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## The Impact of Trust on Reforms

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Friedrich Heinemann and Benjamin Tanz

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Zentrum für Europäische  
Wirtschaftsforschung GmbH

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## Non-technical summary

In a constantly changing economic environment a country's ability to undertake reforms is crucial to maintain economic growth and to promote the welfare of its citizens. It is therefore vital to understand the factors which determine policy reforms. Empirical studies have brought forward several potential factors which influence the implementation of reforms. Among these factors are economic conditions like crises, the budgetary situation and the state of economic affairs in neighboring countries. Yet there is virtually no research on the influence of behavioral measures like trust on reforms.

We investigate the impact of trust on reforms and argue that in high-trust environments it is easier to agree on (in the long run) welfare enhancing reforms. Among the theoretical arguments which lead to this conclusion are the reduction of information deficits due to a higher level of information attained by individuals in high-trust societies, the moderation of conflicts regarding the wealth distribution in environments of high trust, and the possibility to make credible promises for compensation of reform losers.

The relationship is investigated empirically using robust regression techniques for a cross-section of countries. Answers to the World Values survey question "Generally speaking, would you say that most people can be trusted [...]" serve as our trust measure. Reforms are quantified by means of Fraser Institute's Economic Freedom of the World indicator. We refine our arguments along the policy dimensions included in that reform proxy (size of government, legal structure, sound money, freedom to trade, regulation). Various control variables like a proxy for the state of development and the initial level of the Economic Freedom indicator are included.

We find a significant positive relation between trust and reforms with regard to government size, the legal system, and deregulation of private businesses and the labor market. Results on the impact of trust on reforms in the trade sector and the monetary system are inconclusive. Several robustness test both with regard to the time period under consideration and the estimation technique indicate the stability of our results. The reform measures are further decomposed to identify which submeasures are particularly influenced by trust.

The results suggest that (i) trust fosters the evolution of institutions which give people the opportunity to be responsive to governmental activity through a respected legal framework, (ii) pushes back the influence of regulatory frameworks in the labor market and regulations of private businesses, and (iii) decreases governmental involvement in the private economy.

Summing up, our theoretical reasoning and this first explicit test for a link between trust and reforms support the view that trust is conducive for reforms. Yet, there is need for further research. Complementary to approaches based on macro data disaggregated data on a micro level might provide further insights into some of the mentioned channels from trust to reform acceptance.

## Das Wichtigste in Kürze

Die Reformfähigkeit von Nationalstaaten bestimmt über Erfolg und Misserfolg in einem sich ständig wandelnden ökonomischen Umfeld. Die Determinanten der Reformfähigkeit sind daher von großem Interesse für die Erhaltung und Förderung von Wachstum und Wohlstand. Diverse empirische Studien untersuchten diese Faktoren und fanden verschiedene potentielle Reformdeterminanten. Darunter sind ökonomische Faktoren wie Krisen, die Budgetsituation und die ökonomischen Bedingungen in Nachbarländern. Jedoch sind Studien zum Zusammenhang zwischen verhaltensökonomischen Größen wie Vertrauen und Reformen rar.

Dieses Papier untersucht die Beziehung zwischen Vertrauen und Reformen. Zentrale Hypothese ist, dass es in Ländern mit ausgeprägtem Vertrauen unter den Bürgern leichter ist, sich auf langfristig die Wohlfahrt steigende Reformen zu einigen. Verschiedene Argumente sprechen für diese Hypothese. So sind Bürger in Ländern mit höherem Vertrauen in der Regel besser informiert über politische Prozesse, was die Durchführung von Reformen vereinfacht. Weiterhin ist zu erwarten, dass Reformen seltener an nicht glaubwürdigen Kompensationsversprechen an potentielle Reformverlierer scheitern und Verteilungskonflikte leichter aufgelöst werden können.

Die empirische Untersuchung des Zusammenhanges in einem Länderquerschnitt erfolgt mittels robuster Regressionsverfahren. Reaktionen auf die Frage des World Values Survey „Glauben Sie, dass man den meisten Menschen vertrauen kann [...]“ dienen als Vertrauensmaß. Reformen werden quantifiziert mittels des Economic Freedom of the World Indikators (Fraser Institute). Verschiedene Kontrollvariablen wie ein Maß für den aktuellen Entwicklungsstand und das Anfangslevel des Economic Freedom Indikators werden einbezogen.

Ergebnis der empirischen Untersuchung ist ein statistisch signifikant positiver Zusammenhang zwischen Vertrauen und Reformen in Bezug auf die Größe des öffentlichen Sektors und des Rechtssystems. Weiterhin führt Vertrauen nach dieser Analyse zu Deregulierungen am Arbeitsmarkt und zu Deregulierungen in Bezug auf private Unternehmen. Kein direkter Zusammenhang hingegen ist zwischen Vertrauen und Reformen im Handelssektor und im monetären Sektor zu beobachten. Verschiedene Robustheitstests bestätigen die Stabilität der Resultate.

Die Beobachtungen legen nahe, dass Vertrauen (i) die Entwicklung von Institutionen fördert, welche den Bürgern die Möglichkeit geben, auf das Handeln der Regierung innerhalb eines rechtlich anerkannten Rahmens zu reagieren, (ii) Regulierungen zurückdrängt und (iii) den Einfluss des Staates auf den Wirtschaftsprozess verringert.

Insgesamt zeigt die theoretische Erörterung zusammen mit diesem ersten empirischen Test, dass Vertrauen förderlich ist für die Durchführung von Reformen. Komplementär zu diesem Makroansatz sind weitere Studien wünschenswert, welche auf Basis disaggregierter Daten die im Einzelnen genannten Zusammenhänge untersuchen.

# The Impact of Trust on Reforms

Friedrich Heinemann and Benjamin Tanz

July 24, 2008

## Abstract

In a constantly changing economic environment a country's ability to undertake institutional reforms is crucial to maintain economic growth and to promote the welfare of its citizens. A wide range of determinants for institutional reforms have been identified. However, the impact of trust on reforms has so far never been addressed. We provide theoretical arguments why trust should influence institutional changes and test the relationship empirically. We find a significant positive relation between trust and reforms with regard to government size, the legal system, and deregulation of private businesses and the labor market. The results in other policy fields are ambiguous.

**Keywords:** Trust, Economic Freedom, Policy Reforms

**JEL-Classification:** H11, E60

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# 1 Introduction<sup>1</sup>

In an environment characterized by increasing global economic integration and demographic changes it is crucial for countries to undertake institutional reforms in order to maintain economic growth and to promote the welfare of their citizens. In recent years a series of empirical analyses have been undertaken to identify the factors that empirically determine a country's ability to reform. Although a wide range of potential reform determinants have been examined, there was virtually no emphasize on measures of trust. The aim of this paper is to fill the gap and to explore the impact of trust on institutional reforms. We find that trust facilitates institutional reforms with regard to the legal system, involvement of the government in the private economy, and deregulation of labor markets and private businesses. However, the results on the impact of trust on reforms with regard to international trade and the monetary system are inconclusive. The paper is organized as follows. In section 2 we explore the theoretical and current empirical literature on reform determinants. The channels through which trust possibly influences institutional changes are explained in chapter 3. We derive empirically testable hypotheses and proceed to test these hypotheses using robust regression techniques for a cross-section of countries. Section 4 summarizes and concludes.

## 2 Theoretical and Empirical results on the political economy of structural reforms

In recent years a wide range of theoretical and empirical results with respect to the political economy of reforms have been accumulated. According to Haggard and Williamson (1994), we distinguish four clusters of hypotheses relevant for institutional changes. The first cluster comprises the overall economic conditions which incorporate amongst others economic crises, economic stability and external factors like the state of economic affairs in neighboring countries. A second cluster consists of several political conditions, like political competition, position of the incumbent government on the political spectrum and social consensus. The internal organization of the policy-making apparatus is covered in a third cluster. Finally, the nature of the reform itself and the implementation and communication strategy are important matters and comprise the last cluster. In exploring the literature, we focus on economic and political conditions for institutional changes. Olson (1982) was one of the first addressing the relevance of economic conditions for reforms by arguing that societies have a natural tendency to become sclerotic. Over time

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<sup>1</sup>The authors would like to thank Ivo Bischoff, Christian Bjørnskov, Hans Pitlik, Lars Siemers and participants of the 2008 Annual Meeting of the European Public Choice Society for useful comments and suggestions.

and given there is no major crises, the influence of interest groups on policymakers becomes stronger and flexibility of the economic system declines. This in turn promotes economic crises, since necessary adjustments of the institutional setting are delayed or do not occur at all. He then argues that crises provide a window of opportunity for far-reaching policy reforms, since in crises-like situations, people agree that reforms are necessary and a consensus for institutional changes can be established. The main difficulties in the empirical analysis of this hypothesis are the choice of the appropriate crisis measure and the definition of what constitutes a crisis. Pitlik and Wirth (2003) conduct a panel analysis using inflation and growth measures as crisis indicators and find that crises are indeed conducive to reforms.

The budget situation is considered as another economic determinant of reforms and is analyzed by Helbing et al. (2004). The authors focus exclusively on the experiences of industrialized countries. They find evidence that an opportune budget situation supports deregulatory steps on labor and product markets as well as trade liberalization. For this link, a variety of possible explanations are provided: The enforceability of deregulatory steps may depend on the ability of a government to compensate the losers of such a reform which in turn depends on the budget situation. Alternatively, the correlation of structural reforms and an opportune budget could mirror the existence of limited political capital (i.e. a limited consent of the population, reputation or ability to deal with conflicts). In this case, a government can only enforce structural reforms if it is not forced to implement unpopular measures of budget consolidation at the same time.

The relation between the budgetary situation and structural reforms in industrialized countries is further analyzed by Heinemann (2007). The results do show that the fiscal situation not necessarily needs to worsen, possibly due to compensation promises, in the course of a reform process. Quite in contrary, there is empirical evidence that the simultaneous liberalization of goods and products markets have relieving effects on budget. A budgetary worsening may rather be observed with reforms of the tax system and also partially with labor market reforms.

Abiad and Mody (2005) analyze reform processes in the field of financial market deregulation. The indicators used take account for - among other factors - interest rate controls, market entry barriers, the extent of state ownership of banks and insurance companies as well as restrictions on international financial transactions. According to the subject, specific control variables such as the occurrences of bank-crises and the international interest rate level play a role as possible determinants. Furthermore regional diffusion effects are included in the model which could as well be of interest for other fields of reforms. Regional diffusion is accounted for by including the level of regulation of neighbouring countries. Then, it can be verified in how far imitation and diffusion effects across borders are of importance. Indeed, the study shows that regional diffusion effects influence



reform and deregulation processes. The authors although stress the relevance of learning processes: typically deregulation processes accelerate after the first cautious steps. This indicates that first positive experiences with financial market deregulations increase the enforceability of further steps, which is a relevant aspect with regard to the appropriate reform implementation strategy.

Heckelman and Knack (2005) look at external economic factors and are particularly interested in effects of development aid payments on reforms. Therefore, their panel study is limited to developing countries. According to this study, development aid payments have a negative impact on the extent of reforms. However, increasing civil rights have positive effects. Thus democratic, developing countries are rather reform oriented than autocratic countries.

In contrast to the other presented studies, Heinemann (2004) also includes control variables on educational level of the population (media availability, school attendance). As a result, school attendance has significant positive influence on reforms concerning the public sector, but not so on other reform-subindicators.

Duval and Elmeskov (2005) are mainly interested in the question whether the European Monetary Union has made structural reforms of the members easier or harder. They come to a cautious negative conclusion because their regression analysis for monetary autonomy, at least for large countries, shows a positive correlation with the speed of structural reforms. To some extent Belke et al. (2005) take an opposing position. They also analyzed the role of the exchange rate regime and diagnosed a negative influence of exchange rate flexibility on structural reforms as well as reforms of the financial sector and the monetary system.

Relevant hypotheses with regard to the political conditions for reforms are collected by Haggard and Williamson (1994). They explain that political competition, measured for example by the share of seats of each party in the parliament, increases the likelihood for reforms, since governmental entities must be more responsive to voters demands. Moreover the authors argue that long-run reforms require, if not consensus, at least a substantial body of public support. Social consensus in turn can be achieved through trust, as we will explain later.

Summing up the literature, a couple of very robust empirical results of the various studies can be found. To begin with, the crisis-hypothesis can be viewed as to have a reliable empiric foundation: Throughout reforms are more enforceable if certain indicators such as the economic growth rate, the unemployment rate, fiscal data or exchange rates signal an economic crises. The TINA-argument ("there is no alternative") then seems to pave the way for reforms unacceptable in more prosperous times. The readiness to question the status quo might be due to the increasing perception of the unavoidability of reforms which is connected with increasing cognitive dissonances. Apparently these psychological

mechanisms support the enforcement of reforms in times of crises.

Another robust result is that the initial situation matters. Countries which are in a backward position have a higher probability for reforms to be enforced than countries which already have high levels of liberalization.

Moreover, the empirical evidence that reform processes in adjacent or important reference countries have a positive impact on reforms within a country is convincing. Thus international experiences have cross border effects and can regularly pave the way for overcoming a countries' internal resistance towards reforms.

### **3 The impact of trust on reforms**

#### **3.1 Why should trust matter?**

Trust is involved in virtually every economic interaction. We have to trust employers, employees, lawyers, teachers, train operators, airlines, the government, our fellow citizens, and so forth. Trust is especially important in interactions which are not backed by a formal contract, because then it is crucial for the parties involved in the interaction that their counterparts follow the (non-formal) contract. There is no device of punishment if one party does not collaborate. However, trust is relevant in interactions based on a formal contract as well. There are always leeways for the parties to engage in actions which may be unfavorable for their counterparts, because a formal contract never can capture all possible aspects of the interaction. According to Arrow (1972, p. 357), "Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence."

Over the years a broad literature on the implications of trust has developed. There is evidence that trust is important for growth (Putnam 1993, Knack and Keefer 1997, Bengtsson, Berggren and Jordahl 2005) but also for lowering transaction costs in international trade (den Butter and Mosch 2003), democratic stability (Uslaner 2003) and political and civic involvement (Knack and Keefer 1997).

Several channels through which trust affects aggregate economic performance are provided by Knack and Keefer (1997). According to them, in high-trust societies individuals need to spend less time and money on protection against exploitation arising from economic interactions. Furthermore a wide range of interactions do not need to be specified in a formal contract and can instead be based on trust, which is less costly than a written contract. In addition, societies with a high level of trust are less dependent on formal institutions. If no formal institution exists, interpersonal trust can step in to facilitate

enforcement of contracts. With regard to the trustworthiness of governments, the authors argue that in high-trust societies government officials are perceived as more trustworthy and hence their policy actions are more credible. From the perspective of the government, high trust induces lower cost to monitor and control whether citizens obey the law or not. Therefore, trust plays a key role in facilitating the initiation of contracts and lowers the enforcement costs of those contracts, which in turn stimulates economic performance.

In addition to the direct influence on economic performance, trust affects performance indirectly through political channels. Knack (2002) identifies two broad channels through which trust and social capital can lead to better government performance. According to him, social capital increases governmental accountability such that government must be responsive to citizens in general rather than to narrow interest groups. Moreover, social capital can promote agreements when preferences are polarized in society. Bjørnskov (2007) finds that both the supply of honest politicians and bureaucrats as well as the broader political responsiveness to voters preferences in high trust societies lead to better governance. An environment of trust enhances the information acquisition of voters about the political process, as was shown by Boix and Posner (1998). Putnam (1993) argues that trust facilitates cooperation among individuals, fosters solidarity and enhances social behavior such that people do not only pursue their own interest, but take care of the interest and needs of others.

Therefore, one can plausibly argue that in high-trust environments it is easier to agree on welfare enhancing reforms and hence countries with a high level of trust should be able to adjust their institutional setting faster to a changing economic environment than countries with low trust levels. However, despite its importance, the issue so far was not explicitly addressed in the empirical reform literature.

To clarify the relation between trust and reforms, we provide the following theoretical arguments which explain the causes of reform deadlocks and illustrate how trust can help to overcome those deadlocks.

First, insufficient information and incorrect perceptions about outcomes of reform processes may conserve the status quo. Caplan (2002) argues, that economists and non-economist differ strongly in their assessment of issues concerning the economy. Whereas economic globalization is perceived as beneficial in the long run by economist, this view is not shared by the wider population. Hence, if politicians base their decisions on expert insights, they may be confronted with a different assessment by the population. In order to facilitate reforms, it is therefore crucial to convince people of the expert assessment of the situation. Related to this argument is the observation that reforms often show a J-curve effect, that is, the policy change is only beneficial in the long run and may involve costs in the short run. If this is the case the acceptance of reforms depends on a government's ability to convince citizens that the benefits of the reform will evolve over

time and will in the end outweigh the initial costs.

Second, actions of interest groups which would lose their privileges with a reform could conserve the status quo, even if the reform would be welfare enhancing in the aggregate. Alesina and Drazen (1991) model the resistance of interest groups to specific reforms as a war of attrition: Because no interest group wants to forsake its privileges in the status quo, each group waits until others do the first step. Consequently, every group waits and reforms are delayed. This is the case even when all groups would be better off after reforms in the aggregate.

Third, the resistance of individuals which are worse off after the reform is a noteworthy factor. Those individuals would only vote in favor of a particular reform, if they are to some degree altruistic or if a credible promise for compensation is made. Rodrik (1998) shows, that countries with a higher degree of openness to trade have on average higher government spending. It is argued that a higher degree of openness induces a higher exposure to external risk and government spending acts as a risk-reducing instrument. This external risk may in turn lead, among other factors, to higher risk of unemployment. Therefore, citizens are compensated by higher government spending if they are exposed to such external risk. The promise of compensation can, however, only then smooth reform processes if it is credible *ex ante*.

Fourth, uncertainty about the individual consequences of particular reforms might impede policy changes. Even reforms which are welfare enhancing could fail because individuals are uncertain about their gains and losses. This is the case if individuals are risk-averse. A high degree of trust can mitigate all four types of reform obstacles. The problem of insufficient information is less relevant in high-trust societies because, as was described above, the level of information attained by individuals is higher than in low-trust societies. Moreover, politicians face less problems in promoting their reform policies if individuals trust them. Conversely, if government reputation is bad, it is difficult for politicians to convince people about the positive impact of policy reforms according to expert views. Clases and Wehner (2005) show that, once people have learned to distrust government, new governmental proposals are evaluated accordingly. Furthermore, a high degree of trust enhances cooperation among different groups in society and can thus help to overcome a war of attrition. Possible compensation promises are more credible in high-trust societies, such that policy changes are easier to implement, even when some individuals are worse off. Additionally, the connection of trust and social behavior mentioned above might lead to acceptance of reforms even among people who suffer (small) losses from the policy change, because they are willing to accept those losses in order to improve the overall situation. Finally, it is evident that reforms with uncertain distributional consequences are easier to implement in a high-trust environment, since compensation promises are more credible.

Consequently, the conjecture that trust is an important prerequisite for structural reforms is supported by theory. Provided this general analysis, what relationship between trust and institutional reforms do we expect in the different policy fields? Since our reform measure is the first difference of Fraser Institute's Economic Freedom of the World indicator (EFI) we refine our arguments along the policy dimensions included in that reform proxy. The overall indicator is constructed from five subindicators.

The size of government indicator (EFI<sub>1</sub>) measures to what extent resources in the economy are allocated through a centralized political process rather than through decentralized markets. In high trust societies, the degree of social cohesion is expected to be high which in turn fosters voluntary exchange through markets. Thus, centralized decision-making can be substituted with individual choices in decentralized mechanisms. We therefore expect that societies with a high degree of trust will be better able to reform the public sector by cutting back the size of government controlling for the initial level of governmental activity in the economy.

Legal structure and security of property rights (EFI<sub>2</sub>) asks whether a respected legal framework exists that enables people and organizations to challenge the legality of actions taken by their fellows. One could argue that such devices are redundant in high trust societies, since trusting individuals would not exploit each other. Yet we expect that trust exactly is the reason that legal frameworks for protection against coercion can evolve, since such devices do not interfere with the actions taken by the majority of people in society but protects them against actions which are generally agreed to be illegal. Hence, we expect trust to be beneficial for reforms of the legal system.

The sound money indicator (EFI<sub>3</sub>) refers to the stability and predictability of the value of money. It can be expected that high trust facilitates the stability of the monetary system. However, most studies argue that monetary stability depends to a great extent on economic conditions and the political economy of central banks. We thus expect that trust has no direct observable effect on the sound money indicator.

Freedom to trade internationally (EFI<sub>4</sub>) captures each countries openness to trade. Because trust, following the argument with regard to the size of government indicator, is conducive for trade and voluntary exchange, a positive relationship is expected. Yet, international trade needs to be separated from exchange within a society, since it potentially includes trade with low trust countries or countries with different regulatory settings. This may induce restrictions on international trade even in high trust countries for matters of reciprocity. The net effect is expected to be unclear.

Lastly, a positive effect is expected for regulation of credit, labor and business regulations (EFI<sub>5</sub>). Especially in labor market and business regulations, trust is viewed as a necessary condition to induce agreements at the individual level between bargaining parties. Such agreements account for the specific circumstances of each party involved in the trade and

Reform area	Expected effect	Motivation
$\Delta\text{EFI}_1$ Size of government	positive	high social cohesion induced by trust fosters voluntary exchange and reduces allocation of goods through centralized entities
$\Delta\text{EFI}_2$ Legal structure	positive	common interest to establish a respected legal framework which ensures protection against actions the society has agreed upon to be illegal
$\Delta\text{EFI}_3$ Sound money	neutral	primarily influenced by economic conditions and the political economy of the central bank
$\Delta\text{EFI}_4$ Freedom to trade	positive/ negative	trust facilitates cross border voluntary exchange, yet large heterogeneity in trade partners may (empirically) diffuse the effect
$\Delta\text{EFI}_5$ Regulation of credit, labor, and business	positive	trust helps to achieve generally desirable contracts at the individual level, which make regulations on a higher level redundant

Table 1: Hypotheses regarding the relationship between trust and reforms

hence are generally desirable. Individual contracts then make regulations at a higher level redundant. An overview of all hypotheses regarding the relationship between trust and reforms can be found in table 1.

### 3.2 How to measure trust?

Since trust influences not only institutional changes but also a wide range of other economic and political phenomena, the question of how to measure it is of particular interest. Traditionally, this is done by attitudinal survey questions like the World Values Survey (WVS) or the General Social Survey (GSS) which typically contain questions like "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?". Even though widely used, some studies doubt that attitudinal questions are the appropriate trust measure. Glaeser et al. (2000) for example raise the question whether they predict trusting actions in games. Indeed experimental economists found that this is not always the case, leaving the questions whether the use of such questions to make inferences about the level of trust in a society is justified. The crucial point here is that survey questions yield attitudinal measures, whereas economic games produce behavioral measures and it is not clear if and under which conditions both are consistent. Yet recent studies (Capra et al. 2008) find that both measures are consistent when one controls for other-regarding preferences. To put it precisely, attitudinal trust measures predict trustworthiness in games but not necessarily trusting actions. Yet if one separates trust from other-regarding motives like altruism and reciprocity (Cox 2004), it turns out that attitudinal measures are good predictors for trusting actions in

games. Based on this findings, we can be reasonably confident that the WVS trust measure appropriately captures the aspects of social trust which are relevant for our study.

### 3.3 Empirical Evidence

We test the hypotheses developed above by investigating the effect of trust on institutional changes. As already noted, the first difference of Fraser Institute’s Economic Freedom of the World Indicator serves as our reform measure. All EFI indicators take on values between 0 and 10 and are currently available until 2005. We define reforms as (positive) changes in the EFI measures. Since we expect the relation between trust and institutional reforms to be a long run one, we construct the reform measure accordingly and take the first difference over ten years for each EFI subindicator. We then construct a trust measure (TRUST) from the WVS<sup>2</sup> by averaging the response to the trust question of each participant for each country and rescaling the measure such that it takes on values between 0 (low trust) and 1 (high trust). In our first estimation, we use the trust value from 1995 for each country and the EFI first difference from 1995 to 2005.

Note that we measure trust prior to the potential reform period in order to deal with causality issues. Even though we do not rule out that causality runs also in the direction from reforms to trust, we thus assure that reverse causality does not have an impact on our estimation.

Several control variables are included in the estimation. To take account for the initial institutional situation in each country, we include the start level of the respective EFI indicator. The log of the GDP per Capita (GDP) serves as proxy for the state of development. We include a measure for the state of economic, social and political globalization (GLOBALIZATION) from Dreher (2006) and the Herfindahl index of legislature (HERFLEGISLATURE) as a proxy for political competition (Beck et al., 2001). Moreover, we include a dummy variable for postcommunist countries (POSTCOMMUNIST). In contrast to most other studies, we do not include a crises measure. In line with Haggard and Williamson (1994), who argue that ”Crises have the effect of shocking countries out of traditional policy patterns”, we assume that crises are short run phenomena which cause eruptive political changes that are not adequately captured by our long run reform measure. Summary statistics on the variables are contained in table 6 in the appendix.

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<sup>2</sup>For this study, the following data source was used: European Values Study Group and World Values Survey Association (2006). European and World Values surveys four-wave integrated data file, 1981-2004, v.20060423, 2006.

independent variables	dependent variable					
	$\Delta\text{EFI}_{95-05}$ Total Index	$\Delta\text{EFI}_{1,95-05}$ Government	$\Delta\text{EFI}_{2,95-05}$ Legal Structure	$\Delta\text{EFI}_{3,95-05}$ Sound Money	$\Delta\text{EFI}_{4,95-05}$ Trade	$\Delta\text{EFI}_{5,95-05}$ Regulation
EFI <sub>95</sub>	-0.439*** (0.104)	-0.342*** (0.095)	-0.474*** (0.138)	-0.738*** (0.084)	-0.589*** (0.063)	-0.491*** (0.085)
GDP per Capita	0.145 (0.112)	-0.257 (0.259)	0.567* (0.305)	0.451** (0.220)	-0.266* (0.145)	0.442** (0.194)
Globalization	-0.006 (0.006)	0.002 (0.012)	-0.003 (0.013)	-0.002 (0.011)	0.019*** (0.006)	-0.017* (0.009)
Herfindahl	-0.201 (0.323)	-0.274 (0.782)	-0.724 (0.578)	0.639 (0.764)	0.516 (0.465)	-0.259 (0.641)
Postcommunist	0.842*** (0.240)	0.888** (0.417)	0.096 (0.261)	0.957** (0.444)	0.475*** (0.161)	1.093*** (0.245)
Trust	1.044** (0.498)	2.179* (1.161)	2.450*** (0.786)	0.085 (1.192)	0.193 (0.636)	2.144*** (0.725)
Intercept	2.083*** (0.771)	4.062* (2.148)	-2.283 (2.202)	2.402 (1.907)	5.123*** (1.058)	-0.161 (1.422)
R <sup>2</sup>	0.783	0.609	0.337	0.876	0.651	0.732
N	[54]	[54]	[54]	[54]	[54]	[54]

Notes: Ordinary least-squares regressions. White (1980) corrected standard errors are given in parentheses underneath. Number of observations is given in brackets.

\*/\*\*/\*\* Statistically significant at the 10%/5%/1%-level

Table 2: OLS estimation of specification 1

The following equation serves as our benchmark specification:

$$\begin{aligned}
\Delta\text{EFI}_{i,1995-2005} = & \alpha + \beta_1 * \text{EFI}_{i,1995} + \beta_2 * \text{GDP}_{i,1995} \\
& + \beta_3 * \text{GLOBALIZATION}_{i,1995} \\
& + \beta_4 * \text{HERFLEGISLATURE}_{i,1995} + \beta_5 * \text{TRUST}_{i,1995} \\
& + \beta_6 * \text{POSTCOMMUNIST}_{i,1995} + \epsilon_{i,1995}.
\end{aligned} \tag{1}$$

We use OLS with White (1980) heteroscedasticity-consistent standard errors to estimate the above equation<sup>3</sup>.

Results of the first estimation are presented in table 2. Our main result is that trust has a significantly positive effect on the total EFI indicator, the size of government subindicator, the legal structure subindicator and the regulation subindicator. The coefficient of trust on the sound money and trade indicators are positive though not significant. These outcomes support our hypothesis that trust is an important condition for institutional reforms in various fields. Another robust result is that the initial institutional situation matters. Countries with a low initial EFI level show on average a significantly higher positive EFI change over the subsequent years. With respect to the globalization variable, we observe that countries with a higher state of economic, social and political globalization

<sup>3</sup>Note that data availability imposes a restriction on possible estimation techniques. The technique we use is similar in design as the one used by Barro (1991) to study growth in a cross-section of countries.



continue to undertake reforms with respect to trade. The reverse relationship holds with regard to deregulation. We find that the globalization measure is negatively correlated with deregulation. The Herfindahl index of political competition has a negative sign in most specification, that is, a higher degree of political competition (a lower value of the Herfindahl index) is on average conducive for reforms. However, the coefficient is not significant. Finally, as expected postcommunist countries implement more comprehensive policy reforms in almost every field in this observation period.

A first test of stability of our results is to apply the above specification to another time period. Instead of the last available trust observation from 1995 we use the first available observation from the first wave of the WVS (years 1981 to 1983) and changes of the EFI indicator from 1980 to 1990. Even though only 20 trust observations are available from this early survey, we expect that the pattern remains stable and coefficients on the trust values are at least positive. The results are contained in table 7 in the appendix. Trust again has a significantly positive effect on the total EFI indicator and the regulation subindicator. The impact on government size and legal structure is again positive, however not significant over this time period. With regard to the control variables, we make the same observations as before. Noteworthy is that political competition has a stronger positive impact on the total reform indicator in this time period compared to the later one.

In order to check sensitivity of the results with respect to outliers, we conduct a least trimmed squares (LTS) regression analysis. This method was also used by Bengtsson et al. (2005) to check robustness of results in trust and growth studies and was pioneered by Rousseeuw (1984). A useful property is that LTS can handle several jointly influential outliers. Essentially, the method identifies the observations which result in the best fit and classifies outliers as observations with large residuals. This is done by first identifying the subset of 75 per cent of the initial observations which minimizes the sum of squared residuals. Thereafter, residuals of the remaining 25 per cent of observations are computed using the fitted values from the first stage regression. All observations with standardized residual above around 2.5 are classified as outliers. Finally, reweighted least squares giving outliers weight 0 and other observations weight 1 is applied. We adapt an algorithm by Verboven and Hubert (2005) to implement the LTS and reweighted LS regression in our framework. Results are contained in table 3. We find that our results are generally stable with regard to this alternative regression method meaning that all trust coefficients which were significant in the robust OLS regressions remain significant, with the exception of the coefficient in the EFI size of government regression.

As a final robustness test, we construct a binary variable defining reform events and estimate a probit model for the period from 1995 to 2005. A relative reform definition is applied, which sets a threshold such that around one third of the observations are re-

independent variables	dependent variable					
	$\Delta\text{EFI}_{95-05}$ Total Index	$\Delta\text{EFI}_{1,95-05}$ Government	$\Delta\text{EFI}_{2,95-05}$ Legal Structure	$\Delta\text{EFI}_{3,95-05}$ Sound Money	$\Delta\text{EFI}_{4,95-05}$ Trade	$\Delta\text{EFI}_{5,95-05}$ Regulation
EFI <sub>95</sub>	-0.377*** (0.072)	-0.342*** (0.095)	-0.521*** (0.115)	-0.795*** (0.061)	-0.587*** (0.076)	-0.426*** (0.086)
GDP per Capita	0.140 (0.119)	-0.259 (0.269)	0.576** (0.277)	0.410 (0.267)	-0.172 (0.169)	0.401** (0.169)
Globalization	-0.005 (0.006)	0.002 (0.012)	-0.001 (0.012)	0.011 (0.013)	0.018** (0.008)	-0.013 (0.008)
Herfindahl	-0.030 (0.375)	-0.065 (0.855)	-0.657 (0.790)	1.187 (0.764)	0.309 (0.685)	-0.095 (0.536)
Legislature	0.947*** (0.165)	0.799* (0.406)	-0.055 (0.280)	0.527 (0.368)	0.393** (0.181)	1.118*** (0.222)
Postcommunist	0.789* (0.451)	1.696 (1.069)	2.247** (0.934)	-1.115 (1.012)	-0.331 (0.642)	1.745*** (0.627)
Trust	1.702* (0.866)	4.261* (2.278)	-2.162 (1.977)	2.749 (1.976)	4.543*** (1.225)	-0.341 (1.261)
Intercept	0.849	0.597	0.381	0.913	0.658	0.759
R <sup>2</sup>						
N	[49]	[51]	[47]	[45]	[48]	[50]

Notes: Least trimmed squares regression. Standard errors are given in parentheses underneath.

Number of observations is given in brackets.

\*/\*\*/\*\* Statistically significant at the 10%/5%/1%-level

Table 3: LTS estimation of specification 1

form events (encoded with 1) and two thirds are not (encoded with 0). Earlier results are confirmed with regard to the EFI government size and EFI legal structure indicators. However, the Trust coefficient in the specifications with the overall EFI indicator and the EFI regulation indicator are not significant anymore. This may be due to the fact that discretizing the endogenous variable leaves us with less information than before and may capture the effect of trust on institutional changes not accurately.

The robustness tests indicate that trust heavily influences institutional changes in the legal system. The result is particularly strong in the 1995-2005 observation period. In decomposing the EFI legal system subindicator, we find that trust drives the impartial courts and the integrity of the legal system measures, but not the judicial independence, protection of property rights and legal enforcement of contracts indicators. The impartial courts measure captures whether a trusted legal framework exists that enables private entities to challenge the legality of government actions or regulations. The EFI integrity of the legal system measure is based on the law and order indicator of the International Country Risk Guide and therefore contains again an impartial courts component (law) and a popular observance of the law component (order). Our empirical findings thus suggest that trust fosters the evolution of institutions which give people the opportunity to be responsive to governmental activity through a respected legal framework.

Another robust result is that trust fosters deregulation. We again decompose the respec-

tive EFI subindicator and find that the effect is particularly strong on deregulations in the labor market and, to a somewhat lesser extent, on deregulation of private businesses. Yet trust has no clear effect on credit market regulations, however, we observe that trust fosters private sector credit, which is a submeasure of the credit market indicator.

The finding that trust decreases governmental involvement in the private economy through government enterprises, taxes, transfers and subsidies turns out to be reliable in the observation period from 1995 to 2005, but not in the earlier period. Moreover, we observe that the effect of trust on the deterioration of government activity through government enterprises is stronger than on taxes, subsidies and the like.

Finally, the empirical analyses suggests that trust has no predictable impact on issues related to international trade and the monetary system.

## 4 Conclusion

In this paper we studied the effect of social trust on institutional reforms in a cross-section of countries. We found that the impact of trust is quite different with respect to the policy field under consideration. A very strong result is that trust heavily facilitates institutional changes in the legal system. Moreover, it turns out that high trust accelerates the reduction of regulations and leads to a lower size of government measured by taxes, expenditures, and government enterprises. Beyond, our estimations reveal that trust has no predictable impact on the speed of deregulation with regard to international trade and moreover does not influence the monetary system. We conducted several robustness tests, both concerning the time period under consideration and the model specification. Most of our results survived these tests and turned out to be stable.

Summing up, our theoretical reasoning and this first explicit test for a link between trust and reforms support the view that trust is conducive for reforms. The increasing alienation between citizens and politicians in many industrial countries thus poses a serious problem for these countries' ability to cope with challenges for example from demographic change or increasing factor mobility.

However, there is need for further research. Complementary to approaches based on macro data disaggregated data on a micro-level should be used to investigate some of the mentioned channels from trust to reform acceptance in isolation. More attention should also be paid to the reversed causality and the dynamics emerging from the interplay between the level of trust and reform processes. The extent of this two-way-causality decides whether a reform push may be self-accelerating (through increasing trust) or not.

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## A Appendix

Argentina	Denmark	Latvia	Russia
Australia	Estonia	Lithuania	Slovakia
Austria	Finland	Malta	Slovenia
Bangladesh	France	Mexico	South Africa
Belgium	Germany	Netherlands	Spain
Bolivia	Great Britain	Norway	Sweden
Brazil	Guatemala	Panama	Switzerland
Bulgaria	Honduras	Paraguay	Turkey
Canada	Hungary	Peru	Ukraine
Chile	Iceland	Philippines	United States
China	India	Poland	Uruguay
Colombia	Ireland	Portugal	Venezuela
Croatia	Italy	Republic of Korea	
Czech Republic	Japan	Romania	

Table 4: Countries included in the estimation, period 1995 to 2005

Area	Component
EFI total	chain-linked index over all EFI subindicators
EFI <sub>1</sub>	A. General government consumption spending as a percentage of total consumption B. Transfers and subsidies as a percentage of GDP C. Government enterprises and investment as a percentage of GDP D. Top marginal tax rate (and income threshold to which it applies)
EFI <sub>2</sub>	A. Judicial independence: the judiciary is independent and not subject to interference by the government or parties in disputes B. Impartial courts: A trusted legal framework exists for private businesses to challenge the legality of government actions or regulation C. Protection of intellectual property D. Military interference in rule of law and the political process E. Integrity of the legal system
EFI <sub>3</sub>	A. Average annual growth of the money supply in the last five years minus average annual growth of real GDP in the last ten years B. Standard inflation variability in the last five years C. Recent inflation rate D. Freedom to own foreign currency bank accounts domestically and abroad
EFI <sub>4</sub>	A. Taxes on international trade B. Regulatory trade barriers C. Actual size of trade sector compared to expected size D. Difference between official exchange rate and black market rate E. International capital market controls
EFI <sub>5</sub>	A. Credit Market Regulations B. Labor Market Regulations C. Business Regulations

Table 5: Areas and Components of the EFI Index



Variable	Mean	Standard Deviation	Minimum	Maximum
EFI total index	6.277	1.257	3.40	8.30
$\Delta$ EFI total index	0.720	0.867	-1.30	2.60
EFI <sub>1</sub> Government	5.249	1.843	1.75	9.12
$\Delta$ EFI <sub>1</sub> Government	0.759	1.228	-2.20	3.28
EFI <sub>2</sub> Legal Structure	6.597	1.743	2.85	9.28
$\Delta$ EFI <sub>2</sub> Legal Structure	0.056	0.820	-1.55	2.18
EFI <sub>3</sub> Sound Money	6.710	3.052	0	9.83
$\Delta$ EFI <sub>3</sub> Sound Money	1.932	2.485	-1.13	7.56
EFI <sub>4</sub> Trade	7.138	1.099	3.16	8.61
$\Delta$ EFI <sub>4</sub> Trade	-0.030	0.790	-1.42	2.30
EFI <sub>5</sub> Regulation	5.851	1.178	3.18	8.30
$\Delta$ EFI <sub>5</sub> Regulation	0.790	1.032	-1.84	3.19
Trust	0.287	0.141	0.04	0.65
GDP per Capita (log)	9.145	0.818	6.85	10.29
Globalization	59.927	16.811	23.13	91.01
Herfindahl Legislature	0.320	0.145	0.08	1
Postcommunist	0.211	0.411	0	1

Table 6: Summary Statistics

independent variables	dependent variable					
	$\Delta\text{EFI}_{80-90}$ Total Index	$\Delta\text{EFI}_{1,80-90}$ Government	$\Delta\text{EFI}_{2,80-90}$ Legal Structure	$\Delta\text{EFI}_{3,80-90}$ Sound Money	$\Delta\text{EFI}_{4,80-90}$ Trade	$\Delta\text{EFI}_{5,80-90}$ Regulation
EFI <sub>80</sub>	-0.312*** (0.079)	0.306* (0.155)	-0.770*** (0.084)	-0.405* (0.190)	-0.172 (0.170)	-0.207* (0.109)
GDP per Capita	0.487** (0.197)	0.211 (0.310)	1.617*** (0.275)	1.577** (0.566)	-0.318 (0.232)	-0.047 (0.195)
Globalization	-0.005 (0.005)	0.024 (0.014)	0.010 (0.007)	-0.014 (0.015)	-0.005 (0.012)	-0.001 (0.005)
Herfindahl Legislature	-0.539** (0.227)	-0.238 (0.971)	-0.875 (0.692)	-3.215*** (1.041)	-0.602 (0.644)	0.409 (0.282)
Trust	1.080* (0.535)	0.376 (0.841)	0.564 (0.528)	-0.561 (2.219)	2.338* (1.180)	1.679** (0.740)
Intercept	-2.091 (1.516)	-4.403 (3.466)	-9.883*** (2.066)	-8.814* (4.709)	4.133** (1.917)	0.933 (1.345)
R <sup>2</sup>	0.637	0.262	0.9122	0.595	0.398	0.424
N	[20]	[20]	[18]	[20]	[20]	[20]

Notes: Ordinary least-squares regressions. White (1980) corrected standard errors are given in parentheses underneath. Number of observations is given in brackets.

\*/\*\*/\*\*\* Statistically significant at the 10%/5%/1%-level

Table 7: Robustness test of specification 1

independent variables	dependent variable					
	Reform <sub>95-05</sub> Total Index	Reform <sub>95-05</sub> Government	Reform <sub>95-05</sub> Legal Structure	Reform <sub>95-05</sub> Sound Money	Reform <sub>95-05</sub> Trade	Reform <sub>95-05</sub> Regulation
EFI <sub>95</sub>	-0.271** (0.124)	-0.234*** (0.086)	-0.226** (0.093)	-0.221** (0.130)	-0.434*** (0.147)	-0.017** (0.060)
GDP per Capita	0.039 (0.184)	-0.168 (0.214)	0.043 (0.180)	0.171 (0.363)	-0.105 (0.177)	-0.001 (0.006)
Globalization	-0.008 (0.009)	-0.003 (0.010)	-0.003 (0.008)	-0.003 (0.018)	0.005 (0.009)	0.001 (0.001)
Herfindahl Legislature	-0.200 (0.679)	2.210* (1.188)	-0.421 (0.581)	-0.204 (0.874)	0.205 (0.551)	-0.055 (0.190)
Postcom- munist	0.430 (0.239)	0.534 (0.269)	0.278 (0.193)	0.588 (0.357)	0.269 (0.236)	0.199 (0.383)
Trust	1.077 (0.748)	2.352** (1.016)	1.778** (0.759)	0.603 (1.305)	0.391 (0.721)	0.055 (0.192)
Pseudo R <sup>2</sup>	0.405	0.493	0.252	0.790	0.551	0.838
N	[54]	[54]	[54]	[54]	[54]	[54]

Notes: Probit regressions. Reported are marginal effects. Standard errors are given in parentheses underneath. Number of observations is given in brackets.

\*/\*\*/\*\*\* Statistically significant at the 10%/5%/1%-level

Table 8: Probit regression of specification 1