lends evidence to our assumption that these two measures display a substantial amount of co-movement.

Latitude. A country's geography and climate has been argued to impact on economic outcomes and long-term development (e.g., Acemoglu *et al.*, 2002). Economies farther away from the equator are expected to perform better in terms of GDP per capita (Hall and Jones, 1999). Similarly, geography and climate may have an impact on trust, and civic capital more generally, and macroeconomic imbalances. We therefore include latitude, defined as the distance (in degrees) of each country's capital to the equator, as a control in the sensitivity analysis.

Old age-dependency ratio. An adverse composition of the age structure might put a strain on government expenditures. To not falsely attribute such potential negative effects on the fiscal balance to civic capital, we control for the underlying demographics. This has the additional advantage of simultaneously controlling for possible links between civic capital and the age structure (a higher average age could lead to more conservative answers).

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[9]   The ICRG indicator is highly correlated with the World Bank's commonly used Worldwide Governance Indicators (WGI) with a correlation coefficient of 0.92 for the overlapping sample. Since the WGI only start in 1996, we opt for the ICRG indicator throughout the whole analysis.

[10]   The corruption variable measures actual or potential corruption in the form of excessive patronage, nepotism, job reservations, "favor-for-favors", secret party funding, and suspiciously close ties between politics and business. The law and order variable assesses the strength and impartiality of the legal system and popular observance of the law. The bureaucratic quality variable assesses to which extent a country's bureaucracy is autonomous from political pressure and has an established mechanism for recruitment and training (Teorell *et al.*, 2011).

Education. Higher levels of education can be expected to have a positive impact on both trust and *Imbalance*. Knack and Keefer (1997) argue that "*education may strengthen trust and civic norms, for example, if ignorance breeds distrust, or if learning reduces uncertainty about the behavior of others, or if students are taught to behave cooperatively*". At the same time, a positive correlation between education and *Imbalance* may be due to the fact that a more educated electorate chooses leaders with stronger long-term orientation. Hence, we include a variable of educational attainment of those 25 years and older (male and female) to see whether the impact of education attenuates the individual impact of trust.

Communist past. We include a dummy for countries with a communist past to account for the additional challenges those countries had to cope with in maintaining sustainable economic policies, particularly in the first two decades of our sample. Otherwise, this effect could bias the coefficient of civic capital since civic capital itself is impacted by having a history of communism.

Oil trade balance. Oil exporters are more likely to have large fiscal and current account surpluses even in the absence of sustainable economic policies due to the revenues from oil exports. This conjecture is confirmed when we look at the overall country ranking of *Imbalance* which lists a number of Northern African and Middle Eastern countries near the top of the index.

Financial openness. Financial openness, as measured by the Chinn-Ito index of capital account openness (Chinn and Ito, 2006), may be associated with both cultural traits, such as the acceptance of competition or open-mindeness towards strangers, and certain components of *Imbalance*. As regards the latter, financial openness makes it easier to finance imbalances and may thus be correlated with the current account and the government balance.

Financial development. Civic, or social, capital has been shown to be positively correlated with financial development which we measure as the ratio of private credit to GDP. Guiso *et al.* (2004) demonstrate that in Italy households in regions with high social capital, as measured by electoral turnout and blood donation, are more likely to have better access to credit. One might expect a similar relationship between trust and financial development. At the same time, financial development is often, though not unanimously, argued to be correlated with the national savings rate. This and the fact that financial development facilitates debt financing might impact on our imbalances index over and beyond any influence of civic capital.

4.4 Instruments

A key issue that needs to be addressed in the analysis of the relation between trust and economic outcomes is the direction of causality and the possible endogeneity of the regressors. To scrutinise the effect of trust and other values on macroeconomic imbalances, we rely on instrumental variables. For these variables to be valid, they should be (i) relevant, *i.e.*, the variation in the instrument should be related to the variation in our independent variables (trust and other traits, as well as the controls), and (ii) exogenous, *i.e.*, uncorrelated with the error term. A number of promising variables have been proposed in the literature, of which we have selected the most suitable for our robustness analysis. Nevertheless, it should be borne in mind that finding instruments that are both relevant and exogenous is difficult in practice and that the instruments used here will inevitably be imperfect.

Derived from the WVS questions "*How important is religion in your life?*" and "*Do you consider encouraging your children to learn religious faith to be important?*", we take religiosity as one instrumental variable considering that it should be highly correlated with trust and the other traits we consider, as discussed in Section 2, but not susceptible to short-term change and reverse feedback mechanisms from macroeconomic imbalances (cf. Knack, 2000). Religious customs and

beliefs display a strong path-dependency. At the same time, distant religious customs and beliefs have had a strong, potentially mutually reinforcing impact on likewise highly persistent values, such as trust.[11]

In a similar vein, we employ the *share of Protestants* (again obtained from the WVS). The share of Protestants should not matter for contemporaneous macroeconomic imbalances in view of largely harmonised legal systems (particularly in the euro area), once we control for level differences in per capita income.[12]

The two instruments display a high correlation with trust at –0.50 and 0.51 respectively, are only weakly correlated with each other (–0.11) and are not relevant explanatory variables in the original equation.This prima facie evidence is corroborated in the two-stage least-squares estimation. The instruments appear to be valid and strong as the *J*-test for overidentifying restrictions and the Kleibergen-Paap test for underidentifying restrictions indicate.

Additionally, we take advantage of the panel structure of our data and employ *lagged trust* as an instrument. Because trust is very persistent over time, lagged values are a strong instrument for periods ahead. At the same time, since past values of trust cannot be influenced by macroeconomic imbalances in later periods it can be considered exogenous and not prone to reverse causality. We control for lagged macroeconomic imbalances in order to rule out that part of its explanatory power on macroeconomic imbalances in subsequent decades is picked up by the lagged trust instrument.[13]

5   Empirical model

To test the hypothesis whether trust, and differences in civic capital more generally, have contributed to the build-up of macroeconomic imbalances, we first estimate the following equation:

$$Imbalance_{it} = \alpha + \beta Trust_{it} + \gamma_t\lambda_t + \delta\theta\theta_{it} \tag{2}$$

where i is the country, t is time (decade) and θ is a vector of control variables as described in Section 4.3. We start from a simple bivariate regression of *Imbalance* on *Trust* and λt that captures mere association and then employ relevant controls and instrumental variable estimation to identify a potentially causal relationship. Note that both *Imbalance* and *Trust* are standardised unless stated otherwise. In terms of interpretation, β indicates the average effect of one standard deviation change in *Trust* (equivalent to 0.142 on a *Trust* scale from 0 to 1) on Imbalance (equivalent to 1.93 on an *Imbalance* scale from –7.51 to 5.53) from one decade to the next.

We treat the data as cross-sectional due to the properties of our sample (small $T = 3$, large $N = 65$) and control for possible serial correlation and unobserved heterogeneity by clustering at the country level. Furthermore, we employ decade level time dummies λt to control for aggregate time effects that are common to all countries. We do not include country-fixed effects since most of the variation in our sample stems from cross-country differences. Indeed, the between variation of trust is six times as high as the within variation in our sample. Moreover, conducting a robust Hausman test as proposed by Wooldridge (2002), which yields the same test statistic as a Mundlak test, does

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[11] We remain agnostic with respect to the exact transmission mechanism, which may be both extrinsic via institutions and intrinsic via ethics. In any case, this is not central to our argument.

[12] Apart from the two above mentioned instruments, we also considered a number of other potential instruments discussed in the literature, *i.e.*, legal origin, ethnic fractionalisation, income per capita in the early 1800s, population density in the 1500s, and the length of coastline as a share of country size. However, none of these variables had as strong an association with trust as the included ones.

[13] Indeed, in the original equation (available upon request) lagged trust becomes highly insignificant once lagged imbalances are controlled for, indicating a valid exclusion restriction.

not indicate the presence of country-fixed effects. Their inclusion would therefore render the estimation inefficient.[14]

When comparing pooled OLS estimates with standard errors clustered at the country level with those obtained from a random effects (RE) model, we find that standard errors do not deviate substantially between the two. Estimations under the RE specification only yield modestly higher standard errors without impacting on the significance or size of the coefficients. Although the Breusch-Pagan Lagrange multiplier test indicates the presence of heterogeneity, it seems more appropriate to proceed with pooled OLS and cluster-robust standard errors given the structure of our dataset. This allows for valid inference even in the presence of autocorrelation and unobserved heterogeneity.[15]

To check the robustness of our results and to test whether the identified link may indeed be causal in nature, we instrument *Trust* as outlined in Section 4.4. The use of instrumental variables should, in principle, address concerns of endogeneity in our model. Moreover, it is difficult to imagine the presence of reverse causality or simultaneity with regard to trust and macroeconomic imbalances over a time span of only thirty years. Indeed, the augmented Durbin-Wu-Hausman test does not suggest the presence of endogeneity in the baseline pooled OLS regression (with income, education and quality of institutions included as controls).

6   Results for the whole sample

6.1   *Capturing associations*

We start off with some prima facie evidence on our first main research question: *Do cross-country differences in interpersonal trust and other traits of civic culture affect macroeconomic imbalances?* Looking at the pooled OLS results in Table 4, we find that, in line with our expectations, trust, work ethic, and overall civic culture are significantly associated with a lower macroeconomic imbalances index and that obedience is associated with a higher imbalances index. However, with the exception of trust, all regressions on the socio-cultural variables display R^2 values below or equal to 0.14, suggesting that the variation in the imbalances index attributable to civic culture is limited. At the same time, we find that a one standard deviation increase in trust corresponds to roughly one half of a standard deviation reduction in macroeconomic imbalances, which is a large effect. Column (9), which includes all socio-cultural variables that are significant when used as individual regressors, shows that trust (and to a lesser degree work ethic) is indeed the most relevant variable, while overall civic culture and obedience become statistically insignificant. To see whether our results are broadly consistent with the literature on the nexus between culture and growth, we run a similar regression with real GDP per capita as dependent variable in column (10). We find that also in this case there is a positive, large and statistically significant association between trust and income. Concretely, one standard deviation in trust (corresponding to 14 percentage points on a trust scale from 0 to 100) is associated with a $6700 increase in real GDP per capita (PPP).

An interesting question at this point is whether our results are driven by one of the three components of our imbalances index in particular. Table 5 presents estimates of the regression of *Imbalance* and its variants (as described in Section 4), as well as the individual components of the

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[14]   Note that results from all mentioned tests can be obtained from the authors upon request.

[15]   While the Pesaran cross-section dependence test cannot be performed in our sample due to too few common observations across the panel, cross-sectional dependence should not be much of an issue when *T* is very small relative to *N*.

Table 4

Association Between Civic Culture and Imbalances

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)*
Competition is good	−0.16 *(0.17)*									
Obedience		0.23** *(0.11)*							−0.10 *(0.17)*	
Control			−0.16 *(0.10)*							
Trust				−0.47*** *(0.10)*					−0.57*** *(0.16)*	6.73*** *(1.04)*
Work ethic					−0.37** *(0.15)*				−0.54** *(0.26)*	
Propensity to save						0.11 *(0.12)*				
Honesty							−0.12 *(0.12)*			
Civic culture								−0.35*** *(0.12)*	0.31 *(0.31)*	
Observations	112	126	123	126	126	126	126	123	123	141
R^2	0.104	0.059	0.080	0.276	0.141	0.069	0.069	0.170	0.276	0.286

Notes: Pooled OLS on decade-level data, including time dummies. All cultural variables are standardized. Civic culture is constructed as the first principal component of all seven cultural variables which are described in detail in Table 17.
(*) In regression (10) the dependent variable is real GDP per capita (PPP) in 1000 $ (2005 constant prices). Robust standard errors (clustered at country level) in parentheses; significance levels: *** 1 per cent, ** 5 per cent, and *10 per cent.

index, on trust. The results are consistent across variables, in particular negative for inflation and positive for the government balance and the current account balance. They confirm our predictions from Section 3 that higher interpersonal trust is associated with lower fiscal deficits, lower inflation rates and lower current account deficits.

To interpret the magnitude of the results, Table 6 provides non-standardised estimates for all imbalances indicators, additionally controlling for real GDP per capita. It becomes clear that a large part of the common variation between trust and Imbalance can be attributed to the link between trust and inflation with a strongly negative association and trust and the fiscal balance with a strongly positive association. A 10 percentage point (p.p.) increase in trust is associated with a 1.1 p.p. decrease in inflation. Equivalently, a 10 p.p. increase in trust is associated with a 1 p.p. improvement in the fiscal balance. The nexus seems to be weakest for trust and the current account

Table 5

Variants of Imbalances and Trust

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Imbalance	**Imbalance2**	**Imbalance3**	**Imbalance4**	**Imbalance5**	**Imbalance6**	**Inflation**	**Fiscal Balance**	**Current Account**
Trust	−0.47***	−0.38***	−0.29***	−0.49***	−0.38***	−0.24**	−0.35***	0.37***	0.26***
	(0.10)	(0.12)	(0.10)	(0.10)	(0.12)	(0.11)	(0.09)	(0.12)	(0.10)
Observations	126	126	126	126	126	126	142	126	143
R^2	0.276	0.171	0.0990	0.342	0.163	0.0593	0.215	0.168	0.0697

Notes: Pooled OLS on decade-level data, including time dummies. Table 2 provides definitions of the different imbalance indices. All variables are standardised. For a description of inflation, fiscal balance and current account see Table 16. Robust standard errors (clustered at country level) in parentheses; significance levels: *** 1 per cent, ** 5 per cent, and * 10 per cent.

Table 6

Trust and Components of the Imbalances Index (Non-standardised)

	Inflation		**Fiscal Balance**		**Current Account**	
	(1)	(2)	(3)	(4)	(5)	(6)
Trust	−0.19***	−0.11**	0.09***	0.10***	0.10***	0.04
	(0.05)	(0.05)	(0.03)	(0.04)	(0.04)	(0.05)
Real GDP		−0.18***		−0.01		0.10*
per capita (PPP)		(0.04)		(0.04)		(0.06)
Observations	142	139	126	123	143	140
R^2	0.215	0.288	0.168	0.180	0.070	0.122

Notes: Pooled OLS on decade-level data, including time dummies. None of the variables are standardised. Fiscal balance and current account are measured in percentage of GDP. Robust standard errors (clustered at country level) in parentheses; significance levels: *** 1 per cent, ** 5 per cent, and * 10 per cent.

<div align="right">**Table 7**</div>

<div align="center">

Differences Across Regions
(dependent variable: Imbalances index)

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	(1) **Global**	(2) **Advanced**	(3) **Europe**	(4) **European Union**	(5) **Euro Area 17**	(6) **Euro Area 12**
Trust	–0.47***	–0.52***	–0.61***	–0.49***	–0.49***	–0.43**
	(0.10)	(0.14)	(0.13)	(0.08)	(0.11)	(0.18)
Observations	126	59	72	57	38	30
R^2	0.276	0.355	0.414	0.356	0.319	0.316

Notes: Pooled OLS on decade-level data, including time dummies. The imbalances index (*Imbalance*) and trust are standardised. *Global* refers to the entire set of countries as listed in Table 1. *Advanced* countries (classified according to the IMF criterion) are listed in Table 3. *Europe* refers to its geographical boundaries whereas *European Union* comprises the 27 EU countries as of 19 December 2012. Robust standard errors (clustered at country level) in parentheses; significance levels: *** 1 per cent, ** 5 per cent, and * 10 per cent.

where both size and significance of the coefficient are lowest. This is confirmed by the low R^2 of 0.07 that we observe with trust as single regressor.

Furthermore, the associations are consistent across different country groups. This can be seen in Table 7 where we narrow the country selection from a global scale to the original euro area. Indeed, the association of macroeconomic imbalances with trust is not only maintained when restricting the sample but is even slightly larger for all but one subset.

6.2 Robustness checks

In Table 8 we test whether the relationship between trust and imbalances may be driven by potential omitted variables.

When including real GDP per capita in column (2) we observe that, as expected, income picks up some of the impact of trust on imbalances. The drop is not large, however, and trust remains significant at the 1 percent-level. Adding *confidence in national institutions* in column (3), the effect of trust decreases further as the additional variable picks up some of the shared variation of trust. Nevertheless, we exclude it from the baseline scenario in the subsequent regressions since the inclusion of *confidence in national institutions* decreases the sample size substantially, from 123 observations to 86. Including other potentially relevant variables such as institutional quality (the ICRG indicator) and education (measured as years of schooling) in column (4) does not increase the explanatory power of the regression as the *adjusted R^2* values and the *F*-test for joint significance of the additional controls indicate. At the same time, the effect of trust is preserved in size and significance. The insignificance of institutional quality suggests that trust may have a direct impact on imbalances in the short to medium run that is not intermediated by the quality of institutions, at least as measured by the ICRG indicator. When we take the full sample and simultaneously add all control variables discussed in Section 4.3, none of the controls turns out to be statistically significant individually (column 5). In sum, the coefficient for trust remains positive and statistically significant across all specifications albeit somewhat smaller in size.

<div align="right">**Table 8**</div>

Robustness: Adding Controls
(dependent variable: Imbalances index)

	(1)	(2)	(3)	(4)	(5)
Trust	–0.47***	–0.35***	–0.19*	–0.22*	–0.22*
	(0.10)	*(0.12)*	*(0.10)*	*(0.11)*	*(0.12)*
Real GDP per capita (PPP)		–0.02**	–0.02*	0.01	0.01
		(0.01)	*(0.01)*	*(0.01)*	*(0.02)*
Confidence in institutions			–0.17*	–0.12	–0.09
			(0.09)	*(0.11)*	*(0.12)*
Quality of Government				–0.17	–0.37
				(0.21)	*(0.30)*
Years of schooling				–0.05	0.01
				(0.05)	*(0.07)*
Oil trade balance to GDP					0.01
					(0.01)
Latitude					0.01
					(0.01)
Age dependency ratio					–0.02
					(0.02)
Chinn–Ito index of financial					0.11
openness					*(0.13)*
Dummy for post–communist					0.12
country					*(0.22)*
Financial development					–0.10
(private credit to GDP ratio)					*(0.11)*
Observations	126	123	86	73	62
Adjusted R^2	0.258	0.319	0.433	0.438	0.439
Controls: Prob > F		0.042	0.082	0.451	0.272

Notes: Pooled OLS on decade-level data, including time dummies. The variables imbalances index (Imbalance), trust, confidence in institutions, quality of government, the Chinn-Ito index, and financial development are standardised. Compare with Table 18 for interpretation. A description of all control variables can be found in Table 16. Robust standard errors (clustered at country level) in parentheses; significance levels: *** 1 per cent, ** 5 per cent, and * 10 per cent.

Proceeding with real GDP per capita and time trends as controls in the full country sample, Table 9 shows that our results are robust to model choice as coefficients and standard errors are broadly the same across the pooled OLS, a random effects and an autoregressive (AR(1)) setting.[16]

6.3   *Capturing causality: IV estimates*

As mentioned earlier, a major concern with our results ought to be the possibility of simultaneity bias. This is well recognised in the literature on culture and growth but should be less of a concern for our analysis. It seems far-fetched to argue that imbalances may by themselves influence trust rather than the other way around. Nonetheless, it is important to rule out that the relationship may be driven by a third, unobserved common factor. Using the set of instrumental variables (IVs) introduced in Section 4.4 we address the question of causality in Table 10. A comparison of OLS with IV estimates using religiosity and the share of Protestants as instruments for trust confirms the strong negative association between trust and *Imbalance* in columns (1) and (2) (controlling for time fixed effects only). While the negative link persists when we add real GDP per capita as control (column 4), significance vanishes. However, this result could be driven by outliers in the global dataset. Once we re-estimate the regression with a reduced sample that contains advanced countries only (34 countries in the third decade), significance reappears with an even greater coefficient of –0.58 (column 7).

Employing lagged values of trust as IVs lends further evidence to size and significance of the effect of trust on macroeconomic imbalances. To this end we instrument trust with trust one period ahead in the first stage of the 2SLS (limiting the number of observations in the second stage) and additionally control for lagged *Imbalance*. At –0.24, this yields a coefficient close to the one obtained under the first set of IVs (column 4) which is significant at the 5 per cent-level (column 5). The strength of the lagged trust instrument is confirmed by the Kleibergen-Paap (K-P) statistic but due to exact identification (as we have one instrument per instrumented variable), we cannot test the exclusion restriction.[17]

Overall, the results suggest that a strong link between trust and macroeconomic imbalances can indeed be established with the former impacting on the latter. The IV estimates in columns (4) and (7) in Table 10 point to a factor of around –0.24, meaning that an increase of trust by one standard deviation lowers our measure of imbalances by around 1/4 of a standard deviation. This is slightly larger than the pooled OLS estimates with the full set of controls of –0.22 in columns (4) and (5) of Table 8.[18] Furthermore, the transmission channel appears to be more pronounced in advanced countries than across the entire set of countries.[19] Across all specifications, the standard tests confirm the instruments to be valid (large *J*-test *p*-value) and strong (small K-P *p*-value and large first-stage *F*-statistic). However, the *J*-test for overidentifying restrictions is based on the untestable assumption that at least one of the restrictions is valid such that we cannot give an absolute verdict on the causal effect of trust on macroeconomic imbalances. While we interpret the empirical findings as highly indicative for the argument put forth in this paper, we advise to take the results with a grain of salt.

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[16]   As explained in the beginning of this section, including fixed effects would not be warranted by our sample structure with $T \ll N$. Indeed, estimating such a model would yield an adjusted $R^2<0$ while leaving the effect of trust large and significant at a 10 per cent-level.

[17]   The coefficient of lagged trust in the original equation becomes insignificant once lagged imbalances are controlled for, thus indirectly indicating a valid exclusion restriction.

[18]   Adding additional controls such as years of schooling or institutional quality in the IV 2SLS regressions does not have a sizable effect on either magnitude or significance of the results.

[19]   Note that this result may be driven by data issues in developing countries rather than by structural reasons.

Robustness: OLS, RE and AR(1)

(dependent variable: Imbalances index)

	(1)	(2)	(3)
	OLS	**RE**	**AR(1)**
Trust	−0.35***	−0.37***	−0.31**
	(0.12)	*(0.11)*	*(0.12)*
Real GDP per capita (PPP)	−0.02**	−0.02*	0.00
	(0.01)	*(0.01)*	*(0.01)*
Imbalances Index (−1)			0.49***
			(0.11)
Observations	123	123	78
Adjusted R^2	0.319	.	0.323

Notes: Column (1) provides pooled OLS estimates, column (2) estimates from a random effects model, and column (3) estimates from the following AR(1) model:

$$Imbalance_{it} = \alpha + \varphi Imbalance_{t-1} + \beta Trust + \gamma \lambda_t + \delta \theta_{it}$$

All models include time dummies. The imbalances index (*Imbalance*) and trust are standardised. Robust standard errors (clustered at country level) in parentheses; significance levels: *** 1 per cent, ** 5 per cent, and * 10 per cent.

7 Results for the euro area

Having assessed the relationship between trust and macroeconomic imbalances across a large sample of countries, we now shift the focus to the euro area.

7.1 Macroeconomic imbalances in the euro area

Macroeconomic imbalances between euro area countries accumulated throughout the first decade of the single currency. Low interest rates and lax financial conditions led to large private capital flows from low-yield to high-yield countries, where excessive credit and borrowing fuelled domestic demand and inflationary pressures.[20] Public debt and deficits rose. The accumulation of net financial liabilities often went hand in hand with an increase in current account deficits, while competitiveness losses manifested themselves, for instance, in increasing unit labour costs (see Figure 4). The opposite happened in low-yield countries that provided credit to high-yield countries. With relatively high saving rates, domestic demand remained subdued and price pressures contained. Gains in competitiveness, often supported by a high degree of wage moderation, were reflected in current account surpluses. When private capital flows stopped, the debt overhang of high-yield countries triggered large distress in financial markets. Of course, this process needs to be seen against the background of global trends, where financial integration enabled countries to accumulate ever larger external liabilities.

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[20] Although we make use of the stylised terms euro area low-yield and high-yield countries, it needs to be stressed that important differences within both groups prevail. For instance, foreign capital was not used for the same purposes in all high-yield countries. While Greece and Portugal mainly used foreign capital to finance consumption, it helped funding construction booms in Spain and Ireland (Gros 2012).

Table 10

OLS and IV estimates
(dependent variable: Imbalances index)

	(1)	(2)	(3)	(4)	(5)	(6)*	(7)*
	OLS	IV[1]	OLS	IV[1]	IV[2]	OLS	IV[1]
Trust	−0.468***	−0.474***	−0.345***	−0.234	−0.241**	−0.375**	−0.579***
	(0.103)	(0.151)	(0.118)	(0.208)	(0.105)	(0.141)	(0.193)
Real GDP per capita	N	N	Y	Y	Y	Y	Y
$Imbal_{t-1}$	N	N	N	N	Y	N	N
Instruments	.	Rel., Prot.	.	Rel., Prot.	$Trust_{t-1}$	.	Rel., Prot.
Observations	126	126	123	123	58	56	56
R^2	0.276	0.276	0.341	0.332	0.402	0.483	0.446
J-test (*P*-value)	.	0.23	.	0.50	.	.	0.22
K-P test for underidentification (*P*-value)	.	0.002	.	0.009	0.002	.	0.031
First-stage *F*-statistic (excluded instruments)	.	58.4	.	31.1	458	.	20.7

Notes: Pooled OLS or IV as indicated in each column, including time dummies. In the IV estimates the instrumented variable is always Trust while the instruments are as follows. IV[1]: Religiosity and Share of Protestants (see Table 16); IV[2]: $Trust_{t-1}$. (*) (6) and (7) contain advanced countries only. The Imbalances Index and Trust are standardised. Robust standard errors (clustered at country level) in parentheses; significance levels: ***1 per cent, **5 per cent, and *10 per cent.

Guiso *et al.* (2012) provide a stylised game-theoretical framework for analysing how differences in civic capital may play out within a currency union. They show that the single currency has brought together European countries with fundamentally different values and attitudes. Instead of two separate "*cheat and forgive*" and "*responsible actions and commitment to punish otherwise*" equilibria, countries within the currency union now find themselves trapped in a suboptimal "*cheat and punish*" equilibrium. The authors interpret civic capital as a political economy friction in the sense that political leaders are limited in their choice of policies by the underlying norms of the electorate. To alleviate this "*conformity constraint*" the authors argue for deeper fiscal integration in the euro area.

However, one may conjecture that the currency union itself, where supranational constraints on national fiscal policies have existed since the very beginning in the form of the Stability and Growth Pact, has already had a mitigating effect, at least on fiscal imbalances. In our analysis, we therefore test whether such an effect, a kind of *vincolo esterno*, is observable in the data. For this purpose we look at the original eleven members of the euro area plus Greece which joined in 2001 (henceforth referred to as EA12). Only in those countries should we expect a measurable difference in the link between trust and imbalances, when comparing the pre-euro decades to the euro-decade.[21]

7.2 The estimated model for the euro area

We estimate the following equation:

$$Imbalance_{it} = \alpha + \beta_1 Trust_{it} + \beta_2 \Delta EA_{it} + \beta_3 \Delta EA_{it} * Trust_{it} + \beta_4 \Delta EA_{it} * Euro_{it} + \gamma_t \lambda_t + \delta \theta \theta_{it} \qquad (3)$$

where *Euro* is a dummy taking the value 1 in the third decade (the 2000s), during which the euro existed, and 0 otherwise. ΔEA is a measure of intra-euro area differences. It takes the value 1 if the country is a euro area low-yield country, -1 if it is a euro area high-yield country, and 0 otherwise. We define as euro area low-yield countries those EA12 countries with a long-term sovereign credit rating of AA or higher. Accordingly, euro area high-yield countries are those EA12 countries with a long-term sovereign credit rating of BBB+ or lower.[22]

Euro area low-yield and high-yield countries therefore include the following:
- Low-yield: Austria, Belgium, Finland, France, Germany, Luxembourg, the Netherlands;
- High-yield: Greece, Ireland, Italy, Portugal and Spain.

Since this categorisation itself is not independent of macroeconomic imbalances, we include ΔEA separately in the regression to control for any potential self-selection effects. The interaction term $\Delta EA_{it} * Trust_{it}$ will consequently only pick up the additional effect of trust on macroeconomic imbalances for EA12 low-yield or high-yield countries.

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[21] Not only have the EA12 been sharing the common currency for more than 10 years. Even before the introduction of the euro in 1999 the convergence criteria, which a country needs to fulfil to be able to adopt the euro imposed de facto restrictions on national economic policies.

[22] Credit ratings by Standard & Poor's, data cut-off: 19 December 2012.

7.3   Differences in civic culture in the euro area

Moving to our results for the euro area, we next address our second main research question: *Does the level of trust between euro area countries vary, and, if so, how significant is this variation compared to the rest of the world?* While Figures 3 and 5 suggest that there are considerable cross-country differences in trust levels across Europe, they do not reveal whether they are also large by international standards. To assess this question, we regress trust and the other cultural variables on ΔEA_{it} as shown in Table 11. A regression on this dummy variable allows to test whether differences between low-yield and high-yield countries are systematically bigger than in the global control group. A positive coefficient indicates lower values in the high-yield and higher values in the low-yield countries. We find that, with the exception of propensity to save, differences go in the expected direction but are not statistically significant. This suggests that, from an international perspective, heterogeneity in trust and overall civic culture within the euro area is not particularly large. Table 12 reports the same analysis for advanced countries only which corroborates the finding that the only detectable systematically larger difference is the propensity to save.

We also include an interaction term with a time dummy for the third decade (the 2000s). A negative and significant coefficient would indicate that there had been a process of cultural convergence since the establishment of the euro, *i.e.*, that differences in civic capital have been reduced. For most of the variables, we find no evidence of such cultural convergence. This is hardly surprising given the persistence of values and norms over time.[23] Furthermore, a Chow-test for joint significance of EA12 and EA12 interacted with trust in an augmented baseline regression does not indicate the existence of significant structural differences. As regards the variance of trust across EA12 countries compared to the rest of the world, we find that it is likely to be smaller within EA12 countries.[24]

7.4   The nexus in the euro area and the impact of the euro

We now turn to our third main research question: *Has euro area membership weakened the link between civic capital and macroeconomic imbalances,* possibly by having introduced rules and institutions that foster sustainable economic policies and constrain behaviour at the national level? To start with, in column (1) of Table 13, we regress *Imbalance* on the same dummy used in Table 11 (*i.e.*, a variable taking the value 1 for euro area low-yield countries and −1 for euro area high-yield countries). We find that there is a large and statistically significant difference in *Imbalance* between low-yield and high-yield countries. How much is this relation driven by differences in trust between the two country groups? Controlling for trust in column (2) removes about one fifth of the difference, leaving four fifths unexplained. Adding a euro-area difference interaction term with trust in column (3), we find that the link between trust and macroeconomic imbalances may have been weaker in EA12 countries over the entire time horizon: the coefficient is positive and significant, thereby lowering the overall attenuating effect that trust has had on the emergence of macroeconomic imbalances.

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[23]   For instance, regressing trust on time fixed effects only yields a R^2 of 0.071, suggesting that variation over time is rather small indeed.

[24]   Conducting a one-sided variance ratio test with the H0 : σTrust Non−EA12/σT rust EA12 ≤ 1, we can reject the H0 on a 10 per cent level.

Table 11

Differences in Civic Culture: EA vs. All Countries

	(1) **Competition Is Good**	(2) **Obedience**	(3) **Control**	(4) **Trust**	(5) **Work Ethic**	(6) **Propensity to Save**	(7) **Honesty**	(8) **Civic Culture**
ΔEA	0.06	−0.24	0.06	0.17	0.12	0.44**	0.13	0.26
	(0.28)	(0.20)	(0.20)	(0.23)	(0.13)	(0.17)	(0.14)	(0.21)
ΔEA*Euro	−0.01	−0.10	0.05	0.28**	0.04	−0.13	0.03	0.14
	(0.18)	(0.14)	(0.09)	(0.11)	(0.07)	(0.10)	(0.09)	(0.12)
Observations	153	175	172	175	175	175	175	172
R^2	0.097	0.018	0.002	0.088	0.442	0.095	0.084	0.076

Notes: Pooled OLS based on decade-level data, for the whole set of countries in Table 1. All regressions include time dummies. The variable ΔEA takes value 1 if a country belongs to an EA12 country with an S&P rating of AA or higher (low-yield) and −1 for EA12 countries with a rating below (high-yield) as of 19 December 2012. "Euro" takes value 1 if the observation stems from the third decade of the sample. *Civic culture* is constructed as the first principal component of all seven cultural variables which are described in detail in Table 17. Robust standard errors (clustered at country level) in parentheses; significance levels: *** 1 per cent, ** 5 per cent, and * 10 per cent.

Table 12

Differences in Civic Culture: EA vs. Advanced Countries

	(1) **Competition Is Good**	(2) **Obedience**	(3) **Control**	(4) **Trust**	(5) **Work Ethic**	(6) **Propensity to Save**	(7) **Honesty**	(8) **Civic Culture**
ΔEA	−0.08	0.13	−0.12	−0.01	−0.13	0.49**	0.30*	−0.04
	(0.38)	(0.30)	(0.30)	(0.38)	(0.18)	(0.19)	(0.16)	(0.35)
ΔEA*Euro	0.02	−0.26	0.14	0.43***	0.22	−0.24*	−0.01	0.34
	(0.29)	(0.17)	(0.17)	(0.15)	(0.16)	(0.13)	(0.19)	(0.22)
Observations	59	69	68	69	69	69	69	68
R^2	0.160	0.048	0.005	0.051	0.524	0.194	0.061	0.174

Notes: Pooled OLS based on decade-level data, for the whole set of countries in Table 1. All regressions include time dummies. The variable ΔEA takes value 1 if a country belongs to an EA12 country with an S&P rating of AA or higher (low-yield) and −1 for EA12 countries with a rating below (high-yield) as of 19 December 2012. "Euro" takes value 1 if the observation stems from the third decade of the sample. Civic culture is constructed as the first principal component of all seven cultural variables which are described in detail in Table 17. Robust standard errors (clustered at country level) in parentheses; significance levels: *** 1 per cent, ** 5 per cent, and * 10 per cent.

Table 13

Euro Area Differences
(dependent variable: Imbalances index)

	(1)	(2)	(3)	(4)	(5)
ΔEA	–0.51***	–0.40***	–0.47***	–0.35***	–0.42***
	(0.18)	*(0.11)*	*(0.12)*	*(0.12)*	*(0.11)*
Trust		–0.34***	–0.37***	–0.34***	–0.35***
		(0.11)	*(0.12)*	*(0.11)*	*(0.12)*
ΔEA*Trust			0.21*		
			(0.12)		
ΔEA*Euro				–0.12	
				(0.22)	
ΔEA*Euro*Trust					0.27
					(0.19)
Observations	147	123	123	123	123
Adjusted R^2	0.238	0.353	0.355	0.348	0.352

Notes: Pooled OLS based on decade-level data. All regressions include time dummies and real GDP per capita. The imbalances index (Imbalance) and trust are standardised. The variable ΔEA takes value 1 if a country belongs to an EA12 country with an S&P rating of AA or higher (low-yield) and –1 for EA12 countries with a rating below (high-yield) as of 19 December 2012. "Euro" takes value 1 if the observation stems from the third decade of the sample. Robust standard errors (clustered at country level) in parentheses; significance levels: *** 1 per cent, ** 5 per cent, and * 10 per cent.

The next two columns try to address the questions of (i) whether the difference between low-yield and high-yield countries has been influenced by the euro (interaction term with a dummy variable covering the 2000s), and (ii) whether the nexus between trust and imbalances has itself been influenced by the euro (the euro as a straightjacket). In neither case do we find evidence that the adoption of the euro has made any difference. The euro and trust in conjunction have had no significant impact.[25]

For further illustration purposes, Table 14 reports the same analysis for the non-standardised components of the imbalances index. As one would expect from Table 6, the reduction in the effect of ΔEA on Imbalance seems to be driven by inflation and, to an even stronger degree, by the fiscal balance. As regards the latter, controlling for (the positive effect of) trust reduces the difference in the fiscal balance between low-yield and high-yield countries from 1.72 to 1.22 p.p. of GDP. Again, the transmission mechanism seems to be largely running through the inflation rate and the fiscal balance. The current account remains essentially unaffected.

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[25] However, this result should be taken with a pinch of salt considering the large drop in the number of observations when employing an interacted dummy for the last time period only.

Table 14

Euro Area Differences (Non-standardised)

	Inflation		Fiscal Balance		Current Account	
	(1)	(2)	(3)	(4)	(5)	(6)
ΔEA	–1.01	–0.44	1.72*	1.22*	2.17***	2.32***
	(0.62)	(0.80)	(0.94)	(0.70)	(0.60)	(0.60)
Trust		–0.11**		0.10***		0.04
		(0.05)		(0.04)		(0.05)
Real GDP per capita (PPP)	–0.21***	–0.18***	0.02	–0.02	0.11**	0.08
	(0.05)	(0.05)	(0.03)	(0.03)	(0.04)	(0.06)
Observations	183	139	147	123	185	140
Adjusted R^2	0.197	0.262	0.0650	0.172	0.140	0.131

Notes: Pooled OLS on decade-level data, including time dummies. None of the variables are standardised. Fiscal balance and current account are measured in percentage of GDP. The variable ΔEA takes value 1 if a country belongs to an EA12 country with an S&P rating of AA or higher (low-yield) and –1 for EA12 countries with a rating below (high-yield) as of 19 December 2012. Robust standard errors (clustered at country level) in parentheses; significance levels: *** 1 per cent, ** 5 per cent, and * 10 per cent.

The last table, Table 15, presents an alternative analysis of the nexus between trust and macroeconomic imbalances in the euro area. Starting with a general euro area high-yield dummy we subsequently add trust, euro area membership and the interaction terms of interest. Under this specification, the impact of trust becomes even more evident. The positive association of Imbalance with high-yield is reduced by almost 40 per cent once trust is controlled for. Additionally, and different from Table 13, this effect does not vanish when trust is interacted with high-yield countries, suggesting that the transmission mechanism in these countries is not different from that in the rest of the world. Hence, the weaker link between trust and imbalances detected in column (3) of Table 13 must primarily be driven by a weaker link in the euro area low-yield countries. It seems that the comparatively high readings of trust in the low-yield countries have decreased the *Imbalance* values to a lesser extent than we would have expected from the global estimation results.

The inclusion of an interaction term for the high-yield countries during the years of euro area membership in columns (4)-(7) of Table 13 sheds light on the importance of imbalances under the single currency. Interestingly, the high-yield country effect is not lowered significantly when the interaction term is added individually. However, once trust is added, the high-yield country coefficient drops by almost 70 per cent from column (1) to column (5). This suggests, not surprisingly, that the emergence of macroeconomic imbalances in the euro area high-yield countries was particularly pronounced during the past decade, when low interest rates facilitated the build-up of imbalances. At the same time, this development has been attenuated in countries with higher readings of trust. The result is robust to the inclusion of further interaction terms in columns (6) and (7). The fact that these interaction terms are not significant individually suggests that trust did not matter more or less in the high-yield countries than it did elsewhere. Across all specifications, the effect of trust is significant at around -0.3 which is in the vicinity of our results from Section 6.

Table 15

Trust and Imbalances: Euro Area High-yield Countries
(dependent variable: Imbalances index)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Euro area country: High-yield	1.03***	0.64***	0.61***	0.90***	0.32*	0.32*	0.32*
	(0.26)	*(0.18)*	*(0.16)*	*(0.26)*	*(0.17)*	*(0.17)*	*(0.17)*
Trust		–0.31***	–0.31***		–0.30***	–0.30***	–0.30***
		(0.11)	*(0.11)*		*(0.11)*	*(0.11)*	*(0.11)*
High-yield * Trust			–0.50			–0.27	
			(0.60)			*(0.44)*	
High-yield * Euro				0.37	0.81**	0.76**	1.29
				(0.25)	*(0.35)*	*(0.32)*	*(0.97)*
High-yield * Euro * Trust							–1.91
							(3.11)
Observations	147	123	123	147	123	123	123
Adjusted R^2	0.279	0.353	0.351	0.277	0.363	0.359	0.359

Notes: Pooled OLS based on decade-level data. All regressions include time dummies and real GDP per capita. The imbalances index (*Imbalance*) and trust are standardised. The variable *High-yield* takes value 1 for EA12 countries with a S&P rating below AA as of 19 December 2012. "Euro" takes value 1 if the observation stems from the third decade of the sample. Robust standard errors (clustered at country level) in parentheses; significance levels: *** 1 per cent, ** 5 per cent, and * 10 per cent.

Papademos (2007) points out that intra-euro area differences in civic capital are mirrored by different social models. He singles out the Nordic, Anglo-Saxon, Continental, and Mediterranean social models which persist "*precisely because the underlying values and preferences are different*". He draws the conclusion that the European Union provides a "*unique cooperative framework*" for policy makers to "*learn from each other (...) and then adapt the most promising ideas about economic institutions and regulations to the local conditions and the prevailing economic cultures*". If such an adaption had happened, the coefficient on trust interacted with intra-euro area differences should have the opposite sign of the trust variable itself. Although this is indeed the case in Table 13, the coefficient of the interacted trust variable is significant only at the 10 per cent-level. Hence, European integration, and the euro in particular, does not seem to have led to a convergence of national economic models towards the most efficient practices over the past two decades.

Overall, it is fair to say that, although differences in civic capital between euro area low-yield and high-yield countries can be observed, they are not particularly large when put into international perspective. Indeed, for trust and most other socio-cultural variables, the difference between low-yield and high-yield countries is not statistically significant. Controlling for trust removes about one fifth of the difference between low-yield and high-yield countries in terms of *Imbalance*, leaving the other four fifths unexplained. In order to give an idea of the economic significance of our findings, Figure 5 plots the three components of *Imbalance* against trust in the euro area for the period after 1999. We find that there is a noticeable relationship for all of them, but also a considerable deviation across countries from the regression line.

8   Conclusion

So far, the economic research that incorporates cultural elements has mostly focused on the link between culture and economic growth or economic development. This paper adds to the existing body of literature with an analysis of the link between civic capital, in particular interpersonal trust, and macroeconomic imbalances. The key findings of our empirical analysis are as follows. First, our results suggest a strong negative link between trust and macroeconomic imbalances with a transmission factor of around 1⁄4, which runs mainly via the fiscal balance and the inflation rate. Second, differences in civic capital between euro area low-yield and high-yield countries exist but they are not large by international standards. Third, the nexus between trust and imbalances is similarly robust in the euro area before and after the introduction of the euro, with one fifth of intra-euro area variation in imbalances being attributable to differences in interpersonal trust.

Taken together, the results indicate that there has indeed been a "cultural contribution" to the build-up of imbalances in the global economy and between euro area countries in particular. The finding that euro area membership has not affected the link between civic capital and macroeconomic imbalances suggests that monetary union and EU fiscal rules have not imposed a straightjacket on national economic policies which could be explained by the improper enforcement of fiscal and economic rules in the euro area throughout the first decade of the euro's existence (Ioannou and Stracca, 2012).

As discussed in the paper, a number of caveats apply to our analysis with regard to comparability of survey data, mutual interdependence or the selection of appropriate instruments. However, with regard to the overall interpretation of our results, we share Akerlof's (2007) conviction that "*in the study of the effect of norms on macroeconomics (...) endogeneity may sometimes dampen, but will rarely nullify, the conclusions*". Regarding theoretical predictions, a

promising task for future research would be the devel¬opment of a formal model to illustrate the transmission channel which we only sketched.

If macroeconomic imbalances depend on cultural factors that cannot (and perhaps should not) be changed in the short run, should we resign ourselves to live with unsolvable imbalances and ever expanding economic divergence in the euro area? Certainly not. Given that only a small fraction of euro area imbalances can be explained by differences in civic capital there is ample scope for public policies, both at the national and euro area level, to compensate for the negative impact of low levels of civic capital on imbalances. Ideally, we would like to repeat the estimation in a few years time to see whether the newly introduced EU macroeconomic coordination tools, such as the Macroeconomic Imbalances Procedure, have succeeded in severing the link between interpersonal trust and imbalances.

At the same time, understanding the link between trust (and culture more generally) and economic imbalances is crucial for the successful implementation of such policies since low levels of trust might impose informal constraints. Eventually, any new rule or institution is unlikely to work efficiently if it does not correspond to the population's underlying preferences (Tabellini, 2010). Policy makers should therefore also focus on setting surroundings that are conducive to enhanced trust and honesty between citizens, to a higher acceptance of free market structures and an increased feeling of individual self-determination. Potentially valuable initiatives could, for example, comprise the creation of fair tax systems, labour market reforms that alleviate insider-outsider problems, and the reduction of corruption and nepotism in the public sector.

APPENDIX

Table 16

Descriptionof Variables and Sources I

Variable	Description	Source
Imbalances Index		
Fiscal Balance	Government balance (per national definiton) to GDP ratio *(percent)*	IMF WEO
Current Account Balance	Current account balance to GDP ratio *(percent)*	IMF WEO
Inflation	Growth rate of consumer price index *(percent)*	IMF WEO
Controls		
Income	PPP converted GDP per capita (chain series), at 2005 constant prices *(thousand dollars)*	Penn World Table (Heston *et al.*, 2012)
Institutional Quality	International Country Risk Guide (ICRG) indicator of quality of government. Measured as the mean of the ICRG variables "Corruption", "Law and Order" and "Bureaucracy Quality" (originally scaled 0-1), standardised. Higher values indicate higher quality of government	PRS Group (2009), Teorell *et al.* (2011)
Confidence in national institutions	Principal component analysis of responses to the survey question: "I am going to name a number of organizations. For each one, could you tell me how much confidence you have in them: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all?" i) The parliament, ii) The justice system (Note: The original scale runs from 1 to 4. Therefore, we invert the sign of all values such that a higher value of the variable indicates a higher level of confidence in institutions.)	WVS (2009), EVS (2011)
Education	Average schooling years in the total population aged 25 and over (data available in five year intervals)	Barro and Lee (2010)
Old-age dependency	Old-age dependency ratio (Age 65+ / Age 20-64) *(percent)*	United Nations (2011)
Geography	Latitude of the capital, in degrees between 0° and 90°	Acemoglu *et al.* (2005)
Oil trade balance	Oil trade balance to GDP ratio *(percent)*	IMF WEO
Financial openness	The Chinn-Ito index measures a country's degree of capital account openness, standardised	Chinn and Ito (2006)
Financial Development	Private credit to GDP ratio *(percent)*	Global Financial Development Database, The World Bank
Post-communist country	Dummy that takes value 1 if country was communist before the fall of the Soviet Union and 1 if otherwise	n.a.
Instruments		
Religiosity	First principal component of mean of answers to the following WVS / EVS survey questions: i) "Independently of whether you attend religious services or not, would you say you are .. ?" Share of respondents: *a religious person* (Alternatives: *Not a religious person; A convinced atheist; Other answer*) (ii) "Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five (out of 16)." Share of respondents: *Religious faith*	WVS (2009), EVS (2011)
Share of Protestants	"Do you belong to a religion or religious denomination?" Share of respondents: *Protestant*	WVS (2009), EVS (2011)
Other		
Household saving rate	Percentage of disposable household income. Includes OECD countries only	OECD Economic Outlook
Gross national savings	Gross national income less total consumption plus net transfers	Worldbank WDI

Table 17

Descriptionof Variables and Sources II

Variable	Survey Question	Asked since	Aggregation
Competition Is Good	Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between. *(i) Competition is good. It stimulates people to work hard and develop new ideas vs. Competition is harmful. It brings out the worst in people.* (+) *(ii) People can only get rich at the expense of others vs. Wealth can grow so there's enough for everyone.* (–)	1990	First principal component (PC) of mean of answers
Obedience	I. Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five (out of 16): (i) obedience (+), (ii) independence (–) II. People have different ideas about following instructions at work. Some say that one should follow one's superior's instructions even when one does not fully agree with them. Others say that one should follow one's superior's instructions only when one is convinced that they are right. With which of these two opinions do you agree? Percentage of mentions of *(i) Follow instructions. (Alternatives: (ii) Must be convinced first, (iii) Depends, (iv) Don't know.)*	1981	First PC of percentage of mentions
Control	Some people feel they have completely free choice and control over their lives, while other people feel that what they do has no real effect on what happens to them. Please use this scale where 1 means "none at all" and 10 means "a great deal" to indicate how much freedom of choice and control you feel you have over the way your life turns out.	1981	Average
Trust	Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? *Most people can be trusted* [1] vs. *Can't be too careful* [0]	1981	Average
Work Ethic	I. Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five (out of 16). *Hard work.* II. For each of the following aspects, indicate how important it is in your life. Would you say it is: *Very important, Rather important, Not very important, Not at all important*	1981	First PC of percentage of mentions
Propensity to Save (Thrift)	Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five (out of 16). *Thrift, saving money and things.*	1981	Percentage of mentions
Honesty	Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between (Scale from 1 to 10, ranging from never to always). *(i) Cheating on taxes if you have a chance* *(ii) Avoiding a fare on public transport* *(iii) Failing to report damage you've done accidentally to a parked vehicle*	1981 discontinued in 1990	First PC of mean of answers

Notes: The five WVS waves were conducted in (1) 1981-84, (2) 1989-93, (3) 1994-99, (4) 1999-2004, (5) 2005-08. The four EVS waves were conducted in (1) 1981, (2) 1990, (3) 1999, (4) 2008. In case more than one survey question is listed per cultural trait, the cultural variable used in the regression is constructed by taking the first principal component on the averaged answers to the respective questions. Source: WVS (2009), EVS (2011).

Table 18

Summary Statistics

	Mean	Min.	Max.	Standard Deviation	Number of Observations
Cultural Variables					
Trust	0.28	0.04	0.70	0.14	175
Trust *(standardised)*	0.00	−1.69	2.97	1.00	175
Competition is good	−0.16	−2.39	2.74	0.93	153
Obedience	0.18	−2.34	3.07	1.19	175
Control	6.81	4.68	8.28	0.70	172
Work ethic	0.01	−2.64	1.93	0.91	175
Propensity to save	0.35	0.02	0.63	0.13	175
Honesty	−0.10	−5.44	1.84	1.17	175
Macroeconomic Imbalance Indicators					
Imbalances index	−0.23	−7.51	5.53	1.93	152
Imbalances index *(standardised)*	−0.00	−3.78	2.99	1.00	152
Fiscal balance *(percent of GDP)*	−2.09	−15.28	12.83	3.60	152
Current account *(percent of GDP)*	−0.81	−24.11	18.77	5.50	191
Inflation *(percent)*	7.31	−0.41	48.60	7.61	191
Controls					
GDP per capita (PPP) *(thousand dollars)*	16.60	0.86	72.33	12.40	188
Confidence in national institutions	0.07	−3.66	4.49	1.38	100
Institutional quality *(standardised)*	0.00	−2.67	1.45	1.00	168
Education	7.29	1.78	12.25	2.53	133
Old-age dependency ratio *(percent)*	17.90	6.69	29.42	7.01	192
Latitude of capital, in degrees	37.65	2.30	65.00	16.16	174
Oil trade balance	−0.49	−24.08	38.23	7.48	159
Financial openness *(standardised)*	−0.00	−1.60	1.74	1.00	174
Financial development	0.58	0.00	1.89	0.42	196
Post-communist country	0.30	0.00	1.00	0.46	192
Instruments					
Religiosity	0.22	−2.90	3.35	1.35	175
Protestant *(share)*	0.14	0.00	0.96	0.23	175
Other					
Household saving rate	6.86	−5.70	18.40	5.53	49
Gross national savings	23.28	11.10	54.00	7.06	165

Notes: For sources and exact definition of the variables see Tables 2, 16 and 17.

Table 19

Correlation Matrix: Imbalances Index and Components

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Imbalances Index	1										
(2) Imbalances Index 2	0.954***	1									
(3) Imbalances Index 3	0.464***	0.554***	1								
(4) Imbalances Index 4	0.867***	0.799***	0.636***	1							
(5) Imbalances Index 5	0.928***	0.965***	0.443***	0.719***	1						
(6) Imbalances Index 6	0.298***	0.185**	0.506***	0.457***	0.003	1					
(7) Inflation	0.497***	0.289***	0.201**	0.632***	0.139*	0.785***	1				
(8) Fiscal Balance	−0.755***	−0.817***	−0.672***	−0.828***	−0.823***	−0.019	−0.089	1			
(9) Current Account	−0.786***	−0.785***	−0.074	−0.373***	−0.836***	0.0129	−0.175**	0.377***	1		
(10) Institutional Quality	−0.124	0.025	−0.018	−0.187**	0.030	−0.257***	−0.361***	−0.031	0.049	1	
(11) Net Foreign Assets	−0.184**	−0.207**	−0.021	−0.100	−0.205**	0.042	−0.016	0.123	0.061	0.191**	1

Notes: Correlations are based on decade-level data (1980s, 1990s and 2000s). Imbalances index: $Imbalance_{it} = -fb_{it} + \pi_{it} - ca_{it}$, $Imbalance2_{it} = -fb_{it} + |\pi_{it}| - ca_{it}$, $Imbalance3_{it} = -fb_{it} + |\pi_{it}| + |ca_{it}|$, $Imbalance4_{it} = -fb_{it} + \pi_{it}$, $Imbalance5_{it} = -fb_{it} - ca_{it}$, $Imbalance6_{it} = (fb_{it} * 100)^2 + (\pi_{it} * 100)2 + (ca_{it} * 100)^2$. Net foreign assets are expressed as percentages of GDP. For a detailed description of the remaining variables see Table 16. Significance levels: *** 1 per cent, ** 5 per cent, and * 10 per cent.

Table 20

Correlation Matrix: Civic Culture and Components

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Competition Is Good	1										
(2) Obedience	0.037	1									
(3) Control	−0.087	−0.052	1								
(4) Trust	0.0653	−0.486***	0.184**	1							
(5) Work Ethic	−0.259***	−0.465***	0.098	0.111	1						
(6) Propensity to Save	−0.076	−0.205***	−0.275***	−0.154**	0.322***	1					
(7) Honesty	−0.390***	−0.150**	0.201***	0.256***	0.092	−0.061	1				
(8) Civic Culture	−0.299***	−0.813***	0.373***	0.607***	0.684***	0.182**	0.398***	1			
(9) Confidence in Institutions	0.005	−0.251**	0.070	0.429***	−0.020	0.108	0.189*	0.237**	1		
(10) Household Saving Rate	0.164	0.310**	−0.381***	−0.451***	−0.151	0.390***	0.013	−0.368**	−0.134	1	
(11) Gross National Savings	0.215**	−0.108	−0.023	0.185**	0.168*	0.178**	0.186**	0.131	0.401***	0.203	1

Notes: Correlations are based on decade-level data (1980s, 1990s and 2000s). *Civic culture* is constructed as the first principal component of all seven cultural variables which are described in detail in Table 17. Significance levels: *** 1 per cent, ** 5 per cent, and * 10 per cent.

Figure 2

Imbalances Across Europe
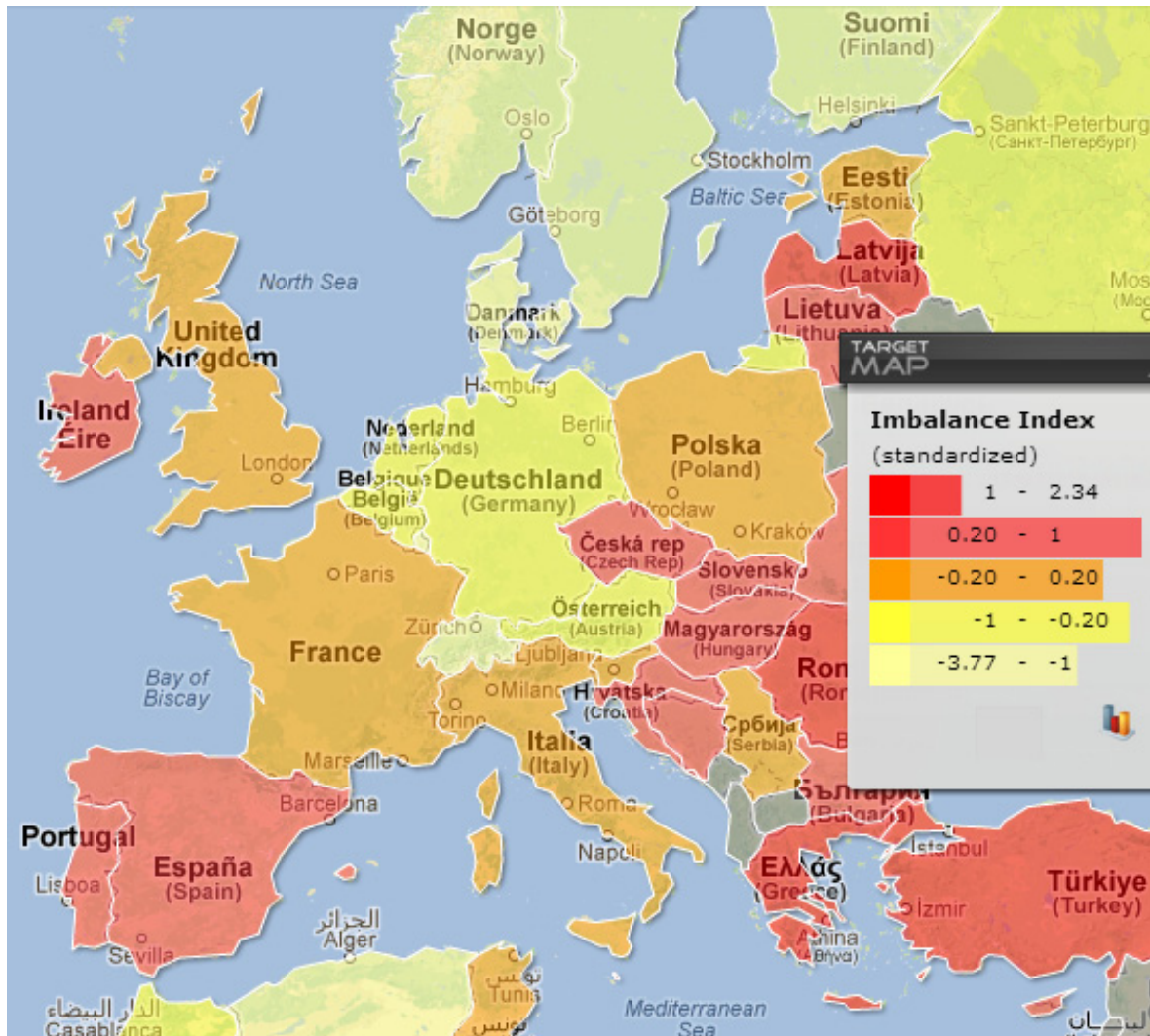
Notes: *Imbalance* is measured as the standardised 2000-10 average of (i) the inflation rate minus (ii) government net lending in percentage of GDP minus (iii) the current account of the balance of payments in percentage of GDP, where each component has also been standardised.
Source: WVS, EVS, TargetMap, and own calculations.
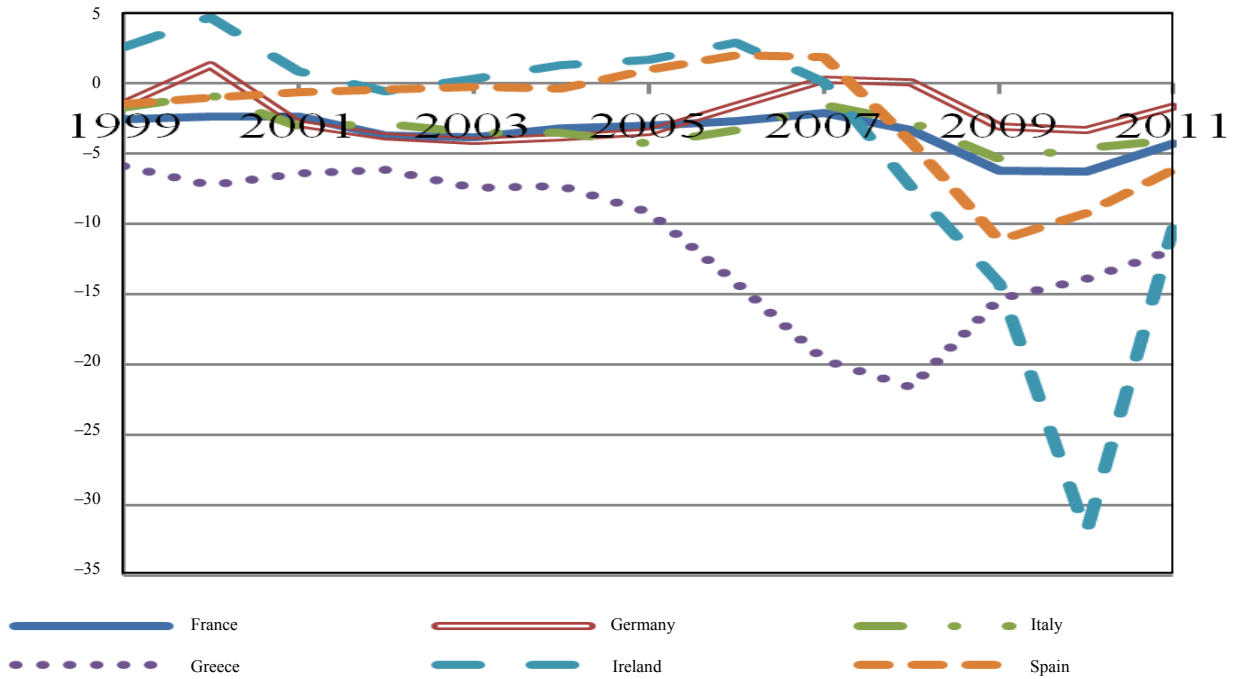
Figure 3

Trust Across Europe
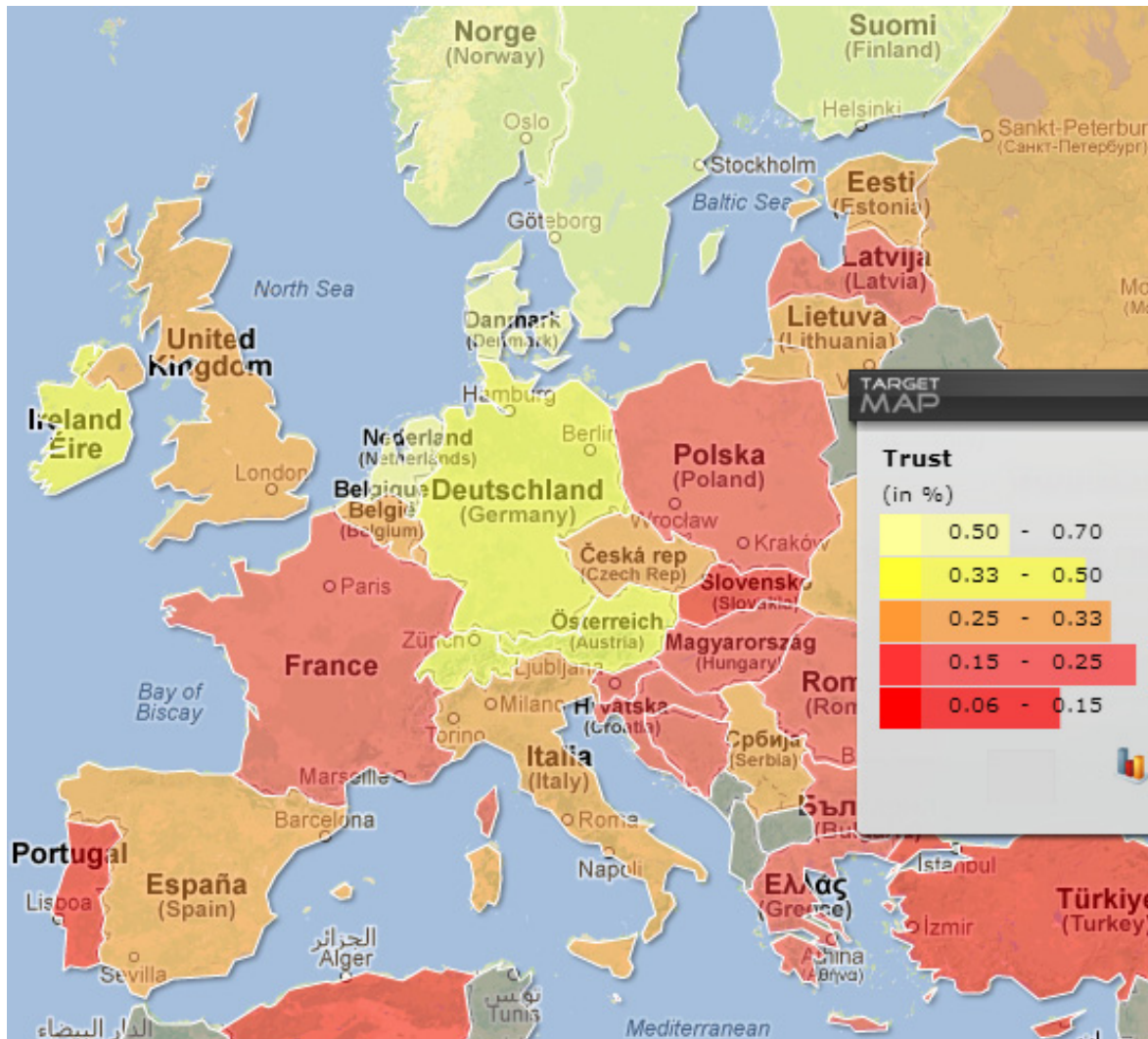
Notes: Trust is measured as the percentage of responses "Most people can be trusted" to the question "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?", averaged between 2000-10.
Source: WVS, EVS, TargetMap, and own calculations.

Figure 4

Imbalance Indicators in Selected Euro Area Countries
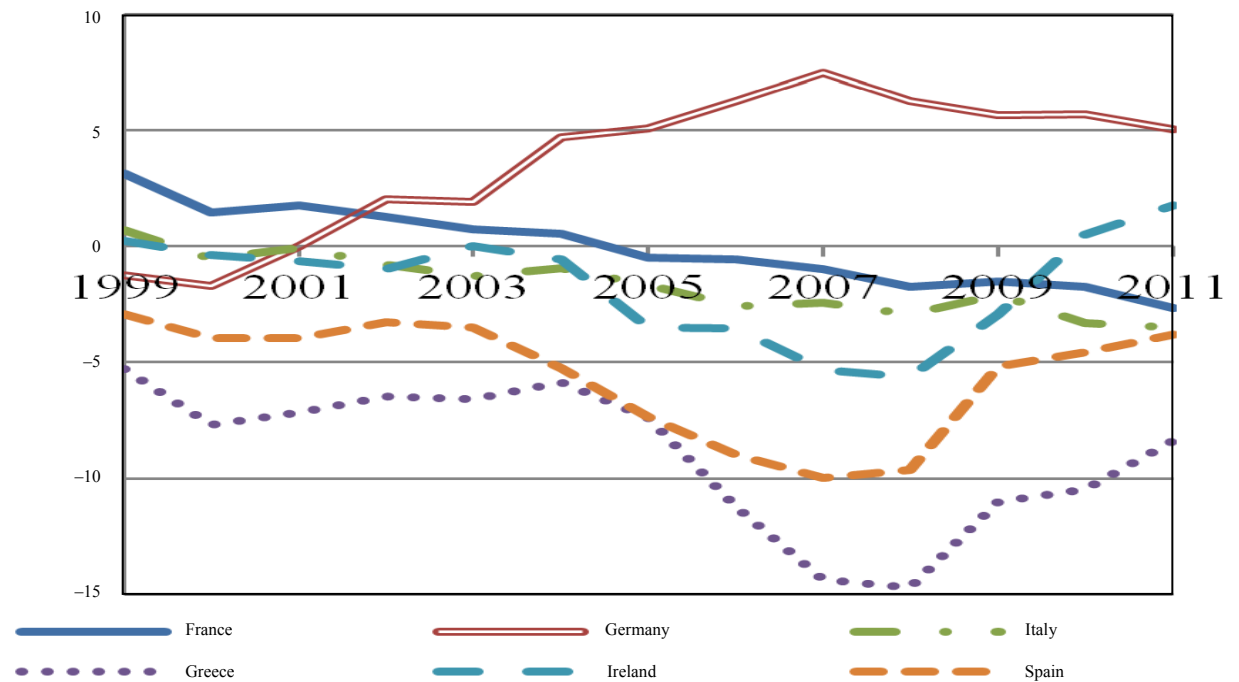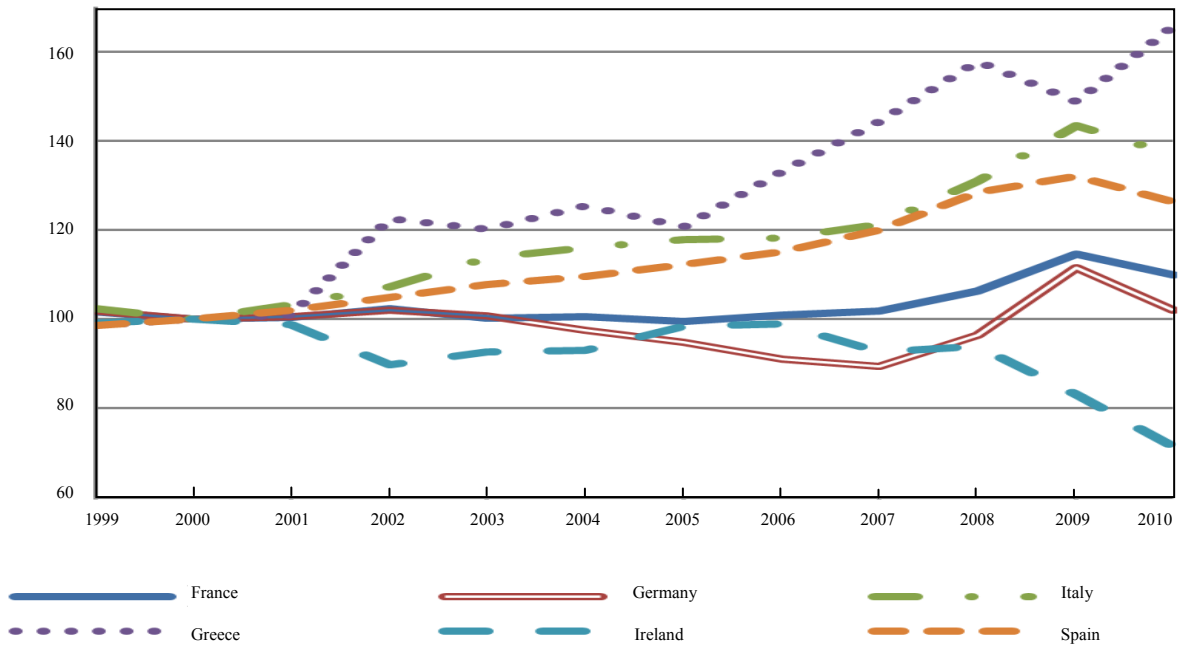**(a) Fiscal Balance**
(percent of GDP)

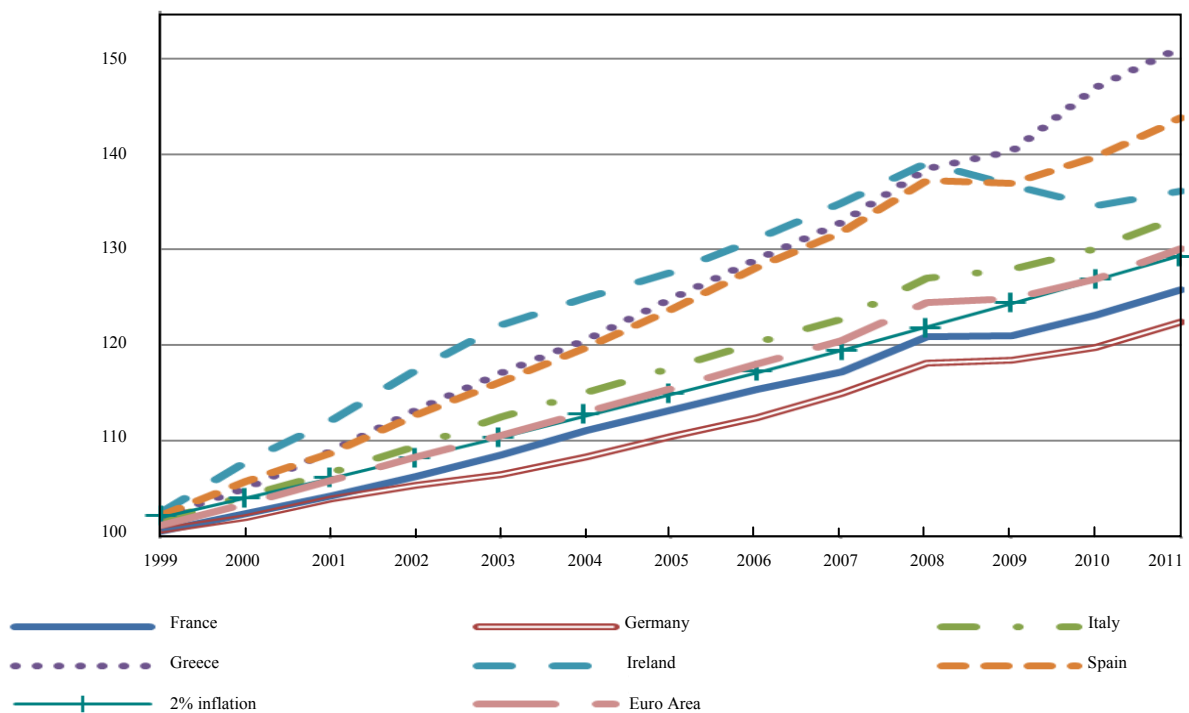**(b) Current Account**
(percent of GDP)

Figure 4 (continued)

Imbalance Indicators in Selected Euro Area Countries
**(c) Unit Labour Costs (Manufacturing)**
(index 2000=100)

France | Germany | Italy
Greece | Ireland | Spain

(d) Price levels in the euro area (cumulative inflation)
(index 1998=100)

France | Germany | Italy
Greece | Ireland | Spain
2% inflation | Euro Area

Source: IMF World Economic Outlook, OECD Main Economic Indicators, own calculations.

Figure 5

Trust and Macroeconomic Imbalances: Euro Area, 2000-10
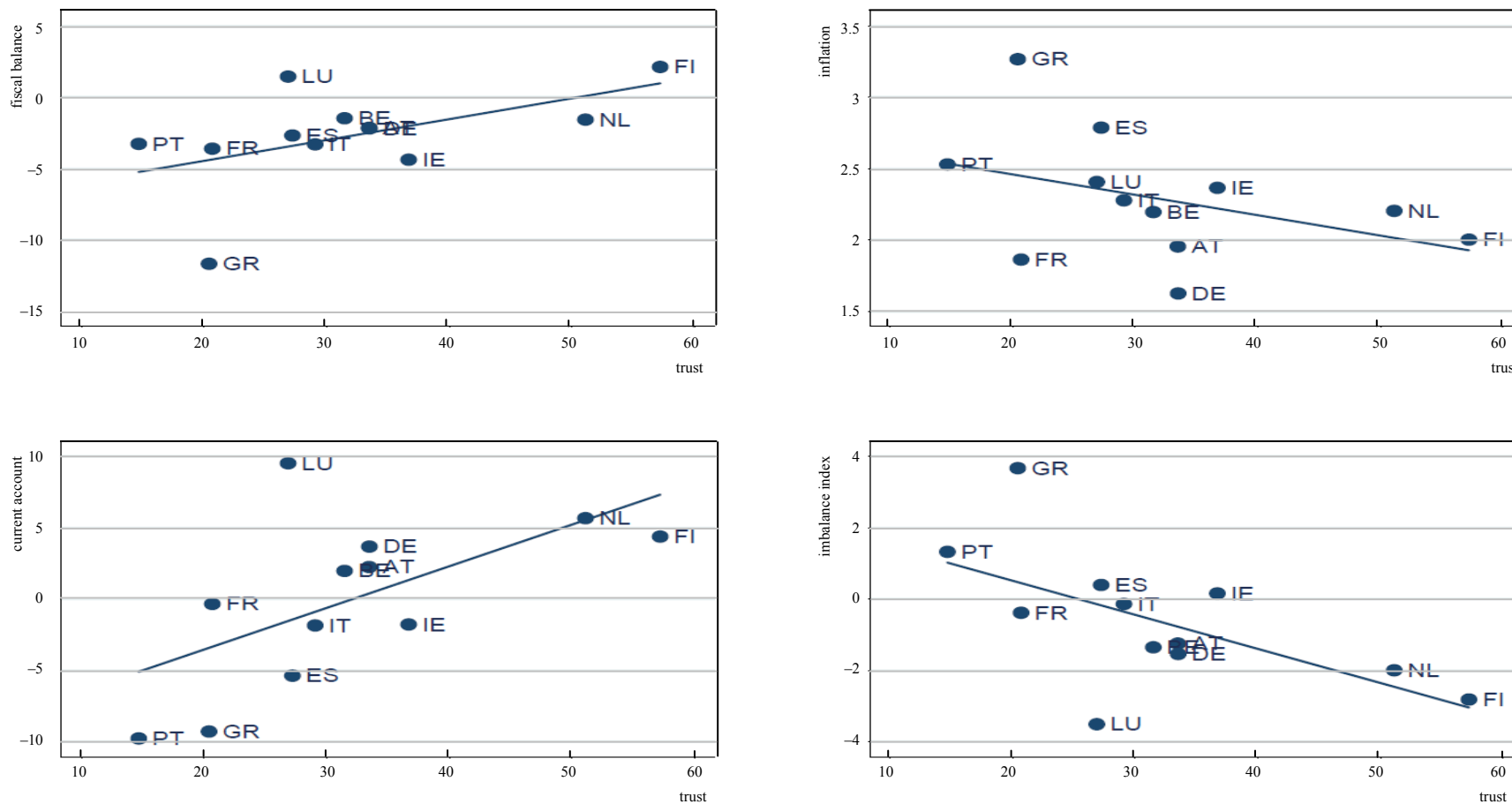
Notes: The values represent averages between 2000-10. Current account and fiscal balance are expressed as ratios to GDP. *Imbalance* is measured as the standardised 2000-10 average of (i) the inflation rate minus (ii) the fiscal balance in percentage of GDP minus (iii) the current account in percentage of GDP, where each component has also been standardised (for details see Section 4.1).
Source: IMF World Economic Outlook.

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