Institutions and economic performance: a review of the theory and evidence

Ugur, Mehmet

University of Greenwich

September 2010

Institutions and economic performance:
A review of the theory and evidence

Mehmet Ugur
Reader in Political Economy, University of Greenwich Business School, Department of International Business and Economics, .Ugur@gre.ac.uk

Abstract

The aim of this article is to take stock of the theoretical debate and empirical findings concerning the impact of institutions on economic performance and the channels through which the institutional impact unfolds. The review is limited to work published until 2004 due to space limitations and the exponential increase in the literature after 2004 – a development that justifies a separate review in itself. We trace the evolution of the institutional approach, identify the channels through which institutional quality might affect economic performance, report the empirical findings, and assess the institutional approach's contribution to economic analysis and policy design. Our findings suggest that the institutional approach has made both theoretical and empirical contributions to economics research and has inspired policy debate, but the debate is lopsided with its focus on developing countries only.

Introduction

> 'Institutions form the incentive structure of a society, and the political and economic institutions, in consequence, are the underlying determinants of economic performance' (North, 1994: 359).

In the 1990s, an extensive literature has emerged on the relationship between institutional quality and economic performance.[1] The proliferation of the literature was underpinned by two stylised facts. One has been the evident association between the institutional vacuum and the dramatic

[1] Although interest in the impact of institutions on economic performance dates back to Adam Smith, the rise of institutional analysis we refer to is a phenomenon of the 1990s. Institutional analysis draws on the work of Williamson (1985) and North (1990). Williamson is in the tradition of Coase (1937) and focuses on institutions as 'governing structures'. North, however, tends to focus on institutions as determinants of the society's incentive structures in general and economic performance in particular. The *Transition Reports* of the European Bank for Reconstruction and Development (EBRD) and the World Bank Report of 2002 are examples of how the institutional approach has influenced the policy outlook of international organisations.

worsening of economic performance that followed the collapse of the ex-socialist regimes. As Coase (1992: 714) has indicated in his Nobel Prize lecture, the transition experience of the ex-Soviet regimes demonstrated that the inclusion of '…institutional factors in the corpus of mainstream economics' could not be avoided any longer.

The other concerns the evident persistence, and even worsening, of the inequality between the least-developed and developed countries. According to the World Bank's *World Development Report* (2006: 9-15), inter-country inequality, as measured by the Gini coefficient, has been increasing since 1980. This trend has also been confirmed by Atkinson and Brandolini (2004), who found that both absolute and intermediate indices of inequality have been pointing to increased levels of cross-country inequality. Given the diffusion of technology and increased capital mobility that globalisation was expected to deliver, it proved difficult to explain the worsening international inequality by referring to capital accumulation or technology – both of which are significant determinants of growth in the neo-classical approach to economic development. That is why the World Bank (2002:2) had to acknowledge that the main challenge for development policy at the turn of the twenty-first century was the supply of effective market-supporting institutions, and the creation of demand for such institutions.

To review the institutional literature in economics, the article is organised in three sections. In Section 2, we examine the different definitions of institutions and their implications for incorporating institutions into economic analysis. Section 3, on the other hand, provides an account of how the institutional approach has remained marginalised in standard economic analysis despite the fact that economists' interest in institutions dates back to Adam Smith, and a large number of attempts had been made to incorporate institutions into economic analysis and model building. In section 4, we take stock of the empirical work on the relationship between institutional quality and economic performance. In this section, we examine the developments in model building and methodology and comment on the robustness or the empirical findings. Finally, we conclude by summarising the main contributions of the institutional approach to our understanding of economic development and point out the potential achievements and challenges that lie ahead.

2. Institutions and economic performance: definitional issues

According to North (1994: 360), institutions are 'humanly devised constraints (e.g., rules, laws, constitutions), informal constraints (e.g. norms of behaviour, conventions, voluntary codes of conduct) and their enforcement characteristics.' The main function/role fulfilled by institutions is that they define 'the incentive structure' of societies and economies. Lin and Nugent (1995: 2306-2307), among others, concur with this view by defining institutions as 'a set of … behavioural rules that shape and govern interactions between human beings, partly by helping them to form expectations …'. In this approach, institutions differ from organisations as the former determine the environment within which organisations emerge, develop and function.

The distinction between institutions and organizations is necessary for two reasons. First, organisations such as firms, central banks, or regulatory agencies are essentially goal-oriented economic actors. Organisations may well be guided and constrained by institutional constraints, or they may well be the executors of the institutional norms. However, organisations are still different than institutions because the latter may emerge as solutions to collective action problems and/or frame the choices of economic actors, but they cannot be reduced to actions taken by organisations or organisational rules governing the functioning of organisations. Secondly, the distinction between institutions and organisations enables us to focus on the 'governance quality' rather than organisational structures per se. In this context, governance quality refers to the extent to which public- or private-sector organisations are subject to the right mix of incentives and constraints that delivers optimal outcomes. Therefore, institutions as governance quality are more pervasive in their effects not only on the economy as a whole, but also on the organisations within the economic sphere.

Nelson and Sampat (2001) identify three different uses of institutions as a variable that affect economic performance. First, there is the 'rule of the game' approach associated with North (1990, 1994). In fact, this approach is implicit in Coase (1960) and focuses on the impact of institutions on transactions between economic actors. In this approach, institutions are well-understood rules of the game that may or may not ensure a certain degree of predictability to individual or corporate behaviour. To the extent that institutions are conducive to predictability, they encourage contracting between economic actors.

The positive impact of institutions on contracting comes from two sources: (i) increased probability of contracting due to the predictability of the parties' likely actions; and (ii) increased probability of compliance due to the existence of well-defined sanction rules. According to Wallis and North (1986), transaction costs are significant and tend to increase as the level of development increases. They found that 45 percent of the US GNP in the 1970s was absorbed by what they call the 'transactions sector'. Given this high level of transaction costs, institutions emerge as a significant factor that affects economic performance through two channels: (a) lower costs per transaction, which implies an efficiency gain; and (b) higher volume of transactions so that a larger number of mutually-beneficial economic activities are undertaken. The combination of both is conducive to better economic performance in the long run.

The second approach to institutions is associated with Williamson (1975, 1985), but again it was first put forward by Coase (1937). In this approach, institutions are considered as 'governance structures' rather than as 'rules of the game'. The emphasis here is on ownership structures, hierarchies, corporate culture, or agency problems. The question addressed by this approach is the following: how do institutions enable economic actors to avoid prisoners' dilemma outcomes or prevent the collective action failures in their repeated interactions? One way in which institutions can help resolving such problems is the guarantee they provide for well-defined property rights (Coase, 1937). Another way would be statutory or voluntary governance standards that could alleviate agency problems, where the agents (public or private actors) act against the interests of the principals (citizens, consumers, stakeholders, etc.) who appoint them to carry out a certain task. The difference between this approach and the previous approach may not be evident, but it can be clarified as follows: 'institutions as governing structures' are a system of rules that enable economic actors to avoid agency problems or prisoners' dilemma situations that would emerge when 'institutions as rules of the game' are either ineffective or absent.

The third approach to institutions is associated with Axelrod (1984). In his comprehensive analysis of co-operation, Axelrod explores how cooperation can emerge in a world of self-interested actors (superpowers, businesses, or individuals) when there is no central authority to police their actions. He points out the importance of internalised norms that encourage co-operative behaviour within large groups that, according to Olson (1971 and 1982), face collective action problems preventing them from cooperation. In this setting, institutions can resolve information and sanctioning problems in a decentralized manner (Dixit, 2008). In this

setting, institutions are rather informal and they emerge as a result of repeated actions that signal information about potential trading partners or punish the partners when the latter cheat.

The paragraphs above illustrate not only the potential contribution of institutions to long-run economic performance, but also the difficulty of settling on a commonly-agreed definition of institutions. To address this difficulty, we propose to proceed along two tracks. First, we will examine the theoretical/analytical propositions put forward on how institutions affect economic performance. This exercise will enable us to understand why institutions are relevant to the study of economic performance, discover which institutions are thought to be relevant; and propose a typology of institutions and their effects on the functioning of a market economy. Secondly, we will examine the empirical literature with a view to establish the findings concerning the impact of institutions on economic performance. This exercise will enable us to see how institutional quality is measured, assess the reliability of the empirical findings, and ascertain the extent to which the institutional quality measures used in empirical studies can be accommodated within the proposed institutional typology.

3. Institutions and economic performance: the theory

Interest in the impact of institutions on economic development has a long history. Early references to the importance of institutions date back to Adam Smith. In his *Wealth of Nations*, Smith (1976: 910) postulates that 'Commerce and manufactures can seldom flourish in any state … in which there is not a certain degree of confidence in the justice of government.' In other words, 'rule of law' is a major institutional factor that encourages trade and industry. In another section of the book, Smith (1976: 284-85) is more explicit: he relates the differences in investment rates (hence, the differences in growth rates) to the extent to which the 'rule of law' and property rights exist:

> 'In all countries where there is tolerable security, every man of common understanding will endeavour to employ whatever stock he can command in procuring either present enjoyment or future profit. …In those unfortunate countries … where men are continually afraid of the violence of their superiors, they frequently bury and conceal a great part of their stock.'

What is significant here is that the level of security or the risk of expropriation emerges as significant determinants of the extent to which private economic agents save and invest. The higher the level of security and the lower the risk of expropriation are, the higher is the level of

investment and, therefore, the higher is the level of economic growth. According to Smith (1976: 405), institutional factors can explain not only the cross-country differences in growth rates, but also regional disparities within a country:

> 'Order and good government, and along with them the liberty and security of individuals, were … established in cities at a time when the occupiers of land in the country were exposed to every sort of violence. … [therefore] industry, which aims at something more than necessary subsistence, was established in cities long before it was commonly practised by the occupiers of land in the country.'

Neo-classical economics has ignored these early insights for a long time as it strived to explain economic growth by reference to a technical production function that includes two factors of production (capital and labour) and utility functions that depict the levels of utility associated with different input choices. Once the wider institutional context is assumed away in this manner, it was relatively straightforward to demonstrate that resource allocation would be Pareto-optimal if there was perfect competition. In addition, any Pareto-optimal resource allocation that is technically feasible can be achieved by establishing free markets. The problem with this institution-free view of the world has always been that it cannot explain why different non-market institutions coexist with markets, how market and non-market institutions interact, and whether different rates of growth performance may be related to differences in institutional characteristics of national economies.

Another, but potentially more significant, problem with the neo-classical view is that the reduction of economic activity to a technical production function is not compatible with their 'background' assumptions concerning the existence of property rights and conclusion of contracts with a degree of confidence (Rodrik, 2000). If the existing definition of property rights is not credible due to the existence of a highly intrusive or excessively weak state, or if contract enforceability is low due to low judicial quality, the technically-feasible outcomes may remain socially-unfeasible.

Moreover, the technical view of economic development is not compatible with the persistence of the development gap between the least-developed and developed countries. Given that scarcity leads to higher rates of return on capital in the least-developed countries, the latter should have been able to attract capital, increase output and catch up with their developed counterparts. True, policy failures or perverse policies may inhibit the flow of foreign capital and the accumulation of domestic capital, leading to slower growth. Such policy failures, however, beg the following

question: why should such sub-optimal policies persist in under-developed countries? In other words, why are less developed countries caught in a 'vicious circle' of 'wrong' policies and low growth whereas developed countries enjoy a 'virtuous circle' of 'right' policies and high growth rates?

The neo-classical approach has difficulty explaining the privatisation and liberalisation experience of the transition economies too. The transition experience has demonstrated that the creation of markets and private property rights were not sufficient for the emergence of efficient entrepreneurs. Instead, it has led to the emergence of entrepreneurs excelling in anti-competitive behaviour, tax avoidance, and corporate governance failures that range from outright fraud to insider dealing. As Coase (1992: 714) has indicated, the countries of the ex-Soviet space 'may be advised to move to a market economy, …, but without the appropriate institutions no market economy is possible.' The appropriate institutions in this context include, but are not limited to, rule of law and property rights. They also include regulatory institutions, institutions of social insurance, institutions of conflict resolution, and institutions supportive of the production of 'public goods' in the general sense, including an efficient public policy.

After a long silence on the role of institutions in economic development, some economists and economic historians re-examined the issue in the 1950s and 1960s. This was evident in Myrdal's work on regional disparities within countries and persistent poverty in Asia. Whilst Myrdal (1957) drew attention to how some initial conditions related to the physical and social infrastructure can exacerbate regional disparities within a country, Myrdal (1968) highlights the institutional determinants of Asia's underdevelopment in an international context. However, the general preoccupation with mathematically tractable hypotheses was such that works guided by an institutional perspective remained largely excluded from mainstream publication outlets.

One exception we could identify was an article published in *American Economic Review* in mid-1950s. In that article, Charles Wolf, Jr. (1955: 867), argued that the absence of the 'right institutions' might be a more significant determinant of low capital formation compared to the shortage of savings. What is meant by 'right institutions' is that kind of institutions '… which permit or stimulate, rather than impede, the adoption of new techniques and the formation of productive capital.' In addition, 'Growth-promoting institutions … may so restructure the environment in which factors of production meet that the rate at which combinations occur is accelerated.' In other words, institutions may contribute to economic growth not only by

encouraging the adoption of new technologies, but also by accelerating the rate at which capital is combined with labour – i.e., by increasing the rate of investment.

In terms of causation, Wolf, Jr (1955: 869) suggests that institutions stimulate or impede economic growth rather than the other way round. Specifically, institutions affect economic growth through their effects on: (i) the economic agents' calculation of costs and benefits; (ii) the predictability and probability of economic relationships; (iii) knowledge of economic opportunities; and (iv) motivations and values. This specification is in line with the 'institutions as rules of the game' approach, which focuses on how institutions shape the incentive structure faced by economic actors.

The institution-aversion observed in the mainstream economics journals, however, must be contrasted with the dramatic explosion of the 'dependency' literature from the second half of the 1960s onwards. The dependency literature presented a radical challenge to mainstream economics because of its explicit focus on the wider context of economic development, including the colonial history and political structures of under-developed countries, and the unequal distribution of power between the former and the developed countries.[2] We cannot provide a comprehensive assessment of this literature's contribution to the study economic development in general.[3] We would merely observe that the dependency literature did not lead to the building of bridges between the 'institutional insights' of the classical economists and the institutional literature that would emerge in the 1990s. This was for three reasons.

First, the dependency (or dependent development) literature considers the market to be a cause of the under-development problem rather than a solution to it. Therefore, it had no or little interest in the emergence and development of market-supporting endogenous institutions. This market-aversion was justified by the premise that dependency relations between developing and developed capitalist countries can permit the emergence of only distorted markets. The latter would serve mainly the interest of the international capital or those of its local collaborators.

Secondly, one stream of the dependency literature was concerned with the distribution of 'power' between developed and under-developed countries and not with institutional quality differences between the two. As a result, it focused on mechanisms of unequal exchange and

[2] For political economy studies of dependent development, see Frank (1969, 1978). On unequal exchange and systemic factors, see Emmanuel (1972) and Wallerstein (1979).
[3] For reviews of the dependent development literature, see Evans and Fernandes (1979) and Roxborough (1979).

exploitation, externally-induced economic and political distortions, etc. as the determinants of divergent development paths. Although those external factors may affect the quality of endogenous institutions, they do not translate into reliable measures of the latter. Finally, the other stream of the dependency literature was concerned with structural characteristics of the under-developed economies. These included pre-existing patterns of specialisation, the class structure that emerged in the context of that specialisation, and the colonial legacy, etc. Again, these factors may affect institutional quality but they cannot be translated into measures of the latter.

As a result, the absence of an institutional perspective continued to characterise the mainstream economics until mid-1980s, when Kormendi and Meguire (1985) and Scully (1988) came up with two pioneering papers that explored the effect of institutions on cross-country growth and investment. By the 1990s, the transition experience and the persistence of cross-country income inequalities - coupled with the capital mobility and technological diffusion that globalisation was expected to bring about - made it difficult to overlook the institutional determinants of economic performance. As Rodrik (2000) has indicated, the liberalisation reforms of the 1980s and 1990s demonstrated that economic actors in both developed and developing countries were sensitive to price signals, but only to the extent that these signals were perceived to be predictable and credible. In addition, the incentives (or opportunities) revealed by price signals would be conducive to increased national welfare only if there were institutions ensuring predictable property rights, curbing the worst forms of corruption and corporate abuse, ameliorating moral hazard problems, mitigating risks, and managing social or political conflicts.

The contribution of the institutional perspective to the economics of development is summarised very well in Aron (2000) and Rodrik (2000), who identify the range of relevant institutions and elaborate on how they impact on economic performance. Drawing on Rodrik, we can classify institutions into four categories. The categories and their effects on economic development/performance can be summarised as follows:

(a) Property rights institutions. These are norms and rules that confer and guarantee control on the returns to the assets invested or values produced. The institutions in this category refer to the rule of law, law enforcement quality, contract enforceability, risk of appropriation, political discretion, accountability, and procedures for change of executive. Property rights institutions affect economic performance by affecting the economic actors' decisions to save and invest in

physical as well as human capital, and all decisions related to the conclusion of mutually-beneficial contracts. They also affect economic performance by establishing a certain level of trust, which reduces the risks associated with given levels of returns on investment and contracting.

(b) Regulatory institutions. The institutions in this category correspond to norms, rules and regulations that can prevent or mitigate market failures and agency problems. They indicate the extent to which the civil service is independent from politicians, the extent to which policy makers and regulators are open to capture by interest groups, and economic policy-makers as well as corporate actors are accountable to the public in general and stakeholders in particular. They can be measured by the extent of corruption, tax evasion, regulatory burden, quality of bureaucracy, etc. These norms and regulations affect economic performance by enhancing the efficiency of public policy and by mitigating the risk of anti-competitive behaviour, free-riding, and rent-seeking by corporate actors.

(**c) Institutions for macroeconomic stabilisation.** These are institutions that could reduce macroeconomic instability either by minimising the incidence of policy-induced macroeconomic volatility or by increasing the resilience of the economy to adverse external shocks. The strength of the stabilisation institutions can be measured by the independence of the central bank, by the transparency and credibility of the budgetary process, and by the extent to which competences are distributed and accountability is ensured by transparent rules and procedures. Stabilisation institutions can affect economic performance by reducing uncertainty and making economic growth sustainable.

(d) Institutions for conflict resolution. These are the norms, rules and principles that are in place to resolve social/economic and political/ethnic conflicts. The economic/social conflict resolution institutions address co-ordination failures, distribution problems, and issues of inclusion/exclusion into the formal economy. The ethnic/political conflict resolution institutions address issues such as violence, law and order, personal security, etc. While economic/social conflict resolution institutions affect economic performance by reducing the risk of prisoners' dilemma situations and associated sub-optimal outcomes, ethnic/political conflict resolution institutions affect economic performance by enhancing internal security.

This summary enables us to propose that institutions have two aggregate effects on economic performance: a *market-creating effect* and a *market-deepening effect*. The market-creating effect captures the extent to which existing institutions encourage/support the emergence and growth of markets where economic actors can engage in mutually beneficial economic activities. The higher the institutional quality is, the lower are the transaction costs, the higher are the transaction volumes, and the higher is the probability that economic actors will extend their activities into new areas or sectors. The overall result is an expansion in the set of mutually-beneficial economic activities and an increase in economic performance. This result is underpinned by institutional quality that encourages trust/cooperation, higher levels of contracting, and provides incentives for investment in human as well as physical capital.

The market-deepening effect, on the other hand, refers to increased efficiency of the existing markets in which economic actors interact and conclude mutually-beneficial contracts. This effect is felt as a result of improved public and private governance quality, which enables economic actors to secure higher overall returns on a given volume of contracting. In other words, quality institutions lead to higher levels of governance quality that is conducive to: (i) reduced risks of coordination failures and agency problems; (ii) lower incidence of externalities and market failures; and (iii) improved policy credibility and reduced macroeconomic volatility. As the quality of governance-supporting institutions increases, economies will be less likely to suffer welfare losses that arise from resource misallocation and distortions.

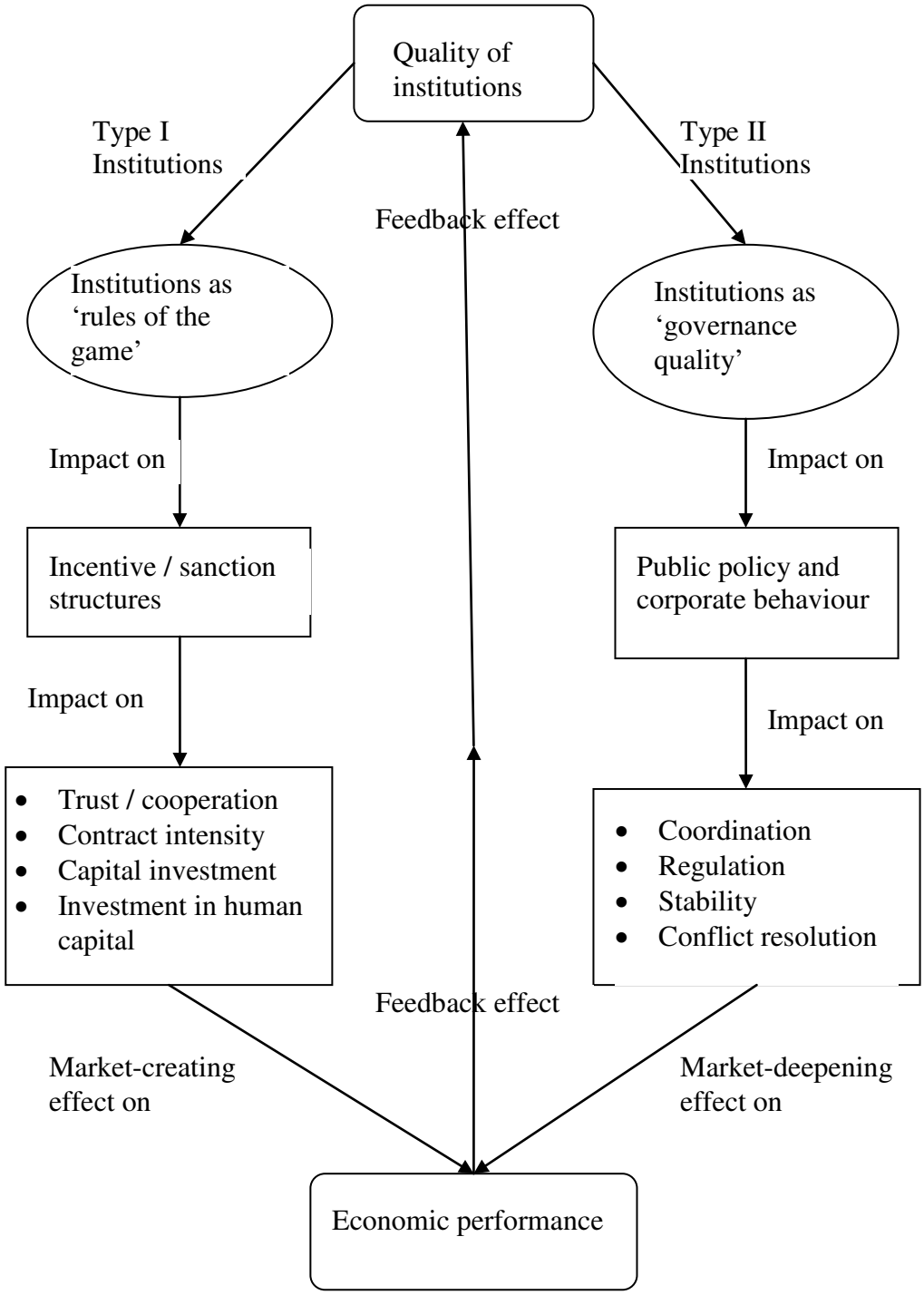
This 'effect classification' has an added heuristic value because it can also enable us to address the problem posed by the lack of agreement on an operational definition of institutions. As indicated above, there are at least three competing definitions and the recent empirical research has not addressed this problem. True, the empirical research (which will be reviewed below) has strengthened the institutional approach significantly by using and refining quantitative measures of institutional quality. This contribution, however, should not detract attention from the fact that contributors to the empirical literature have eschewed the definitional problem mainly because overlooking it provided a degree of freedom for choosing certain institutional indicators and not others. We think that it is possible to reduce the risk of *ad hoc* selection if we can demonstrate that the 'market-creating' and 'market-deepening' effects of institutions can be associated with two types of institutions that more or less exhaust the range of institutional indicators used in empirical research.

Our reading of the literature suggests that it is possible to associate the two effects of the institutions with two institutional types. *Type I* corresponds to institutions covered by the 'rules of the game' and the 'cooperation-supporting institutions' definitions introduced above. Type I institutions include the 'institutions of property rights' and 'conflict resolution institutions' suggested by Rodrik (2000). The quality of Type I institutions can be measured by the quality of the following indicators: rule of law, contract enforceability, risk of expropriation, power and accountability, judicial competence and impartiality, and trust. *Type II* institutions, on the other hand, correspond to 'institutions as governance structures' definition and include the remaining 2 categories suggested by Rodrik (2000): regulatory institutions and stabilisation institutions. The quality of Type II institutions can be measured by the quality of the following indicators: bureaucratic/government efficiency, policy predictability, company law and corporate governance regimes, and transparency/accountability.

To be able to visualise the impact of institutional quality on cross-country differences in economic performance over time, we propose a diagrammatical model depicted in **Figure 1** below. Our model is based on standard assumptions in economics – namely that economic actors are rational and try to maximise utility under certain constraints. The information available to economic actors may not be perfect, but the actors will take account of the existing information and respond to new information that becomes available. In the model, the quality of institutions and institutional change are considered as information signals to which the utility-maximising economic actors respond in a rational way.

We conceptualise the impact of Type I institutions on economic performance as a 'market-creating effect'. In other words, Type I institutions encourage better economic performance by creating new incentives for contracting between economic actors who seek to exploit mutually-beneficial economic opportunities. The market-creating effect can be traced over three stages. In stage 1, Type I institutions delineate the society's incentive and sanction framework. In other words, they provide information about the range of actions that are encouraged or discouraged, and the likely rewards or costs associated with such actions. In stage 2, the information about incentives and sanctions delineates the level of contract intensity, the level of trust, the incidence of economic/political conflict, and the level of incentives for investment in physical and human capital. Finally, in stage 3, contract and investment intensity affects economic performance, which can be measured as GDP growth rates and/or GDP per capita levels.

Figure 1: Institutions and economic performance: a diagrammatical model



The effect of Type II institutions, on the other hand, is conceptualised as a 'market-deepening effect'. Put differently, better Type II institutions enable economic actors to secure higher returns on their economic activities – either because of the predictability of the governance

frameworks or because of the limits they impose on collectively sub-optimal courses of action. Again, the market deepening effect can be examined in three stages. In stage 1, governance quality affects the quality of public policy, including its regulatory and stabilisation dimensions. In stage 2, public and private governance quality affects the quality of the regulatory frameworks and corporate governance regimes within which economic actors interact with each other. While the quality of the public policy reduces policy-induced uncertainties and risks, the quality of the regulatory frameworks reduces the risks associated with agency problems, coordination failures, and rent-seeking. Finally, in stage 3, the quality of regulation, coordination, and governance affects economic performance.

Although the distinction between 'market-creating' and 'market-deepening' effects is a useful analytical construct, we must indicate that the two effects are not mutually exclusive. In other words, we can expect to have both market creation and market enhancement effects within each of the channels in the model above. However, we should also indicate that Type I institutions (the left-hand channel) tend to generate predominantly market-creating effects whereas Type II institutions (the right-hand channel) tend to generate predominantly market-deepening effects. This is because Type I institutions tend to delineate the incentive structure faced by economic actors, whereas Type II institutions tend to determine the efficiency with which the contracts for employment, supply or credit are implemented. Yet, this distinction becomes less relevant when aggregate measures of institutional quality are used for estimation purposes.

The third point to be made about the proposed model is that economic performance has feedback effects on institutional quality. As we shall see in the discussion of empirical findings, the feedback effect can occur for two reasons. On the one hand, higher levels of economic development enable societies to afford the development and implementation costs associated with new institutions. To the extent that this is the case, economic performance would have a direct feedback effect on institutional quality. On the other hand, economic performance is likely to have an indirect (or perception) effect on institutional quality because of the way in which institutional quality data is collected. Institutional quality data is usually collected via surveys of economic actors, whose perceptions of existing institutions are likely to be influenced by how well the economy is performing at a given time. The proposed model suggests that we should isolate the direct and indirect feedback effects when we examine the impact of institutions on economic performance over time. As observed in the cross-country empirical studies, the feedback effect (i.e., the endogeneity problem) can be tackled by the use of appropriate

instruments or proxies that are less likely to be influenced by economic performance. In time-series analysis, such instrumentation can be introduced by taking lagged values of the institutional quality indicators.

Now we can convert the visual model into a quantifiable statement by using a Cobb-Douglas production function. We do this in two stages. First, we derive what we call a reduced-form regression equation for per-capita output from a Cobb-Douglas function that does not include institutions. Then, we write down an expanded regression equation by adding institutional quality as a factor that affects output in the Cobb-Douglas function. In both cases, we assume that technology is endogenous. The endogenous technology assumption is in line with endogenous growth theory of Mankiw et al (1992). It is also in line with Hall and Jones (1999), who try to measure the impact of 'social infrastructure' (i.e., institutional quality) on cross-country differences in productivity.

The growth model without institutions is denoted as neo-classical (nc) and stated as follows:

$$Y_{t,nc} = (K_t)^{\alpha}(AL_t)^{1-\alpha} \qquad (1)$$

Y is real output, K is capital, L is labour and A is technology, and t is time. α and β are shares of capital and labour in income.

Dividing each side by population (N), we derive an expression for per-capita output instead of output level. Hence:

$$Y_{t,nc}/N = (K_t/N)^{\alpha}[A(L_t/N)]^{\beta} \qquad (2)$$

Taking logs to derive a linear relationship, we obtain:

$$\ln Y_{t,nc}/N = \alpha \ln(K_t/N) + \beta \ln A + \beta \ln(L_t/N) \qquad (3)$$

Equation (3) is a standard neo-classical per-capita growth equation that excludes institutional quality.

Now, in line with the analysis above, let us assume that institutional quality affects output through its market-creating and market-deepening effects. Then the institutions-inclusive Cobb-Douglas production function can be written as follows:

$$Y_{t,i} = (I_{q,t-1}K_t)^{\alpha}(I_{q,t-1}AL_t)^{\beta} \qquad (4)$$

Here, $Y_{t,i}$ is output at period t with institutions and $I_{q,\,t-1}$ is institutional quality at period t-1. The institutional quality variable is lagged one period in order to reduce the risk of reverse causality.

As above, we can divide each side by population (N) in order to obtain an expression for per-capita output.

$$Y_{t,i}/N = (I_{q,t-1}\,K_t/N)^{\alpha}[I_{q,t-1}A(L_t/N)]^{\beta} \qquad (5)$$

Taking logs, we obtain the institutions-inclusive expression for per-capita growth in a linear form.

$$\ln Y_{t,i}/N = \alpha \ln(K_t/N) + \beta \ln A + \beta \ln(L_t/N) + \beta \ln I_{q,t-1} \qquad (6)$$

Comparing equations (3) and (6), we can see that the difference between the institutions-exclusive and institutions-inclusive formulations boils down to $\beta\, lnI_{q,\,t-1}$.

Having derived the type of effects that institutions are likely to have on economic performance and the type of institutions that these effects are associated with, we can now examine the recent empirical literature to address two issues. First, to what extent are the stipulated effects compatible with the emerging empirical findings? Secondly, to what extent are the empirical findings robust / reliable?

4. Institutions and economic performance: the evidence

We have identified 21 empirical studies probing at least one of the two institutional effects on economic performance. (See, Table A1 in the Appendix). These studies, which were all conducted between 1995-2004, report a statistically significant relationship between institutional quality and economic performance. Some of them demonstrate that the direction of causation is from institutions to economic performance and not the other way round. Some

others report that variations in institutional quality are more significant than other variables that also affect economic performance (e.g., geography or openness to trade).

In all of the work reviewed below, the authors use cross-country data and multiple regression techniques where institutional quality indicators are among the independent variables. Some of the authors use different instrumentation techniques in order to address the endogeneity problem – i.e., the possibility that institutional quality and economic performance may be both determined by other factors or there is reverse causality from economic performance to institutional quality. Indicators of institutional quality are constructed with data from various sources, including: the International Country Risk Guide (ICRG) published by Political Risk Services; the Business Environment Risk Intelligence (BERI); World Values Survey; and special surveys.[4]

We begin with the work of Knack and Keefer published in the mid-1990s. Knack and Keefer (1995) combine the 'institutions as rules of the game' and 'institutions as governance quality' perspectives. They examine the impact of two institutional quality indices on economic performance. The index corresponding to the 'institutions as rules of the game' perspective includes indicators such as contract enforceability, risk of nationalisation, rule of law, etc. The index corresponding to the 'institutions as governance quality' perspective is based on indicators such as bureaucratic quality, corruption, bureaucratic delays, etc. The authors report that institutions protecting property rights are significant predictors of economic growth.

In a subsequent study, Knack and Keefer (1997a) focus on indicators of 'institutions as rules of the game' – namely on trust and civic cooperation norms. Their data set covers 29 countries, for which data is acquired from the World Values Survey. The authors test for the impact of differences in trust and civic cooperation norms on investment/GDP ratios and GDP per capita growth rates over the 1980-92 period. They find that both trust and civic cooperation are positively associated with per capita GDP growth rates. A ten-percentage-point increase in the trust variable is associated with a 0.8 percentage point improvement in the growth of GDP per head. Similarly, a four-point rise in the 50-point civic cooperation variable is associated with more than 1 percentage point in the growth variable. The authors tries to correct for endogeneity by using ethnic cleavage and the number of law students as instrumental variables – i.e., as

[4] The ICRG ratings begin in 1982 and are updated monthly. The ICRG composite index consists of 5 variables, 3 of which are on a 6-point scale and 2 on a 10-point scale. BERI consists of four variables, all of which are scored on a 0-4 scale. For information on BERI and ICRG data, see Knack and Keefer (1995) and Clague et al (1997a).

institutional proxies that are less likely to be influenced by the level of development itself. They find out that trust remains a significant predictor of growth. The authors report similar results for the impact of institutions on investment/GDP ratios. Although both trust and civic cooperation are both statistically significant, the significance of the trust variable is limited to one-tail tests only.

In a parallel study, Knack and Keefer (1997b) examine the impact of institutions on a developing country's ability to catch up with developed countries. This is an innovative exercise as it constitutes the first attempt to re-specify the neoclassical convergence model. They find that institutional indicators such as rule of law, pervasiveness of corruption, the risk of contract repudiation, etc. have significant effect on a country's ability to catch up. The authors conduct robustness tests and report that institutional factors remain significant determinants of convergence.

Another set of studies published around 1996 and 1997 focus on 'institutions as governance quality' and report similar results. For example, Ades and di Tella (1996), reviews the empirical literature on the relationship between corruption and investment. They report that the majority of the work reviewed leads to two unequivocal conclusions: (i) corruption and judicial system quality are associated positively; and (ii) higher levels of corruption are associated with lower investment levels. Brunetti et al (1997a and 1997b) focus on institutional factors that affect the credibility and predictability of the rules affecting business establishments. In Brunetti et al (1997a), the data is on 3,600 companies drawn from a large number of countries. The authors conduct cross-country and cross-company regressions and find that the credibility of the rules is a significant determinant of investment decisions by the firms and growth rates recorded by the countries. In Brunetti at al (1997b), the authors regress foreign direct investment and economic growth on indicators of institutional predictability. They report that institutional predictability explains a large part of the differences in foreign investment flows attracted and economic growth rates recorded. Political stability and security of the property rights are found to be especially important.

Clague et al (1997a) use a combination of institutional indicators that cut across the two types of institutions – i.e., institutions as rules of the game and institution as governance quality. Their institutional quality indicator is a composite index consisting of 5 ICRG variables, 4 BERI variables and a contract intensity measure defined as contract-intensive money, measured as the

ratio of the non-currency money to the money stock (M2). The authors conduct multivariate tests and report that all institutional measures have positive and statistically significant impacts on investment and output growth. These results are obtained by controlling other relevant variables that may affect investment and output, which include initial income levels, human capital accumulation, and the relative price of investment goods. The results remain the same irrespective of whether the sample consists of all countries for which data is available or only less developed countries. In terms of magnitudes, the authors report that a 5-point increase in the 50-point ICRG index or a one-point increase in the 16-point BERI index is associated with a one percentage point increase in the investment/GDP ratio. An increase of 9 points in the ICRG and of 2 points in the BERI index is associated with about one percentage point increase in the growth rate of the GDP per head. The authors report that the contract-intensive money is also positively associated with investment ratios and per capita GDP growth rates.

Three more studies published in 1999 also report similar results. For example, Hall and Jones (1999), addresses the impact of institutions on productivity differentials. Their social infrastructure indicator is close to the 'institutions as governance quality' definition and consists of institutional measures such as law and order, bureaucratic quality, risk of appropriation, corruption, etc. They find that social infrastructure account for much of the difference in productivity measured as output per worker.[5] Similarly, Kaufmann et al (1999) also adopt an 'institutions as governance quality' perspective. They use six clusters of institutional quality indicators and examine their effect on development outcomes that include GDP per head, infant mortality and adult literacy. The authors report a strong relationship between governance quality and development outcomes. Their results hold irrespective whether OECD countries are included in or excluded from the sample.

Finally, Rodrik (1999) assesses the impact of institutional quality on the sustainability of economic growth. He reports that internal social conflicts and weak conflict resolution institutions explain why high growth rates experienced in some periods did not persist and why a large number of countries experienced growth collapse after mid-1970s. This finding suggests that institutional quality is a predictor of not only economic growth but also of its sustainability.

[5] Grigorian et al (2000) lend support to Hall and Jones' finding. On the basis of data for 27 Asian and Latin American countries, they report that the development of the legal and regulatory framework leads to higher industrial output growth rates, mainly through its impact on total factor productivity.

Rodrik (2000) addresses a different issue that arises both in the political economy of policy design and in the institutional approach to economic performance. This is the issue of whether democracy as a meta-institution is conducive to better economic performance. His findings suggest that some economic performance indicators are positively related to democracy. First of all, participatory democracies are associated with growth characterised by greater predictability, stability, superior distributional outcomes, and better resilience to shocks. Secondly, higher operational and institutional autonomy of the executive and lower levels of participation are not associated with resilience to shocks. In other words, policy autonomy combined with lower levels of participation leads to significant declines in growth rates after the economy is hit by an adverse shock. Thirdly, countries with greater political freedoms experienced smaller declines in economic growth when there was a break in their economic growth trend in mid-1970s.[6]

Democracy may be associated with less volatile economic growth and better distributional outcomes for two of reasons. First, Democracy is conducive to relatively higher levels of transparency and accountability. To the extent that this is the case, the risk of excessive discretion to be exercised by policy-makers or the incidence of rent-seeking by organised interest groups is lower. Secondly, democracy allows economic actors to choose the optimal combinations of 'exit' and 'voice' strategies that would force the policy-makers to improve the quality of the public policy. In other words, under democracy, policy failures can be punished either by exiting the jurisdiction (voting with one's feet) or by shifting support to other parties (sacking the incumbents). Still another punishment mechanism is to raise one's 'voice', which can take the form protest or complaints.[7] The combination of these exit-voice strategies may make democracies conducive to lower income inequality and less economic instability.[8]

The empirical findings summarised above lend significant support to the argument that institutional quality is a significant predictor of cross-country variations in economic

[6] See also Rigobon and Rodrik (2004), who cast serious doubt on the 'insulation' of policy-makers as a necessary condition for better economic performance.

[7] On the dynamics of Exit, Voice and Loyalty as societal reactions to deterioration in public policy, product quality, or company performance, see Hirschman (1970).

[8] Other studies also reported a degree of association between democracy as a meta-institution and economic performance. For example, Barro (1996) report a non-linear relationship between democracy and growth. Barro indicates that there is a positive correlation between democracy and growth at low levels of democracy, but a negative correlation at high levels. This finding lends support to Olson (1982), who argues that mature democracies suffer from the proliferation of self-serving interests groups. Chowdhurie-Aziz (1997) reports a positive linear association between the degree of non-elite participation in politics and economic growth. Finally, Tavares and Wacziarg (1996) point out an indirect effect of democracy on growth – namely that institutional quality may encourage growth through its positive effects on education, reduced inequality and lower government consumption.

performance. In addition, the positive association between institutional quality and economic performance holds for different indicators of institutional quality and economic performance. Finally, institutional quality is good not only for economic performance over a period, but also for the sustainability of economic growth.

These results, however, should not detract attention from two empirical/methodological problems that call for caution.

First, both institutional quality and economic performance may be determined endogenously. In other words, institutional quality (i.e., the explanatory variable) may be affected by the level of development itself (i.e., by the dependent variable); or both variables may be affected by other variables that are excluded from the regression equations. The endogeneity problem is also posed by the subjective nature of the institutional indicators. The latter are collected through surveys of experts or other actors, whose perceptions of institutions at a particular time are likely to be influenced by how well the economy is performing at the time of the survey. Unless further robustness tests and instrumentation (i.e., proxying) techniques are used, this endogeneity problem reduces the reliability of the regression results.

Acemoglu et al (2001) come up with an interesting solution to the endogeneity problem. To ensure that the effect captured by the regression is not exaggerated by reverse causality – i.e., by the effect of economic development on institutional quality - they use data on settler mortality rates. Settler mortality rates enable the authors to identify regions/lands where colonial settlers were less likely to settle for long because of high health hazards. Settlers in high-health-risk areas would be inclined to secure extraction in the short run and would be less concerned about building institutions guaranteeing property rights in the long run. Settlers in low-health-risk areas, however, can be expected to have an interest in building institutions guaranteeing property rights. Because variations in settler mortality rates and the following variations in institution-building efforts preceded divergence in economic performance, a negative relationship between settler death rates and economic performance would suggest that: (i) institutional quality is a good predictor of economic performance; and (ii) the causality would be from institutions to economic performance rather than the other way round. Acemoglu et al (2001) report that settler death rates (hence, institutional quality) are good predictors of the current discrepancy in economic performance.

However, Rodrik (2004) criticises Acemoglu et al (2001) for the prominence they accord to geography. He draws attention to the fact that income discrepancy between countries that had never been colonised is as large as the discrepancy within the sample of colonised countries. Therefore, an appropriate econometric instrument (settler mortality rates) is not the same as providing an adequate answer to the question about the effect of institutions on economic development.

The second problem we need to consider relates to the effect of other variables – e.g., openness to trade and geography – on economic performance. For example, Frankel and Romer (1999) use the nominal trade/GDP ratio as a measure of openness and report that the degree of openness is a significant predictor of the cross-country variations in economic performance. Later on, Alcala and Ciccone (2004) use the ratio of nominal trade to purchasing-power-parity-adjusted GDP (the so-called 'real openness' indicator) and report a similar result. In fact, Alcala and Ciccone demonstrate that their results obtained by using the real openness indicator are more robust than those reported by Frankel and Romer.

Similar results are reported with respect to the effect of geography too. For example, Gallup et al (1998) examine the relationship between geography and economic growth, controlling for economic policies and institutions. They find that geographical location and climate have large effects on income levels and growth rates. Geographical factors impact upon economic performance via transportation costs, disease burden and low productivity in agriculture. Sachs (2001) also reports that geographical location is a significant determinant of low technology in two sectors: agriculture and healthcare. As a result, countries located in tropical areas tend to record lower growth rates. Finally, Sachs (2003) controls for institutional quality and demonstrates that malaria transmission has a direct and significant effect on per capita income levels.

Given these findings on the impact of non-institutional factors such as openness to trade and geography, we need to disentangle the partial effects of both institutional and non-institutional variables, and establish whether collinearity exists between them. To address these issues, Dollar and Kraay (2003) examine the partial effects of openness to trade and institutional quality on per capita GDP. They report that cross-country regressions of per capita GDP trend on proxied measures of openness and institutional quality do not provide reliable information about the partial effect of either institutions or trade in the long run. This is mainly because of the high

level of correlation between openness and institutional quality. To avoid this problem, Dollar and Kraay regress decade-long changes in growth rates on decade-long changes in the degree of openness to trade and institutional quality. They find that trade has a significant effect on GDP growth, but institutions do not.

Rodrik et al (2004) respond to Dollar and Kraay (2003) by conducting a two-stage regression to estimate the direct and indirect effects of institutions, trade and geography on economic performance. They report that the 'quality of institutions' is more significant than either geography or trade. In fact, they demonstrate that when institutions are controlled for, conventional measures of geography have at best weak direct effects on incomes whereas trade is insignificant and enters into the equation with the wrong (i.e., negative) sign. The estimated direct effect of institutions on incomes is positive and large. A unit improvement in institutional quality increases log income by 2.15. The estimated direct effect of trade on income is negative but statistically insignificant. Finally, the estimated effect of trade on institutions is positive but small. As a result, Rodrik et al (2004) argue that 'institutions rule' as far as partial direct effects are concerned.

This finding suggests that it is difficult to accept Dollar and Kraay's argument that 'multicollinearity blurs the individual effects of institutions and trade'. Although geography and trade may affect institutional quality, it is possible to control for such effects and identify the institutions' partial effects independently. In addition, Rodrik et al (2004) demonstrates that Dollar and Kraay's scepticism about the tractability of the partial effects are due to arbitrariness in their sampling (for example, omission of some European countries that are not essentially outliers) and their choice of independent variables (for example, the substitution of nominal openness with 'real' openness). That is why it is not surprising to observe that the significance of the partial effects of institutions is confirmed by other studies too. For example, Nsouli et al (2004) examine the partial effects of institutions and IMF programme implementation on the basis of data for 197 IMF programmes approved between 1992-2002. They report the following findings: (i) improvement in institutional quality during the programme implementation period are associated with better growth performance; (ii) although institutional quality and programme implementation are both important determinants of growth, institutional factors have a quantitatively larger effect; and (iii) although programme implementation is the major influence on current account balance in the first year of the implementation period, institutional factors have a larger effect in the long run.

Conclusions

In the light of the review above, we can argue that the theoretical/analytical propositions about the positive impact of institutions on economic performance are compatible with the evidence on the ground. This argument remains valid with different data sets and different estimation techniques.

One contribution of the institutional approach has been the incorporation of institutional quality into formal models of growth and investment. This contribution has strengthened the view in economics research that markets neither function in a vacuum nor tend to settle on an optimal equilibrium. Markets function effectively and optimally only if effective institutions exist and if these institutions set the 'rules of the game' such that collective action problems are resolved and the scope for rent-seeking are minimised. In the absence of such institutions, an economy may settle on a sub-optimal equilibrium for long time periods. But this is not all: the institutional approach also implies that economic growth is more of a dis-equilibrium process rather than smooth and continuous adjustments at the margins.

The other contribution of the institutional approach is empirical. We now have a large volume of empirical work that demonstrates that institutional quality indicators such as rule of law, regulatory quality, democracy, control of corruption, etc. have significant and robust effects on economic growth, technological innovation, per-capita income growth, variations in per-capita income across countries. Because of the subjective nature of the institutional quality indicators, which are derived from public opinion or expert surveys, the institutional approach has also pushed the economic research towards methodological innovation. Such innovations included use of instrumental variables as well as panel-data causality tests. Furthermore, the interest of the institutional approach in institutional quality data has spurred international organisations and think tanks to invest in the collection and refinement of institutional data.

The third contribution of the institutional approach has been in the area of policy. The quality of governance and governance institutions has become a central theme in the relationship between developing countries on the one hand and the international organisations such as the IMF and the World Bank and donor country governments on the other. Indeed, the number of working and policy papers with an institutional focus has increased significantly within the research output

from the IMF, the World Bank, the European Bank for Reconstruction and Development, and more recently, from other regional development banks. Although this can be taken as indicator of policy relevance of the institutional approach, the focus on governance and institutions in developing countries only may foster false confidence in the institutional quality of the developed world – a confidence that has been questioned to some extent by the recent financial crisis.

REFERENCES

Acemoglu, D., S. Johnson and J. A. Robinson (2001), 'The colonial origins of comparative development: an empirical investigation', *American Economic Review*, vol. 91, no. 5, pp. 1369-1401.

Ades, A. and R. di Tella (1996), 'The causes and consequences of corruption: a review of recent empirical contributions', *IDS Bulletin*, vol. 27, no. 2, pp. 6-11.

Ades, A. and R. di Tella (1999), 'Rents, competition and corruption', *American Economic Review*, vol. 89, no. 4, pp. 982-993.

Alcala, F. and A. Ciccone (200), 'Trade and productivity', *Quarterly Journal of Economics*, vol. 119, no. 3, pp. 613-646.

Aron, J. (2000), 'Growth and institutions: a review of the evidence', *The World Bank Research Observer*, vol. 15, no. 1, pp. 99-135.

Atkinson, A. B. and A. Brandolini (2004), 'Global world inequality: absolute, relative or intermediate?', Paper presented at the 28th General Conference of the International Association for Research on Income and Wealth, Cork, Ireland, 22 August.

Barkey, H. J. (1990), *The State and the Industrialisation Crisis in Turkey*, Boulder, Colo.: Westview Press.

Barro, Robert (1996), 'Determinants of economic growth: a cross-country empirical study' *NBER Working Paper*, No. 5698, August.

Brunetti, A., G. Kisunko and B. Weder (1997a), 'Institutional obstacles of doing business: region-by-region results from a world-wide survey of private sector', *World Bank Policy Research Working Papers*, no. 1759.

Brunetti, A., G. Kisunko and B. Weder (1997b), 'Institutions in transition: reliability of rules and economic performance in former socialist countries', *World Bank Policy Research Working Papers*, no. 1809.

Campos, N. F. (2000), 'Context is everything: measuring institutional change in transition economies', *World Bank Policy Research Working Papers*, no. 2269.

Clague, C., P. Keefer, S, Knack and M. Olson (1997a), 'Institutions and economic performance: property rights and contract enforcement' in C. Calgue (ed.), *Institutions and Economic Development: Growth and Governance in Less-Developed and Post-Socialist Countries*, Baltimore and London: Johns Hopkins University Press, pp. 67-90.

Clague, C., P. Keefer, S, Knack and M. Olson (1997b), 'Democracy, autocracy and the institutions supportive of economic growth' in C. Calgue (ed.), *Institutions and Economic Development: Growth and Governance in Less-Developed and Post-Socialist Countries*, Baltimore and London: Johns Hopkins University Press, pp. 91 -120.

Clarke, G. R. G. (2001), 'How the quality of institutions affects technological deepening in developing countries', *World Bank Policy Research Working Papers*, no. 2603.

Coase, R. (1937), 'The nature of the firm', *Economica*, vol. 4, pp. 386-405.

Coase, R. (1960), 'The problem of social cost', *Journal of Law and Economics*, vol. 3, no. 1, pp. 1-44.

Coase, R. (1992), 'The institutional structure of production', *American Economic Review*, vol. 83, no. 4, pp. 713-719.

Chowdhurie-Aziz, Monali, 'Political openness and economic performance', unpublished paper, University of Minnesota, January 1997.

Dixit, A. K. 'Economic governance', in S. N. Durlauf and L. E. Blume (eds), *The New Palgrave Dictionary of Economics. Second Edition*, Palgrave Macmillan, 2008. ://www.dictionaryofeconomics.com/article?id=pde2008_E000260&goto=economicgovernance&result_number=958

Dollar, D. and A. Kraay (2002), 'Institutions, trade and growth', *Journal of Monetary Economics*, vol. 50, no. 1, pp. 133-162.

Easterly, W. and R. Levine (2002), 'Tropics, germs and crops: how endowments influence economic development', *NBER Working Paper*, no. 9106 (August).

Emmanuel, A. (1972), *Unequal Exchange: A Study of the Imperialism of Trade*, New York: Monthly Review Press.

Evans, P. and F. Fernandes (1979), *Dependent Development: The Alliance of Multinational*, State and Local Capital in Brazil, Princeton: Princeton University Press.

Frank, A. G. (1969), *Latin America: Underdevelopment and Revolution*, New York: Monthly Review Press.

Frank, A. G. (1978), *Dependent Accumulation and Underdevelopment*, New York: Monthly Review Press.

Frankel, J. and D. Romer (1999), 'Does trade cause growth?', *American Economic Review*, vol. 89, no. 3, pp. 379-399.

Gallup, J. L., J. D. Sachs and A. D. Mellinger (1998), 'Geography and economic development', *NBER Working Paper* no. w6849 (December).

Grigorian, D. A. and A. Martinez (2000), 'Industrial growth and the quality of institutions: what do (transition) economies have to gain from the rule of law?' *World Bank Policy Research Working Papers*, no. 2475.

Hall, R. E. and C. I. Jones (1999), 'Why do countries produce so much more per worker than others', *Quarterly Journal of Economics*, vol. 114, no. 1, pp. 83-116.

Helliwell, John (1994), 'Empirical linkages between democracy and economic growth', *British Journal of Political Science*, vol. 24, pp. 225-248.

Henisz, W. J. (2000), 'The institutional environment for economic growth', *Economics and Politics*, vol. 12, no. 1, pp. 1-31.

Hirschman, A. O. (1970), *Exit, Voice, Loyalty: Responses to Decline in Firms, Organizations and States,* Cambridge: Cambridge University Press.

Isham, J., D. Kaufmann and L. Pritchett (1997), 'Civil liberties, democracy, and the performance of government projects', *The World Bank Economic Review*, vol. 11, no. 2, pp. 219-242.

Kaufmann, D., A. Kraay and P. Zoido-Lopaton (1999), 'Governance matters', *World Bank Policy Research Working Papers*, no. 2196.

Kaufmann, D., A. Kraay and P. Zoido-Lopaton (2002), 'Governance matters II – updated indicators for 2000/2001', *World Bank Policy Research Working Papers*, no. 2772.

Knack, S. and P. Keefer (1995), 'Institutions and economic performance: cross-country tests using alternative institutional measures' *Economics and Politics*, vol. 7, no. 3, pp. 207-227.

Knack, S. and P. Keefer (1997a), 'Does social capital have an economic payoff? A cross-country investigation', *Quarterly Journal of Economics,* vol. 112, no. 4, pp. 1251-1288.

Knack, S. and P. Keefer (1997b), 'Why don't poor countries catch up? A cross-national test of institutional explanation', *Economic Inquiry*, vol. 35, no. 4, pp. 590-602.

Kormendi, R. C. and P. G. Meguire (1985), 'Macroeconomic determinants of growth: cross-country evidence', *Journal of Monetary Economics*, vol. 16, no. 2, pp. 141-163.

Lin, Justin Yifu and Jeffrey B. Nugent (1995), 'Institutions and economic development' in J. Behrman and T. N. Srinivasan (eds), *Handbook of Development Economics*, vol. 3A, Amsterdam: North-Holland, chapter 38.

Malik, A. (2002), 'State of the art in governance indicators', *UNDP Occasional Papers*, no. 2002/7.

Mankiw, N. G., D. Romer and D. N. Weil (1992), 'A contribution to the empirics of economic growth', *Quarterly Journal of Economics*, vol. 107, no. 3, pp. 407-437.

Myrdal, G. (1957), *The Economic Theory of Under-Developed Regions*, London: Duckworth.

Myrdal, G. (1968), *Asian Drama: An Inquiry into the Poverty of Nations*, London: Allen Lane.

Nelson, R. R. and B. N. Sampat (2001), 'Making sense of institutions as a factor shaping economic performance', *Journal of Economic Behaviour and Organisation*, vol. 44, no. 1, pp. 31-54.

North, D. C. (1990), *Institutions, Institutional Change and Economic Performance*, New York: Cambridge University Press.

North. D. C. (1994), 'Economic performance through time', *American Economic Review*, vol. 84, no. 3, pp. 359-368.

Nsouli, S. M., R. Atoian and A. Mourmouras (2004), 'Institutions, program implementation, and macroeconomic performance', *IMF Working Papers*, no. 04/184.

Olson, M. (1971), *The Logic of Collective Action: Public Goods and the Theory of Groups*, Cambridge, Mass.: Harvard University Press.

Olson, M. (1982), *The Rise and Decline of Nations: Economic Growth, Stagflation and Social Rigidities*, New Haven: Yale University Press.

Rigobon, R. and D. Rodrik (2004), 'Rule of law, democracy, openness and income: estimating the interrelationships', Manuscript, ://ksghome.harvard.edu/~rodrik/papers.html. Accessed: December 2004.

Rodrik, D. (1999), 'Where did all growth go? External shocks, social conflict, and growth collapses' *Journal of Economic Growth*, vol. 4, no. 4, pp. 385-412.

Rodrik, D. (2000), 'Institutions and high-quality growth: what are they and how to get them' *Studies in Comparative International Development*, vol. 35, no. 3, pp. 3-31.

Rodrik, D. (2004), 'Getting institutions right', Manuscript, ://ksghome.harvard.edu/~rodrik/papers.html. Accessed: December 2004.

Rodrik, D., A. Subramanian and F. Trebbi (2004), 'Institutions rule: the primacy of institutions over geography and integration in economic development, *Journal of Economic Growth*, vol. 9, no. 2, pp. 131-165.

Roxborough, I. (1979), *Theories of Underdevelopment*, London: Macmillan.

Sachs, J. D. (2001), 'Tropical underdevelopment', *NBER Working Paper*, no. 8119 (February).

Sachs, J. D. (2003), 'Tropical underdevelopment', *NBER Working Paper*, no. 9490 (February).

Scully, G. W. (1988), 'The institutional framework and economic development', *Journal of Political Economy*, vol. 96, no. 3, pp. 652-662.

Smith, A. (1976), *An Inquiry into the Nature and Causes of the Wealth of Nations*, edited by R. H. Campbell et al, Oxford: Oxford University Press.

Snowden, P. N. (1996), 'Financial Reform in Turkey since 1980: liberalisation without Stabilisation' in S. Togan and V. N. Balasubramanyan (eds.), *The Economy of Turkey since Liberalisation,* London: Macmillan, pp. 67-87.

Tavares, J. and R. Wacziarg (1996), 'How democracy fosters growth', Harvard University, August 1996.

Wallerstein, I. (1979), *The Capitalist World Economy*, Cambridge: Cambridge University Press.

Wallis, J. J. and D. C. North (1986), 'Measuring the transaction sector in the American economy' in S. L. Engerman and R. E. Gallman (eds), *Long-Term Factors in American Economic Growth,* Chicago: Chicago University Press.

Williamson, O. E. (1975), *Markets and Hierarchies: Analysis and Antitrust Implications*, New York: Free Press.

Williamson, O. E. (1985), *The Economic Institutions of Capitalism*, New York: Free Press.

Williamson, O. E. (2000), "The new institutional economics: taking stock, looking ahead", *Journal of Economic Literature*, vol.38, p.595-613.

Wolf Jr., C (1955), 'Institutions and economic development', *American Economic Review*, vol. 45, no. 5, pp. 867-883.

World Bank (2002), *World Development Report 2002: Building Institutions for Markets*, Washington, D.C.: World Bank.

World Bank (2006), *World Development Report2006: Equity and Development*, Washington, D.C.: World Bank.

Appendix

Table A1: Empirical studies on institutions and economic performance

Author(s)	Methodology	Relevant findings
1. Acemoglu et al (2001)	Cross-country regressions, using settler mortality rate as an instrument for institutional quality. They examine whether this measure of institutional quality explains cross-country variations in income levels.	The authors report that differences in settler death rates are good predictors of variations in institutional quality and that the latter explain the difference in economic performance.
2. Ades, A. and R. di Tella (1996)	Reviews the empirical literature on causes and effects of corruption on investment.	Corruption is associated with less independent judicial system and the lack of competition in the product markets. Higher corruption is associated with lower investment.
3. Ades, A. and R. di Tella (1999)	Constructs a model of corruption on the basis of compensation theory. Presents a general structure of corruption regressions and examines the causes of corruption.	Countries where firms enjoy higher rents (i.e., countries where competition rules are weak or absent) tend to have higher levels of corruption.
4. Brunetti, A., et al (1997a)	World-wide survey of 3,600 business establishments. Constructs an index of 'credibility of rules'. Cross-firm and cross-country regressions to test the relationship between the credibility index and economic performance.	Credibility promotes investment and economic growth. The most important components of the credibility index are: (i) predictability of laws and policies; (ii) reliability of judiciary; and (iii) lack of corruption.
5. Brunetti, A., et al (1997b)	Presents indicators of the predictability of the institutional framework in 20 transition economies. Regression of economic growth on these indicators.	Reports that the predictability of the institutional framework explains a large part of the differences in foreign investment and economic growth. Political stability and security of property rights are very important.
6. Campos, N. F. (2000)	Presents five indicators of institutional quality: (i) accountability of the executive; (ii) quality of the bureaucracy; (iii) rule of law; (iii) nature or policy making; (iv) process; and (v) strength of civil society. Examines their effects on per capita income and life expectancy.	Rule of law is the most important institutional quality affecting per capita income. In terms of life expectancy, bureaucratic quality is the most important factor.

Table 1 continued …

Author(s)	Methodology	Relevant findings
7. Clague, C. et al (1997a)	The authors examines the relationship between institutional indicators (expropriation risk, rule of law, repudiation of contracts, quality of bureaucracy, bureaucratic dealy, etc.) and per capita income growth rates and investment/GDP ratios.	They report significant relationship between institutional indicators and economic performance. Although some non-institutional factors are also related to economic performance, the impact of institutional variables is much higher.
8. Clague, C. et al (1997b)	The authors examine the impact of regime type and regime duration on institutional quality. Regime types vary between dictatorship and democracy (represented by a scale of 1-5).	The authors find that long-lasting democracies provide better property rights (institutional quality) than long-term dictatorships. Fixed-effects regressions, however, do not point out to improved property rights when dictatorships are replaced by democracies. In other words, the duration of the democracy is more important than its adoption.
9. Clarke, G. R. G. (2001)	The paper assesses the effect of institutional quality on R&D expenditures in developing countries. The variables used to measure institutional quality are risk of appropriation and rule of law.	The author reports that the measures of institutional quality are correlated with R&D expenditures. Several robustness checks enable the authors to uphold the hypothesis that R&D expenditures increase in institutional quality.
10. Grigorian, D. et al (2000)	Tests the link between industrial growth and indicators of institutional quality.	The authors find significant evidence that institutional quality affects industrial growth in 27 developing countries. Their results suggest that the development of the legal and regulatory framework works its way to industrial growth through investment and total factor productivity.
11. Hall, R. and C. Jones (1999)	Cross-country regressions involving capital accumulation and productivity as dependent variables, and 'social infrastructure' as independent variable. The social infrastructure consists of law and order, bureaucratic quality, risk of appropriation, corruption, etc.	Differences in social infrastructure account for much of the difference in long-run economic performance, measured by output per worker, capital intensity and human capital per worker.

Table 1 continued …

Author(s)	Methodology	Relevant findings
12. Henisz, W. (2000)	Uses a measure of political constraint. The measure incorporates the number of independent branches of government with veto power and distribution of preferences across and within branches.	The paper reports an explicit relationship between the measure of political constraints and variations in cross-national growth rates.
13. Isham, J. et al (1997)	Examines the impact of government efficacy and governance quality on the performance of government investment projects financed by the World Bank.	Civil liberties have a strong effect on performance even when the level of democracy is controlled. Countries with the highest indicators of civil liberties have investment projects with an economic rate of return that is 8-22 per cent higher than countries with lowest indicators.
14. Kaufmann, D. et al (1999)	Uses six clusters of institutional quality indicators drawn from commercial and non-commercial sources. Examines the impact of differences in governance quality on development outcomes that include GDP per head, infant mortality and adult literacy.	The authors report a strong relationship between governance quality and development outcomes. They find that these results hold irrespective of whether or not OECD countries are included in the analysis.
15. Knack, S. and P. Keefer (1995)	Cross-country regressions, using two composite indices of institutional development. One index includes indicators such as quality of bureaucracy, corruption, rule of law, etc. The other includes bureaucratic delay, contract enforceability, risk of nationalization, etc.	The study finds that institutions protecting property rights significant predictors of economic growth. Therefore, improvement in institutional quality increases the rate of convergence between developing and developed countries.
16. Knack, S. and P. Keefer (1997a)	Cross-country regressions using trust and civic cooperation norms as indicators of informal institution quality. The study covers 29 market economies and uses data from World Values Survey. It examines the extent to which institutional differences affect a country's macroeconomic performance.	Trust and civic cooperation have significant impact on economic performance. Both trust and civic cooperation have statistically significant effects on GDP per capita growth rates. The effect of civic cooperation on investment/GDP ratios is more significant than the effect of trust, which is significant at 5% only in one-tail test.
17. Knack, S. and P. Keefer (1997b)	Cross-section data used to regress convergence on institutional quality measures such as rule of law, pervasiveness of corruption, contract repudiation, etc.	The authors report that weak institutional indicators are significant obstacle to a country's ability to catch up.

Table 1 continued ….

Author(s)	Methodology	Relevant findings
18. Nsouli, S. M. et al (2004)	The authors examine the relationship between a country's institutional and political environment, its implementation of the IMF programmes, and macroeconomic performance. The sample consists of 197 IMF programmes approved from 1992-2002.	They report that a stronger institutional and political environment is associated with better macroeconomic outcomes and better implementation of the IMF programmes.
19. Rigobon, R. and D. Rodrik (2004)	The authors estimate the inter-relationships among economic institutions, political institutions, openness and income levels, using full data set for 86 countries (53 colonised and 33 non colonised).	The ordinary least squares estimate show that economic and political institutions have the strongest effect on output growth. Openness to trade has very little effect and the coefficient is not statistically significant. Several robustness tests suggest that the OLS estimates are robust to variable specification and country inclusion/exclusion.
20. Rodrik, D. (1999)	Develops and test a model on the interactions among shocks, internal conflict and conflict management institutions.	Internal social conflict and weak conflict management institutions explain why high growth rates do not persist in some countries and why a large number of countries have experienced growth collapse since mid-1970s.
21. Rodrik, D. (2000)	Partial regressions of economic performance indicators on democracy as a meta institution.	The author reports that democracies yield long-run growth rates that are more predictable, produce greater short-term stability, deals with adverse shocks better and deliver better distributional outcomes.
22. Rodrik, D. et al (2004)	The authors estimate the respective effects of institutions, geography and trade on income levels in two country samples. Sample 1 consists of 80 countries for which instrumental data (settler mortality statistics) exist. Sample 2 consists of 140 countries for which data for alternative instruments for institutions exist.	They report that institutional quality is a significant determinant of cross-country income variation. Once the institutional variable is added, geography and trade do not have any additional explanatory power in explaining development. Not only are institutions significant, their impact is large and the estimated coefficients of trade and geography have the 'wrong' sign.