Reader for Discipline

Russian History in Institutional Perspective: LAO/OAO Approach

1. Fowler, J. and C. Kam (2006). Beyond the self: Social identity, altruism, and political participation
   http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1008023

2. Weingast, B. (1997) The political foundations of democracy and the rule of law.
   http://lawrules.wordpress.com/2011/07/06/barry-weingast-political-foundations-of-democracy-part-i/

3. Glaeser, E., et al. (2004) Do Institutions Cause Growth?
   http://ideas.repec.org/p/nbr/nberwo/10568.html

4. Glaeser, E., G. Ponzetto and A. Shleifer (2007). Why does democracy need education?
   http://ideas.repec.org/p/nbr/nberwo/12128.html

5. Hellman, J. (1998) Winners Take All: The Politics of Partial Reform in Postcommunist Transitions.
   http://rru.worldbank.org/Documents/PapersLinks/Hellman_Winners_Take_All.pdf

6. Menyashev, R. and L. Polishchuk (2011). Does Social Capital Have Economic Payoff In Russia? *Working Paper* WP10/2011/01, Center for Institutional Studies, Moscow.
   http://www.hse.ru/data/2011/03/22/1211146000/WP10_2011_01f.pdf

BEYOND THE SELF: SOCIAL IDENTITY, ALTRUISM, AND POLITICAL PARTICIPATION

James H. Fowler[†] and Cindy D. Kam[††]
University of California, San Diego University of California, Davis

Published in *Journal of Politics* 69 (3): 811-825 (August 2007)

*We would like to thank Arthur Schram, Tim Feddersen, Stephen Coate, Michael Conlin, Alvaro Sandroni, Ben Highton, Macartan Humphreys, Robert Jackman, Mark Lubell, and Phil Paulino for helpful comments. A prior version of this paper was prepared for delivery at the Midwest Political Science Association annual meeting in Chicago, 2005.

[†] Corresponding author. Department of Political Science, University of California, San Diego, 9500 Gilman Drive, La Jolla, CA 92093-0521. E-mail: jhfowler@ucsd.edu
[††] Department of Political Science, University of California, Davis, One Shields Avenue, Davis, CA 95616. (530) 752-2633. E-mail: cdkam@ucdavis.edu

BEYOND THE SELF:
SOCIAL IDENTITY, ALTRUISM, AND POLITICAL PARTICIPATION

ABSTRACT

Scholars have recently extended the traditional calculus of participation model by adding a term for benefits to others. We advance this work by distinguishing theoretically a concern for others in general (altruism) from a concern for others in certain groups (social identification). We posit that both concerns generate increased benefits from participation. To test these theories, we use allocations in dictator games towards an unidentified anonymous recipient and two recipients identified only as a registered Democrat or a registered Republican. These allocations permit a distinction between altruism and social identification. The results show that both altruism and social identification significantly increase political participation. The results also demonstrate the usefulness of incorporating benefits that stem from sources beyond material self-interest into rational choice models of participation.

"Avarice, or the desire for gain, is a universal passion which operates at all times, in all places, and upon all persons" (Hume 1742/1991, *Of the rise and progress of the arts and sciences*, 113)

A large body of work, ancient and modern, posits that self-interest is the primal force for political attitudes and behaviors. Although this parsimonious assumption explains many observed political phenomena, it fails to illuminate some of the most important features of political life (Citrin and Green 1990; Mansbridge 1990; Sears and Funk 1991). For example, rational choice scholars have typically approached the problem of political participation by using models based on pure self-interest (Aldrich 1993; Downs 1957/1985; Feddersen & Pesendorfer 1996; Ledyard 1982; Palfrey and Rosenthal 1985). These models encounter a well-known difficulty: although an individual may derive personal benefits from a certain political outcome, the probability that a single act of participation will significantly affect the outcome is very small in large populations. This gives individuals an incentive to avoid the costs of participation and free ride on the efforts of others, producing the well-known paradox of participation.

If self-interest does not motivate political participation, then what does? One possibility is that individuals consider benefits to others, beyond the self, when deciding whether or not to participate. Even Downs, so often portrayed as the archetypal champion of self-interest as a motivating factor political choice, states that a concern for the welfare of others might influence political attitudes and behaviors: "In reality, men are not always selfish, even in politics. They frequently do what appears to be individually irrational because they believe it is socially rational—i.e., it benefits others even though it harms them socially" (1957/1985, 27). Extending the foundation for political choice beyond the self is not an easy task. It forces analysts to confront an important question: when individuals decide whether and how to act, to whom do they refer? For whose benefit will they act?

In this article, we distinguish theoretically two different kinds of other-regarding considerations that influence political participation. Some people are motivated by *social identification*, which creates a desire to improve the welfare of certain groups in society, possibly at the expense of other groups. These individuals will likely participate when they believe that their actions will give them an opportunity to help their preferred group(s). Other people are motivated by *altruism*, a willingness to pay a personal cost to provide benefits to others in general, regardless of the identity of the beneficiaries. These individuals will likely participate when they believe that their actions will give them an opportunity to make everyone

better off. Our core expectation is that altruists and social identifiers will participate more than egoists—that is, individuals who are primarily self-interested.

We test the social identifier and altruism theories of participation using a unique experimental design. Subjects are asked a number of standard questions regarding their socioeconomic status, political attitudes, and participation behavior. They then play three "dictator" games (Forsythe et al. 1994), in which they divide a set of lottery tickets between themselves and an anonymous individual. The recipient is completely anonymous in all three games. However, in two of the games, subjects are informed that the recipient is a registered Democrat or a registered Republican. We use these dictator games to uncover the degree to which each subject is generally concerned about the well-being of others, as evidenced by allocations to the unidentified anonymous recipient, and the degree to which each subject socially identifies with the political parties, as shown by allocations to the Democrat and Republican.

These experiments yield several novel results for behavior in the dictator game and its relationship to political participation. First, we show that behaviors in these dictator games reveal a key characteristic of social identification: a *preference for the in-group versus the out-group*. Democrats and Republicans both give more to the recipient from their own party than the opposing party; independents give more to the anonymous recipient than the partisan recipients, while partisans do just the opposite. Second, behaviors in these dictator games reveal that *strength of social identity* magnifies preferences for the in-group. Subjects who identify themselves as strong Democrats and strong Republicans tend to give much less to the recipient from the opposing party than partisans identifying with weaker affiliations. Third, we uncover a *bias against Republicans*. The Republican recipient tends to receive less than the Democrat or the unidentified anonymous recipient, even when the donor is a Republican. Finally, both *altruism* and *social identity increase political participation*. People who share with an anonymous individual in the dictator game participate in politics more than those who do not share. People who vary the amount they give depending on the partisan affiliation of the recipient also participate more than those who give (or withhold) the same amount to (from) everyone. These results suggest that other-regarding behavior plays an important role in the decision to participate.

Our work has broad implications for existing scholarship in several fields. Since it is the first examination of the impact of partisanship on dictator game allocations, this work should be of interest to behavioral and experimental economists. It should also be of interest to psychologists and sociologists,

since our uniquely-designed dictator game provides a novel means of tapping social identity. Most existing work on social identification does not force individuals to sacrifice their own material well-being in order to affirm support for their in-groups, but in the dictator game, social identifiers must deliberately deprive themselves of personal rewards so that they can affirm the position of someone else in their group. In our design, affirming social identification has a cost. We demonstrate that subjects are in fact willing to bear this cost, and we demonstrate the political consequences of this behavior. Finally, our work should be of interest to political scientists, since we not only introduce an innovation in the measurement of dispositions towards groups and others in general, but we also identify the political implications of these dispositions by using them to predict political participation. Our work therefore allows us to address the literature on rational choice by demonstrating that the core motivational elements of rational choice theory need not rest entirely or solely on self-interest, that other-regarding behavior can and should be taken into account, and that rationality in no obvious or necessary way requires material self-interest to be privileged as the primary motivator in models of political behavior.

SOCIAL IDENTITY, ALTRUISM, AND PARTICIPATION

Traditional rational models of participation based on self-interest posit that individuals receive a benefit *B* from some political activity if their preferred outcome occurs. However, the participatory acts that yield this outcome are individually costly (e.g., Aldrich 1993; Downs 1957/1985; Feddersen & Pesendorfer 1996; Ledyard 1982; Palfrey and Rosenthal 1985). The sticking point for these models is that a single act of participation usually has only a very small probability *P* of affecting some political outcome. For example, if the participatory act is voting, then the outcome can only be changed when there is an exact tie, or when the vote can create a tie. If the participatory act is a contribution of money or time to a candidate or political organization, it may be just one of thousands or even millions of other contributions. Thus, the *expected* benefit of participation *PB* is typically less than the cost *C*, even when populations are not too large and even when the cost of participation is very low.

Riker and Ordeshook's (1968) *D* term seems to offer one solution to the paradox of voting. The *D* term suggests that individuals who participate in politics derive a benefit associated with the act of voting, resulting from satisfying a sense of citizen obligation, affirming their allegiance to the political system or reinforcing their own sense of efficacy. This benefit associated with completing the act of voting is orthogonal to the benefits derived from the policy outcome of the political action. Thus,

political participation is an *expressive* act in which the desired policy outcomes are essentially irrelevant in the participation calculus, given how small *P* and *B* are.[1]

The *D* term provides one answer to the paradox of voting, but it is not the only answer. We argue that citizens can consider political action to be *instrumental* not only for themselves but for others as well. Empirical research suggests this to be the case: activists frequently participate in politics in order to enact changes in public policy—that is, they act for instrumental reasons—no matter how "irrational" this motivation seems (Schlozman, Verba, and Brady 1995). Further, activists frequently note that the political stakes of participation affect individuals beyond themselves and their families (Schlozman, Verba, and Brady 1995). That is, they act instrumentally, not just for their own benefit, but for the benefit of others. As such, the policy outcomes of political actions should affect individual decision-making. We explicitly address the possibility that an individual may care about the impact of policies as these policies apply beyond the self. We do so by incorporating social identity and altruism into the calculus of participation. Note that the benefits associated with altruism and social identification are distinct from those captured by the *D* term. The *D* term can be conceived of as system affirmation or fulfillment of a moral obligation to participate. Moreover, the *D* term is independent of political outcomes—people with a strong sense of social obligation will participate even if they think the act of participating will have no influence on benefits derived from policy outcomes. In contrast, we argue that altruism and social identity will encourage political action in order to benefit others, generally or specifically; altruism and social identity affect *B*.

According to social identity theory, individuals yearn to acquire and maintain a positive self-identity (Tajfel 1981). This sense of self is derived in large part from formal membership with or psychological attachment to social groupings. In contrast with a theory based purely on self-interest, social identity theory suggests that individuals gain utility from affiliating with social groups, from bestowing benefits upon the in-group, and from withholding benefits from the out-group. Social identity

[1] Riker and Ordeshook's (1968) approach is decision-theoretic and based on assumption that the *D* term is exogenous. However, two recent attempts to endogenize the *D* term in a game theoretic model show that "ethical" preferences can help to explain turnout even when voters are well informed and fully strategic (Coate and Conlin 2004; Feddersen and Sandroni 2006a, 2006b). These models suggest that voters act as social planners by trying to maximize social welfare, and they gain utility from "doing their part." However, both of these models assume that voters prefer the lowest turnout possible and neither of these models considers the possibility that voters might care about the *distributive* implications of political outcomes that provide benefits to some groups at a cost to others.

theory resonates with Converse's (1964) observation that the fundamental way in which many citizens understand politics is through groups. Social identity theory implies that individuals will make political choices by using specific groups rather than the self as a reference point. Social identity predicts policy preferences (Campbell et al. 1960/1980; Kinder and Winter 2001; Price 1989), and under some conditions, social identity spurs collective action (for a review, see Huddy 2003). So far, however, the literature has not linked social identity with the policy-oriented benefits of participation in an attempt to address the paradox of participation.[2]

We argue that social identifiers may be spurred into political action when they believe that political outcomes will positively affect members of their group. When individuals perceive political outcomes as distributive – as opportunities to transfer resources from out-groups to their in-group – social identifiers should be more likely to participate than individuals who are self-interested. Moreover, as people identify more strongly with their in-group or more strongly against some out-group, they should experience greater benefits from distributive politics and thus be more likely to participate.

While social identity theory suggests that individuals partition the world into in-groups and out-groups, in a wide range of contexts, human beings have been observed to be motivated by the welfare of others in general (Fehr and Fischbacher 2003; Monroe 1996; Piliavin and Charng 1990). They engage in acts of *altruism*, or "behavior intended to benefit another, even when this risks possible sacrifice to the welfare of the actor" (Monroe 1996, 6). In contrast with social identifiers, altruists do not typically target individuals from certain groups for benefits. Monroe (1996) explains that individuals who are willing to engage in uncommon acts of altruism express a sense of universalism in viewing the human condition. Instead of viewing an individual (and the self, in particular) as tied to specific social groupings, altruists "share a view of the world in which all people are one" (1996, 198). Thus, while social identifiers are more likely to help members of their in-group, altruists are unlikely to discriminate in whom they help.[3]

---

[2] One exception worth noting is Uhlaner's (1989) treatment of group members, group leaders, and candidates in her formal model of turnout. She argues that group leaders can manipulate the costs and benefits of voting, e.g., through ostracism of abstainers or social invitations directed at compliers. This approach differs from ours because group leaders manipulate benefits obtained from the act of voting – where the act of voting is still *expressive* and not *instrumental*, and the instrumental functions of voting remain untouched by the actions of group leaders.

[3] Note that we do not address the evolutionary or social origins of altruism and other forms of non-self-interested behavior as has been done elsewhere (e.g., Samuelson 1993). Our primary interest here is in how variation in altruism and social identification predicts political participation.

Scholars have recently incorporated altruism into the traditional calculus of participation model by assuming that each citizen also cares about the benefits that others secure from the preferred outcome (Edlin, Gelman, and Kaplan 2007; Fowler 2006; Jankowski 2002, 2004). Although a single participatory act may have little effect on a political outcome, the number of people who benefit may be quite large. Thus, those who exhibit a sufficient degree of concern for the welfare of others will be willing to engage in costly political participation. Moreover, as people become more concerned for the welfare of others, they should experience greater benefits when political outcomes portend improvements for the welfare of others generally. Thus, altruists will be more likely to participate than individuals who are self-interested.[4]

Political outcomes might be construed by individuals as improving the general welfare and/or as favoring particular social and political groups. Consequently, the decision to participate in politics may be motivated by *both* a desire to make things better for everyone (altruism) and a desire specifically to acquire as many benefits as possible for the in-group (social identification). Thus the benefit from participation may be derived by some combination of self-interest, altruism, and social identity.

FINDING ALTRUISTS AND SOCIAL IDENTIFIERS AMONG DICTATORS

Our study contributes to existing empirical work by adopting an innovative measure of altruism and social identity. Previous attempts to examine the relationship between other-regarding behavior and participation have relied on questions in the National Election Study (NES) pilots. Knack (1992) creates an index of "social altruism" from questions about charity, volunteer work, and community involvement on the 1991 NES Pilot Study and finds a positive relationship between the index and voter turnout. However, the questions used in the index are very close to those used by scholars who argue that organizational involvement (not altruism) enhances political participation (Verba, Schlozman, and Brady 1995). Jankowski (2004) finds a relationship between voter turnout and "humanitarian" norms (i.e., agreement with the statement that "One of the problems of today's society is that people are often not kind enough to others"). These questions certainly reflect expectations about the altruism of *others*, but it is not clear how they relate to the respondent's own willingness to bear costs to provide benefits to others.

[4] For a formalized sketch of where altruism and social identity might be inserted into the classic paradox of voting model, see the online appendix: http://journalofpolitics.org.

Typical measures of social identification rely upon self-reports (Kinder and Winter 2001) or are based on group membership (Price 1989).

The above studies rely on respondents' *expressed* preferences for helping others generally, or for identifying with a group. In neither case do respondents actually experience a cost in order to give a benefit to someone else. In contrast, preferences for helping others are *revealed* in what experimental economists call the "dictator game" (Forsythe et al. 1994). In this game, the experimenter gives player 1 a certain amount of money and then asks the subject to divide that money between herself and player 2.[5] If player 1 is motivated only by her own economic gain, she should keep all the money for herself and allocate nothing to player 2. However, this is not what players normally do. In a survey of dictator game results, Camerer (2003) shows that the mean allocation to player 2 ranges from 10% to 52%. Anonymity conditions tend to decrease the mean allocation, but even in the most anonymous treatments (Hoffman et al. 1994) about 40% of the allocations still exceed 0.

Interpretations of Excess Giving in the Dictator Game

Excess giving in dictator games is a replicable empirical regularity. Scholars offer several explanations for this excess. We adopt the most prominent explanation: altruism—that individuals engage in "other-regarding" behavior. The altruism explanation suggests that dictators give to others because they want to improve the well-being of other individuals, even when doing so impinges on their own material interests. In his thorough overview of dictator games, Camerer notes that "there is some pure altruism" that explains excess giving (2003, 56). For example, in their study of altruism and dictator games, Eckel and Grossman (1996) manipulate the target of the giving; they find that subjects are much more likely to give when the target is the Red Cross. Eckel and Grossman conclude that "altruism is a motivating factor in human behavior in general and in dictator games in particular" (1996, 182).

A companion explanation for excess giving is a taste for fairness; this fairness hypothesis is often discussed interchangeably with altruism, but they are distinguishable from each other. The altruism explanation hinges upon the idea that individuals care about others' welfare. The fairness explanation in its simplest formulation is standards-oriented: an individual cares that the division of goods satisfies some

[5] Unlike the ultimatum game (c.f. Hibbing and Alford 2004), the dictator game does not give player 2 an opportunity to accept or reject the offer. In the dictator game, player 2 simply pockets the money that player 1 allocates to her and the game is over.

standard of equity (typically, in the standard dictator game, one-half). Further elaborations of the fairness explanation tilt the balance even more towards the self: Fehr and Schmidt (1999) offer an extension of this line of reasoning in suggesting that individuals care about not just equity in outcomes across individuals but also about the absolute difference between an individual's allocations vis-à-vis that of other individuals. They specify an asymmetric utility function, where individuals receive the most utility when payoffs are equal, slight (and increasing) disutility from being advantaged when compared to others ("guilt", per Camerer 2003, 102), and sharper (and increasingly sharper) disutility from being disadvantaged compared to others ("envy", per Camerer 2003, 102) . Yet, even after incorporating a sense of fairness, guilt, and envy into account, Fehr and Schmidt still note that, "Altruism is consistent with voluntary giving in dictator and other public good games" (1999, 854).[6,7]

In an ingenious design that compares the altruism and fairness interpretations, Andreoni and Miller (2002) examine choices in a series of dictator games with different payoffs. In some treatments, player 2 is given \$0.20 or \$0.30 for every \$0.10 player 1 allocates. In other treatments, player 1 must allocate \$0.20 or \$0.30 for every \$0.10 player 2 receives. By varying the payoffs, Andreoni and Miller are able to distinguish between individuals who give in order to equalize payoffs (whom they call "Rawlsians") and those who give in order to maximize total payoffs to both players (whom they call "utilitarians"). The results show that about 2/3 of those who incorporate the recipient's utility in their decision can be described as "utilitarians." Thus, while a concern for fairness undoubtedly plays an important role, altruism, or consideration of others' welfare, appears to be the dominant motivation behind giving in the dictator game.

---

[6]Using a similar approach, the Bolton and Ockenfels (2000) Equity, Reciprocity, and Competition (ERC) Model specifies that individuals receive utility from their own level of material standing and from their relative standing compared with others. The core argument, thus, is that individuals do not really care about making others better off; instead, they take their own standing and the relative standing of others into account. However, the ERC still includes the notion of a "social reference point," a standard against which decisions are measured. In dictator games, this social reference point is an equal division of the payouts. The notion of equity, or fairness, has a pivotal place in this formulation. A subtle distinction between the Fehr and Schmidt (1999) and Bolton and Ockenfels (2000) models is that in the former, individuals care about the absolute level of difference between themselves and others, whereas in the latter, individuals care about their relative shares in the allocations rather than absolute differences in these shares (Camerer 2003, 104).

[7] Fehr and Schmidt (1999) note that it is harder to account for behaviors in other games using altruism. This is not a central concern of ours in this paper, as we do not believe that other games provide as appropriate a means of tapping altruism.

Another explanation for excess giving rests on the notion of reciprocity. Hoffman et al. (1994) and Hoffman, McCabe, and Smith (1996a) argue that excess giving occurs in order to satisfy norms of reciprocity. Dictators give to others because future rewards are contingent upon the individual's "social reputation as a cooperative other-regarding person" (Smith 2000, 84). Dictators thus give more than would be expected because they are concerned, in the short run, that appearing "greedy" will decrease the likelihood that they would be invited back for more experiments, or they are concerned in the long run of other negative consequences for themselves. To dispute this reciprocity argument, Johannesson and Persson (2000)manipulate the target recipient in a dictator game, specifying that the recipient is one of the other subjects recruited for the study or a randomly selected individual from the general population. They argue that, "If donations in dictator games are motivated solely by reciprocity, donations should therefore drop to zero with this experimental treatment" (2000, 138). Johannesson and Persson are unable to reject the null hypothesis of no difference between the two groups, which suggests that excess giving in the dictator game cannot be ascribed to reciprocity on its own.

A final explanation for excess giving is that subjects do not understand the game and are just making random allocations. Andreoni and Miller (2002) address this concern by examining within-subject patterns of choices in their series of dictator games with different payoffs. They find that 98% of the subjects make choices that are consistent with the general axiom of revealed preferences across eight treatments, suggesting that most of them understand the game and are not choosing randomly.

These results from the literature on giving in the dictator game suggest that while there are several factors that might explain giving, dictator game allocations may be a good proxy for an individual's concern for the well-being of others. The well-being of others is probably more important to a person who chooses to allocate 20% than one who allocates 0%. In fact, the utility function used in Andreoni and Miller (2002) to explain behavior in the dictator game yields a monotonic relationship between the equilibrium allocation in the dictator game and the weight a player places on the other player's utility. In other words, the more a player cares about the well-being of others, the more she will allocate to the other player in the dictator game.

Tapping Altruism and Social Identity in a Unique Dictator Game

Behavior in dictator games can reveal other-regardingness at a general level (that is, altruism). We can also use dictator games to investigate whether or not individuals exhibit politically relevant

group-based preferences. Past experiments have varied the characteristics of the anonymous recipient with some interesting results. People are more willing to give to charities than an anonymous individual (Eckel and Grossman 1996), to women (Saad and Gill 2001), and to people who have been introduced to them (Bohnet & Frey 1999). In their experiment, Bohnet and Frey manipulate the amount of information provided about the target to the dictator. They find that more information "transforms anonymous, faceless entities into visible, specified human beings, i.e., identifiable victims" (1999, 339). They argue that this pattern of increased giving suggests that, "the more we know, the more we care," (citation from Schelling 1968). Camerer notes that the "identification effect is target specific and is not the result of general sympathy toward others" (2003, 76).

Our design enables us to capture this distinction between concern for others, generally, and a concern for specific groups. We are interested in whether or not people give more to members of one political group than another, or whether they give the same amount to an anonymous individual versus individuals affiliated with groups. By varying information about the political group to which the target recipient belongs, we can uncover the extent to which social identity might drive allocation decisions. In contrast to Bohnet and Frey (1999), we compare giving in the anonymous game with giving to anonymous individuals affiliated with political parties. As a result, we find that there is an important qualification to the observation that decreasing social distance increases giving: it is not just the more you know, but both the more you know plus how you feel about the target. Dictators can, as Camerer notes, show "empathy or contempt" (2003, 76).

We select individuals from partisan groups as target recipients because political parties are among the most relevant groupings in political life. As Campbell, Converse, Miller, and Stokes argue, "the strength and direction of party identification are facts of central importance in accounting for attitude and behavior" (1960/1980, 121). Identification with parties is typically measured with a seven-point Likert scale of subjective identification, although it has also been measured with self-reports on closeness to parties and implicit associations (Huddy 2003). These measures of social identification allow individuals to claim allegiance or closeness to groups, but they do not require individuals to sacrifice anything personally in making such a claim. Using dictator game allocations as a measure of social identification is a methodological innovation. The dictator game enables us to measure an individual's willingness not only to claim allegiance to a party *but also* to affirm that allegiance by withholding material benefits *from*

the self in order to transfer benefits to a different individual who happens to be a member of the in-group. Further, the nature of political competition makes it more socially acceptable for individuals to confer benefits to in-partisans and deny benefits to out-partisans (as opposed, to, say, racial groupings which might invoke social desirability concerns). This social acceptability thus improves our ability to distinguish between self-interested, social-identity-based, and altruistic behavior.

In December 2004, about 350 subjects were recruited from undergraduate political science and sociology courses at a large Western public university to participate in a computer-based survey.[8] Subjects were offered credit towards their course grade to participate in the study; 306 (about 85%) of them elected to do so. Each individual answered a number of standard questions regarding their socioeconomic status, political attitudes, and participation behavior and then played three dictator games.[9] In one game, subjects are told, "You know nothing about this anonymous individual." In the other two games subjects are told, "The only thing you know about this individual is that he or she is a registered Republican [Democrat]." The order of these treatments is randomized and a variable indicating the order is included in the analysis below. Allocations to the anonymous recipient reveal the degree to which each subject cares about the well-being of others generally, while allocations to the Democrat and Republican reveal the extent to which subjects are motivated by social identity.

In a typical dictator game, subjects are given a small amount of money ($5 to $10) and they then give back the portion of the money they choose to allocate to the other player. This procedure can be very costly for larger samples, so we employ a different technique. Subjects are given ten lottery tickets that each have an equal chance of winning a prize of $100.[10] They are then given two identical opaque envelopes. They are asked to place the tickets they wish to keep for themselves in one envelope and the

---

[8] Subjects range in age from 18 to 43 years; the average age is 21. The sample consists of 56% women and 43% minority; it is quite similar to the undergraduate body from which it is drawn (the undergraduate body is 56% female and 51% minority). The median family income is about $80,000 a year. The average subject leans left and Democratic—the modal response to the liberal-conservative seven-point scale is a "2", or "liberal" (30% of the sample), and 57% of subjects identify as Democratic.

[9] For a summary and exact question wording, see the online appendix: http://journalofpolitics.org.

[10] One important difference between our method and the typical dictator game is the stake size. Note that the expected value of the prize is only $100/N≈$0.33. Though economists sometimes criticize low-stakes experiments like this one, a survey of the experimental economics literature by Camerer and Hogarth (1999) shows that stake size has only a small effect on average behavior and the biggest effect of stakes on behavior is changing from zero to positive stakes. Furthermore, Forsythe et al. (1994) and Carpenter, Verhoogen, and Burks (2005) show specifically for the dictator game that changing from low stakes to high stakes has no effect on mean allocations.

tickets they wish to share with an anonymous individual in the other envelope. They seal both envelopes, place the envelope designated for the anonymous individual in a locked mailbox under their computer, and then keep the other envelope for themselves. They then type on the computer the number of tickets they kept for themselves.[11] Computers and the locked mailboxes are separated by partitions to protect the anonymity of choices each subject makes. After the study a ticket number for each of the three dictator game prizes was drawn and announced by email to participants.[12] All three prizes were claimed.

PARTISANSHIP AND DICTATOR GAME ALLOCATIONS

We begin with mean allocations for each of the three kinds of recipients. In general, results from the dictator game in this experiment appear to be similar to those of other researchers. Forsythe et al. (1994) specifically compare "with pay" dictator games in which subjects are given $5 or $10 to divide and "without pay" dictator games in which subjects are asked to make hypothetical choices. They find that more people keep everything for themselves in the "with pay" treatment (30.4% vs. 13.0%) and the mean allocation is lower (22.6% vs. 38.7%). By comparison, subjects in this experiment were even more likely (38.0%) to keep everything for themselves than those in both treatments. However, the mean allocation (29.9%) falls between the two treatments. This suggests that the lottery mechanism used in our design is replicating at least some of the incentives from dictator games that use cash stakes.[13]

Before moving to tests of the relationship between social identity, altruism, and participation, we discuss how social identity manifests itself in the dictator game results. No previous studies have

---

[11] A chi-square test of the distribution of computer responses and the distribution of tickets that were physically placed in the mailboxes suggests that these two distributions are not statistically different.

[12] In many dictator games the recipients are also subjects. This was not true in our experiment – recipients are drawn randomly from the U.S. population, (this is also the case in Johannesson and Persson 2000, who send the allocations to a randomly drawn individual in the Swedish population). Increasing the social distance between the dictator and the recipient should minimize the potential effect of reciprocity, and thus make altruism a more compelling explanation for excess giving (Johannesson and Persson 2000). We did not hand all the envelopes with donated tickets to randomly-chosen individuals. Instead, we waited to see if a donor claimed the prize for a given dictator game. If they did not, then we used random digit dialing to locate an individual and request their name and address (and partisanship for the Republican and Democrat treatments) and mail them the prize.

[13] Another way to compare the results of this experiment to the existing literature is by examining the relationship between dictator game allocations and demographic variables. Camerer (2003) notes that most demographic factors have little effect on dictator game allocations, but there are two notable exceptions. Carpenter, Verhoogen, and Burks (2005) find that subjects with higher family incomes tend to give less, while Eckel and Grossman (1998) find that women tend to give more. Our results replicate both findings. Consistent with results from other dictator games, subjects from families with low incomes (below the median) give 6.4% more than subjects from families with high incomes to the anonymous recipient. Further, in this experiment, women give away 6.1% more tickets than men.

examined the effect of partisanship on dictator game allocations, so we probe this relationship in some detail. Our experimental design provides us with a unique opportunity to test several hypotheses about social identification behavior as it applies to partisanship:

Preference for the in-group over the out-group: Partisan identifiers will be more generous when asked to allocate rewards between themselves and a member of their own party compared with a member of the opposition party. Partisan identifiers will also be more generous to an in-group member compared with someone not in the in-group (the anonymous individual). This implies that Democratic identifiers will give more to a Democratic target than a Republican target, and Democratic identifiers will give more to a Democratic target than an anonymous individual. Likewise, Republican identifiers will give more to a Republican target than a Democratic target, and Republican identifiers will give more to a Republican target than an anonymous individual. Independents will give less to a Democratic target and a Republican target than to the anonymous individual, since partisan targets are more obviously an "out-group" to independents than an anonymous individual would be.

Strength of social identity: The stronger the partisan attachment, the more the in-group should be rewarded and the more the out-group should be deprived. As such, we would expect strong Democrats to give more to a Democratic target than weak Democrats would and strong Republicans to give more to a Republican target than weak Republicans would. Conversely, strong Democrats will likely withhold more from a Republican target than weak Democrats will; strong Republicans will withhold more from a Democratic target than weak Republicans will.

Bias against Republicans: Experimental work suggests that individuals may discriminate against members of different groups when they are choosing whether or not to bear a personal cost to help them. Additionally, considerations of deservingness enter into dictators' decisions. For example, Eckel and Grossman (1996) note that altruism increases when the recipient appears to be more "deserving" or in need of resources (for more on deservingness, see Hoffmann, McCabe, and Smith 1996b and Burrows and Loomes 1994). The Republican Party has typically been associated with business interests and the wealthy, whereas the Democratic Party has typically been associated with the working class and the less-advantaged (Bastedo and Lodge 1980; Campbell et al. 1960/1980; Miller, Wlezien, and Hildreth 1991). These associations imply that, on average, individuals might be less generous towards a Republican target compared with a Democratic target.

Table **Error! Bookmark not defined.** shows mean allocations in the dictator game by partisanship of the donor and recipient. Notice first that the Republican recipient receives 2.8% less on average than the Democrat from all donors. However, this difference may be due to the larger number of Democrats in the sample. When we take into account the partisanship of the donor, mean allocations tend to diverge along party lines. Subjects who identify themselves as Democrats and Republicans both give about the same amount to the anonymous recipient, but they tend to give more to the recipient from their own party, suggesting in-group favoritism occurs. Notice that the Republican recipient inspires the largest divergence, receiving 6.7% more from Republican donors than Democratic donors, or about a fifth of the mean allocation.

/Table 1 About Here/

Table **Error! Bookmark not defined.** indicates that both direction and strength of partisanship are significantly related to dictator game allocations. Strong partisans give most to in-party targets, and they give significantly less to the anonymous recipient (Wilcoxon signed rank test, p=0.007) and to the out-party target (p=0.001). Weak partisans show about the same degree of favoritism towards the in-party target, but they show much less hostility towards the out-party target, compared with strong partisans. Weak partisans also show much more generosity towards the anonymous recipient compared with strong partisans. This evidence suggests that strength of partisanship does not necessarily affect generosity towards the in-group, but it does affect punishment of the out-group. The stronger the partisanship, the greater the propensity to withhold benefits from those not explicitly affiliated with the in-group. We also see that independents make distinctions as well – but differently from partisans. Independents are much more inclined to be generous towards an anonymous individual compared with a partisan identifier. This is consistent with our expectation that independents see themselves as a group separate from the major political parties and thus are less generous towards these explicit out-groups compared with the anonymous individual.

/Table 2 About Here/

Recall that a single subject participates in three dictator games, so our design enables us to determine how the partisanship of the target recipient affects the within-subject tendency to give more to some political groups and less to others. About 61.7% of the subjects gave exactly the same amount to the registered Democrat and registered Republican that they gave to the anonymous recipient. The

remaining 38.3% of the subjects discriminated across targets, changing their allocation in at least one of the games based solely on information about the partisanship of the recipient. Table **Error! Bookmark not defined.** shows each of the three possible combinations of within-subject differences in the amount given to the anonymous and partisan recipients and how this breaks down by partisanship of the donor. First, note that the average subject gave somewhat less to the Republican than the Democrat or anonymous donor, yielding additional

evidence for an anti-Republican bias in giving. The partisan identity of the donor also seems to have an effect on allocations. Democrats give significantly less to the Republican than the Democrat or anonymous recipient. Republicans give more to the Republican than the Democrat or anonymous recipient, but the significance of the difference is weak. Once again, the raw data appears to suggest an in-party bias, with the strongest difference in behavior exhibited by Democrats towards Republicans. Finally, people who did not identify themselves as either a Democrat or Republican tend to give less to both the Republican and Democratic recipient. In fact, the mean difference for both is exactly the same at 6.2%, or about one fifth of the mean allocation. Although these differences are only weakly significant, they lend qualified support to the strength of social identification observed above. Partisans tend to receive less from nonpartisans and vice versa.

/Table 3 About Here/

To further assess the effect of partisanship on differences in dictator game allocations, Table **Error! Bookmark not defined.** presents results from three sets of multiple regressions that also control for demographic factors.[14] The first set of results analyzes partisan discrimination: the extent to which subjects make distinctions between the Republican and Democratic targets. We see that partisan identification has a positive and significant effect on the difference in the amount given to the Republican vs. the Democrat, providing additional evidence for in-group preference and out-group hostility. The direction of partisan identification also has a positive and significant effect on the difference in the amount allocated to the Republican vs. the anonymous recipient. Given that there is no such effect for the

[14] In Tables 4 and 5 we use interval regression because the dependent variable is truncated at its minimum and maximum value (a player cannot take or give more than she has received from the experimenter and the difference in giving between the two experiments cannot be greater than 1). This estimation method is common in the literature on dictator games (e.g. see Carpenter, Verhoogen, and Burks 2004) and is conducted using maximum likelihood. We scale all variables from 0 to 1 for ease of comparison across coefficients and we report the residual deviance of the model and compare it to the null deviance of a model with a constant.

difference in giving between the Democrat and the anonymous recipient, these two findings suggest that subjects give less to Republicans than other kinds of recipients and an anti-Republican bias exists.

/Table 4 About Here/

The regressions reveal partisan strength bias: strong partisans give 14% and 16% more than independents do to the Republican and Democratic targets, respectively. These results suggest that strong partisans see themselves as part of two in-groups, rewarding members of their own party at the expense of the opposing party, and rewarding members of *any* party over those who do not affiliate with a party.

ALTRUISM, SOCIAL IDENTITY, AND POLITICAL PARTICIPATION

Our main expectation is that those who are motivated by altruism and by social identity will participate in politics more than those who are motivated by material self-interest. To test this expectation, we create a seven-point scale of participatory acts, including voting, contributing to a candidate, joining a political organization, donating to a political organization, attending a local board meeting, volunteering for a local board, and protesting.[15]

Participation is a function of the benefits that individuals receive, and benefits can be decomposed into three categories: benefits to the self, benefits to society generally, and benefits to a preferred group. First, the benefits from participation should increase as altruism increases, and second, the benefits from participation should increase as social identification increases. We operationalize the altruism incentive by using the proportion of tickets allocated towards the anonymous target in the dictator game, since this best captures the extent to which individuals are willing to give to others in general.[16] For the social identity incentive, we use a dummy variable that is 0 if an individual gives the

[15] About 73.4% said they voted in the 2004 general election (compared to official turnout of 81.4% for the city in which the study took place) while 20.6% said they had given money to a candidate. About 36.0% claimed to belong to a political organization but only 24.9% had given money to one. Two questions about local politics show that 19.3% regularly attend board meetings while 25.2% had volunteered at least once to serve in some capacity for a board. Finally, 42.2% said they had participated in at least one political protest. A participation index was created using an equally-weighted sum of responses to each of these seven questions. The average subject participated in 2.41 of these activities, with 12.5% of them never participating in any activity and 2.3% participating in all of them. The correlation between the participation index and the first component of a principal components analysis of these seven activities is 0.981 (±0.004, 95% confidence), suggesting that the index captures the main dimension that these activities share in common.

[16] Alternative specifications such as averaging the allocations for all three dictator games or using a dummy variable for individuals who gave more than the median amount yielded substantively identical results.

same amount in all three dictator games, and 1 otherwise, indicating the individual discriminates in giving based on partisanship of the target.[17]

The raw data provide initial support for the notion that both altruism and social identity drive political participation. Those who gave more than the median allocation (30% of their tickets) to the anonymous recipient participated in 2.64 of 7 activities compared to 2.24 activities for those who gave 30% or less. Social identifiers (those who gave different amounts depending on the partisanship of the recipient) participated in 2.74 activities compared to 2.21 for those who gave the same amount to all three recipients. One-sided *t*-tests suggest that both of these differences are significant (p=0.03, p=0.01, respectively).

We begin by estimating a simple model in which the participation index is regressed on the altruism and social identifier variables. This simple model appears in the first column of results in Table **Error! Bookmark not defined.**. Notice that even when we consider both altruism and social identity together in a single model, they continue to be positively and significantly related to participation. Table **Error! Bookmark not defined.** also shows that when multiple covariates widely thought to affect participation are included in the model, altruism and social identity continue to have a strong and significant effect on participation.[18]

/Table 5 About Here/

To make these results more concrete, subjects who give everything to the anonymous recipient in the dictator game participate in 0.66 more activities than subjects who keep everything for themselves. In other words, altruists appear to be more likely to participate in politics than egoists. Moreover, subjects who change the amount they give based on the partisanship of the recipient also participate in 0.40 more activities than those who give the same amount to each recipient. Thus, social identifiers participate in politics more than individuals who weigh benefits to all groups equally. Since variables in the model are

[17] We also included various measures to capture the *strength* of social identification by incorporating the difference of all three allocations into a single variable, such as their variance or standard deviation. These alternative measures yielded substantively identical results, but we use the dummy variable approach here for transparency.
[18] We do not attempt to provide a *comprehensive* explanation of political participation. We aim to add the concepts of altruism and social identity to explanations of participation. Some of the factors that influence participation also influence allocations in the dictator game. In our regression model, we include a series of controls to rule out confounding factors that would bias our estimates of the effects of altruism and social identity (see Verba, Schlozman, and Brady 1995 for a comprehensive treatment of the control variables). Coding and question wording can be found in the web appendix.

dichotomous or scaled to range from 0 (sample minimum) to 1 (sample maximum), we can roughly compare effect sizes between independent variables by looking directly at the coefficients. Notice that the altruism and social identifier variables have a stronger effect than many other variables thought to be important. Only partisan strength, political interest, citizenship, and letter-writing skills are stronger predictors. Thus, these findings suggest that self-interest is not the only consideration that drives political participation. Rather, regard for others, generally, and regard for specific others, affiliated with groups, both predict participation.

CONCLUSION

While there can be no doubt that much of human behavior is motivated by self-interest, the results in this article suggest that other-regarding behavior may also contribute to political participation. Altruists who want to help others regardless of their group affiliation may have a larger incentive to participate than those who are merely self-interested. However, this will only be true when political outcomes are perceived as generating benefits for everyone—if political outcomes are perceived as being distributive, altruists gain nothing from shifting resources from one group to another. In contrast, social identifiers gain the most from participation when politics is distributive, since this gives them an opportunity to help acquire benefits for their in-group, and better so if this occurs at the expense of out-groups. Since political outcomes are frequently viewed as improving the general welfare as well as posing more generous gains to some groups over others, both altruists and social identifiers ought to participate more frequently than egoists, who are purely self-interested.

Our results show that social identity has an important effect on allocation decisions. Subjects exhibit a preference for the in-group over the out-group. Democrats and Republicans both give more to the recipient from their own party than the opposing party, and independents give more to the anonymous recipient than the partisan recipients, while partisans do just the opposite. These preferences are magnified by the strength of social identity. Subjects who identify themselves as strong Democrats and strong Republicans tend to give much less to the recipient from the opposing party than other partisans.

We then use the dictator game allocations to test the altruism and social identity theories of participation and find that the evidence supports both theories. People who share with an anonymous individual in the dictator game participate more in politics than those who do not share. People who vary the amount they give depending on the partisan affiliation of the recipient also participate more in politics

than those who give the same amount to everyone. Participation in political life is driven by considerations beyond the self.

We use dictator games in a laboratory setting to measure self-oriented, social-identity-oriented, and altruistic dispositions. The primary explanation for giving in dictator games focuses on other-regardingness, and this is the interpretation that we take. However, we note that other interpretations exist: subjects may give in order to fulfill an external standard of fairness, or because they feel it is their "duty" to make donations – that is, they donate in order to comport with some external standard for appropriate behavior. Or, they might give to fulfill norms of reciprocity, or they might give randomly. We think the existing evidence rallies primarily around other-regardingness as an explanation, and hence we interpret our results as such.

Our study, like most studies utilizing experimental economics, examines dictator behaviors among college students. A standard criticism of studies utilizing convenience samples is that these samples are atypical of the general population and any results are thus limited in their applicability to the general public. We note, however, that one must establish that the student sample is atypical from the general population *in ways that are relevant to the study in question*. Our core contribution is in identifying an innovative way to measure of altruism and social identity and showing the empirical relationship between these measures and political activity. How would our results translate to the general public? Perhaps college students who are in a repeated-interactions environment would display, on average, higher levels of excess giving (to an anonymous individual and to a partisan) than members of the general population. It follows that perhaps the *level* of altruism and social identity may be higher in our convenience sample compared with a representative sample. However, we have no reason to expect that the *relationship* between altruistic and identity-based giving would differentially predict political participation. Hence, although we acknowledge that our empirical example may hold limited generalizability, we do not dismiss the possibility that these results could be replicated in the general population. (And, in fact, we are in the process of replicating these results in a general population study).

Altruism and social identity are likely to have broader applications beyond political participation, and our innovative measures might serve other researchers' purposes in this regard. At a very general level, altruism and social identity might have implications for individuals' understandings of politics and subsequent beliefs about political processes. Social identifiers may see politics as a competition among

groups for governmental outputs, and thus they would favor political processes that would allow groups opportunities to press for their own cases. Altruists may see politics as a forum for the production of policies to improve the public good, and thus they might favor political processes that foster wide participation and dialogue. More narrowly, altruism and social identity could have implications for policy preferences. Altruists may oppose policies that are targeted at specific groups and instead favor policies that are more generally applied, much as humanitarians might (Feldman and Steenbergen 2001). Social identifiers are likely to support policies that disproportionately help their own group; to oppose policies that help other groups; and perhaps to provide the most support for policies that increase the standing of their own group at the expense of other groups.

Finally, the altruism and social identifier theories of participation have important implications for rational choice. The rationality assumption means only that people have preferences that are complete and transitive. Notice that the words "self-interest" appear nowhere in this definition (Jackman 1993). While it is true that most rational models are based on material self-interest, a concern for others need not be excluded from these models. Social identity theory suggests people gain utility by helping their in-group, often at the expense of an out-group. Theories of altruism suggest that people gain utility by providing benefits to others, even when it is personally costly. Rational calculations need not be limited to narrow definitions of material self-interest, especially since such models have failed to explain observable behavior. The evidence clearly suggests that individuals look beyond the self when deciding whether or not to participate in politics.

REFERENCES

Aldrich, John H. 1993. "Rational Choice and Turnout." *American Journal of Political Science* 37(1): 246-78.

Andreoni, James and John Miller. 2002. "Giving According to Garp: An Experimental Test of the Consistency of Preferences for Altruism." *Econometrica* 70(2): 737-53.

Bastedo, Ralph W. and Milton Lodge. 1980. "The Meaning of Party Labels." *Political Behavior* 2(3): 287-308.

Bohnet, Iris and Bruno S. Frey. 1999. "Social Distance and Other-Regarding Behavior in Dictator Games: Comment." *American Economic Review* 89(1): 335-9.

Bolton, Gary E. and Axel Ockenfels. 2000. "ERC: A Theory of Equity, Reciprocity, and Competition." *American Economic Review* 90(1): 166-93.

Burrows, Paul and Graham Loomes. 1994. "The Impact of Fairness on Bargaining Behavior ." In *Experimental Economics,* ed. John D. Jey. Heidelberg: Physica-Verlag, 21-41.

Camerer, Colin F. 2003. *Behavioral Game Theory: Experiments in Strategic Interaction*. Princeton: Princeton University Press.

Camerer, Colin F. and Robin M. Hogarth. 1999 . "The Effects of Financial Incentives in Experiments: A Review and Capital-Labor-Production Framework." *Journal of Risk and Uncertainty* 19(1-3): 7-42.

Campbell, Angus, Philip E. Converse, Warren E. Miller, and Donald E. Stokes. [1960]1980. *The American Voter: Unabridged Edition*. Chicago: University of Chicago Press.

Carpenter, Jeffrey, Eric Verhoogen, and Stephen Burks. 2005. "The Effects of Stakes in Distribution Experiments." *Economics Letters* 86(3): 393-8.

Citrin, Jack and Donald Philip Green. 1990. "The Self-Interest Motive in American Public Opinion." *Research in Micropolitics* 3: 1-28.

Coate, Stephen and Michael Conlin. 2004. "A Group Rule-Utilitarian Approach to Voter Turnout: Theory and Evidence." *American Economic Review* 94(5): 1476-504.

Converse, Philip E. 1964. "The Nature of Belief Systems in Mass Publics." In *Ideology and Discontent,* ed. David E. Apter. New York: Free Press, 206-61.

Downs, Anthony. [1957]1985. *An Economic Theory of Democracy*. New York: Harper .

Eckel, Catherine C. and Philip J. Grossman. 1996. "Altruism in Anonymous Dictator Games." *Games and Economic Behavior* 16(2): 181-91.

Eckel, Catherine C. and Philip J. Grossman. 1998. "Are Women Less Selfish Than Men? Evidence From Dictator Experiments." *Economic Journal* 108(448): 726-35.

Edlin, Aaron, Andrew Gelman, and Noah Kaplan. 2007. "Voting As a Rational Choice: Why and How People Vote to Improve the Well-Being of Others." *Rationality and Society*.

Feddersen, Timothy J. and Wolfgang Pesendorfer. 1996. "The Swing Voter's Curse." *American Economic Review* 86(3): 404-24.

Feddersen, Timothy J. and Alvaro Sandroni. 2006. "Ethical Voters and Costly Information Acquisition." *Quarterly Journal of Political Science* 1(3): 287-311.

Feddersen, Timothy J. and Alvaro Sandroni. 2006. "A Theory of Participation in Elections." *American Economic Review* 96(4): 1271-82.

Fehr, Ehrnst and Urs Fischbacher. 2003. "The Nature of Human Altruism." *Nature* 425(6960): 785-91.

Fehr, Ernst and Klaus M. Schmidt. 1999. "A Theory of Fairness, Competition, and Cooperation." *Quarterly Journal of Economics* 114(3): 817-68.

Forsythe, Robert, Joel L. Horowitz, N. E. Savin, and Martin Sefton. 1994. "Fairness in Simple Bargaining Experiments." *Games and Economic Behavior* 6(3): 347-69.

Fowler, James H. 2006. "Altruism and Turnout." *Journal of Politics* 68(3): 674-83.

Hibbing, John R. and John R. Alford. 2004. "Accepting Authoritative Decisions: Humans As Wary Cooperators." *American Journal of Political Science* 48(1): 62-76.

Hoffman, Elizabeth, Kevin A. McCabe, Keith Shachat, and Vernon L. Smith. 1994. "Preferences, Property-Rights, and Anonymity in Bargaining Games." *Games and Economic Behavior* 7(3): 346-80.
Hoffman, Elizabeth, Kevin A. McCabe, and Vernon L. Smith. 1996. "On Expecations and the Monetary Stakes in Ultimatum Games." *International Journal of Game Theory* 25(3): 289-301.
Hoffman, Elizabeth, Kevin A. McCabe, and Vernon L. Smith. 1996. "Social Distance and Other-Regarding Behavior in Dictator Games." *American Economic Review* 86(3): 653-60.
Huddy, Leonie. 2003. "Group Identity and Political Cohesion." In *Oxford Handbook of Political Psychology,* eds. David O. Sears, Leonie Huddy, and Robert Jervis. New York: Oxford, 511-58.
Jackman, Robert W. 1993. "Rationality and Political Participation." *American Journal of Political Science* 37(1): 279-90.
Jankowski, Richard. 2002 . "Buying a Lottery Ticket to Help the Poor: Altruism, Civic Duty, and Self-Interest in the Decision to Vote." *Rationality and Society* 14(1): 55-77.
Jankowski, Richard. 2004. "Altruism and the decision to vote: Explaining and testing high voter turnout." Paper presented at the Annual Meetings of the American Political Science Association, Chicago, IL.
Johannesson, Magnus and Björn Persson. 2000. "Non-Reciprocal Altruism in Dictator Games." *Economics Letters* 69(2): 137-42.
Kinder, Donald R. and Nicholas Winter. 2001. "Exploring the Racial Divide: Blacks, Whites, and Opinion on National Policy." *American Journal of Political Science* 45(2): 439-56.
Knack, Stephen. 1992. *Social altruism and voter turnout: Evidence from the 1991 NES Pilot Study.* 1991 NES Pilot Study Reports
Ledyard, John O. 1982. "The Paradox of Voting and Candidatecompetition." In *Essays in Contemporary Fields of Economics: In Honor of Emanuel T. Weiler,* eds. George Horwich and James P. Quirk. West Lafayette, IN: Purdue University Press
Mansbridge, Jane J. 1990 . "The Rise and Fall of Self-Interest in the Explanation of Political Life." In *Beyond Self-Interest,* ed. Jane J. Mansbridge. Chicago: University of Chicago, 3-22.
Miller, Arthur H., Christopher Wlezien, and Anne Hildreth. 1991. "A Reference Group Theory of Partisan Coalitions." *Journal of Politics* 53(4): 1134-49.
Monroe, Kristen Renwick. 1996. *The Heart of Altruism*. Princeton: Princeton University Press.
Palfrey, Thomas R. and Howard Rosenthal. 1985. "Voter Participation and Strategic Uncertainty." *American Political Science Review* 79(1): 62-78.
Piliavin, Jane Allyn and Hon-Wen Charng. 1990. "Altruism: A Review of Recent Theory and Research." *Annual Review of Sociology* 16: 27-65.
Price, Vincent. 1989. "Social Identification and Public Opinion: Effects of Communicating Group Conflict." *Public Opinion Quarterly* 53(2): 197-224.
Riker, William H. and Peter C. Ordeshook. 1968. "A Theory of the Calculus of Voting ." *American Political Science Review* 62(1): 25-42.
Saad, Gad and Tripat Gill. 2001. "The Effects of a Recipient's Gender in a Modified Dictator Game." *Applied Economics Letters* 8(7): 463-6.
Samuelson, Paul A. 1993. "Altruism As a Problem Involving Group Versus Individual Selection in Economics and Biology." *American Economic Review* 83(2): 143-8.
Schlozman, Kay Lehman, Sidney Verba, and Henry E. Brady. 1995. "Participation's Not a Paradox: The View From American Activists." *British Journal of Political Science* 25(1): 1-36.
Sears, David O. and Carolyn L. Funk. 1991. "The Role of Self-Interest in Social and Political Attitudes." *Advances in Experimental Social Psychology* 24: 1-91.
Smith, Vernon L. 2000. *Bargaining and Market Behavior*. Cambridge: Cambridge University Press.
Uhlaner, Carole J. 1989. "Rational Turnout: The Neglected Role of Groups." *American Journal of Political Science* 33(2): 390-422.
Verba, Sidney, Kay Lehman Schlozman, and Henry E. Brady. 1995. *Voice and Equality: Civic Voluntarism in American Politics*. Cambridge: Harvard University Press.

TABLES

Table 1. Partisanship and Allocations in the Dictator Game

Donor	*Anonymous Recipient*	*Democrat Recipient*	*Republican Recipient*	*N*
All	29.9%	30.1	27.3	306
Democrat	29.6	31.5	26.0	173
Republican	29.2	29.6	32.7	78
Difference	0.4	1.9	-6.7	
p-value	0.41	0.23	0.02	

Note: p-values reflect probability that true relationship is opposite to the sign of the difference (Wilcoxon signed rank test).

Table 2. Strength of Partisanship and Allocations in the Dictator Game

Donor	*Anonymous Recipient*	*Partisan Recipients*		*N*
		In-Party	*Out-Party*	
Strong Partisan	24.4	31.7	23.3	127
Weak Partisan	34.6	32.0	31.0	124
Independents	32.0	26.7		55

Table 3. Within-Subject Difference in Giving to Anonymous and Partisan Recipients

	Amount Given to Republican Minus Amount Given to Democrat		*Amount Given to Republican Minus Amount Given to Anonymous*		*Amount Given to Democrat Minus Amount Given to Anonymous*	
Donor	*Mean*	*p-value*	*Mean*	*p-value*	*Mean*	*p-value*
All	-2.8%	0.01	-2.2	0.09	0.3	0.28
Democrat	-5.5	0.00	-3.6	0.03	1.9	0.19
Republican	2.8	0.16	4.1	0.10	1.2	0.33
Independent	-2.1	0.32	-6.2	0.19	-6.2	0.05

Note: p-values reflect probability that true relationship is opposite to the sign of the difference (Wilcoxon ranked sign test).

Table 4. Determinants of Within-Subject Differences in Giving in Dictator Games with Anonymous and Partisan Recipients

	Amount Given to Republican Minus Amount Given to Democrat			*Amount Given to Republican Minus Amount Given to Anonymous*			*Amount Given to Democrat Minus Amount Given to Anonymous*		
	Coef.	*S.E.*	*p*	*Coef.*	*S.E.*	*p*	*Coef.*	*S.E.*	*p*
Donor Characteristics:									
Partisan Identification	0.11	(0.05)	0.01	0.12	(0.05)	0.01	0.01	(0.04)	0.42
Partisan Strength	-0.03	(0.06)	0.32	0.14	(0.06)	0.02	0.16	(0.06)	0.00
High Income	0.01	(0.03)	0.41	0.04	(0.04)	0.11	0.04	(0.03)	0.13
Female	-0.05	(0.03)	0.08	-0.07	(0.03)	0.03	-0.02	(0.03)	0.24
White	0.01	(0.04)	0.37	-0.02	(0.04)	0.28	-0.03	(0.03)	0.15
Order Variables:									
Republican First	-0.04	(0.04)	0.15	0.00	(0.04)	0.46	0.04	(0.04)	0.10
Democrat First	-0.04	(0.04)	0.15	-0.04	(0.04)	0.14	0.00	(0.04)	0.47
Constant	0.00	(0.06)	0.48	-0.12	(0.06)	0.03	-0.12	(0.06)	0.01
Log scale variable	-1.28	(0.04)	0.00	-1.24	(0.04)	0.00	-1.38	(0.04)	0.00
Deviance / Null Deviance		-43 / -57			108 / 123			23 / 35	

Note: $N = 300$. Interval regression, dependent variable is within-subject difference in allocation in the dictator game. All independent variables are dichotomous except the partisan variables which are scaled from 0 to 1. Order variables indicate which dictator game subject played first.

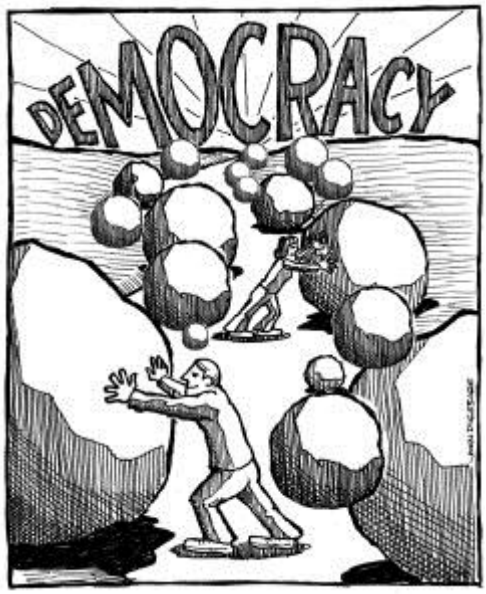
Table 5. Altruism, Social Identification, and Political Participation

	Dependent Variable: Political Activity Index					
	Simple Model			*Model with Controls*		
	Coef.	*S.E.*	*p*	*Coef.*	*S.E.*	*p*
Other-Regarding Variables						
Altruism	0.74	(0.39)	0.03	0.66	(0.29)	0.01
Social Identifier	0.57	(0.24)	0.01	0.40	(0.18)	0.01
Political Variables						
Partisan Identification				-0.46	(0.26)	0.04
Partisan Strength				1.05	(0.34)	0.00
Political Interest				2.66	(0.40)	0.00
Political Information				0.18	(0.34)	0.30
External Efficacy				0.11	(0.50)	0.41
Civic Duty				0.34	(0.25)	0.08
Socioeconomic Status						
High Income				-0.22	(0.20)	0.13
Female				-0.29	(0.18)	0.06
White				0.26	(0.19)	0.08
Citizen				0.85	(0.45)	0.03
Skills						
Give Presentation				0.05	(0.22)	0.41
Write Letter				0.89	(0.19)	0.00
Make Decisions				0.40	(0.21)	0.03
Chair Meeting				0.08	(0.23)	0.36
Constant	1.86	(0.18)	0.00	-2.25	(0.61)	0.00
Log Scale Variable				0.36	(0.05)	0.00
Deviance / Null Dev.		1216 / 1226			1081 / 1226	

Note: $N = 300$. Interval regression, dependent variable is the sum of political activities in which an individual participates (an integer from 0 to 7). All independent variables are dichotomous or scaled from 0 to 1.

The Political Foundations of Democracy and the Rule of Law

Barry Weingast



Well, it has been a while. I was out of town, and my other research project this summer has been quite time consuming. But, here is part I of the review of Barry Weingast's The Political Foundations of Democracy and the Rule of Law. This paper had too much in it to try and fit into one post.

Part I

Weingast begins with some fundamental assumption that I think are intuitively fair:

(1) All citizens have preferences and values about the appropriate limits on government

(2) Based on those preferences, people can classify actions of the states as either legitimate or a fundamental transgression against those rights.

(3) A necessary condition for a citizen to support the sovereign is that he not transgress what the citizen believes to be his or her fundamental rights.

(4) To remain in power, the sovereign must retain sufficient citizen support.

Number 1 seems ok and fits well into rational choice theory I believe. Number 2 is also ok, although I feel like sometimes people will sometimes grudgingly agree to some action that they think is a borderline transgression that at another time would be a fundamental transgression. But, a small quibble. Number 3 has the same quibble as 2. As to Number 4, I would question it, but I have read the whole paper and know that Weingast clarifies it.

Now we move into some previously examined themes: governmental actions as coordinating devices and games. That was clearly in Hardin, but also key to Myerson's aristocratic "court" checking the autocrat. Weingast offers us a theory for democratic thinking:

"Self enforcing limits on the state result when members of a society resolve their coordination dilemmas about the appropriate limits on the state".

How do they do that? With focal points! Hooray for focal points! But, let's hold off on evaluating until we read some more.

Now for some games (I love these games as I can understand them quite easily…maybe my game theory is getting better)

Model 1

FIGURE 1. Sovereign-Constituency Coordination Game

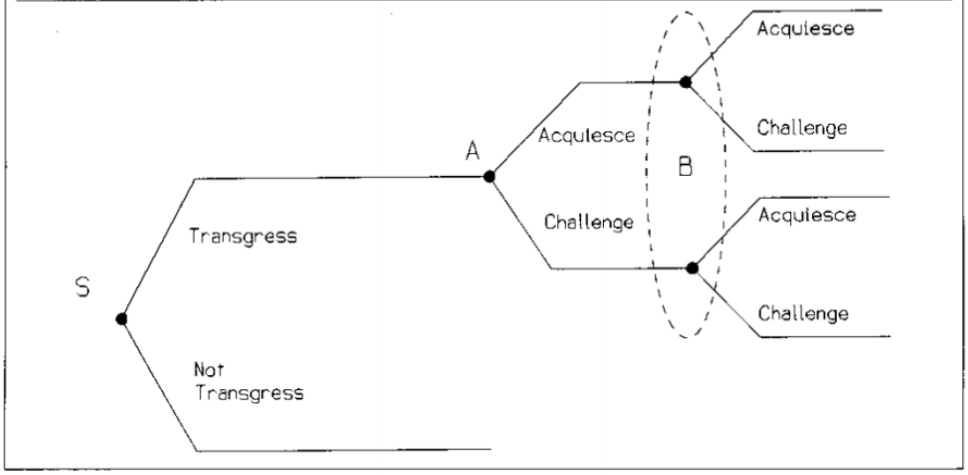
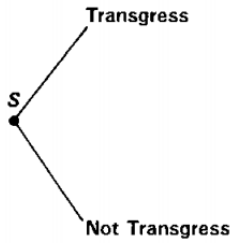


FIGURE 2. Payoffs for the Sovereign-Constituency Coordination Game

***S* Moves first**

Induced subgame between *A* and *B* (payoffs: *S,A,B*)



A \ *B*	Acquiesce	Challenge
Acquiesce	8, 2, 2	8, 2, 1
Challenge	8, 1, 2	0, 7, 7

A \ *B*	Acquiesce	Challenge
Acquiesce	2, 8, 8	2, 8, 7
Challenge	2, 7, 8	0, 7, 7

S is the sovereign. A is one group of people. B is another.

S has the first play. S can transgress or not transgress. There's not really a story if S does not transgress, so let's imagine s/he does transgress.

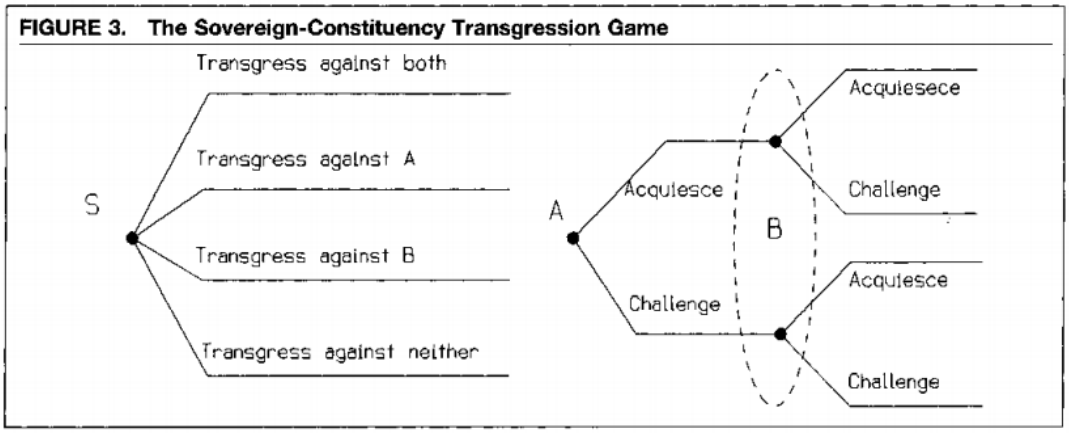
So, then we follow the transgress line and move to the A dot. Here, our two groups A and B play simultaneously. This means that they do NOT know what the other one is playing when they have to play! This is really important. What are they playing? Well they can either "Acquiesce" or "Challenge". If both acquiesce, the sovereign's transgression succeeds and S

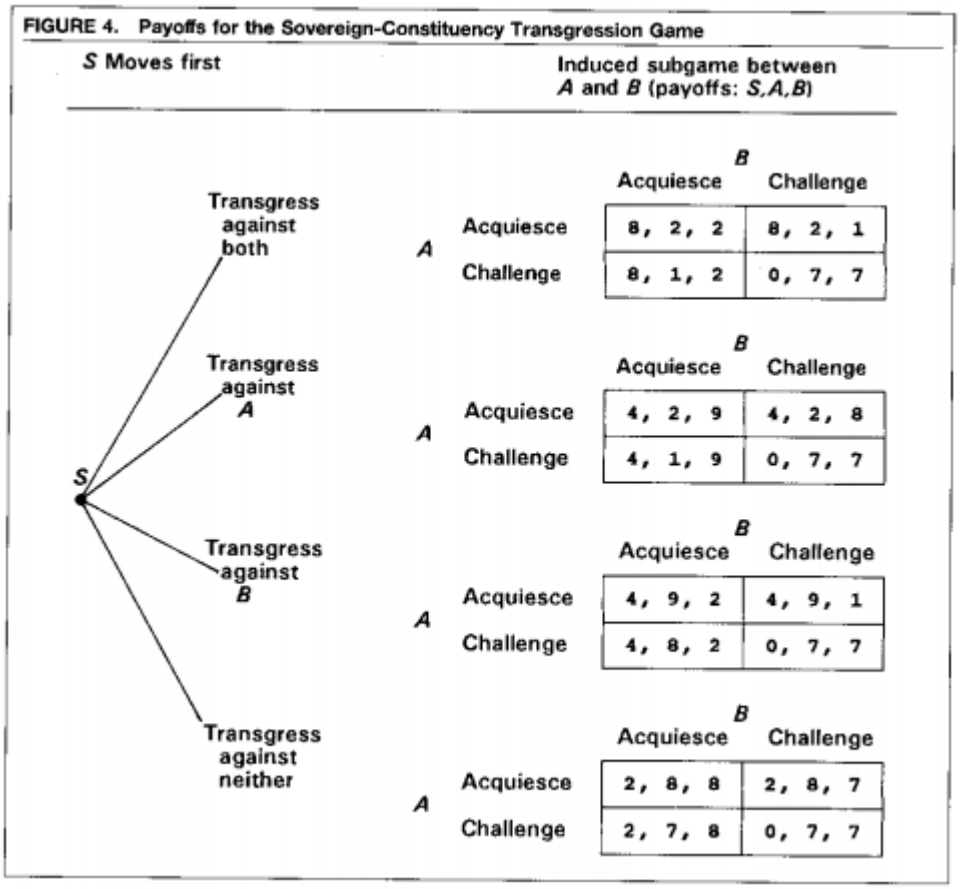
gets all the benefits. If both challenge, then the sovereign's transgression fails. If A acquiesces and B challenges, the transgression still succeeds, the same if only A challenges.

But, also throw in that challenging under any circumstance incurs a uniform cost. So, A doesn't want to challenge if B doesn't also challenge and vice versa. Then they just incurred a cost without any chance of it paying off.

So, "as in all coordination games, how one citizen group reacts to a transgression depends on how it anticipates the other citizen group will react" (248). I like this example. It fits well into Myerson's theory. But it is only the launching point- on to

Model 2





We still have the same players, S, A and B. S still moves first. S can either transgress A, transgress B, transgress A and B, or transgress no one. After S plays, A and B play acquiesce or challenge simultaneously, just like Model 1. The general outcomes are also the same. Two acquiesces means the transgression succeeds, 1 acquiesce and 1 challenge also succeeds, and only when both groups challenge is there a failure of the transgression.

But, in this game, S can be devious and transgress just 1 group. Weingast gives the example of S just transgressing B. B obviously wants A to help, but A will incur a cost by helping B. In the immediate, A really had no incentive to help B as it will not be directly harmed. But, perhaps the acquiesce play by A will embolden the sovereign to keep on trampling rights via a divide and conquer strategy! And the odds that B will want to come to the aid of A in the reverse situation is small indeed.

Thought: Can't a focal point emerge where A and B realize that if S is allowed to successfully transgress either group individually, there is nothing to stop S from transgressing the other group later. Sure, A may not want to help B when only B is being targeted, but once a transgression against B is successful, B will almost certainly not come to the aid of A when S tries the same thing against A!?

Do Institutions Cause Growth?

Edward L. Glaeser, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer*

June 2004

Abstract

We revisit the debate over whether political institutions cause economic growth, or whether, alternatively, growth and human capital accumulation lead to institutional improvement. We find that most indicators of institutional quality used to establish the proposition that institutions cause growth are constructed to be conceptually unsuitable for that purpose. We also find that some of the instrumental variable techniques used in the literature are flawed. Basic OLS results, as well as a variety of additional evidence, suggest that a) human capital is a more basic source of growth than are the institutions, b) poor countries get out of poverty through good policies, often pursued by dictators, and c) subsequently improve their political institutions.

* Harvard University, Dartmouth College, Yale University, and Harvard University, respectively. We thank Philippe Aghion, Olivier Blanchard, Oded Galor, Simon Johnson, Aart Kraay, Ross Levine, Torsten Persson, Dani Rodrik and an anonymous referee for helpful comments, and Sebastian Brown for research assistance.

I. Introduction.

Today, both the U.S. and the international community face two major development challenges around the world, from Iraq, to Haiti, to sub-Saharan Africa: how to ignite growth and how to establish democracy. Economic research has identified two broad approaches to confronting these challenges. The first approach emphasizes the need to start with democracy and other checks on government as the mechanisms for securing property rights. With such political institutions in place, investment in human and physical capital, and therefore economic growth, are expected to follow. The second approach emphasizes the need for human and physical capital accumulation to start the process. It holds that even pro-market dictators can secure property rights as a matter of policy choice, not of political constraints. From the vantage point of poor countries, it sees democracy and other institutional improvements as the consequences of increased education and wealth, not as their causes.

Both approaches to development have extensive intellectual pedigree. The importance of constraining government was stressed by Montesquieu (1748) and Smith (1776), as well by the new institutional economics literature (Buchanan and Tullock 1962, North and Thomas 1973, North 1981, 1990). DeLong and Shleifer (1993) supplied early empirical support for this view using data on urbanization of European regions during the last millennium, which showed faster city growth under more limited governments. More recently, the literature on economic growth, starting with early contributions by Knack and Keefer (1995) and Mauro (1995), has turned to the effects of good institutions on economic growth. It is fair to say that recent work, including Hall and Jones (1999), Acemoglu, Johnson and Robinson (2001, 2002), Easterly and Levine (2003), Dollar and Kraay (2003), and Rodrik, Subramanian, and Trebbi (2002), has reached close to an intellectual consensus that the political institutions of limited government cause economic growth.

The reverse idea, namely that growth in income and human capital causes institutional improvement, is most closely associated with the work of Seymour Martin Lipset (1960), who however himself gives credit to Aristotle. Lipset believed that educated people are more likely to resolve their differences through negotiation and voting than through violent disputes. Education is needed for courts to operate and to empower citizens to engage with government institutions. Literacy encourages the spread of knowledge about the government's malfeasance. According to this view, countries differ in their stocks of human and social capital – which can be acquired through policies pursued even by dictators – and institutional outcomes depend to a large extent on these endowments (see Djankov et al. 2003). This line of work seems to accord well with the experiences of South Korea, Taiwan, and China, which grew rapidly under one-party dictatorships, the first two eventually turning to democracy. Empirically, Lipset's hypothesis – that growth leads to better political institutions -- has received considerable support in the work of Przeworski and his associates (Alvarez et al. 2000) and Barro (1999).

The two views of economic and political development share some important similarities. They both emphasize the need for secure property rights to support investment in human and physical capital, and they both see such security as a public policy choice. However, the institutional view sees the pro-investment policies as a consequence of political constraints on government, whereas the development view sees these policies *in poor countries* largely as *choices* of their – typically unconstrained -- leaders.

In this paper, we revisit these two broad approaches to development in an effort to assess each one's empirical validity. Our view is shaped to some extent by the experiences of North and South Korea, illustrated in Figure 1. Prior to the Korean war, the two countries were obviously part of one, so it is difficult to think of them as having different histories. They were both

exceptionally poor in 1950. Between the end of the Korean war and 1980, both countries were dictatorships. If institutions are measured by Polity's "constraints on the executive," which as we discuss below is probably the best of the measures commonly used in the literature, then between 1950 and 1980 North Korea had an average score of 1.71, and South Korea 2.16 (out of 7). Yet South Korean dictators chose capitalism and secure property rights and the country grew rapidly, reaching per capita income level of US $1589 in 1980. The North Korean dictator, in contrast, chose socialism, and the country only reached the level of income of US $768 in 1980. Figure 1 also shows that, starting in 1980, South Korea transforms itself into a democracy, while North Korea remains a dictatorship. While *on average*, looking over the half century between 1950 and 2000, South Korea obviously had better institutions as measured by constraints on the executive, these institutions are the outcome of economic growth after 1950 rather than its cause. It would be wrong to attribute South Korea's growth to these institutions rather than the choices made by its dictators.

Our empirical analysis proceeds in five stages. In section II, we revisit three measures of "institutions" used in the current economic growth literature: risk of expropriation by the government, government effectiveness, and constraints on the executive. We show that the first two of these measures *by construction* do not describe political institutions: they are outcome measures that reflect the government's past restraint from expropriation in the first case, and its quality in the second. These measures do not code dictators who *choose* to respect property rights any differently than democratically elected leaders who have *no choice* but to respect them. Since these measures confound constraints on government with dictatorial choices, they do not proxy for institutions, which in their essence are constraints (North 1981). Moreover, these are both

subjective measures which rise sharply with the level of economic development, raising severe doubts that the causality runs from them to growth rather than the other way around.

The third measure we consider, constraints on the executive, is in principle linked to constraints on government, but in reality is constructed to reflect the outcomes of most recent elections. In developing countries, even this measure is extremely volatile, and cannot be plausibly interpreted as reflecting durable rules, procedures or norms that the term "institutions" refers to. Indeed, we show that the three conventional measures of institutions are uncorrelated with constitutional constraints on government that scholars have just begun to use. All this evidence sheds doubt on the proposition that the measures of institutions used in the growth literature reflect any "deep" parameters that they are purported to measure.

In Section III, we discuss some of the basic OLS evidence on the relationship between institutions, human capital, and economic growth. We confirm the now well-established propositions that the initial level of human capital of a country, and the *average* level of its institutions over a period of time, predict its level of economic growth over that *very same* period of time. But, as section II shows, and the South Korean example illustrates, institutional quality rises as a country grows richer. In fact, we find that, in a variety of specifications, initial levels of constraints on the executive *do not* predict subsequent economic growth, whereas initial levels of human capital continue to be strong predictors. Thus even the OLS evidence is quite unsupportive of the proposition that constraints on the executive cause growth, and is supportive of the proposition that the more basic cause is human capital.

In section IV, we try to dig deeper into these issues by looking at the universe of poor countries as of 1960. We find that virtually all of these countries had uneducated populations, and were moreover run by dictators. Indeed, most countries in this group have spent the vast majority

of years since 1960 under dictators. These dictatorships had a large dispersion of growth rates, an observation itself inconsistent with the view that constraints on government shape growth experiences of poor countries. The near universality of dictatorships in poor countries suggests that the security of property in these countries is the result of policy choices, not constraints.

In Section V, we turn to one of the central strategies that researchers have used to establish the primacy of political institutions: instrumental variables. We discuss recent work of Acemoglu, Johnson, and Robinson (2001, 2002), which shows that, among European colonies, settler mortality and population density in 1500 predict institutional quality and the level of economic development today. We show, however, that these results do not establish a role for institutions. Specifically, the Europeans who settled in the New World may have brought with them not so much their institutions, but themselves, i.e., their human capital. This theoretical ambiguity is consistent with the empirical evidence as well. We show that the instruments used in the literature for institutions are even more highly correlated with human capital both today and in 1900, and that, in instrumental variable specifications predicting economic growth, human capital performs better than institutions. At the purely econometric level, this evidence suggests that predictors of settlement patterns are not valid instruments for institutions.

In Section VI, we conclude the empirical analysis by looking at the timing of human capital accumulation and institutional quality. We find evidence consistent with the example of South Korea, namely that economic growth and human capital accumulation cause institutional improvement, rather than the other way around.

Finally, Section VII concludes with some implications of our analysis. We find ourselves much closer to Lipset than to the new institutionalists. If the experience of poor countries in the last 50 years is a guide, politically constrained government may not be a viable strategy for them

to secure property rights. Rather, these countries may need to emphasize economic policies and choices that ensure such security, even by dictators. Growth in these countries may be feasible without immediate institutional improvement, and is likely in turn to lead to institutional improvement. At least this is what the data show.

II. The Measurement of Institutions.

North (1981) defines institutions as "a set of rules, compliance procedures, and moral and ethical behavioral norms designed to *constrain* the behavior of individuals in the interests of maximizing the wealth or utility of principals" (p. 201-202). A key word that this and other definitions share is constraints. Thus constitutions or electoral rules are good examples of institutions, but good policies chosen by dictators who have a free hand are not. But there is another essential aspect of institutions noted even in dictionaries: the constraints need to be reasonably permanent or durable. Indeed, transitory "constraints" would not necessarily bind, and may be changed by those who do not like them. This permanency or "depth" of institutions has been relied on, for example, to justify using history as an instrument for institutional quality today (Rodrik et al. 2002). Thus legal systems or electoral rules look more like "institutions" when they are actually used over time, in contrast, for example, to the presidencies of Bill Clinton or George Bush, which most people would not regard as "institutions."

In this section, we discuss the measurement of political institutions used in recent research. We ask if these measures of institutions reflect a) constraints on government and b) permanent or at least durable features of the environment. We show that, in fact, they reflect neither.

To measure institutions, the literature has focused on several sets of variables. Here we discuss three. The first set, used initially by Knack and Keefer (1995) and Hall and Jones (1999),

and more recently by Acemoglu, Johnson, and Robinson (2001), are survey indicators of institutional quality from the International Country Risk Guide, collected over the 1980s and 1990s. The second set, used most recently by Rodrik, Subramanian, and Trebbi (2002), is an aggregated index of mostly survey assessments of government effectiveness collected by Kaufmann, Kraay, and Mastruzzi (2003). The third set, coming from the Polity IV data set collected by political scientists (Jaggers and Marshall 2000), aims directly to measure the limits of executive power.

Below we discuss these measures of institutions. We make three distinct points. First, all three data sets measure *outcomes*, not some permanent characteristics that North refers to. As such, all these measures 1) rise with per capita income, and 2) are highly volatile. Both of these facts are inconsistent with the view that they measure permanent or even durable features of the political environment. Second, the first two sets of measures of institutions are constructed so that dictators freely choosing good policies receive as high evaluations as governments constrained to choose them. An examination of these variables shows, for example, that dictators who *chose* to respect property rights – in the U.S.S.R. or Singapore, for example -- received high scores, which the literature has interpreted as having "good institutions." Even if these measures are extremely useful indicators of policy choices, they are by their very construction not constraints, and therefore unusable for discussions of how specific constraints on government that would guarantee the security of property rights. The Polity IV variables are intended to focus on political constraints, but we show that they too reflect political outcomes rather than durable constraints.

Third, these measures of political institutions appear to be uncorrelated with the available constitutional measures of constraints on government coming from either electoral rules or courts. It is possible that these constitutional measures are noisy, and it is certain that "rules on the books" are very different from what actually takes place in a country. But this is precisely the point: the

institutional outcomes that scholars have used as measures of constraints have very little to do with the constitutional constraints, raising doubts about the effectiveness of changing political rules.

Begin with the data from ICRG. The data include subjective assessments of risk for international investors along such dimensions as law and order, bureaucratic quality, corruption, risk of expropriation by the government, and risk of government contract repudiation. Of all three data sets, this one is probably the most problematic. It is plain that these measures reflect what actually happened in a country rather than some permanent rules of the game. For example, in 1984, the top ten countries with the lowest expropriation risk include Singapore and the U.S.S.R.. In these cases, the data obviously reflect the choices of dictators and not political constraints. Along similar lines, the data show a bizarre reduction in the risk of expropriation over time. Between 1982 and 1997, Iran moves from the score of 1 (highest expropriation risk) to 9 (close to the top score of 10), Libya from 1.5 to 9, and Syria from 1.5 to 9. We are not familiar with significant institutional constraints on the leaders of Iran, Libya, and Syria, although of course in the last few years these dictators had stayed away from expropriation and the data reflect their choices. Indeed, consistent with the intellectual victory of the Washington Consensus, the data show that the average score on expropriation risk in the sample rises from 5 in 1982 to 9 (with the median of 9.5) in 1997. Whatever expropriation risk measures, it is obviously not permanent rules, procedures, or norms supplying checks and balances on the sovereign.

The Kaufmann, Kraay, and Zoido-Labaton (2002) "government effectiveness" variable is likewise a clear outcome measure. Starting in 1996, these authors have aggregated a large number of subjective assessments of institutional quality into broad indices of government effectiveness. "In Government Effectiveness, we combine perceptions of the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil

service from political pressures, and the credibility of the government's commitment to policies into a single grouping" (p. 8). These are clear ex-post outcomes, highly correlated with the level of economic development, rather than political constraints per se. Indeed, the country that receives the highest score in the world is Singapore, a state known both for its one party rule and for this party's chosen respect for private property.

Polity IV data make the greatest attempt at measuring the political environment rather than dictatorial choices. Constraints on the executive refers to "the extent of institutionalized constraints on the decision-making powers of chief executives, whether individuals or collectivities." The highest score for this variable is 7, the lowest is 1. The rich democracies, but also countries like Botswana, India, and South Africa, tend to get the perfect score of 7. Dictatorships like Cuba, Iraq, North Korea, but also Pinochet's Chile get the worst score of 1, the communist countries such as China and U.S.S.R. are in the middle with 3's. It is difficult to see how property is more secure in Mao's China than in Pinochet's Chile, but at least it is clear what the variable is trying to get at.

The concern of this variable is, according to its creators, with the checks and balances between the various parties in the decision making process. However, a closer look at how this variable is constructed immediately reveals that it is an outcome measure, which reflects not the constraints, but what happened in the last election. When countries have inconsistent electoral experiences, their scores fluctuate wildly. For example, Haiti gets the worst score of 1 under the dictatorship during 1960-1989, jumps up to 6 when Aristide is elected in 1990, goes back to 1 when he is ousted during 1991-1993, rises again to 6 and even a perfect score of 7 during 1994-1998 as Aristide and his party return to power (even though the elections had been widely criticized), but falls down all the way to 3 during 2000-2001. Likewise, Argentina fluctuates between the worst scores under generals, and the best ones after elections, even when the elected leaders undermine

the legislature and courts. The data make it obvious that Polity IV provides a rapidly moving assessment of electoral outcomes over time, not a measure of actual political constraints on government, and certainly not a measure of anything permanent or durable. And to the extent that, in richer countries, elections are likely to be cleaner, "constraints on the executive" may well be a consequence of development rather than the other way around.

Likewise, the measure of "democracy" in Polity IV reflects the extent to which "the three essential, interdependent elements" are actually adhered to. These include "the presence of institutions and procedures through which citizens can express effective preference about alternative policies and leaders, the existence of institutional constraints of the exercise of power by the executive (see above), and the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation." Although the definition is intended to suggest some permanence, the construction of the variable, like that of the previous measure, reflects most recent experiences.

In Tables 1 and 2, we illustrate the "outcome" nature of even the Polity IV measures. Table 1 shows the average within-country deviations of five variables: autocracy (from Alvarez et al. 2000, based on Polity), constraints on the executive from Polity, democracy from Polity, autocracy from Polity, and, for comparison, Barro's measure of years of schooling. Due to data availability, all variables are measured every five years, between 1960 and 2000. All individual year observations are normalized to lie between zero and 1 to make comparison easier. Table 1 shows that even the Polity variables are twice as volatile as the measure of human capital. If constancy is a measure of depth, then human capital is "deeper" than institutions.

Table 2 looks at persistence of human capital and politics by regressing 2000 values of the political variables on their 1960 values. We find that education is much more persistent than the measures of constraints on the executive from Polity. The amount of mean reversion in political

institutions is stunning, suggesting that these variables can hardly be used as assessments of "deep" or "permanent" features of the political landscape.

The fact that the measures of institutions used in the literature reflect choices (often made by dictators) rather than constraints is further illustrated by examining the correlations between these variables and written constitutional rules. We consider four such measures. The first two are motivated by the work of Persson and Tabellini (2003) on electoral rules, which these authors see as one of the important constraints on executive authority. One such variable we use is "plurality", which equals one if legislators are elected using a winner-take-all/first past the post rule. The other objective measure is "proportional representation," which equals one if candidates to the upper and lower houses of parliament are elected using a proportional representation system. Both of these variables come from Beck et al. (2001). In addition, we use two constitutional measures of the checks on the executive supplied by the judiciary from La Porta et al. (2004). The first is judicial independence, which measures the permanency in office of supreme court judges. The second is constitutional review, which measures the extent of judicial review of legislation. Again, all these are constitutional measures of political rules constraining the executive.

Table 3 presents the correlations between the outcome measures used in the growth and institutions literature, per capita income in 2000, and objective institutional rules. For the traditional institutional measures, we follow the growth literature and use the averages computed over different time periods. Thus we use the 1960-2000 average for executive constraints, 1982 - 1997 average for expropriation risk, 1960-1990 average for the Alvarez et al. (2000) measure of autocracy, and the average of 1996, 1998, and 2000 values for government effectiveness. Judicial independence and constitutional review are available at only one point in time (in 1995), while plurality and proportional representation are averages over the period 1975-2000.

Three results stand out. First, the traditional indices of institutional quality are strongly correlated with each other, as well as with per capita income. This result is consistent with institutions having a causal positive effect on growth, but also with reverse causality. Specifically, if institutional outcomes improve as a country grows richer, as they clearly do, then both the average and the end of period institutional assessments will be higher in richer countries. Second, plurality and proportional representation – both constitutional measures of constraints – are correlated with per capita income (as well as with the subjective measures), but the correlations are much smaller than those of the traditional indices. Third, the measures of judicial checks and balances – judicial independence and constitutional review – are uncorrelated with per capita income, and only judicial independence is weakly correlated with outcome indices. The weak correlations may mean either that these constitutional measures of constraints are noisy, or that the association between "institutions" and development comes from institutional outcomes being better in richer countries, rather than political rules creating wealth.

The bottom line of this section is that the commonly used measures of institutions cannot be used to establish causality. These measures are not constructed to reflect either constraints on government or permanent features of the political landscape. Instead, they are highly volatile and mean-reverting. They are barely correlated with the available objective measures of constitutional constraints on government. Yet these are the variables used to show that institutions cause growth.

III. Political Institutions, Human Capital, and Economic Growth.

Table 4 presents the standard OLS growth regressions using the various measures of political institutions we discussed above. As in the correlation Table 3, we follow the literature and use averages of the assessments of institutional quality over a period of time. In Table 4, the

dependent variable is the growth of per capita income between 1960 and 2000, and the independent variables are initial income per capita (as suggested by Barro 1991), initial education, the share of a country's population in temperate zones, as well as eight institutional variables entering one at a time. The results confirm the now-standard observation of convergence, as well as the benign influence of temperate weather.

The results also show that the initial level of education is a strong predictor of subsequent economic growth. One interpretation of this result would support theories of growth in which human capital generates significant technological externalities (e.g., Lucas 1988). However, Pritchett (2000) summarizes evidence suggesting that economic returns to education in developing countries are not especially high. An alternative interpretation is along the lines of Lipset (1960), namely human capital leads to more benign politics, less violence, and more political stability. The key human capital externality is not technological but political: courts and legislatures replace guns. These improvements in turn bring about greater security of property and economic growth. This interpretation is consistent with the evidence of Alesina et al. (1996) that political stability predicts economic growth, and with many findings we discuss below.

Finally, the evidence shows a strong correlation between economic growth over a period and the average assessments of institutional quality over that period, including constraints on the executive, risk of expropriation, government effectiveness, and autocracy. In contrast, there is no relationship between growth and constitutional measures of institutions, such as judicial independence, constitutional review, plurality, and proportional representation. The contrast between the institutional outcome variables used in the growth literature, and the constitutional constraints on government, is striking.

One reason that *average* assessments of institutions might enter significantly in the growth regressions is that these assessments improve as the economy gets richer, so the causality runs in reverse. Note, in contrast, that growth regressions typically use initial values of education. To further assess this possibility, Tables 5 and 6 present a series of growth regressions in which the independent variable is the executive constraints at the beginning of the period. We focus on executive constraints because it is the only measure that is clearly not a consequence of dictatorial choices, and hence, even though it reflects electoral outcomes, can at least loosely be thought of as relating to constraints on government.

Table 5 presents, starting in 1960, decade by decade growth regressions using initial period education, initial period per capita income, and initial period constraints on the executive, as independent variables. It also presents similar regressions for the whole period 1960-2000. (We have also obtained, but do not report, very similar results using 20-year intervals.) Table 5 shows that, even in the OLS specifications, initial executive constraints have no predictive power for subsequent economic growth outside the 1980s, whereas initial human capital is a strong predictor. These results exacerbate the concern over reverse causality when sample averages of institutional outcomes are used in growth specifications.

Table 6 takes advantage of the fact that data on executive constraints are available for a few countries as far back as the middle of the 19th century, as are data on economic growth from Maddison (2003). We also have some data on primary school enrollments starting in 1870 from Lindert (2001). For these small samples, we can regress long term growth on initial executive constraints, initial income, and initial school enrollments. Again, there is no evidence that constraints on the executive predict growth, but some evidence that initial human capital does.

The evidence presented in these tables on the relationship between institutions and growth leaves us skeptical about causality. Nonetheless, an advocate of institutional view might argue that the average political outcome over time is a good measure of durable constraints. If institutions reflect "deep" features of the environment, then even if constraints on the executive measure the cleanness of the last election, the average of such constraints over time is a good proxy for the "permanent" or "durable" constraints. It is then the average rather than the starting points that belongs in the growth regression. Moreover, human capital, being not as "deep" as the average of institutional outcomes, simply does not belong in the regression.

In light of the results we have brought out, this argument is not persuasive. First, the fact that even the Polity measures of institutions are more volatile and more mean reverting than years of schooling raises severe doubts that these variables, even if averaged, reflect anything more permanent than human capital. Second, this argument does not deal with the obvious point of reverse causality, and the fact that initial measures of political institutions, in just about any sample, seem to have no predictive power at all. Indeed, even if we follow the recommendation that constraints on the executive must be averaged, but regress ten year growth rates on the average constraints of the executive over the *previous* decade, these averages do not predict subsequent economic growth. The results are very similar to those in Table 5. Averaging itself, without regressing growth on *contemporaneous* average institutional quality, does not suggest that institutions predict growth. Third, the lack of correlation between even the average outcome measures and the constitutional constraints on government raises still further doubts that anything deep is being measured. In sum, while there might be (though certainly does not need to be) something "deep" about institutions, it is implausible to argue that the variables used in the standard growth regressions capture anything "deep".

What do we learn from this analysis? To us, the principal conclusion is that, at least in the OLS regressions, the evidence that institutions cause economic growth, as opposed to growth improving institutions, is non-existent. The objective measures of institutions, those that actually describe *the constitutional rules* that limit the power of the sovereign, have no predictive power for the growth of per capita income. Even the beginning-of-period executive constraints have no predictive power. In contrast, the political variables that are correlated with development are themselves by construction a product of development. The OLS cross-country evidence for 1960-2000 provides no support for the claim that "institutions cause growth."

IV. Politics and Growth in Poor Countries After 1960.

Growth regressions are one way to assess the effect of institutions on economic growth. Another way is to consider human capital and political institutions in the sample of poor countries circa 1960. To this end, we divide our 1960 sample of countries into those with low human capital (total years of schooling per capita below the median value of 2.68), intermediate human capital (schooling between 2.68 and 5.01 years per capita), and high human capital (schooling above the 75th percentile value of 5.01 years per capita). We independently divide this sample into four types of political regimes using the 1960-2000 average Polity IV democracy score: autocracies (countries with the average score under 2), stable democracies (countries with the average perfect score of 10), and two intermediate groups: imperfect autocracies (the average score between 2 and 7) and imperfect democracies (the average score between 7 and 10). Autocracies include places like Saudi Arabia, Vietnam, and Yemen. Stable democracies cover all the usual developed countries (except that it includes Costa Rica but not France).

Table 7 presents the number of observations in each of the 12 cells using the two independent classifications. Nearly all highly educated countries are stable democracies (score = 10), and nearly all stable democracies are highly educated. (The two stable democracies with intermediate human capital are Italy and Costa Rica.) In contrast, nearly all dictatorships are poorly educated; the only dictatorships with the intermediate level of human capital are Paraguay, Singapore, and Taiwan. Put differently, the lowest education countries are never stable democracies; the highest education countries are generally stable, but sometimes imperfect, democracies. Consistent with Lipset, over the last 40 years, politics has been much more benign in well-educated, than in poorly educated, countries.

Are these differences between educated and uneducated countries reflected in the growth rates as well? Table 8 presents the data on average growth rates of different groups of countries. During 1960-2000, countries with high human capital in 1960 have grown 2 times faster, on average, than low human capital ones. Stable democracies have grown slightly faster than imperfect democracies, and much faster than dictatorships, on average, but this may of course be just the human capital effect. In addition, Table 8 shows the dispersion of growth rates among different groups of countries. It shows the higher dispersion of growth rates across autocracies than democracies, and across poorly educated countries relative to the well educated ones.

The evidence in Tables 7 and 8 leads to another reason for skepticism about the primacy of political constraints for economic development: although nearly all poor countries in 1960 were dictatorships, some of them have managed to get out of poverty, while others stayed poor. This kind of evidence is at least suggestive that it is the choices made by the dictators, rather than the constraints on them, that have allowed some poor countries to emerge from poverty. If being a stable democracy, with all the effective constitutional constraints on the executive, is not an option

for a poor country, and if dictatorship is the more likely political path, then it is crucial to understand what makes for a successful dictatorship.

This suggestion receives a further boost from a simple characterization of who actually leads the less educated countries over time. In Table 9, we continue to separate countries into those with low and moderate levels of human capital, as before. We then classify for each year the country's leader along two dimensions. We follow the Alvarez et al. (2000) classification of leaders as being democratic or autocratic. In addition, we group the leaders by the length of their tenure. The Table shows the amount of time spent by countries in our sample being led by democratic and autocratic leaders of different tenure lengths.

The least educated countries are overwhelmingly led by long-standing dictators. For 66 percent of the years in our sample, these countries are led by autocratic leaders who eventually last for at least five years. For 50 percent of the years in our sample, these countries are led by autocrats who eventually last for at least ten years. In contrast, only 6 percent of the time are the least-educated countries led by democratic leaders with terms that end up being less than five years, and only 13 percent of the time, these countries are run by democratically elected leaders that last for more than five years. Among moderately well educated countries, the situation is more mixed. About 43 percent of the time, these countries are governed by democratically elected leaders. For 32 percent of the time, they are governed by democratic leaders who last between 2 and 10 years in office. In contrast, these countries are governed by dictators who last for more than 5 years for 44 percent of the time in the sample. Yet, the dictatorship that lasts for more than 10 years is still the largest single grouping in the table (32 percent).

This evidence is at most suggestive. But it does suggest that, from the point of view of understanding the emergence of countries from poverty, the focus on placing constraints on

government as a starting reform may have been misplaced. The focus on factor accumulation, including the growth in human capital, might have been more productive.

V. Instrumental Variables.

From the beginning, the growth and institutions research recognized that growth may itself lead to better institutions. One way in which this literature tried to address this problem is instrumental variables. Mauro (1995) already recognizes these issues, and uses ethnolinguistic fractionalization of the population as an instrument for corruption. Hall and Jones (1999) use ICRG measures of institutional quality, but instrument them using "distance from the equator and the extent to which the primary languages of Western Europe are spoken today" (p. 110). Researchers also tried to take advantage of the fact that the European expansion influenced the countries being conquered and colonized. La Porta et al. (1997, 1998, 1999) take advantage of this colonial experiment by looking at legal transplantation. They argue that Europeans brought their legal systems into the countries they conquered or colonized, and that therefore legal origin can be used as an instrument for the structure of various laws.

This line of research was subsequently given a substantial boost by a pair of recent papers by Acemoglu, Johnson, and Robinson (2001, 2002). These authors argue that central to understanding each country's political institutions is not what laws the Europeans brought, but rather whether they themselves settled in the particular colonies. AJR (2001) argue that the mortality of European settlers in the countries they colonized shaped their decision to settle or not. When the Europeans settled, they brought with them the effective European institutions constraining the executive, whereas when they did not settle, they instituted systems of arbitrary rule and expropriation of local populations. AJR (2002) further argue that the density of non-

European populations in the prospective colonies shaped the European settlement patterns. When a region was densely settled (or urbanized) by the locals, the Europeans did not settle themselves, but rather introduced exploitative institutions. In low density areas, in contrast, they settled and brought their institutions of limited government, thereby causing long run growth. Using this logic, AJR (2001, 2002) argue that both settler mortality and indigenous population density in 1500 can be used as instruments for modern day political institutions constraining the executive.

The AJR papers invigorated the institutions and growth literature. Below we discuss their work. But, as a starting point, it is important to note that, even if one agrees that mortality risk or indigenous population density shaped the European settlement decisions, it is far from clear that what the Europeans brought with them when they settled is limited government. It seems at least as plausible that what they brought with them is themselves, and therefore their know-how and human capital. (This is the interpretation of the effects of settler mortality suggested theoretically by Djankov et al. (2003)). If that is the case, then at a purely conceptual level one cannot infer from the patterns of European settlement that the asset being transplanted is institutions. To put the same point in econometric terms, valid instruments must be uncorrelated with the error term, and if settlement patterns influence growth through channels other than institutions, they are not valid instruments. As we suggest below, this observation has significant implications for the interpretation of instrumental variables regressions of growth on institutions.

The correlation between AJR's proposed instruments and their preferred measures of institutions is very high indeed. For example, the logarithm of settler mortality is correlated at -.54 with average executive constraints, and -.51 with average expropriation risk, while the logarithm of population density in 1500s is correlated at -.35 and -.40 with the same measures of institutions.

But are AJR's proposed instruments valid? We have several concerns, some already discussed in the literature, but some new and perhaps more important. First, settler mortality is basically uncorrelated with the constitutional measures of checks and balances we discussed in Section II, and the logarithm of 1500 population density is only very weakly correlated with plurality and proportional representation. If the Europeans really brought their institutions constraining government, one might expect this influence to be reflected in "rules and procedures," yet this does not appear to be the case in the data. This is also surprising in light of all the available evidence that colonial transplantation of legal traditions – the ultimate rules and compliance procedures -- has been central in shaping the legal and regulatory systems of the receiving countries. Why would colonial influence on rules and procedures be so strong in one case, but not in the other?

Second, an important element of the AJR line of reasoning is that settler mortality reflects past settlement policies and their modern consequences. Yet the instruments appear to be correlated with the modern disease environment as well. Jeffrey Sachs and his associates (Gallup et al. 2001, Kiszewski et al. 2004) present data on modern malaria risk and malaria ecology. The correlation of the log of settler mortality with malaria risk is .67, and with malaria ecology it is .66. The log of 1500 population density, however, has a correlation of .38 with malaria risk, but only .14 with malaria ecology. These correlations raise the question of whether AJR instruments reflect the historical rather than the modern disease environment, since the latter might have an independent affect on human capital, development, and institutions.

AJR are well aware of this concern. As a test, they regress their preferred institutional variables on settler mortality and malaria together, and find that settler mortality but not modern malaria is statistically significant. Table 10 presents the results of similar regressions using all

available observations (AJR use a subset). Our results are different from those reported in their work. The impact of settler mortality on today's institutions remains significant, but so is that of malaria risk. At least part of what settler mortality captures is the modern disease environment. These results suggest that the issue of modern disease environment is real, and one should exercise caution in treating AJR instruments as proxies for the colonial but not modern mortality risk.

Still, both settler mortality and 1500 population density are strongly correlated with today's per capita income. Why might this be so? This gets us to our third and crucial point. A necessary condition for these variables to be valid instruments for institutions is that they not influence per capita income through other channels, i.e., be uncorrelated with the error term. We have seen that human capital is an important determinant of economic growth. The importance of malaria in determining current income points in the same direction. Could the influence of AJR's proposed instruments on today's development work through human capital? Put differently, perhaps when colonizers settled, they brought with them their know-how rather than constraints on the executive.

Figures 2-5 show the relationship between settler mortality and 1500 population density on the one hand, and total years of schooling in 1960 and 2000 on the other. These correlations are even stronger than those between settler mortality and the measures of institutions. For example, the correlation between settler mortality and years of schooling in 2000 is -.73.

Some additional evidence on the importance of human capital, and its relationship to the proposed instruments, comes from the small sample of countries for which we have data on primary school enrollments in 1900. Figure 6 shows that this measure of educational investment a century ago is a strong predictor of the level of economic development *today*. Figures 7 and 8 further show that this measure of education is strongly negatively correlated with the proposed AJR

instruments. This evidence may further suggest that human capital, both today and as historically introduced by the colonizers, drives economic growth.

Table 11 further investigates the effects of human capital and political institutions in the instrumental variables framework. We present the first and second stage results from the IV estimation of the impact of average years of schooling between 1960 and 2000, and average executive constraints over the same period, on log GDP per capita in 2000. As instruments, we use French legal origin, log settler mortality, and log 1500 population density (the last two used one at a time). The AJR instruments are important determinants of both executive constraints and years of schooling in the first-stage regressions, while French legal origin countries have a lower level of constraints on the executive, consistent with La Porta et al. (1999). In the second-stage regression, however, the predicted years of schooling are a statistically significant determinant of per capita income, but executive constraints are not. If anything, in the IV framework human capital seems to be a more important variable predicting development than political institutions.

We do not wish to push these results too far. By our own logic, human capital and institutions are not the only potentially important baggage that the European colonizers have brought with them, and so the instrument might still be correlated with the error term. They brought "guns, germs, and steel" among other things (Diamond 1997, Engerman and Sokoloff 1991). The effects of colonial settlement work through many channels, and the instruments used in the literature do not tell us which channel matters. Even if one accepts the view that the variables proposed by AJR (2001, 2002) shaped the European settlement patterns, the data do not tell us whether the Europeans brought with them their human capital, political institutions, or something else. The instrumental variable approach does not tell us what causes growth.

VI. From Schooling to Institutions

As a final way to understand whether schooling or institutional outcomes come first, we follow Barro (1997, 1999) and look at timing. If institutions come first, then lagged values of political variables should predict improvements in education. If education is the critical input, then lagged values of education should predict improvement in institutional outcomes. In the top Panel of Table 12, we regress, using five-year intervals, growth in years of schooling on country fixed effects, initial schooling, and initial measures of political institutions used in the growth literature as well as the initial level of GDP per capita. The data show some mean reversion in schooling (perhaps due to measurement error), a large and positive effect of initial level of income on the growth of education, and no effect of initial political institutions, no matter how measured, on the growth of human capital.

In the bottom panel, we look at the changes in political institutions over five-year intervals as a function of country fixed effects, initial schooling, initial level of economic development, and initial levels of these political institutions themselves. The results are striking. Initial levels of schooling are a strong predictor of improving institutional outcomes over the next five years using 3 out of 4 measures, including executive constraints. Initial per capita income has no predictive power. And, as we saw before, there is a lot of mean reversion in these measures of institutions.

As before, we do not want to take these results as dispositive. However, they are strikingly consistent with the Lipset view that high human capital leads to institutional improvement, even over a relatively short horizon of 5 years. Moreover, like many of the earlier findings we presented, the results are inconsistent with the view that high assessments of political institutions predict subsequent improvement in the years of schooling.

VII. Conclusion.

Exploring the causal link between institutions and economic growth has proved extremely difficult. Despite creative and insightful efforts, the existing research strategy does not establish this link, due to both conceptual problems with the measurement of institutions and the limitations of econometric techniques. In particular, the existing research does not show that political institutions rather than human capital have a causal effect on economic growth. Indeed, much evidence points to the primacy of human capital for both growth and democratization.

Our results are consistent with a perspective on institutions outlined by Djankov et al. (2003). According to that paper, each community faces a set of institutional opportunities, determined largely by the human and social capital of its population. The greater the human and social capital of a community, the more attractive its institutional opportunities. Institutions, in this framework, are points on this opportunity set, determined by efficiency, history, and politics. Institutions are highly persistent because history, including colonial history, shapes social choices. But institutional outcomes also get better as the society grows richer, because institutional opportunities improve. Importantly, in that framework, institutions have only a second order effect on economic performance. The first order effect comes from human and social capital, which shape both institutional and productive capacities of a society.

Our results have some implications for economic research and for economic policy. They suggest that research in institutional economics, and in particular on the *consequences* of alternative institutional arrangements, must focus on actual rules, rather than on conceptually ambiguous assessments of institutional outcomes. The results of this paper do not show that "institutions do not matter." That proposition is flatly contradicted by a great deal of available empirical evidence, including our own. Rather, our results suggest that the current measurement strategies have

conceptual flaws, and that researchers would do better focusing on actual laws, rules, and compliance procedures that could be manipulated by a policy maker to assess what works .

With respect to policy, our results do not support the view that, from the perspective of security of property and economic development, democratization and constraints on government must come first. In many poor countries, such security came from policy choices made by dictators. The economic success of East Asia in the post war era, and of China most recently, has been a consequence of good-for-growth dictators, not of institutions constraining them. Indeed, the Chinese example illustrates this point forcefully: there was nothing pre-destined about Deng, one of the best dictators for growth, succeeding Mao, one of the worst. More generally, it might be less profitable to look for the "deep" factors explaining economic development than for policies favoring human and physical capital accumulation (see also Przeworski 2004a,b).

None of this is to deny the merits of democracy and the constraints on government as essential human values in their own right. Mulligan, Gil, and Sala-i-Martin (2004) present compelling evidence that in such policy areas as freedom of the press, torture, death penalty, and regulation of religion, democracies are significantly more benign than dictatorships. But our evidence suggests some skepticism about the viability of democracy in countries with low level of human capital – there have been few examples of such democracies in the world. Our evidence suggests in contrast that the Lipset-Przeworski-Barro view of the world is more accurate: countries that emerge from poverty accumulate human and physical capital under dictatorships, and then, once they become richer, are increasingly likely to improve their institutions.

Bibliography

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review* 91(5): 1369-401.

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2002. "Reversal of Fortune: Geography and Development in the Making of the Modern World Income Distribution," *Quarterly Journal of Economics* 117(4), 1231-1294.

Alesina, Alberto, Sule Ozler, Nouriel Roubini, and Phillip Swagel. 1996. "Political Instability and Economic Growth*," Journal of Economic Growth* 1(2): 189-212.

Alvarez, Michael, José A. Cheibub, Fernando Limongi and Adam Przeworski. 2000. *Democracy and Development: Political Institutions and Material Well-Being in the World, 1950-1990*. Cambridge: Cambridge University Press.

Aten, Bettina, Alan Heston and Robert Summers. 2002. *Penn World Tables Version 6.1*. Center for International Comparisons at the University of Pennsylvania (CICUP).

Barro, Robert J. 1991 "Economic Growth in a Cross-Section of Nations," *Quarterly Journal of Economics* 106(2): 407-43.

Barro, Robert J. 1997. *Determinants of Economic Growth*. Cambridge, MA: MIT Press.

Barro, Robert J. 1999. "Determinants of Democracy," *Journal of Political Economy* 107(6-2): 158-183.

Barro, Robert J. and Jong-Wha Lee. 2000. "International Data on Educational Attainment: Updates and Implications" Working Paper 42. Center for International Development (February).

Beck, Thorsten, George Clarke, Alberto Groff, Philip Keefer and Patrick Walsh. 2001. "New Tools in Comparative Political Economy: The Database of Political Institutions" *World Bank Economic Review* 15(1): 165-76.

Center for International Development, *Geography Data sets*. Found online at: <http://www2.cid.harvard.edu/ciddata/geographydata.htm#General%20measures%20of%20geography>

DeLong, J. Bradford and Andrei Shleifer. 1993. "Princes and Merchants: City Growth before the Industrial Revolution." *Journal of Law and Economics* 36(2): 671-702.

Diamond, Jared. 1997. *Guns, Germs, and Steel*. New York: Norton.

Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer. 2003. "The New Comparative Economics," *Journal of Comparative Economics* 31(4), 595-619.

Dollar, David and Aart Kraay. 2003. "Institutions, Trade and Growth." *Journal of Monetary Economics* 50(1): 133-62.

Easterly, William and Ross Levine. 2003. "Tropics, germs, and crops: how endowments influence economic development." *Journal of Monetary Economics* 50(1): 3-39.

Engerman, Stanley, and Kenneth Sokoloff. 1991. "Factor Endowments, Institutions, and Differential Paths of Growth among New World Economies," in Stephen Haber (ed.), *How Latin America Fell Behind*, Stanford, CA: Stanford University Press.

Gallup, John L. and Jeffrey D. Sachs. 2001. "The Economic Burden of Malaria." *The Supplement to The American Journal of Tropical Medicine & Hygiene*, 64(1-2): 85-96.

Hall, Robert E. and Charles I. Jones. 1999. "Why Do Some Countries Produce so Much More Output per Worker than Others?" *Quarterly Journal of Economics*, 114(1): 83-116.

International Country Risk Guide. (Political Risk Services, East Syracuse, NY, 1996).

Jaggers, Keith and Monty G. Marshall, 2000. "Polity IV Project" Center for International Development and Conflict Management, University of Maryland.

Jones, Benjamin and Benjamin Olken. 2003 "Do Leaders Matter? National Leadership and Growth since World War II." Monograph, Harvard University.

Kaufmann, Daniel, Aart Kraay and Massimo Mastruzzi. 2003. "Governance Matters III: Updated Governance Indicators for 1996-02." Working Paper Draft for comments. Washington, D.C.: World Bank.

Kaufmann, Daniel, Aart Kraay and Pablo Zoido-Lobatón. 2002. "Governance Matters II: Updated Governance Indicators for 2000-01" Working Paper No. 2772. World Bank Policy Research Department (February).

Kiszewski, Anthony, Andrew Mellinger, Pia Malaney, Andrew Spielman, Sonia Ehrlich, Jeffrey D. Sachs. 2004. "A Global Index of the Stability of Malaria Transmission Based on the Intrinsic Properties of Anopheline Mosquito Vectors." *American Journal of Tropical Medicine and Hygiene*. Forthcoming.

Knack, Steven and Philip Keefer. 1995. "Institutions and Economic Performance: Cross-Country Tests Using Alternative Measures." *Economics and Politics* 7(3): 207-27.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny. 1997. "Legal Determinants of External Finance," *Journal of Finance* 52(3), 1131-1150.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny. 1998. "Law and Finance," *Journal of Political Economy* 106(6), 1113-1155.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny. 1999. "The Quality of Government," *Journal of Law, Economics, and Organization* 15(1) 222-79.

La Porta, Rafael, Florencio Lopez-de-Silanes, Christian Pop-Eleches and Andrei Shleifer. 2004. "Judicial Checks and Balances." *Journal of Political Economy* 112(2), 445-470.

Lindert, Peter H. 2001. "Democracy, Decentralization, and Mass Schooling before 1914" working paper 104. San Diego, California: University of California Agricultural History Center (February).

Lipset, Seymour M. 1960. *Political Man: The Social Basis of Modern Politics*. New York: Doubleday.

Lucas, Robert E. 1988. "On the Mechanics of Economic Development." *Journal of Monetary Economics* 22(1): 3-42.

Maddison, Angus. 2003. *The World Economy: Historical Statistics*. Paris: OECD.

Mauro, Paolo, 1995, "Corruption and Growth," Quarterly Journal of Economics, 110: 681-712.

McEvedy, Colin and Richard Jones. 1978. Atlas of World Population History. Viking Press.

Montesquieu, Charles de Secondat. 1748. *The Spirit of the Laws*. Paris.

Mulligan, Casey, Ricard Gil, and Xavier Sala-i-Martin. 2004. "Do Democracies Have Different Public Policies than Nondemocracies?", Journal of Economic Perspectives 18(1): 51-74.

North, Douglass C. 1981. *Structure and Change in Economic History*. New York: Norton & Co.

North, Douglass C. 1990. *Institutions, Institutional Change, and Economic Performance.* Cambridge: Cambridge University Press.

North, Douglass C. and Robert P. Thomas. 1973. *The Rise of the Western World: A New Economic History.* Cambridge: Cambridge University Press.

Persson, Torsten and Guido Tabellini. 2003. *The Economic Effects of Constitutions*. Cambridge, Mass.: MIT Press.

Pritchett, Lant. 2000. "Where has all the education gone?" *World Bank Economic Review* 15(3).

Przeworski, Adam. 2004a. "The Last Instance: Are Institutions the Primary Cause of Economic Development?" Mimeo, New York University.

Przerworski, Adam. 2004b. "Georgraphy vs Institutions Revisited: Were Fortuntes Reversed?". Mimeo, New York University.

Rodrik, Dani, Arvind Subramanian and Francesco Trebbi, 2002. "Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development." NBER Working Paper 9305, National Bureau of Economic Research (October).

Smith, Adam. 1976 [1776]. *An Inquiry into the Nature and Causes of the Wealth of Nations*, edited by Edwin Canaan. Chicago, Illinois: University of Chicago Press.

World Health Organization. 1997. "World Malaria Situation in 1994, Part I," *WHO Weekly Epidemiological Record* 36: 269-74.

Table 1
Volatility of political institutions and human capital

The table shows the average within-country standard deviation of various measures of political institutions and human capital. Due to data availability, we measure human capital (years of schooling) and the Polity IV variables of political institutions in 1960, 1965, 1970, 1975, 1980, 1985, 1990, 1995 and 2000. We measure the autocracy variable from Alvarez et al. (2000) for 1960, 1965, 1970, 1975, 1980, 1985 and 1990 only because their data ends at that point. All variables were normalized to vary between 0 and 1. All variables are defined in Appendix 1.

Polity IV			Alvarez et al. (2000)	
Executive constraints (1960-2000)	Democracy (1960-2000)	Autocracy (1960-2000)	Autocracy (1960-1990)	Years of schooling (1960-2000)
Average within-country standard deviation				
18.53%	17.52%	19.36%	18.86%	10.33%

Table 2
Persistence of political institutions and human capital

The table shows OLS regressions for the cross-section of countries. The specifications include a constant but we do not report the estimates in the table. Robust standard errors are shown in parentheses. All variables are defined in Appendix 1.

	Dependent variables:			
	Years of schooling (2000)	Executive constraints (2000)	Autocracy -- Polity IV (2000)	Democracy (2000)
Years of schooling (1960)	1.1773[a]			
	(0.0885)			
Executive constraints (1960)		0.2719[b]		
		(0.1246)		
Autocracy -- Polity IV (1960)			0.1810[c]	
			(0.0926)	
Democracy (1960)				0.3065[b]
				(0.1341)
Observations	50	50	50	50
R^2	0.73	0.09	0.07	0.10

a=significant at 1 percent; b=significant at 5 percent; c=significant at 10 percent.

Table 3
Correlations of measures of institutions

	Log GDP per capita (2000)	Executive constraints (1960-2000)	Expropriation risk (1982-1997)	Autocracy -- Alvarez (1960-1990)	Government effectiveness (1998-2000)	Judicial independence (1995)	Constitutional review (1995)	Plurality (1975-2000)
Executive constraints (1960-2000)	0.7119[a]							
Expropriation risk (1982-1997)	0.7906[a]	0.6378[a]						
Autocracy -- Alvarez (1960-1990)	-0.7388[a]	-0.8567[a]	-0.6864[a]					
Government effectiveness (1998-2000)	0.7860[a]	0.6349[a]	0.8297[a]	-0.5908[a]				
Judicial independence (1995)	0.0279	0.3465[a]	0.2629[b]	-0.1907	0.3006[b]			
Constitutional review (1995)	-0.0649	0.1904	0.1189	-0.0278	0.0482	0.2243[c]		
Plurality (1975-2000)	-0.2620[a]	-0.3570[a]	-0.1918[b]	0.2472[a]	-0.2044[a]	-0.0992	0.0040	
Proportional representation (1975-2000)	0.2947[a]	0.3158[a]	0.2172[b]	-0.2151[b]	0.2052[b]	-0.1684	0.1284	-0.6118[a]

a=significant at 1 percent; b=significant at 5 percent; c=significant at 10 percent.

Table 4
Economic growth, political institutions and human capital

The table shows OLS regressions for the cross-section of countries. The dependent variable in all specifications is the growth of GDP per capita for the period 1960-2000. The specifications include a constant but we do not report the estimates in the table. Robust standard errors are shown in parentheses. All variables are defined in Appendix 1.

	Dependent variable is growth of GDP per capita 1960-2000							
Log GDP per capita (1960)	-0.0114[a]	-0.0136[a]	-0.0112[a]	-0.0122[a]	-0.0141[a]	-0.0130[a]	-0.0090[a]	-0.0105[a]
	(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0037)	(0.0037)	(0.0034)	(0.0036)
Log years of schooling (1960)	0.0060[b]	0.0076[a]	0.0063[b]	0.0060[b]	0.0077[b]	0.0073[b]	0.0073[a]	0.0080[a]
	(0.0025)	(0.0024)	(0.0024)	(0.0023)	(0.0032)	(0.0031)	(0.0025)	(0.0026)
Share of population living in temperate zone (1995)	0.0175[a]	0.0132[a]	0.0179[a]	0.0104[c]	0.0242[a]	0.0231[a]	0.0175[a]	0.0184[a]
	(0.0049)	(0.0041)	(0.0046)	(0.0055)	(0.0049)	(0.0047)	(0.0050)	(0.0052)
Executive constraints (1960-2000)	0.0021[b]							
	(0.0008)							
Expropriation risk (1982-1997)		0.0040[a]						
		(0.0014)						
Autocracy -- Alvarez (1960-1990)			-0.0060[c]					
			(0.0032)					
Government effectiveness (1998-2000)				0.0075[a]				
				(0.0024)				
Judicial independence (1995)					-0.0041			
					(0.0057)			
Constitutional review (1995)						0.0047		
						(0.0064)		
Plurality (1975-2000)							0.0010	
							(0.0027)	
Proportional representation (1975-2000)								0.0019
								(0.0031)
Observations	71	69	71	71	54	54	71	70
R^2	0.44	0.56	0.44	0.48	0.45	0.45	0.41	0.44

a=significant at 1 percent; b=significant at 5 percent; c=significant at 10 percent.

Table 5
Economic growth, initial constraints on the executive and initial human capital

The table shows OLS regressions for the cross-section of countries. The dependent variables are the growth rates of GDP per capita for each decade between 1960 and 2000 and for the whole period. The specifications include a constant but we do not report the estimates in the table. Robust standard errors are shown in parentheses. All variables are defined in Appendix 1.

	Panel A: Dependent variables are the growth rates of GDP per capita for each decade between 1960 and 2000 and for the whole period				
	1960-70	1970-80	1980-90	1990-2000	1960-2000
Share of population living in temperate zone (1995)	0.0290[a]	0.0225[a]	0.0294[a]	0.0085	0.0253[a]
	(0.0076)	(0.0070)	(0.0084)	(0.0073)	(0.0039)
Log initial GDP per capita	-0.0059	-0.0032	-0.0079[b]	0.0021	-0.0079[a]
	(0.0045)	(0.0043)	(0.0036)	(0.0037)	(0.0025)
Initial executive constraints	0.0008	-0.0004	0.0027[b]	0.0006	0.0013
	(0.0013)	(0.0014)	(0.0012)	(0.0016)	(0.0009)
Observations	77	99	102	95	72
R^2	17%	6%	19%	6%	34%
	Panel B: Dependent variables are the growth rates of GDP per capita for each decade between 1960 and 2000 and for the whole period				
	1960-70	1970-80	1980-90	1990-2000	1960-2000
Share of population living in temperate zone (1995)	0.0136[b]	0.0204[a]	0.0220[a]	0.0123[c]	0.0175[a]
	(0.0066)	(0.0068)	(0.0082)	(0.0073)	(0.0049)
Log initial GDP per capita	-0.0027	-0.0158[a]	-0.0103[b]	-0.0048	-0.0092[a]
	(0.0040)	(0.0044)	(0.0048)	(0.0048)	(0.0034)
Log initial years of schooling	0.0075[b]	0.0147[a]	0.0114[a]	0.0102[c]	0.0073[a]
	(0.0033)	(0.0035)	(0.0043)	(0.0060)	(0.0024)
Observations	79	86	90	82	71
R^2	22%	24%	16%	9%	38%
	Panel C: Dependent variables are the growth rates of GDP per capita for each decade between 1960 and 2000 and for the whole period				
	1960-70	1970-80	1980-90	1990-2000	1960-2000
Share of population living in temperate zone (1995)	0.0270[a]	0.0191[a]	0.0218[a]	0.0135[c]	0.0255[a]
	(0.0085)	(0.0070)	(0.0082)	(0.0077)	(0.0048)
Log initial GDP per capita	-0.0141[a]	-0.0130[b]	-0.0146[a]	-0.0073	-0.0189[a]
	(0.0048)	(0.0057)	(0.0045)	(0.0055)	(0.0034)
Initial executive constraints	-0.0004	-0.0017	0.0031[b]	0.0014	0.0008
	(0.0012)	(0.0016)	(0.0013)	(0.0015)	(0.0008)
Log initial years of schooling	0.0116[a]	0.0140[a]	0.0105[b]	0.0104[c]	0.0096[a]
	(0.0035)	(0.0035)	(0.0043)	(0.0060)	(0.0028)
Observations	61	80	86	81	57
R^2	33%	20%	20%	9%	55%

a=significant at 1 percent; b=significant at 5 percent; c=significant at 10 percent.

Table 6

Long-term economic growth, initial executive constraints and initial human capital

The table shows OLS regressions for the cross-section of countries. The dependent variables are the growth rates of GDP per capita for each period. The specifications include a constant but we do not report the estimates in the table. Robust standard errors are shown in parentheses. All variables are defined in Appendix 1.

	Panel A: Dependent variables are the growth rates of GDP per capita for each period		
	1870-1950	1890-1950	1900-1950
Log initial GDP per capita	0.0027	0.0050[b]	-0.0019
	(0.0022)	(0.0022)	(0.0038)
Initial executive constraints	-0.0001	0.0002	0.0006
	(0.0005)	(0.0004)	(0.0006)
Observations	29	27	31
R^2	0.06	0.26	0.02
	Panel B: Dependent variables are the growth rates of GDP per capita for each period		
	1870-1950	1890-1950	1900-1950
Log initial GDP per capita	-0.0076[a]	-0.0028	-0.0011
	(0.0013)	(0.0025)	(0.0037)
Initial executive constraints	-0.0001	-0.0002	0.0002
	(0.0002)	(0.0005)	(0.0006)
Primary school enrollment 1870	0.0206[a]		
	(0.0030)		
Primary school enrollment 1890		0.0127[b]	
		(0.0056)	
Primary school enrollment 1900			0.0067
			(0.0066)
Observations	16	23	27
R^2	0.73	0.21	0.08

a=significant at 1 percent; b=significant at 5 percent; c=significant at 10 percent.

Table 7
Political regimes and human capital

Distribution of countries by years of schooling in 1960 and political regimes. The classification of political regimes is based on the average democracy score for 1960-2000 from the Polity IV database. We divide the sample of countries into those with low human capital (years of schooling below the sample's median value of 2.6785), intermediate human capital (years of schooling between 2.6785 and 5.0115), and high human capital (years schooling above the sample's 75th percentile value of 5.0115 years). The table shows the number of countries that fall within each group. All variables are defined in Appendix 1.

Years of schooling (1960)	Democracy = 10	10 > Democracy > 7	7 ≥ Democracy > 2	Democracy ≤ 2	All countries
Low (yrs. schooling < 2.6785)	0	6	8	28	42
Intermediate (2.6785 ≤ yrs. schooling ≤ 5.0115)	2	5	14	3	24
High (yrs. schooling >5.0115)	17	3	3	0	23
Total	19	14	25	31	89

Note: The two stable democracies with intermediate schooling levels are Italy and Costa Rica. The three authoritarian countries with intermediate schooling levels are Singapore, Taiwan and Paraguay.

Table 8
Growth rates and political regimes

The table is based on the sample of countries described in Table 7. The table shows the number of observations for each group of countries, the average within-country 10-year GDP per capita growth rates and the mean standard deviation of the 10-year GDP per capita growth rates across countries. The democracy score is computed at the beginning of each decade using the preceding ten years of data. We measure growth at the beginnig of each decade using the subsequent ten years. All variables are defined in Appendix 1.

Years of schooling (1960)	Democracy = 10	10 > Democracy > 7	7 ≥ Democracy > 2	Democracy ≤ 2	All countries
			Panel A: Number of observations		
Low (yrs. schooling < 2.6785)	6	17	22	87	132
Intermediate (2.6785 ≤ yrs. schooling ≤ 5.0115)	9	21	26	35	91
High (yrs. schooling > 5.0115)	67	10	3	7	87
Total	82	48	51	129	310
			Panel B: Average within-country 10-year growth rate		
Low (yrs. schooling < 2.6785)	0.0036	0.0292	0.0185	0.0076	0.0120
Intermediate (2.6785 ≤ yrs. schooling ≤ 5.0115)	0.0225	0.0224	0.0271	0.0273	0.0256
High (yrs. schooling > 5.0115)	0.0257	0.0212	0.0235	0.0204	0.0247
Total	0.0238	0.0246	0.0232	0.0136	0.0196
			Panel C: Mean standard deviation of the 10-year growth rates across countries		
Low (yrs. schooling < 2.6785)	0.0168	0.0298	0.0224	0.0303	0.0294
Intermediate (2.6785 ≤ yrs. schooling ≤ 5.0115)	0.0161	0.0197	0.0206	0.0317	0.0247
High (yrs. schooling > 5.0115)	0.0137	0.0122	0.0078	0.0250	0.0144
Total	0.0151	0.0225	0.0210	0.0315	0.0254

Table 9
Percentage of years spent under different political regimes

The table presents the mean percentage of years that countries spent under autocratic or democratic regimes from 1960 to 1990. The sample only includes countries with years of schooling in 1960 below 5.0115 (low and intermediate levels of human capital). The classification into autocracy and democracy comes from the data in Alvarez et al. (2000). For each type of political regime, we split the sample into four groups depending on the length of the tenure of the leader. All variables are defined in Appendix 1.

	Low (yrs. schooling < 2.6785)	Intermediate (2.6785 ≤ yrs. schooling ≤ 5.0115)
	Percentage of years	Percentage of years
Length of leader < 2 years		
Autocratic regime	1.62%	1.90%
Democratic regime	0.52%	2.45%
Length of leader ≥ 2 years but < 5 years		
Autocratic regime	10.93%	10.28%
Democratic regime	5.25%	18.30%
Length of leader ≥ 5 years but < 10 years		
Autocratic regime	16.32%	11.83%
Democratic regime	7.32%	14.32%
Length of leader ≥ 10 years		
Autocratic regime	49.80%	32.33%
Democratic regime	6.15%	8.58%

Table 10

The table shows OLS regressions for the cross-section of countries. The specifications include a constant but we do not report the estimates in the table. Robust standard errors are shown in parentheses. All definitions are in Appendix 1.

	Dependent variables:			
	Executive constraints (1960-2000)	Expropriation risk (1982-1997)	Autocracy -- Alvarez (1960-1990)	Government effectiveness (1998-2000)
Log settler mortality	-0.4351[b]	-0.3543[b]	0.0938[c]	-0.2034[b]
	(0.1965)	(0.1764)	(0.0507)	(0.0918)
Population at risk of malaria (1994)	-1.5215[a]	-0.9679[b]	0.4397[a]	-0.7745[a]
	(0.5504)	(0.3731)	(0.1597)	(0.2133)
Observations	74	66	74	77
R^2	0.36	0.32	0.29	0.43

a=significant at 1 percent; b=significant at 5 percent; c=significant at 10 percent.

Table 11
Economic development, instrumental variable regressions

The table shows instrumental variables regressions for the cross-section of countries. Panel A reports the second-stage estimates from instrumental variables regressions with first-stage estimates shown in Panel B. The dependent variable in both second-stage specifications is the log of GDP per capita in 2000. Panel B reports the first-stage estimates for two sets of instruments. The first specification instruments executive constraints and years of schooling using the log of settler mortality and French legal origin. The second specification instruments executive constraints and years of schooling using the log of population density in 1500 and French legal origin. The specifications in both stages include a constant but we do not report the estimates in the table. Robust standard errors are reported in parentheses. All variables are defined in Appendix 1.

	Panel A: Second-stage regressions	
	Dependent variable is log GDP per capita in 2000	
	(1)	(2)
Years of schooling (1960-2000)	0.7894[a]	0.4836[b]
	(0.2753)	(0.1875)
Executive constraints (1960-2000)	-0.3432	-0.2965
	(0.2577)	(0.2410)
Share of population living in temperate zone (1995)	-1.6969	-0.0863
	(1.2053)	(0.7714)
Observations	47	55
R^2	0.31	0.5

	Panel B: First-stage regressions			
	Dependent variables:			
	Executive constraints (1960-2000)	Years of schooling (1960-2000)	Executive constraints (1960-2000)	Years of schooling (1960-2000)
Share of population living in temperate zone (1995)	-0.1195	3.4975[a]	-0.0353	2.8397[a]
	(0.7202)	(0.8044)	(0.8359)	(0.8933)
Log settler mortality	-0.8212[a]	-1.0183[a]		
	(0.2053)	(0.2293)		
Log population density in 1500			-0.3737[b]	-0.6140[a]
			(0.1582)	(0.1691)
French legal origin	-1.4124[a]	-0.3770	-1.1988[b]	-0.5329
	(0.4258)	(0.4757)	(0.4538)	(0.4850)
Observations	47	47	55	55
R^2	0.53	0.70	0.25	0.55
F-Test for excluded instruments	17.23		4.70	
Correlation of predicted values of executive constraints and years of schooling	0.8182		0.8163	

a=significant at the 1 percent; b=significant at the 5 percent; c=significant at 10 percent.

Table 12

The table shows OLS regressions with country fixed effects for the cross-section of countries. The specifications include a constant and country fixed effects but we do not report the estimates in the table. Errors are clustered at the country level and reported in parentheses. All definitions are in Appendix 1.

	Panel A: Dependent variable is the 5-year change in years of schooling (t+5,t)			
Years of schooling (t)	-0.0721[a]	-0.0460	-0.0707[a]	-0.0691[a]
	(0.0237)	(0.0339)	(0.0250)	(0.0239)
Log GDP per capita (t)	0.2839[a]	0.3978[a]	0.2809[a]	0.2825[a]
	(0.0790)	(0.1055)	(0.0797)	(0.0793)
Executive constraints (t)	-0.0099			
	(0.0118)			
Autocracy -- Polity IV (t)		0.0373		
		(0.0391)		
Autocracy -- Alvarez (t)			0.0065	
			(0.0080)	
Democracy (t)				-0.0094
				(0.0074)
Observations	514	420	514	514
R^2	0.24	0.26	0.24	0.24
	Panel B: Dependent variables are the 5-year changes in political institutions (t+5,t)			
	Change executive constraints	Change autocracy -- Polity IV	Change autocracy -- Alvarez	Change democracy
Years of schooling (t)	0.4975[a]	-0.9092[a]	-0.0958	0.7004[a]
	(0.1191)	(0.1790)	(0.0707)	(0.1804)
Log GDP per capita (t)	0.0382	0.5075	-0.2675	0.2918
	(0.4035)	(0.6295)	(0.2022)	(0.6055)
Executive constraints (t)	-0.5724[a]			
	(0.0716)			
Autocracy -- Polity IV (t)		-0.5471[a]		
		(0.0680)		
Autocracy -- Alvarez (t)			-0.8642[a]	
			(0.1032)	
Democracy (t)				-0.5145[a]
				(0.0650)
Observations	499	499	349	499
R^2	0.33	0.32	0.47	0.30

a=significant at 1 percent; b=significant at 5 percent; c=significant at 10 percent.

Figure 1: Executive Constraints 1948-2001
North versus South Korea

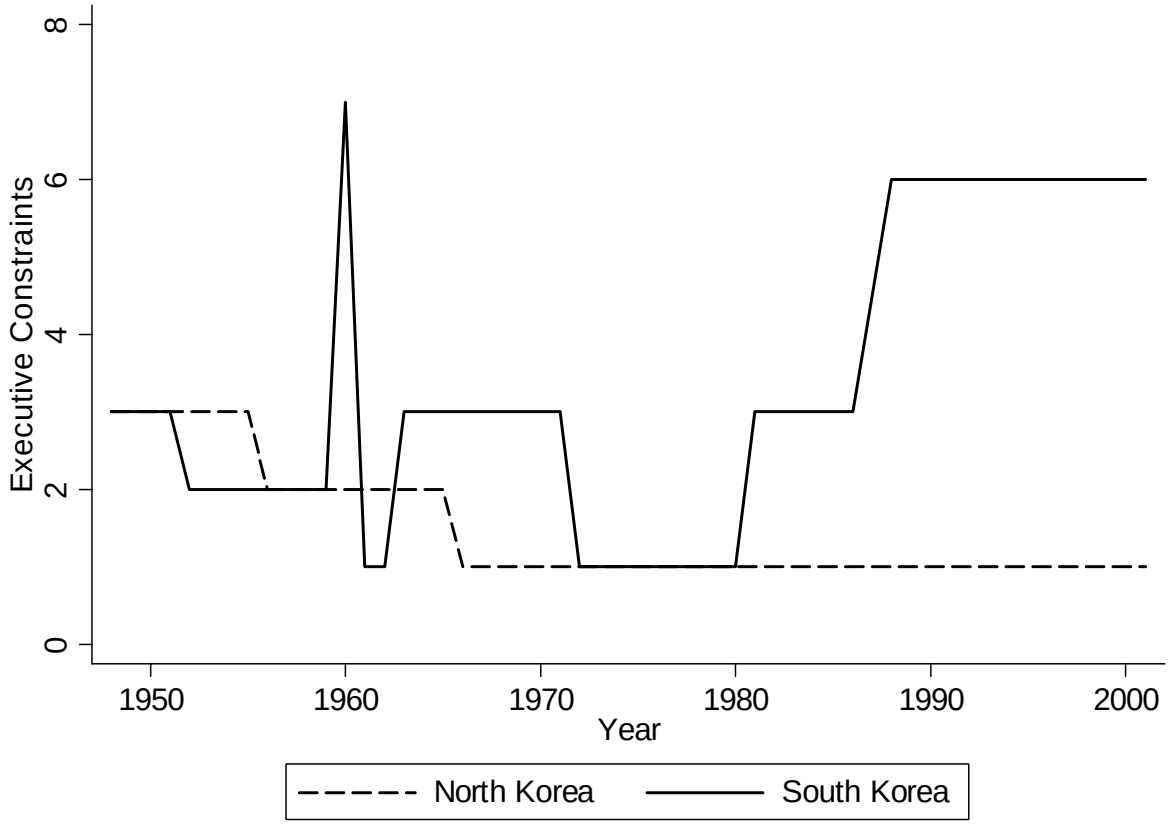


Figure 2
Years of schooling (1960) and Log settler mortality

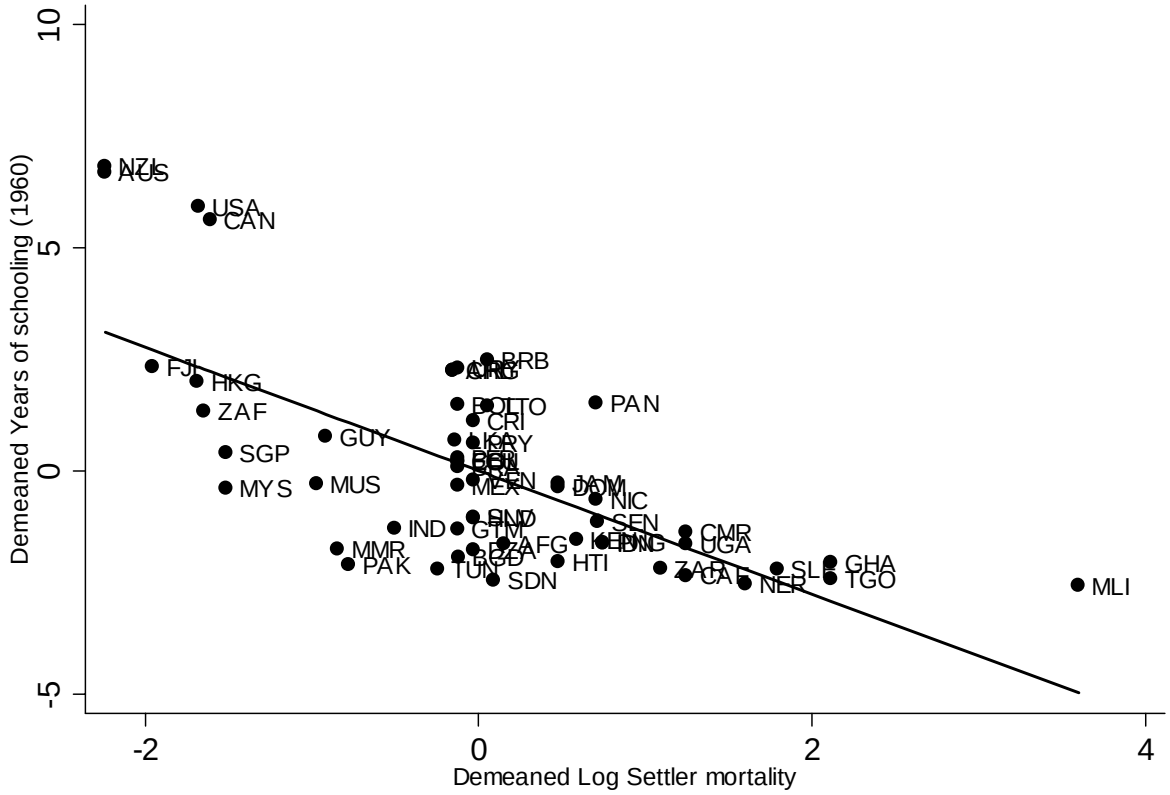
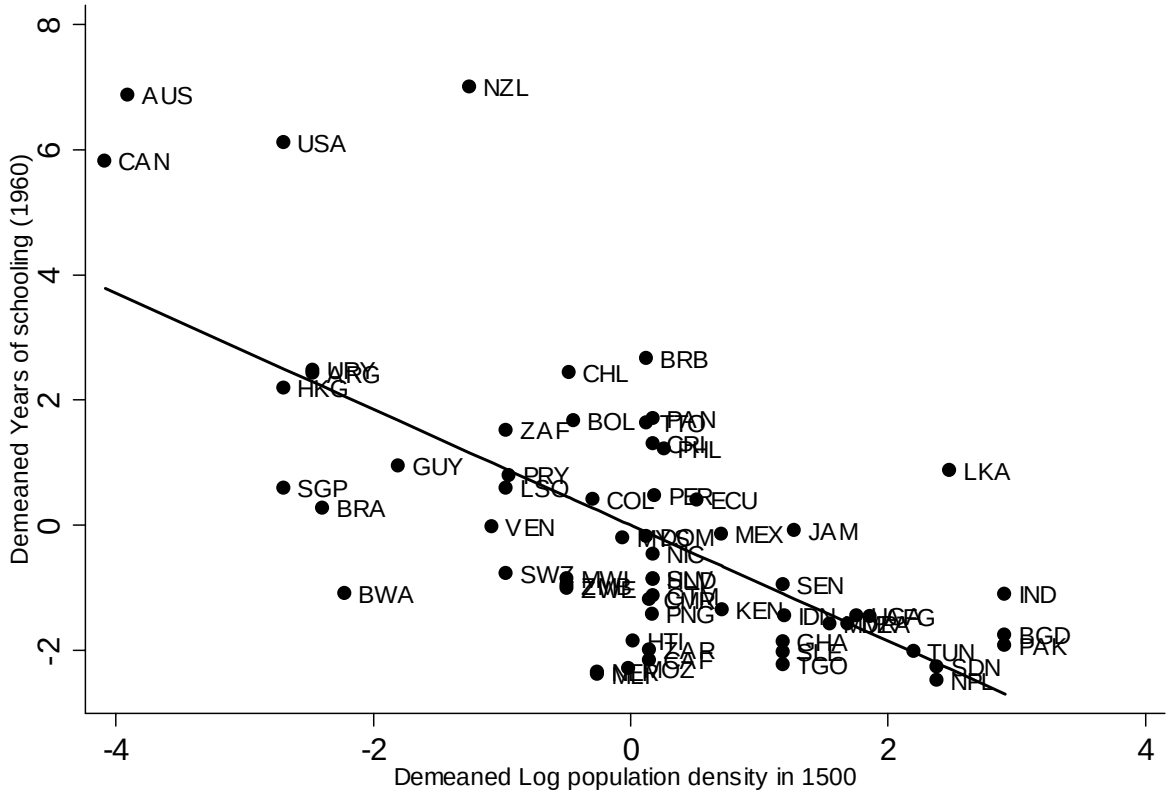
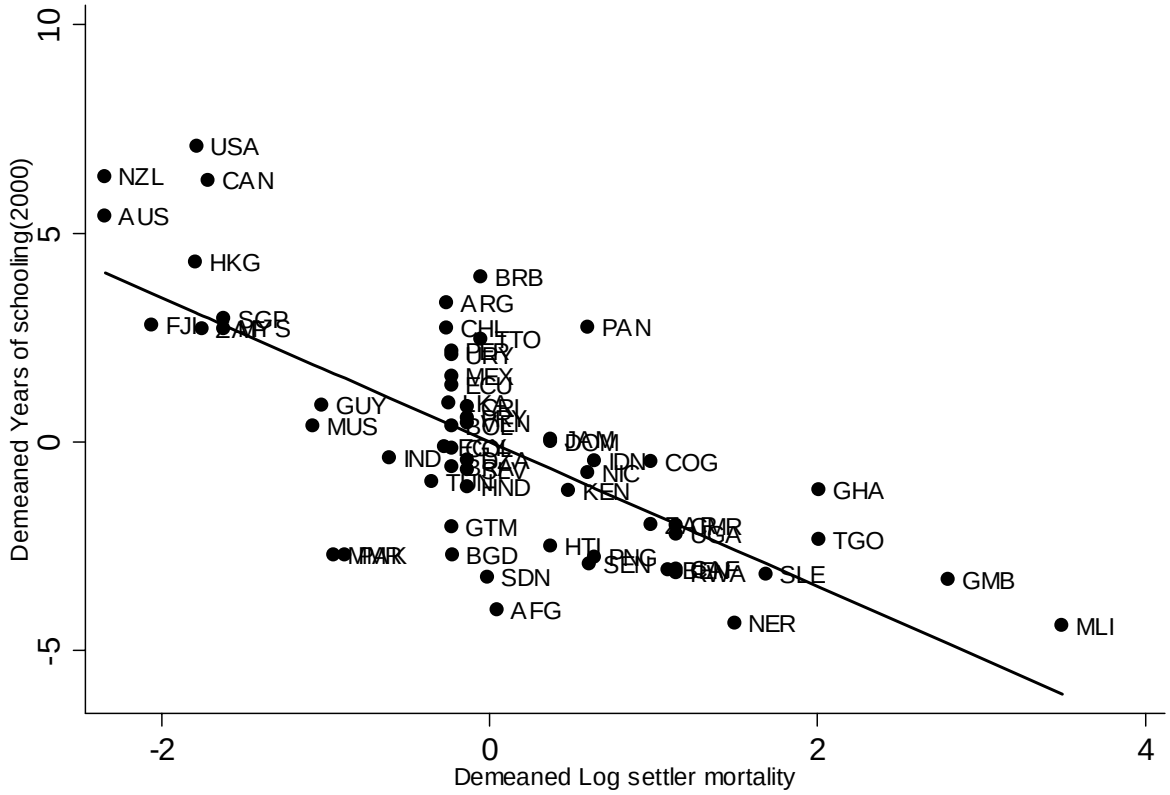


Figure 3
Years of schooling (1960) and Log population density in 1500



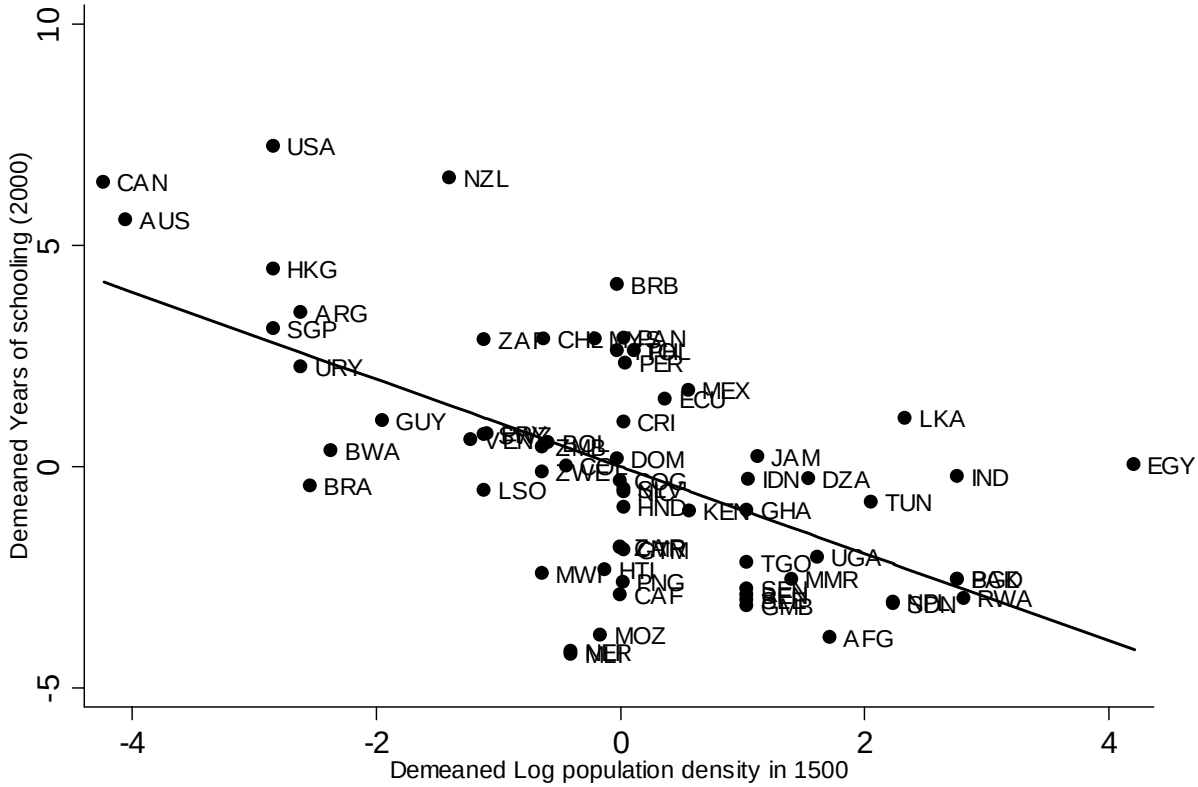
coef = -.92672729, (robust) se = .15640188, t = -5.93

Figure 4
Years of schooling (2000) and Log settler mortality



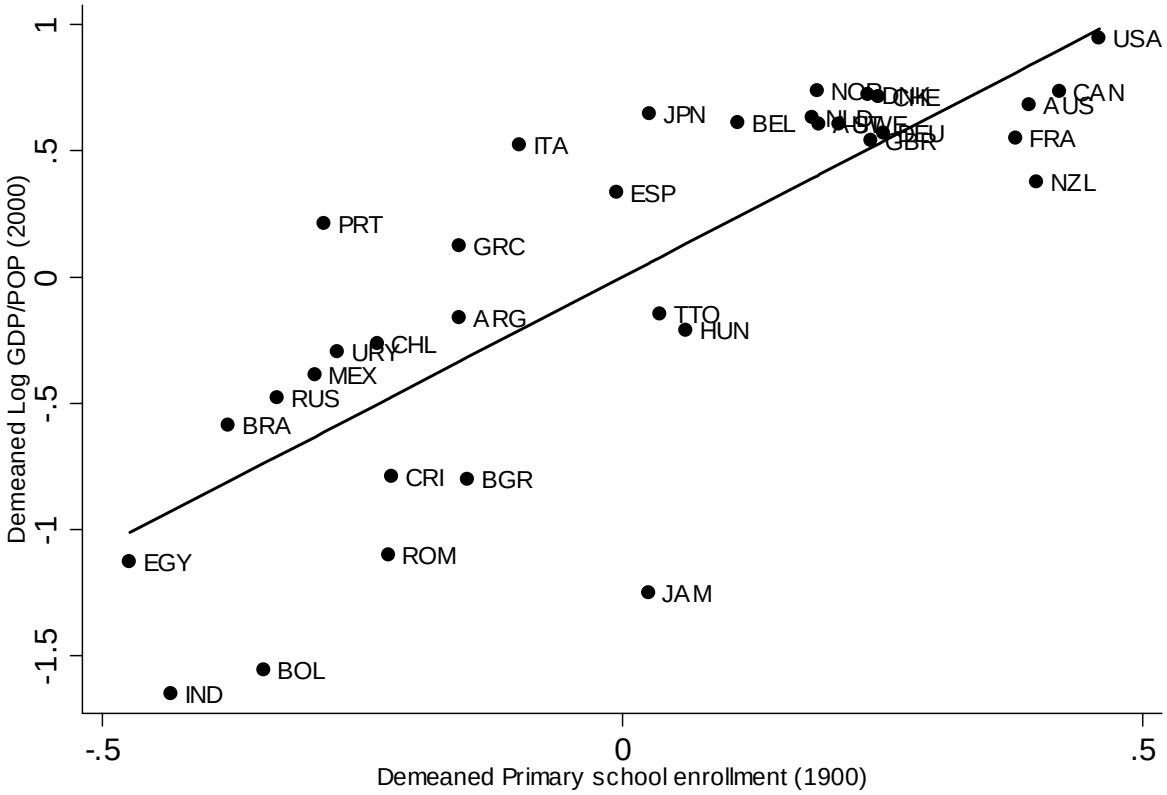
coef = -1.727679, (robust) se = .20195631, t = -8.55

Figure 5
Years of schooling (2000) and Log population density in 1500



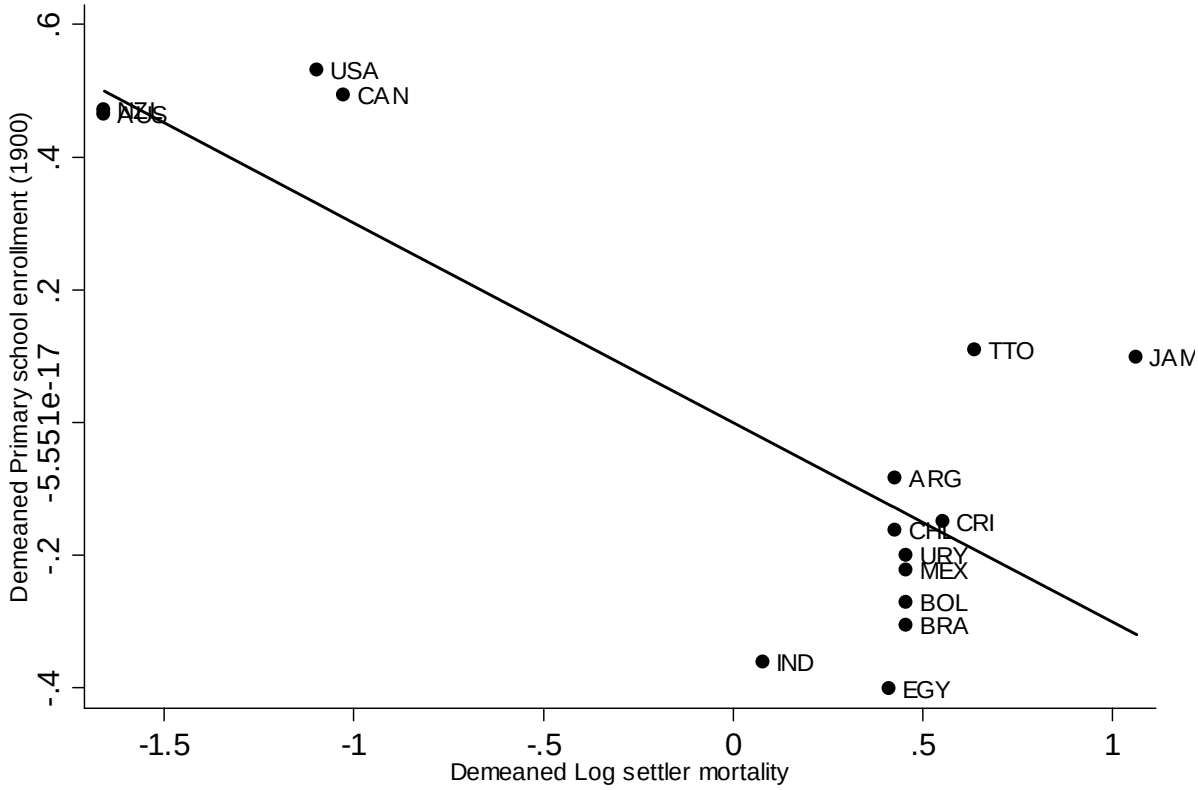
coef = -.98564063, (robust) se = .1677801, t = -5.87

Figure 6
Log GDP per capita (2000) and Primary school enrollment (1900)



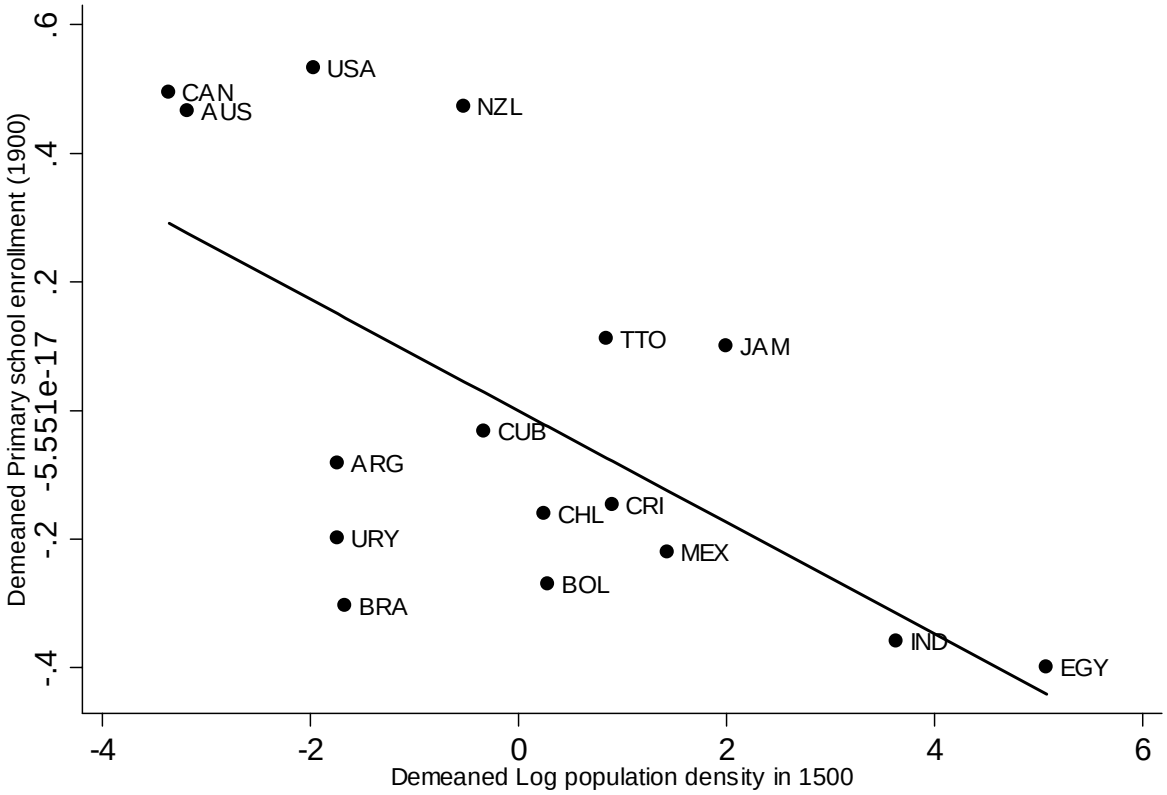
coef = 2.141442, (robust) se = .25222243, t = 8.49

Figure 7
Primary school enrollment (1900) and Log settler mortality



coef = -.30105869, (robust) se = .05789886, t = -5.2

Figure 8
Primary school enrollment (1900) and Log population density in 1500



coef = -.0866499, (robust) se = .0224173, t = -3.87

Appendix 1: Variable Definitions

Variable	Definition
	Measures of institutions
Executive constraints	A measure of the extent of institutionalized constraints on the decision making powers of chief executives. The variable takes seven different values: (1) Unlimited authority (there are no regular limitations on the executive's actions, as distinct from irregular limitations such as the threat or actuality of coups and assassinations); (2) Intermediate category; (3) Slight to moderate limitation on executive authority (there are some real but limited restraints on the executive); (4) Intermediate category; (5) Substantial limitations on executive authority (the executive has more effective authority than any accountability group but is subject to substantial constraints by them); (6) Intermediate category; (7) Executive parity or subordination (accountability groups have effective authority equal to or greater than the executive in most areas of activity). This variable ranges from one to seven where higher values equal a greater extent of institutionalized constraints on the power of chief executives. This variable is calculated as the average from 1960 through 2000, or for specific years as needed in the tables. Source: Jaggers and Marshall (20(
Democracy	A measure of the degree of democracy in a given country based on: (1) the competitiveness of political participation; (2) the openness and competitiveness of executive recruitment; and (3) the constraints on the chief executive. The variable ranges from zero to ten, where higher values equal a higher degree of institutionalized democracy. This variable is calculated as the average from 1960 through 2000, or for specific years as needed in the tables. Source: Jaggers and Marshall (2000).
Autocracy -- Polity IV	A measure of the degree of autocracy in a given country based on: (1) the competitiveness of political participation; (2) the regulation of political participation; (3) the openness and competitiveness of executive recruitment; and (4) constraints on the chief executive. This variable ranges from zero to ten where higher values equal a higher degree of institutionalized autocracy. This variable is calculated as the average from 1960 through 2000, or for specific years as needed in the tables. Source: Jaggers and Marshall (2000).
Expropriation risk	Risk of "outright confiscation and forced nationalization" of property. This variable ranges from zero to ten where higher values are equals a lower probability of expropriation. This variable is calculated as the average from 1982 through 1997, or for specific years as needed in the tables. Source: International Country Risk Guide at http://www.countrydata.com/datasets/.
Autocracy -- Alvarez	This variable classifies regimes based on their degree of autocracy. Democracies are coded as 0, bureaucracies (dictatorships with a legislature) are coded as 1 and autocracies (dictatorship without a legislature) are coded as 2. Transition years are coded as the regime that emerges afterwards. This variable ranges from zero to two where higher values equal a higher degree of autocracy. This variable is measured as the average from 1960 through 1990; or for specific years as needed in the tables. Source: Alvarez et al. (2000).
Government effectiveness	This variable measures the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies. The main focus of this index is on "inputs" required for the government to be able to produce and implement good policies and deliver public goods. This variable ranges from -2.5 to 2.5 where higher values equal higher government effectiveness. This variable is measured as the average from 1998 through 2000. Source: Kaufman et al. (2003).
Judicial independence	Judicial independence is computed as the sum of three variables. The first measures the tenure of Supreme Court judges (highest court in any country) and takes a value of 2 - if tenure is lifelong, 1 - if tenure is more than six years but not lifelong, and 0 - if tenure is less than six years. The second measures the tenure of the highest ranked judges ruling on administrative cases and takes a value of 2 - if tenure is lifelong, 1 - if tenure is more than six years but not lifelong, 0 – if tenure is less than six years. The third measures the existence of case law and takes a value of 1 if judicial decisions in a given country are a source of law, and 0 otherwise. The variable is normalized from zero to one where higher values equal a higher degree of judicial independence. This variable is measured as of 1995. Source: La Porta et al. (2004).
Constitutional review	Constitutional review is computed as the sum of two variables. The first variable measures the extent to which judges (either Supreme Court or constitutional court) have the power to review the constitutionality of laws in a given country. The variable takes three values: 2- if there is full review of constitutionality of laws, 1 - if there is limited review of constitutionality of laws, 0 - if there is no review of constitutionality of laws. The second variable measures (on a scale from 1 to 4) how hard it is to change the constitution in a given country. One point each is given if the approval of the majority of the legislature, the chief of state and a referendum is necessary in order to change the constitution. An additional point is given for each of the following: if a supermajority in the legislature (more than 66% of votes) is needed, if both houses of the legislature have to approve, if the legislature has to approve the amendment in two consecutive legislative terms or if the approval of a majority of state legislature is required. This variable is normalized from zero to one where higher values equal a higher degree of constitutional review by the courts. This variable is measured as of 1995. Source: La Porta et al. (2004).
Plurality	This variable is equal to one for each year in which legislators were elected using a winner-take-all / first past the post rule; it equals zero otherwise. This variable is measured as the average from 1975 through 2000. Source: Beck et al. (2001).
Proportional representation	This variable is equal to one for each year in which candidates were elected using a proportional representation system; equals zero otherwise. Proportional representation means that candidates are elected based on the percentage of votes received by their party. This variable is measured as the average from 1975 through 2000. Source: Beck et al. (2001).

Variable	Definition
	Other variables
Share of population living in temperate zone	Percentage of a country's population in Koeppen-Geiger temperate zone in 1995. Source: Center for International Development, Geography Data Sets. Found online at: http://www2.cid.harvard.edu/ciddata/geographydata.htm#General%20measures%20of%20geography.
Log settler mortality	Log of the mortality rate faced by European settlers at the time of colonization. Source: Acemoglu, et al. (2001).
Population density in 1500	Total population divided by total arable land in 1500 A.D. Source: McEvedy and Jones (1978) as cited in Acemoglu, et al. (2002).
Population at risk of malaria	Percentage of the population at risk of malaria transmission in 1994. Source: World Health Organization (1997).
Malaria ecology	Malaria Ecology, pop-weighted, Sept 2003 version. This variable provides an instrument for malaria risk that controls for the fact that causation may run not only from malaria to income but also from income to malaria. The basic formula for ME includes temperature, species abundance, and vector type (the type of mosquito). The underlying index is measured on a highly disaggregated sub-national level, and then is averaged for the entire country. Because ME is built upon climatological and vector conditions on a country-by-country basis, it is exogenous to public health interventions and economic conditions. Source: Kiszewski et al. (2004).
Years of schooling	Years of schooling of the total population aged over 25. This variable is constructed as the average from 1960 through 2000; or for specific years as needed in the tables. Source: Barro, Robert J. and Jong-Wha Lee, International Data on Educational Attainment: Updates and Implications. Source: Barro and Lee (2000) Data posted on http://www.cid.harvard.edu/ciddata/ciddata.html
Primary school enrollment	This variable measures primary school enrollment as a percentage of children aged 5 through 14. Measured in 1870, 1890, and 1900. Source: Lindert (2001).
Legal origin	Identifies the legal origin of the company law or commercial code of each country (English, French, Socialist, German, Scandinavian). Source: La Porta et al. (1999).
GDP per capita	Gross domestic product over population. Source: Aten et al. (2002). Data available on-line at: http://pwt.econ.upenn.edu/ (this paper uses data from the 04-06-2003 version). GDP per capita for the 1870-1950 period comes from Maddison (2003).

NBER WORKING PAPER SERIES

WHY DOES DEMOCRACY NEED EDUCATION?

Edward L. Glaeser
Giacomo Ponzetto
Andrei Shleifer

Working Paper 12128
http://www.nber.org/papers/w12128

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
March 2006

Glaeser thanks the Taubman Center for State and Local Government. Ponzetto thanks the Marco Fanno and the Mario Gasbarri Foundations. We are grateful to Timothy Besley, Filipe Campante, Ruben Enikolopov, Nicola Gennaioli, Elhanan Helpman, Elias Papaiouannou, Richard Posner, and Sidney Verba for comments, and to Josh Gottlieb for outstanding research assistance. The views expressed herein are those of the author(s) and do not necessarily reflect the views of the National Bureau of Economic Research.

Why Does Democracy Need Education?
Edward L. Glaeser, Giacomo Ponzetto and Andrei Shleifer
NBER Working Paper No. 12128
March 2006
JEL No. D72, D74, H11

ABSTRACT

Across countries, education and democracy are highly correlated. We motivate empirically and then model a causal mechanism explaining this correlation. In our model, schooling teaches people to interact with others and raises the benefits of civic participation, including voting and organizing. In the battle between democracy and dictatorship, democracy has a wide potential base of support but offers weak incentives to its defenders. Dictatorship provides stronger incentives to a narrower base. As education raises the benefits of civic participation, it raises the support for more democratic regimes relative to dictatorships. This increases the likelihood of democratic revolutions against dictatorships, and reduces that of successful anti-democratic coups.

Andrei Shleifer
Department of Economics
Harvard University
Littauer Center M-9
Cambridge, MA 02138
and NBER
ashleifer@harvard.edu

Edward L. Glaeser
Department of Economics
315A Littauer Center
Harvard University
Cambridge, MA 02138
and NBER
eglaeser@harvard.edu

Giacomo Ponzetto
Harvard University
Department of Economics
Littauer Center
1805 Cambridge Street
Cambridge, MA 02138
ponzetto@fas.harvard.edu

I. Introduction

The hypothesis that higher education leads to more democratic politics (Lipset 1959, 1960) has received a good deal of empirical support (Barro 1999, Glaeser et al. 2004, Papaioannou and Siourounis 2005). However, the theoretical reasons for this relationship remain unexplored. In this paper, we investigate both theoretically and empirically why stable democracies are so rare outside of countries with high levels of education.

Our starting point is the connection between education and political participation. This connection has been emphasized by Almond and Verba (1989, 1st ed. 1963), who see education as a crucial determinant of "civic culture" and participation in democratic politics. "The uneducated man or the man with limited education is a different political actor from the man who has achieved a higher level of education (p. 315)." Almond and Verba's work has influenced both political science (e.g., Brady et al. 1995) and sociology (e.g., Kamens 1988), and our work can be seen as an elaboration of their ideas using theoretical and empirical tools of economics.

Perhaps the most dramatic place to see the effect of education on political participation is student activism. Students rioted against authority at Oxford, Bologna, and Paris even in the Middle Ages. Martin Luther found the most immediate intense support from the students in Wittenberg and other German universities. Students played key roles in liberal movements and revolutions in Europe in the middle of the 19th century. "If the revolution had a core, it was the young educated elite" (Randers-Pehrson, 1999, p. 145). Both Engels and Lenin complained that students were unwilling to subject themselves to the leadership of the revolutionary – and not so democratic – elites. More recently, student demonstrations played a role in the overthrow of Peron in Argentina in 1955, the downfall of Perez Jimenez in Venezuela in 1958, the resistance to Diem in Vietnam in 1963, the resignation of the Kishi government in Japan in 1960, the anti-

Sukarno movement in Indonesia in 1966, the downfall of Ayub Khan in Pakistan in 1969, the October demonstration in Poland in 1956, the Hungarian Revolution in 1956, the Prague Spring in 1968, and the toppling of the Rhee government in Korea in 1966. The Tiannamen student uprising of 1989 failed to depose the Communist Party, perhaps because the students got little support in generally uneducated China and were massacred by the troops. Most recently, peaceful demonstrations in which students played a key part helped save democracy in Ukraine against the aggrandizement by the ex-President who stole the election.

It would be incorrect to conclude from these examples that students have a preference for democratic government – perhaps because they value freedom, information, or elections -- rather than for political participation. The hep-hep anti-semitic riots in Bavaria in 1819 started when "during an academic ceremony an aged professor who had recently come out in favor of civic rights for Jews had to run for his life as angry students assaulted him." Mussolini enjoyed substantial support from students in the young fascist movement. Hitler likewise relied on the Nazi students, who eventually seized control of the universities. In Latin America, students offered strong support to the Che Guevara led communist guerilla movement, no friends of democracy. The evidence that students organize to participate in collective action – democratic or anti-democratic -- is much more compelling than the evidence of their preference for democracy. Our goal, then, is to explore more deeply the consequences of what we take to be the primitive connection between education and participation.

In Section II, we present some old and some new facts about education and democracy. We show that more educated democracies are more stable than the less educated ones, that higher education predicts transition from dictatorship to democracy but not the other way around,

and that the relationship between education and democracy holds within as well as across countries. The evidence suggests that, consistent with Lipset, education causes democracy.

In Section III, we motivate the basic assumption of our model, namely that education leads to higher participation in a whole range of social activities, including politics. Using micro-evidence from both the United States and other countries, we document the robust correlation between many forms of civic activity, including political participation, and education.

The correlation between education and civic activity is clear; the reasons for this correlation are less obvious. In one view, schooling incorporates indoctrination about the virtues of political participation. A second view holds that much of human capital is actually social capital and that schools teach students to interact with one another. Indeed, at least two of the three Rs (reading and writing) are skills for interpersonal communication. By improving interpersonal skills, education facilitates civic involvement. A third hypothesis sees the more educated as more effective at everything, including both work and civic activities, and therefore as likely to spend more time on both at the expense of leisure. We review these theories and assess them empirically in section III.

Motivated by this evidence, we present a model of regime stability in Section IV. We define democracies as regimes whose benefits are distributed among large numbers of citizens, and dictatorships as regimes whose beneficiaries are few in number.[1] Dictatorships offer sharp incentives to their supporters because regime insiders earn large political rents. Democracies offer weaker incentives because the political rents are shared among many people. Our core

[1] Following the Oxford English Dictionary, we think of democracy as popular government or government by the people. Schumpeter (1942) defines democracy in terms of competition for votes, and that definition is accepted by Huntington (1991) and Posner (2003). Because we consider competition between democracies and dictatorships, for us the central difference is the distribution of political spoils in different regimes. Most precisely, democracy in our model is government *for* the people.

assumption is that education raises the benefits of political participation. As a consequence, *relatively* more people fight for the more inclusive regimes as human capital increases.

In this model, the political success of a democracy hinges on having a large number of supporters whose benefits of political participation are sufficiently high that they fight for it despite the low personal incentives. Education supplies such supporters and stabilizes democracy. Conversely, in countries with low levels of education, dictatorship is more stable than democracy, because only dictatorships offer the strong incentives needed to induce people to defend them. In the model in Section IV, countries with higher levels of education are more likely both to experience a transition from dictatorship to democracy, and to withstand anti-democratic challenges. Moreover, the size of the most successful challenger regime to an existing dictatorship rises with the level of education.

In addition to having some empirical support for its core assumption and delivering the broad empirical predictions documented in Section II, the model has several new implications. It predicts that, it general, education causes the more inclusive groups to dominate politics. It also erodes the power of the incumbent, and can therefore lead to short run instability. In particular, as education increases, groups challenging to existing regimes become progressively larger -- small coups are replaced by large revolutions. Although they remain to be formally tested, these predictions are consistent with a broad outline of European transition to democracy.

II. The Empirical Relationship between Education and Democracy

Across the world, the correlation between education and democracy is extremely high.[2] Figure 1 shows the relationship between the Polity IV index of democracy (Jaggers and Marshall

[2]Alvarez et al. (2000), Barro (1999), Boix and Stokes (2003), Glaeser et al. (2004), and Papaioannou and Siourounis (2005) also consider the relationship between income and democracy. The conclusion emerging from the

2003) and the years of schooling in the country in 1960 (Barro and Lee 2001). Across 91 countries, the correlation coefficient between these variables is 74 percent.

In Table 1a-1c, we consider the effect of education on the stability of both democracies and dictatorships. For a country to be included in this sample, we require Barro and Lee's data on schooling in the initial year, as well as Jaggers and Marshall's (2003) continuous democracy classification since the initial year. For this table, we classify all countries with Polity IV ratings of or below 4 as dictatorships and those with ratings above 4 as democracies. The cutoff of four roughly corresponds to the sample median in 1960. Following Glaeser et al. (2004), we classify countries as well-educated if they have above 5.01 years of schooling in 1960 (the 75th percentile in the sample schooling distribution in 1960), moderately educated if they have below 5.01 but above 2.68 years of schooling (the 50th percentile of the sample schooling distribution in 1960), and low-educated if the 1960 years of schooling are below 2.68 years.

Table 1a covers the well-educated countries. In the first row, we count that 20 (out of 22) of these countries were democracies in 1960. The only two well-educated dictatorships were Hungary and Poland, which were non-democratic because of foreign occupation and whose people rebelled against the Soviet-backed dictatorships. Of the 20 well-educated democracies in 1960, every one except for Uruguay (one of the least educated countries in this group) remained democratic over the next 40 years. Both Poland and Hungary became democracies by 1990.

The second row in Table 1a takes 1970 as the starting point and looks over the next 30 years. 22 out of 26 well educated countries were democracies in 1970, and four were dictatorships. In this year, Argentina and Greece join Hungary and Poland as well educated dictatorships. Of the 22 democracies, two lost this status by 2000. All four dictatorships circa

---

controversies is that income does cause transition to democracy, as well as its stability. Our focus, however, is on education not income. Nor do we consider the consequences of democracy, see, e.g., Przeworski and Limongi (1993) and Mulligan et al. (2004).

1970 turned democratic by 1990. The third row begins in 1980. While there are 9 well-educated dictatorships in that year, all become democratic by 2000, and all 25 democracies stay democratic for the next 20 years. Starting in 1990, we again see the permanence of democracies, and the tendency of dictatorships to become democratic even within a decade. Averaging across the starting years 1960, 1970 and 1980, the probability of a well-educated democracy remaining a democracy twenty years later is 95 percent. The probability of a well-educated dictatorship becoming a democracy within 20 years is 87 percent.

In Table 1b, we turn to countries with moderate education. Three results are noteworthy. First, the probability of starting out as a democracy is much lower. Only 11 of 17 countries with this level of education are democracies in 1960, and only 7 out of 19 in 1970. Second, the survival rate for democracies is lower. Averaged across the starting years 1960, 1970 and 1980, the probability of a moderately-educated democracy remaining a democracy twenty years later is down to 74 percent. Third, the likelihood that a dictatorship turns into a democracy is lower as well. Averaged over 1960, 1970, and 1980, the twenty year democratization rate is down to 54 percent from the 87 percent level for high-education countries.

In Table 1c, we examine countries with fewer than 2.7 years of education in the initial period. Democracies in this group are rare indeed. In 1960, there are only four poorly-educated democracies. Of these, only India (which is a striking outlier) and Venezuela survive over the next forty years, and Venezuela's democracy score has been falling since 1990. In 1970, there are only three democracies with this little education. Only India survives over the next thirty years. In 1980, there are four democracies with less than 2.7 years of schooling. Two of those survive over twenty years. Finally, there are five democracies with less than 2.7 years of education in 1990, only two of which survive over ten years. Averaged across the starting years

1960, 1970 and 1980, the probability of a low-educated democracy remaining one twenty years later is only 54 percent. We can make similar calculations for the democratization of low-education dictatorships. Averaged over the starting years 1960, 1970, and 1980, the probability that such a dictatorship democratizes is 26 percent.

In sum, high-education democracies are more persistent than low-education ones, and high-education dictatorships are more likely to democratize than low-education ones. But is this relationship causal? Or is causality running from democracy to education? The evidence on transitions from dictatorship to democracy helps answer these questions. Figure 2 shows the raw correlation between the change in the Jaggers and Marshall (2003) democracy score and years of schooling in 1960 (from Barro and Lee) for countries that had low democracy ratings (zero or one) in 1960. This correlation is 66 percent. If we take the entire sample of countries and regress the change in democracy on initial democracy and initial years of education, we estimate:

$$\text{(1)}\quad \text{Change in Democracy} = \underset{(.48)}{4.13} - \underset{(.09)}{.98} \bullet \text{Democracy in 1960} + \underset{(.15)}{.84} \bullet \text{Schooling in 1960}$$

There are 65 observations in this regression and the R-squared is 67 percent. Initial schooling, even in highly dictatorial regimes, strongly predicts becoming more democratic over time. In contrast, democracy does not predict growth in schooling. We estimate:

$$\text{(2)}\quad \text{Change in Schooling} = \underset{(.28)}{2.80} + \underset{(.05)}{.07} \bullet \text{Democracy in 1960} - \underset{(.09)}{.08} \bullet \text{Schooling in 1960}$$

There are 68 observations in this regression and the R-squared is only three percent. The relationship between initial democracy and changes in years of schooling is shown in Figure 3. While both in Table 1 and here the evidence suggests that schooling leads to democracy, there is no evidence that democracy leads to schooling.

This evidence is subjected to more formal specifications by Glaeser et al. (2004) and Papaioannou and Siourounis (2005). Both studies confirm that education is a strong predictor of transition to democracy. The second study in particular focuses on the third wave of democratization (Huntington 1991) and shows that education is a powerful predictor of permanent transitions from dictatorship to democracy.

One objection to these findings is that some permanent country characteristics, such as geography or culture, are responsible for producing both education and democracy. In Table 2, we address this concern by estimating the relationship between education and democracy in regressions with country fixed effects:

(3) $Democracy_{i,t} = \alpha_t + \theta_i + \beta \bullet Schooling_{i,t} + \varepsilon_{i,t}$,

where α_t represents a year fixed effect, θ_i is a country fixed effect and $\varepsilon_{i,t}$ is a country-year error term. Table 2 reports several specifications so that we can compare the results for both different data sets and different time periods. In all specifications, we use the Jaggers and Marshall (2003) democracy score.

The first column of Table 2 reports the results for the period 1960-2000, and uses Barro and Lee's schooling variable—the same period and the same data as we used in Table 1. With country and year fixed effects, the coefficient on schooling is no longer significant – indicating that a common cause explanation might indeed be valid. However, the Barro and Lee measure is well known for its extreme persistence. As documented in Glaeser et al. (2004), the correlation between Barro and Lee's measure of years of schooling in one year and the same measure ten years later is never less than 97 percent. This suggests that longer panels, new data, or both are needed to estimate any within-country relationship between education and democracy.

Accordingly, in the rest of Table 2 we use Banks (2004) data on university and secondary school enrollments from 1865 to 2000. The enrollments data are not nearly as persistent as the Barro and Lee measure, because conceptually they reflect investments in rather than stocks of human capital. The panel is unbalanced and over the entire time period we have 133 countries. We have data at five year intervals giving us 25 time periods and a total of 1316 observations.

In the second and third columns, we keep the time period 1960-2000, but include separately secondary school and university enrollment measures form Banks. Even for the short forty year interval, the effects of enrollments on democracy are now large and statistically significant in a country fixed effects specification. That is, within countries, educational investment predicts democracy. In the fourth and fifth specifications, we again use secondary school and university enrollment separately, but now use the whole time period from 1865 to 2000. The coefficients on education variables rise in magnitude and statistical significance. The coefficient of 0.290 on secondary school enrollment means that a ten percent increase in such enrollment is associated with a 2.90 point increase in the democracy score – a huge change. The coefficient of 0.850 on university enrollment implies that a one percent increase in such enrollment is associated with a 0.85 point increase in the democracy score. The sixth regression includes both secondary school and university enrollment together. In this specification, both coefficients fall, although that on university enrollment remains statistically significant.

The final specification does not include country fixed effects. Both coefficients more than double, reflecting the fact that the correlation between education and democracy is stronger across countries than within countries over time. This result is unsurprising, and could reflect an effect of school enrollment at a point in time on democracy in later time periods, both because people influence politics over their entire lives, and because educated people can create lasting

political institutions. Still, despite these issues of timing, Table 2 shows a strong relationship between education and democracy within and not just across countries.

The bottom line of this section is strong support of Lipset's (1960) hypothesis. Education is highly correlated with democracy in both cross-section and panel regressions with fixed effects. Moreover, the effect seems to be causal, as evidenced by the evidence on transition to democracy. The question now is what theory best explains these results.

III. Education and Civic Participation

Education may promote democracy because it raises the benefits (or reduces the costs) of political activity. In section IV, we take this as an assumption and show how it explains the evidence. In this section, we describe some theories of why education raises civic participation and then present some empirical evidence bearing on them.

Why Should Education and Civic Participation Be Correlated?

Perhaps the simplest hypothesis explaining the link between education and civic participation is that indoctrination about political participation is a major component of education. In democracies, schools teach their students that political participation is good. One "content standard" listed by the State of California's Department of Education aspires that students "understand the obligations of civic-mindedness, including voting, being informed on civic issues, volunteering and performing public service, and serving in the military or alternative service." The original public school movement in the United States emphasized preparing students for participation in democracy. This emphasis is not unique to America. Holmes (1979) synthesizes the aims of schools systems around the world. Political aims are often cited as an educational goal: "school work is organized so as to develop democracy in

school and consequently in society as a whole" (Sweden), "the Constitution states that a general aim of education is to produce good citizens, a democratic way of living and human solidarity" (Costa Rica), and "an education system that creates knowledgeable, democratic and patriotic citizens is the aim of the Indonesian government." Perhaps the key implication of the indoctrination hypothesis is that the positive impact of schooling should be particularly pronounced in political rather than all social participation.

A second hypothesis holds that schooling lowers the costs of social interactions more generally. According to this view, a primary aim of education is socialization—teaching people how to interact successfully with others. Such successful interaction includes understanding and appreciating the others' point of view, as well as being able to effectively communicate one's own, through both writing and speech. When people communicate successfully, they may control any innate anti-social tendencies, and as a consequence become more productive participants in group activities (Bowles and Gintis, 1976). Formally, socialization can be thought of as raising the benefits of social engagement, or reducing the costs of such engagement, or increasing the productivity of working together in groups.

Education textbooks list socialization as a pillar of curriculum design. Driscoll and Nagel (2005) describe several curricular approaches to primary education. Many of these list social outcomes among the goals: "the children will develop cooperative relationships, reflecting both social skills and understanding the perspectives of others" (the Kamii and DeVries approach); "socialization of children. Self-regulation of behavior is necessary to participation in forms of society and in relationship with others" (the Bank Street approach); and "conditions that promote or strengthen relationship between children, and between children and adults" (the Waldorf approach). Gordon and Browne (2004) write that "a major role for the early childhood teacher is

to see that children have enjoyable social contacts and to help motivate children toward a desire to be with others," because "enhancing social intelligence builds a set of skills that may be among the most essential for life success of many kinds."

Why do schools spend so much effort on socializing children? An altruistic view might suggest that the ability to work well in social settings is among the most important skills needed to function in society. A more cynical view sees socialized children as easier for their teachers to manage. Whatever the reason, schools in all political and religious regimes devote considerable resources to teaching social cooperation[3].

The socialization hypothesis predicts that education should impact all forms of social involvement. Its ability to predict political engagement should be no stronger than that for other forms of social participation. This theory also predicts no difference in the impact of education on social activities in democracies or non-democracies.

A third hypothesis holds that schooling raises political participation because it increases its personal material benefits. After all, the usual economist's interpretation of education is that it increases cognitive capabilities and effectiveness. The impact of education on competence should not be limited purely to the economic domain; more educated people are more likely to become political or civic leaders just as they are more likely to earn more money. Higher returns from civic activity for the more educated might explain a positive link between education and civic engagement.

The benefits hypothesis predicts that education should be most strongly associated with forms of civic engagement which yield private returns. Participation in lobbying groups or trade

[3] By social cooperation we do not mean obedience to authority. Obedience to authority is of course something different that schools also teach, although evidently not as successfully, as the evidence of student – and more generally educated people's – activism against authority illustrates.

unions may be attractive because these groups serve the individual's interests. However, education is unlikely to raise the private returns to voting (or suicide bombing).

These three hypotheses all assume that education causes civic participation. It is at least possible that the link between schooling and education represents selection, not treatment, and that exogenous characteristics that make people tolerant of education also enable them to sit through meetings or wait in line to vote. If this were true, then exogenous increases in schooling would have no impact on overall levels of civic participation. Furthermore, if innate characteristics vary more within than across areas, this view predicts a low (or non-existent) relationship between education and civic participation at the aggregate level.

Empirical Evidence on the Education and Civic Participation

Using the World Values Survey (WVS), we begin with cross-country evidence on education and membership in social groups. We exclude countries with the Polity IV autocracy score above 5 from the analysis because these countries force party and other participation. (For example, 25% of the Chinese respondents report membership in the Communist party). Figure 4 presents the results for the available 28 countries. It shows a sharply positive and statistically significant (t=2.49) relationship between education and participation in social groups. This evidence is broadly consistent with our theoretical perspective, but unfortunately does not allow us to distinguish the various hypotheses.

We can do that better with individual-level evidence from the United States. There are two primary individual-level sources for information on social activities: the General Social Survey (GSS) and the DDB Needham Lifestyles Survey. Using the GSS, DiPasquale and Glaeser (1999) document a strong positive relationship between education and a variety of social outcomes. College graduates are 27 percent more likely than high school dropouts to say that

they vote in local elections and 29 percent more likely to say that they help solve local problems.

College graduates are also more likely to join organizations. Glaeser and Sacerdote (2001) show this to be true for fifteen out of sixteen forms of group membership: the exception is trade union membership. Using the WVS, they also find a significant positive relationship between years of education and group membership in almost every country. Education also positively predicts church attendance in the GSS. Fifty percent of American college graduates say that they attend church more than several times per year; thirty-six percent of high school graduates say they attend that often.

Using evidence from the DDB Needham Lifestyles Survey, we revisit some of those results in Table 3. The DDB Needham Survey is administered over the years 1975-1999 and covers (for many questions) a larger sample than the GSS. We control for basic demographics such as age, race and gender. All of our variables are categorical and take discrete values capturing the frequency of the activity. We normalize each of these variables to have a mean of zero and a standard deviation of one. We also control for income. Because (as in the GSS) income is missing for many observations, we include these observations but code them as having the mean value of income in the sample, and add a dummy which takes on a value of one when income is missing. We also include a dummy for each survey year to capture time trends in social activities. We measure education with two separate dummy variables. The first takes on a value of one if the person is a high school graduate and zero otherwise. The second variable takes on a value of one if the person is a college graduate and zero otherwise. Our results do not change if we use continuous measures of education.

In each regression, both education variables positively affect participation and both are almost always statistically significant. The first regression shows the impact of education on

attending church. The effect of being a college graduate relative to a high school dropout is more than 30 percentage points. The second regression shows the large and positive impact of education on attending a class or a seminar.

Regression (3) shows a strong association between schooling and self-reported working on a community project. In the fourth regression, we look at writing a letter to a newspaper, a particularly clear form of civic engagement. Again, the correlation with education is positive, and the effect of college education is particularly strong. Since the mean of this variable is much lower than that of many others, we should not be surprised that the coefficients on schooling are smaller. Regression (5) shows results on contacting a public official. Again, the impact of education is strong.

Regression (6) looks at registering to vote. Obviously, this variable is an important measure of political participation in a democracy. Registering to vote (and voting) is particularly strongly associated with years of education. Finally, regression (7) shows that giving someone the finger—an anti-social form of behavior -- is negatively associated with years of schooling. These regressions show a pervasive pattern, in which years of schooling are associated not only with political participation in a democracy, but also with many other forms of social engagement.

Because our model addresses political battles that are often violent outside the U.S., we now turn to the evidence on more violent forms of group activity. Education and training are closely linked to military discipline and group coherence under fire (Hanson, 2002). Following Keegan (1976) and many others, Hanson argues both that historically military success is primarily the result of troops not fleeing under fire and that military discipline is itself the result of culture and education. Costa and Kahn (2003) show that illiteracy strongly predicts desertion among Union soldiers in the American Civil War.

Ferguson (1999) looks at the ratio of prisoners of war to total casualties across countries during the First World War. This variable is described by some military historians as a measure of soldiers' willingness to surrender, as opposed to fight, under fire. Across major combatant countries, the ratio of prisoners to total casualties was the lowest for the United Kingdom, the United States, and Germany (1.4%, 6.7% and 9% respectively). These arguably were the best educated combatants. The ratio of prisoners to total casualties was the highest among Russians, Austro-Hungarians and Italians (51.8%, 31.8% and 25.8%) – the least educated of the major combatants. More standard forms of military history corroborate that these prisoner rates capture general failures of morale.

Perhaps more controversially, Krueger and Maleckova (2003) and Berrebi (2003) link education to terrorism in the Middle East. They argue that terrorists see their effort as pro-social and supportive of their community. Consistent with this argument, Krueger and Maleckova (2003) find that education predicts participation in Hezbollah activities in Lebanon. Berrebi (2003) shows that more educated Palestinians are more likely to be suicide bombers.

Finally, two recent studies address the view that the correlation between education and participation is selection. Millian, Moretti, and Oleopolos (2004) find that exogenous increases in education due to compulsory schooling laws raise voter turnout. Dee (2004) finds that increases in education accounted for by availability of junior and community colleges have a large effect on subsequent participation in voting. These results suggest that the effect of education on political participation is causal, rather than just the consequence of selection.

Can the evidence help us distinguish between the other hypotheses? The fact that education predicts such social behavior as voting and fighting rather than surrendering, which do not earn private rewards, is inconsistent with the private benefits hypothesis. The fact that

education increases all forms of participation, many of which are deeply apolitical, goes against the political indoctrination hypothesis. That hypothesis is also undermined by the peaceful anti-communist revolutions throughout Eastern Europe and the former Soviet Union, dominated by educated people with years of pro-communist indoctrination under their belts. Given the separation between church and state in the U.S. and U.K., and given the often anti-religious sentiment of the French educational establishment, the positive correlation between years of education and church attendance is hard to understand as reflecting political indoctrination.

The theory that best explains all of the facts is the second hypothesis: education is socialization. This theory predicts the universal relationship between education and participation across activities and across countries. Of course, this does not mean that other mechanisms do not also operate, but we are inclined to accept the view that acquiring social capital is a crucial part of acquiring human capital.

IV. A Model of Education and Democracy

In this section, we model a channel through which education encourages democracy, both by increasing its stability and by increasing the probability of transition to democracy. The critical assumption, following the evidence of the previous section, is that education raises the benefits of political participation. The core insight of the model is that democracy requires support from a broad base of citizens who face only weak incentives to fight for it, while dictatorships offer strong incentives to a narrow base of supporters. Education raises the benefits of political participation and draws relatively more people to support democracy even when they face only weak incentives.

Model Setup

We assume that the country is populated by measure 1 of homogeneous citizens, each with a human capital level of $h \geq 0$.[4] A regime is defined as a set *G* of insiders, with $g \in [0,1]$ being the measure of the set, or the size of the regime. We interpret a larger *g* as a more democratic regime. We call a regime with $g = 1$ a perfect democracy.

In period zero, there is an exogenous *status quo* regime G_0 of size g_0. In period one, an alternative regime, G_1 of size g_1, is proposed[5]. Membership in each regime is exogenous. In period two, individuals choose whether to defend the existing regime, to fight for the new regime, or to stay politically uninvolved. Individuals may not support both regimes. Thus, in this model, while each individual takes as given his membership in a particular regime (or in neither), he still *chooses* whether to participate in politics.

We let s_0 denote the endogenously determined measure of people who support G_0 and s_1 denote the measure of people who support G_1. The challenger unseats the incumbent if and only if $\varepsilon_0 s_0 \leq \varepsilon_1 s_1$, where ε_i are random shocks to the effectiveness of each faction's supporters. The ratio $\rho \equiv \frac{\varepsilon_0}{\varepsilon_1}$ has a continuous probability distribution *Z(ρ)* on $\mathbb{R}^+$.[6]

[4] In Bourguignon and Verdier (2000), as in our model, political participation depends on education, but education is determined by the initial income distribution.

[5] In our model, what matters is the relative and not the absolute size of the two regimes. As a consequence, unlike in some other models of policy choice (e.g., Mullainathan and Shleifer 2005), raw population does not affect the likelihood of democracy. Campante and Do (2005) present a model in which the raw population influences the availability of recruits for the anti-dictatorial coup, and hence the likelihood of democracy.

[6] In particular, if ζ is the density of ε_i it is straightforward to compute the distribution $Z(\rho) = \int_0^{\infty} \int_0^{\rho\varepsilon_1} \zeta(\varepsilon_1)\zeta(\varepsilon_0) d\varepsilon_0 d\varepsilon_1$ and its density $z(\rho) = \int_0^{\infty} \zeta(\rho\varepsilon)\zeta(\varepsilon) d\varepsilon$.

Each decision-maker is of measure zero and so does not impact the probability that either regime succeeds. Individuals therefore do not base their political participation decisions on their impact on the outcome. Instead, participation is based on three different forces. First, regimes provide incentives to their members to participate. We assume that these incentives take the form of punishing a regime's insiders who do not fight for it. Second, regime insiders who participate themselves motivate their fellow insiders to join them. We model this as a benefit from participation. We also assume that there are individual-specific costs of participation.

We formally model a regime's power to motivate insiders by assuming that insiders who fail to support their regime suffer an expected utility loss equal to *p(g)*. We assume that *p* is a monotone decreasing function of *g*, ranging from $p(0) = \overline{p}$ to $p(1) = \underline{p} \geq 0$. Smaller groups impose larger punishments on free-riders. This assumption follows Mancur Olson's hypothesis that smaller groups are better at solving free-rider problems: "the greater effectiveness of relatively small groups […] is evident from observation and experience as well as from theory" (Olson 1965, p. 53). Smaller groups benefit from mutual monitoring and punishment of transgressors. As Olson (p. 61) writes, "In general, social pressure and social incentives operate only in groups of smaller size." This assumption sets up the basic tradeoff between smaller and larger regimes. Small regimes provide strong incentives to a small base. Larger regimes provide much weaker incentives but to a larger potential base of supporters.

We allow for the possibility that the incumbent regime can have an advantage in eliciting support, which is modeled by assuming that insiders in an incumbent regime who fail to support it pay an additional expected utility cost of $a \geq 0$. This incumbent advantage may simply reflect access to the machinery of the state.

The threat of punishment captures the global incentives provided by the leaders to all insiders. We also allow regime insiders who participate to motivate their peers to do likewise. While the regime level motivation should be thought of as leaders threatening members, we think of this local motivation as friends convincing friends to come out and fight. Precisely because of their local nature, these benefits are independent of the aggregate size of the regime. In line with Section III, we assume that they are a function of the human capital of regime members. These local incentives are represented by a function *b(h)* that is monotonically increasing in *h*, ranging from $b(0) = \underline{b}$ to $\lim_{h\to\infty} b(h) = \overline{b}$. Higher levels of human capital make people better at inducing their peers to politically participate.

The function *b(h)* captures the role of education in creating social skills, in two different ways. First, more educated people are better at cajoling, encouraging, motivating, or otherwise persuading others they interact with to join them. Second, more educated people are better able to reap the benefits of social interaction themselves, perhaps because they understand better *why* they are participating. Socialization covers the twin powers to persuade and to understand, both captured by *b(h)*. It is more appealing to participate in a collective activity the more educated a person is, and the more educated the other participants are.

Offsetting the global and local incentives is an effort cost of political participation, which equals $c + \eta$, where $c > 0$ is the average cost and η a mean-zero idiosyncratic shock which is identically and independently distributed across all individuals. This shock is realized at the start of period two, after membership in the two regimes has been defined. We make two technical assumptions on the distribution of cost shocks: (1) the distribution function *F(η)* is log-concave, and (2) η has support $\left[\underline{\eta}, \overline{\eta}\right]$ such that $\underline{\eta} \le \underline{p} + \underline{b} - c < \overline{p} + \overline{b} - c \le \overline{\eta}$. The first assumption

implies that $\frac{f(\eta)}{F(\eta)}$ is monotonically decreasing in η. Economically, this assumption means that the more supporters a regime already has, the more expensive it becomes for it to attract additional supporters. The cost of providing incentives for turnout is convex. This assumption is "commonly made in the incentives literature and is satisfied by many distributions" (Laffont and Tirole 1988, p. 1157). Bagnoli and Bergstrom (1989) show that this assumption is satisfied by the uniform, normal, lognormal, exponential, Pareto, logistic, gamma, chi-square, extreme-value, power-function, Weibull and Laplace distributions, and by any truncation thereof.

The second assumption is simplifying, and implies that among individuals belonging to one and only one regime there are always some supporting the regime and some choosing not to participate, regardless of regime size and human capital. This assumption enables us to avoid the uninteresting case where there is no margin of participation in a regime.

Human capital and political competition

Consider a contest between two exogenously formed regimes G_0 and G_1. Individuals excluded from both regimes abstain from political participation as they reap no benefits and only incur costs. Members of G_0 and not G_1, whose mass is denoted by $\hat{g}_0$, have two options: abstaining, which has a cost $p(g_0)+a$, or participating in support of G_0, which has a cost $c+\eta-b(h)$. Likewise, members of G_1 and not G_0, whose mass is denoted by $\hat{g}_1$, can abstain at a cost $p(g_1)$ or support G_1 at a cost $c+\eta-b(h)$. Finally, some individuals could belong to both regimes: they can then choose to abstain at a cost $p(g_0)+p(g_1)+a$, to support G_0 at a cost $p(g_1)+c+\eta-b(h)$, or to support G_1 at a cost $p(g_0)+a+c+\eta-b(h)$.

It is immediate that if $g_1 > g_0$, no incumbent can be induced to switch allegiance: conditional on participation, he always prefers to fight for the current regime both because it is smaller and because of the incumbency advantage. More generally, politically active members of both regimes support the incumbent if and only if $a > p(g_1) - p(g_0)$.

We can now compute support levels for the two regimes. If $a > p(g_1) - p(g_0)$, then total support for the incumbent is $g_0 F(p(g_0) + a + b(h) - c)$, and that for the challenger $\hat{g}_1 F(p(g_1) + b(h) - c)$. If $g_1 < g_0$ and $0 \le a \le p(g_1) - p(g_0)$, then total support for the incumbent is $\hat{g}_0 F(p(g_0) + a + b(h) - c)$ and that for the challenger $g_1 F(p(g_1) + b(h) - c)$. Putting these two pieces together, the probability that the challenger G_1 replaces the incumbent G_0 equals

$$\pi = \begin{cases} Z\left(\dfrac{g_1 F(p(g_1) + b(h) - c)}{\hat{g}_0 F(p(g_0) + a + b(h) - c)} \right) & 0 \le a \le p(g_1) - p(g_0) \\ Z\left(\dfrac{\hat{g}_1 F(p(g_1) + b(h) - c)}{g_0 F(p(g_0) + a + b(h) - c)} \right) & a > \max\{0, p(g_1) - p(g_0)\} \end{cases} \tag{1}$$

Differentiation then yields:

Proposition 1: Consider a contest between two given regimes G_0 and G_1:

(a) If $g_1 > g_0$, or $g_1 < g_0$ and $0 \le a \le p(g_1) - p(g_0)$, the probability that the more inclusive regime succeeds is increasing in the level of human capital.

(b) If $g_1 < g_0$, or $a > p(g_1) - p(g_0) \ge 0$, the probability that the less inclusive challenger succeeds is increasing in the level of human capital.

The mechanism underpinning part (a) of Proposition 1 can be easily grasped graphically. The area of each bar in Figure 5 represents the total support for one regime at two levels of *h*, with higher support resulting from higher human capital. The bar with the broader base captures the support for the democracy and the bar with the narrower base that for dictatorship. As education rises, both regimes receive more support, but because the democratic regime has by definition a broader base, the increase in raw numbers is higher for that regime.

Dictatorial regimes provide strong incentives for a favored few; democratic regimes with many insiders provide weak incentives for their potential supporters. The larger group has a wider base of supporters, but a lower participation rate. Higher levels of human capital favor democratic regimes because they increase the benefits of participation for everyone, and encourage a larger fraction of the many beneficiaries of a democracy to support it against a more dictatorial alternative. In the case presented in Figure 5, η is uniformly distributed, so that the increase in the participation rate is identical for both groups regardless of their size. It is then immediate that the larger group derives a higher increase in its total support. More generally, the assumption that $F(\eta)$ is log-concave ensures that, for a given rise in *h*, the proportional increase in the participation rate is always at least as great for the smaller as for the larger group.

Figure 6 presents the relationship between human capital and the probability that a regime G_0 is replaced by a larger, non-overlapping regime G_1 for the case where ε is log-normally distributed, η is uniformly distributed, and specifications of *p* and *b* are consistent with our assumptions. In particular, the graph considers two challengers to a regime of size $g_0 = 15\%$: the flatter curve represents a challenge by the marginally larger oligarchy $g_1 = 20\%$, while the more concave curve one by the almost democratic complement regime, $g_1 = 85\%$.

When education is low, a challenge by a rival oligarchy is much more likely to be successful. As education increases, the threat coming from a democratic uprising eventually becomes dominant.

Part (b) of Proposition 1 shows that with a sufficiently large incumbency advantage, education need no longer help the more inclusive regime, because education makes incumbency less valuable. The assumption that $\frac{f(\eta)}{F(\eta)}$ is monotonically decreasing in η means that increasing education always helps the group with weaker initial incentives to participate. With an incumbency advantage $a > p(g_1) - p(g_0) \geq 0$, the larger incumbent offers stronger incentives even if $g_1 < g_0$. In this case, therefore, an increase in education helps the challenging regime. When the challenger regime is larger than the incumbent, it offers weaker incentives both because of its size and because it lacks the incumbency advantage, and as a consequence education always helps it.

This part of the proposition suggests that education can create instability among competing dictatorships of roughly the same size. When people are uneducated, even a small incumbency advantage ensures that the *ancien regime* continues to win out. As education rises and there are more potential participants, the probability of success for another dictatorial challenger increases.

If we focus on perfect democracy, with $g_1 = 1$, it is immediate that a democratic challenge to a dictatorial regime always falls under part (a) of the proposition. The probability that democracy succeeds in replacing oligarchy is then increasing in the level of human capital.

In the opposite case, an oligarchic coup by a group G_1 such that $g_1 < 1$, attempts to overturn a perfect democracy G_0, for which $g_0 = 1$. This case is central to the stability of democratic regimes and is meant to shed light on subversions of initially democratic regimes by

coups perpetrated by either outsiders or government insiders. It is important to note, first, that the coup is abortive if $a > p(g_1) - \underline{p}$, for then none of the prospective oligarchs switch allegiance from democracy to the challenging regime. As a consequence, democracy is perfectly stable if the incumbency advantage is sufficiently high, namely if $a > \overline{p} - \underline{p}$. If the coup has any probability of success, then we must once again be in the region described by part (a) of the proposition, and the probability that the coup succeeds in upending democracy is decreasing in the level of human capital. As before, as education rises, more people are willing to support democracy despite the weaker incentives it offers.

Endogenous Regime Size and the Stability of Regimes

We have shown that, among two rival regimes of exogenous sizes, an increase in human capital makes it more likely that the more inclusive one prevails. In particular, democracy is more likely to be instituted and preserved. We next address the possible endogeneity of regime sizes by asking which regime size maximizes the probability of a successful revolution. We do not formally model the decision-making process of regime-builders, but rather assume that the success-maximizing size is favored.

We now assume that η is uniformly distributed on $[-\overline{\eta}, \overline{\eta}]$ with $\overline{\eta} \geq \max\{c - \underline{p} - \underline{b}, \overline{p} + \overline{b} - c\}$. We also assume that p is three times continuously differentiable, and that $p''' > 0$, which makes it possible for the cost of abstention to be first a concave and then a convex function of group size. Figure 7 shows an example of p used in our simulations.

We start by analyzing a contest between competing oligarchies. To simplify the analysis, we assume that the challenger cannot recruit members of the incumbent oligarchy, or

analogously that it is counterproductive to do so due to a sufficiently large incumbency advantage $a > \bar{p} - p(g_0)$.

For a fixed incumbent regime, G_0, the support of the non-overlapping challenger G_1 is equal to $s(g_1) = g_1 \frac{p(g_1) + b(h) - c + \overline{\eta}}{2\overline{\eta}}$. Increasing the size of a group has two opposing effects on its support: broadening the base and decreasing the incentives for that base to participate. The assumptions on p imply that the function is initially increasing in g_1 and if $p'(g_1)$ is sufficiently negative, the function eventually decreases. Assuming that, for sufficiently low levels of human capital h≃0, the size g_1^* of the challenging regime that maximizes its support is interior, it follows that:[7]

Proposition 2: The size g_1^* of the non-overlapping challenging regime that is most likely to overthrow a dictatorship G_0 is increasing in the level of human capital *h*, and may jump discretely to $(1 - g_0)$ when *h* crosses a threshold $\hat{h}$.

As human capital increases, the greatest threat to a dictatorship becomes an ever more democratic regime. For a sufficiently high level of human capital, the most successful revolution includes all but the members of the previous regime. A surprising element in this proposition is the jump. Figure 8 shows a possible graph of the support for a challenger to a dictatorship with

[7] This requirement is equivalent to the formal condition that $\exists \hat{g}_1 \in (0, 1 - g_0) : \hat{g}_1 [p(\hat{g}_1) + \underline{b} - c + \overline{\eta}] > (1 - g_0)[p(1 - g_0) + \underline{b} - c + \overline{\eta}]$, failing which the support-maximizing size of the challenger would be $g_1^* = 1 - g_0 \forall h \geq 0$; the latter case remains in fact mathematically consistent with Proposition 2, but becomes economically uninteresting.

$g_0 = 15\%$; higher curves are associated with higher levels of *h*. In this case, there is indeed a discrete jump to the corner solution as human capital increases above $\hat{h}$, as shown in Figure 9.

The intuition for the jump in the size of the support-maximizing regime comes from the basic economics of regime size. For low levels of g_1, support increases with regime size. As size continues to grow, incentives rapidly decrease, which echoes the transition from a "small" to a "large" regime in Olson's analysis. In this intermediate range, support decreases with regime size. As g_1 rises even further, $p(g_1)$ asymptotes towards its lower bound, and incentives are so low already that the marginal dilution is more than offset by the addition of new members. In this region, support is again increasing in regime size.

We now turn to the conspiracy G_1 that is most likely to overthrow a perfect democracy. This conspiracy sets g_1 to maximize $t(g_1) = \frac{s(g_1)}{1-g_1}$. The value of $\bar{g}_1$ for which $p(\bar{g}_1) = \underline{p} + a$ describes the maximum size of a conspiracy that provides sufficient incentives to attract traitors from a perfect democracy. Assuming that for sufficiently low levels of human capital h≃0 the size g_1^* of G_1 that maximizes its probability of success is interior, it follows that:[8]

Proposition 3: The size g_1^* of the challenging regime that is most likely to overthrow a perfect democracy is increasing in the level of human capital *h*, and may jump discretely to $\bar{g}_1$ when *h* crosses a threshold $\hat{h}$.

[8] This requirement is equivalent to the formal condition that $\exists \hat{g}_1 \in (0, \bar{g}_1): \frac{\hat{g}_1}{1-\hat{g}_1}\left[p(\hat{g}_1) + \underline{b} - c + \overline{\eta}\right] > \frac{\bar{g}_1}{1-\bar{g}_1}\left[p(\bar{g}_1) + \underline{b} - c + \overline{\eta}\right]$, failing which the support-maximizing size of the challenger would be $g_1^* = \bar{g}_1 \forall h \geq 0$; the latter case remains in fact mathematically consistent with Proposition 3, but becomes economically uninteresting.

Figure 10 graphs $t(g_1)$ with $\bar{g}_1 = 25\%$; higher curves are associated with higher levels of *h.* Again, there is a discrete jump from an interior optimum to $g_1^* = \bar{g}_1$. Figures 11 and 12 respectively plot the maximum probability of a successful coup against democracy, and the size of the associated conspiracy, as a function of *h*.

This discussion suggests that the size of the success-maximizing challenger regimes increases with the level of education. At low levels of education, status quo dictatorships are most effectively challenged by small coups, often including bands of disgruntled opponents (Huntington 1957, Finer 1988, Campante and Do, 2005). At higher levels of education, the sizes of optimal uprisings against both dictatorship and democracy rise. In Europe during the age of Revolutions, increasingly large groups fought to overthrow the existing regime. Similarly, revolts against democracy, such as the Fascist takeover in Italy in the 1920s or the Nazi movement in Germany became increasingly broad-based in societies with more education.

Implications

The model provides one explanation for the empirical link between education and democracy, but also a further set of testable implications. Proposition 1 yields two predictions. First, the ability of a minority to withstand or displace a large popular movement declines with the education of the population. Second, the value of incumbency declines as education rises. Some anecdotal evidence seems consistent with these propositions.

Before 1600, European monarchies were relatively secure against broad-based uprising. Sporadic peasant revolts were generally crushed, and the real threat to a monarch usually came from a close relative offering an alternative monarchy. Starting with the Dutch revolution against Spain and the English revolution, monarchs were increasingly threatened by more

broadly-based opposition groups. Notably, these two nations had unusually high levels of education. In the late 18th and 19th centuries, France, Germany and Italy all experienced popular uprisings as well, with large roles played by the more educated citizens. By 1920, monarchies had almost vanished in Europe, as the incumbency advantages of monarchs were wiped out in the aftermath of World War I. But it took another 25 years in Western Europe and another 70 years in Eastern Europe for democracy to become entrenched.

The implication of Proposition 1 for political instability also receives some support. England was unstable until 1689, with often violent royal successions (DeLong and Shleifer 1993). Four French regimes were toppled by popular revolts between 1789 and 1871, as the levels of education were growing. Similar instability was seen in Germany and elsewhere in the educated Europe. Once the transitions to democracy occurred, well educated democracies were themselves initially unstable. At least at first glance, one sees similar patterns of instability of democracy in Latin America, former Soviet Union, and other parts of the world.

Education also seems linked to the ability of democracies to defend themselves from dictatorial coups. Popular uprisings during the less educated periods (England 1640, France 1689, Russia 1917 and Germany in 1920) were almost invariably followed by dictatorial takeovers. The educated supporters of democracy tried but failed to resist the dictators. As nations became more educated, they also became more successful at defending democracy. In France in the 1870s and 1880s, the Third Republic faced risks from both the monarchists and the popular generals, like Boulanger. However, unlike the coups of 1797 and 1851, when the two Napoleons crushed their less organized opponents, in this later period a coalition of educated democrats protected the republic. Such a defense of democracy was even more striking in 1990, when educated Russians engaged in a remarkable campaign to stop an attempted putch.

Propositions 2 and 3 suggests that education increases the optimal size of effective uprisings. This again seems supported by European and Latin American history. In less educated times and places, coups are generally small affairs including only small cadres of nobles or army officers (Campante and Do 2005). As education grows, effective uprisings (like the American Revolution) became larger. Eventually, large swaths of society were included in attempts to overthrow a regime. Even the Nazi takeover in Germany, which eventually led to a dictatorship, succeeded only after the Nazis had built a broad coalition, including students and other educated Germans. Their earlier attempt at a narrow coup proved an embarrassing failure.

V. Conclusion

The correlation between education and democracy is clear. The reason for this correlation is not. In this paper, we offer an explanation for the correlation.

Our explanation hinges on the connection between education and the costs and benefits of political engagement. Schools socialize young people and political involvement is one form of socialization; a variety of evidence shows a positive connection between education and civic engagement. We model education as raising the benefits of political action when individuals choose to support a more or less democratic regime. In this model, democratic regimes offer weak incentives to a wide base of potential supporters, while dictatorships offer strong incentives to a narrower base. Education increases the society-wide support for democracy because democracy relies on people with high participation benefits for its support. We show that better educated nations are more likely both to preserve democracy and to protect it from coups.

The analysis raises two broader questions that are worth mentioning in conclusion. First, while our model has focused on the effects of education on participation, the analysis applies to

all social glue that encourages collective action. For example, the analysis might suggest that ethnic homogeneity is good for democracy (although in cross-country or panel regressions with education controls, ethnic heterogeneity does not matter for democracy). This surely seems plausible, and remains to be explored. Perhaps as interestingly, the analysis suggests a solution of Olson's free-rider problem in all organizations, and not just in political regimes, namely human capital or other social glue as a motivation to participate.

Second, our analysis runs into the old puzzle, namely why do some dictators invest in education if they know that doing so eventually dooms them? The examples of fallen dictators in East Asia, Eastern Europe, and the former Soviet Union are telling reminders of this risk. There are several possible answers. One is that many dictators face an external threat, and therefore must grow their economies and their armies (including investing in human capital) to counter these threats even if this raises the risk of democratization. A second is that even selfish dictators unconcerned with external threats might derive income from economic growth, and therefore promote education to get richer. A third (and most original) idea is that all dictators face significant ouster risks, and that it is much better for the dictator's life for him to be replaced by a democracy in an educated country than by another dictator in an uneducated one.

Our initial empirical results offer scant hope for the success of democracies transplanted in highly uneducated countries. Among the countries for which we have data, only four with education levels like those of Afghanistan and Haiti have had democracies for twenty years of more (Botswana, India, Papua New Guinea and Venezuela). We estimate that the probability that democracies imposed on these countries will turn into dictatorships within 20 years is over 50 percent. As Iraq is better educated, the chance of democracy surviving is higher. Still, the odds are far from one.

References

Almond, Gabriel, and Sidney Verba (1989, 1st ed. 1963), *The Civic Culture: Political Attitudes and Democracy in Five Nations*, London: Sage Publications.

Alvarez, Michael et al. (2000), *Democracy and Development: Political Institutions and Material Well-being in the World, 1950-1990*. Cambridge: Cambridge University Press.

Bagnoli, Mark, and Theodore Bergstrom (1989), "Log-Concave Probability and its Applications," Mimeo, University of Michigan.

Barro, Robert (1999), "Determinants of Democracy," *Journal of Political Economy* 107: 158-183.

Barro, Robert, and J.-W. Lee (2001), "International Data on Educational Attainment: Updates and Implications," *Oxford Economic Papers* 53: 541-563.

Berrebi, Claude (2003), "Evidence About the Link between Education, Poverty, and Terrorism among Palestinians," Mimeo Princeton University.

Boix, Carles, and Susan Stokes (2003), "Endogenous Democratization," *World Politics* 55: 517-549.

Bourguignon, Francois, and Thierry Verdier (2000), "Oligarchy, Democracy, Inequality, and Growth," *Journal of Development Economics* 62: 285-313.

Bowles, Samuel, and Herbert Gintis (1975), *Schooling in Capitalist America: Educational Reform and the Contradictions of Capitalist Life*. New York: Basic Books.

Brady, Henry, Sidney Verba, and Kay Lehman Schlozman (1995), "Beyond SES: A Resource Model of Political Participation," *American Political Science Review* 89: 271-294.

Campante, Filipe, and Quoc-Anh Do (2005), "Inequality, Redistribution, and Population," Mimeo, Harvard University.

Costa, Dora, and Matthew Kahn (2003), "Cowards and Heroes: Group Loyalty in the American Civil War," *Quarterly Journal of Economics* 118: 519-548.

De Long, Bradford, and Andrei Shleifer (1993), "Princes and Merchants: European City Growth Before the Industrial Revolution," *Journal of Law and Economics* 36, 671-702.

Dee, Thomas (2004), "Are there Civic Returns to Education?" *Journal of Public Economics* 88, 1697-1720.

DiPasquale, Denise and Edward Glaeser (1999), "Incentive and Social Capital: Are Homeowners Better Citizens?" *Journal of Urban Economics* 45: 354-384.

Driscoll, Amy and Nancy G. Nagel (2005), *Early Childhood Education Birth -8: The World of Children, Families and Educators*. Third Edition. Boston: Pearson Education.

Ferguson, Niall (1999), *The Pity of War*. New York: Basic Books.

Finer, Samuel (1988), *The Man on Horseback: The Role of the Military in Politics*. Boulder, Colorado: Westview Press.

Glaeser, Edward, and Bruce Sacerdote (2001), "Education and Religion," NBER Working Paper.

Glaeser, Edward, LaPorta, Rafael, Lopes-de-Silanes, Florencio, and Andrei Shleifer (2004), "Do Institutions Cause Growth?" *Journal of Economic Growth* 9: 271-303.

Gordon, Ann, and Kathryn Browne (2004), *Beginnings and Beyond: Foundations in Early Childhood Education.* Sixth Edition. Thomson Delmar Learning: Clifton Park, NY.

Hanson, Victor (2001), *Culture and Carnage: Landmark Battles in the Rise of Western Power*. New York: Doubleday.

Holmes, Brian (1979), *International Guide to Education Systems*. Paris: UNESCO.

Huntington, Samuel (1957), *The Soldier and the State: The Theory of Politics of Civil-Military Relations.* Cambridge, Massachusetts: Harvard University Press.

Huntington, Samuel (1991), *The Third Wave: Democratization in the Late Twentieth Century.* Norman and London: University of Oklahoma Press.

Jaggers, Keith, and Monty Marshall (2003), *Polity IV Project*, Center for International Development and Conflict Management, University of Maryland.

Kamens, David (1988), "Education and Democracy: A Comparative Institutional Analysis," *Sociology of Education* 61: 114-127.

Keegan, John (1976), *The Face of Battle*. New York: Viking Press.

Krueger, Alan, and Jitka Maleckova (2003), "Education, Poverty, and Terrorism: Is there a Causal Connection?," *Journal of Economic Perspectives* 17: 119-144.

Laffont, Jean-Jacques, and Jean Tirole (1988), "The Dynamics of Incentive Contracts," *Econometrica* 56: 1153-1175.

Lipset, Seymour Martin (1959), "Some Social Requisites for Democracy: Economic Development and Political Legitimacy," *American Political Science Review* 53: 69-105.

Lipset, Seymour Martin (1960), *Political Man: the Social Basis of Modern Politics*, New York: Doubleday.

Milligan, Kevin, Moretti, Enrico, and Philip Oreopoulous (2004), "Does Education Improve Citizenship? Evidence from the U.S. and the U.K.," *Journal of Public Economics* 88: 1667-1695.

Mulligan, Casey, Ricard Gil, and Xavier Sala-i-Martin (2004), "Do Democracies Have Different Public Policies than Non-democracies," *Journal of Economic Perspectives* 18, 51-74.

Mulligan, Casey, and Andrei Shleifer (2005), "The Extent of the Market and the Supply of Regulation," *Quarterly Journal of Economics* 120:1445-1473.

Olson, Mancur (1965), *The Logic of Collective Action: Public Goods and the Theory of Groups*, Cambridge, Massachusetts: Harvard University Press.

Papaioannou, Elias, and Gregorios Siourounis (2005), "Economic and Social Factors Driving the Third Wave of Democratization," Mimeo, London Business School.

Posner, Richard (2003), *Law, Pragmatism, and Democracy*, Cambridge, Massachusetts: Harvard University Press.

Przeworski, Adam, and Fernando Limongi (1993), "Political Regimes and Economic Growth," *Journal of Economic Perspectives* 7: 51-70.

Rander-Pehrson, Justine Davis (1999), *Germany and the Revolution of 1848-184*9, New York: Peter Lang.

Schumpeter, Joseph (1942), *Capitalism, Socialism, and Democracy*, New York: Harper and Row.

Tilly, Charles, Louise Tilly, and Richard Tilly (1975), *The Rebellious Century 1830-1930*. Cambridge, Massachusetts: Harvard University Press.

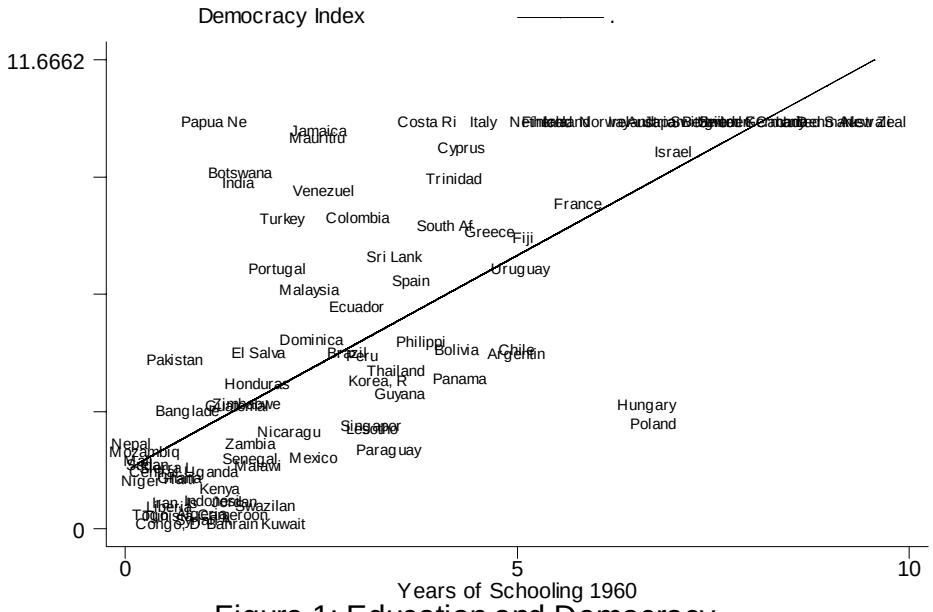


Figure 1: Education and Democracy

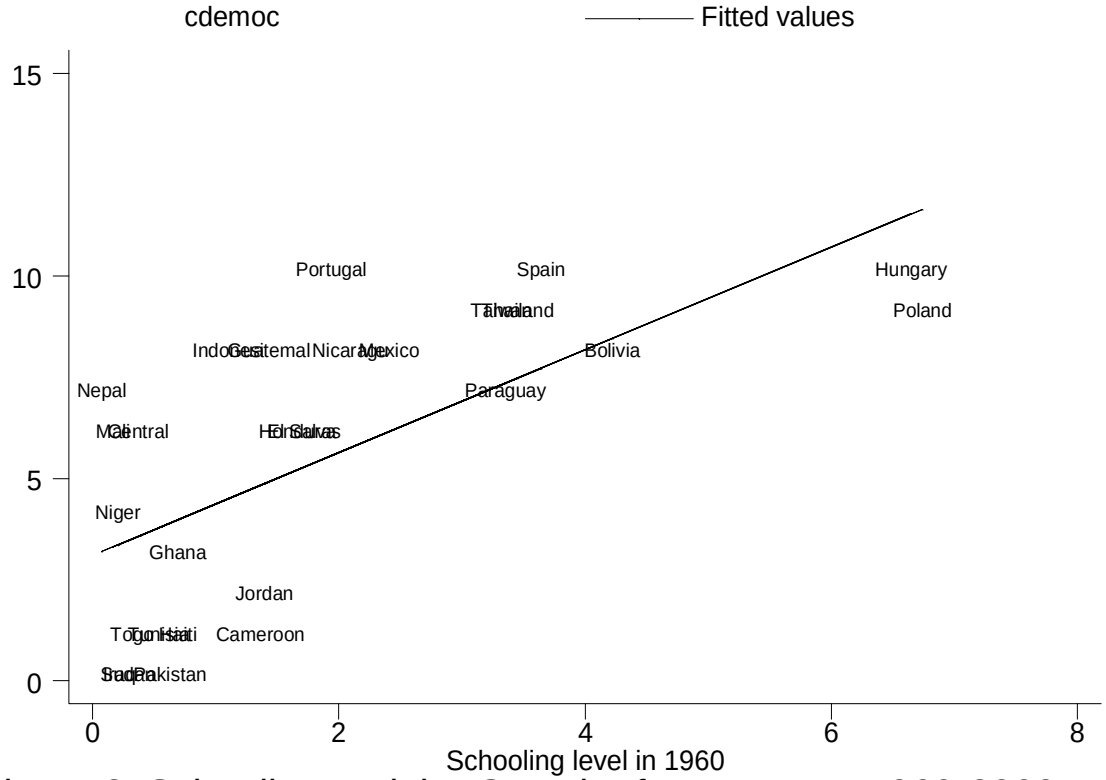


Figure 2: Schooling and the Growth of Democracy 1960-2000

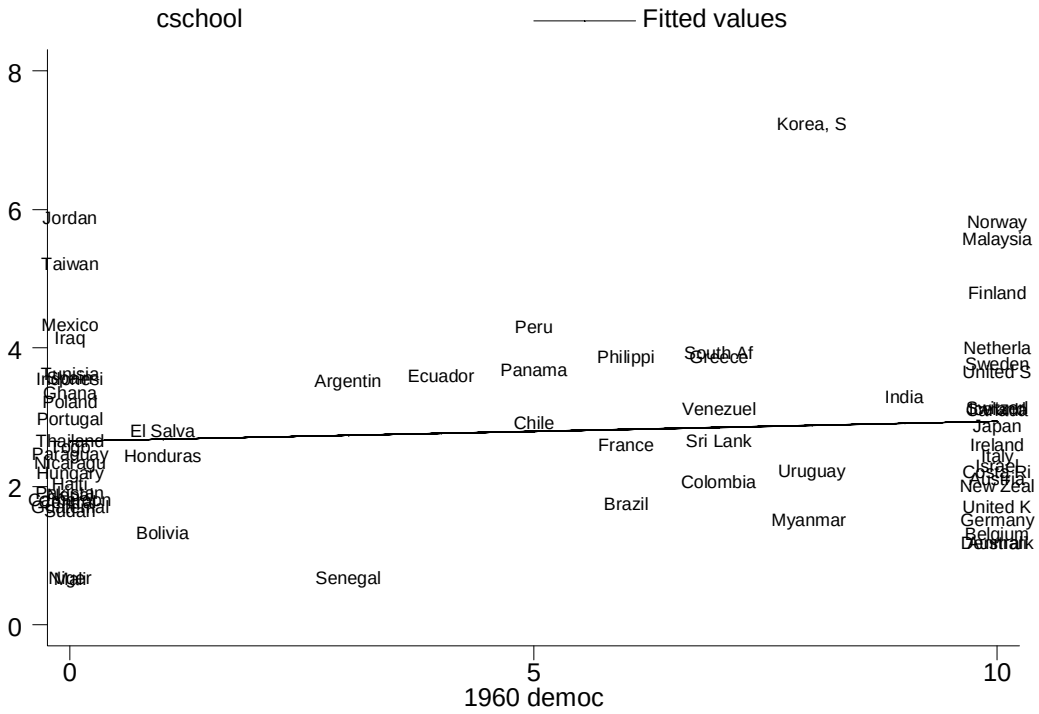


Figure 3: Democracy and the Growth of Schooling 1960-2000

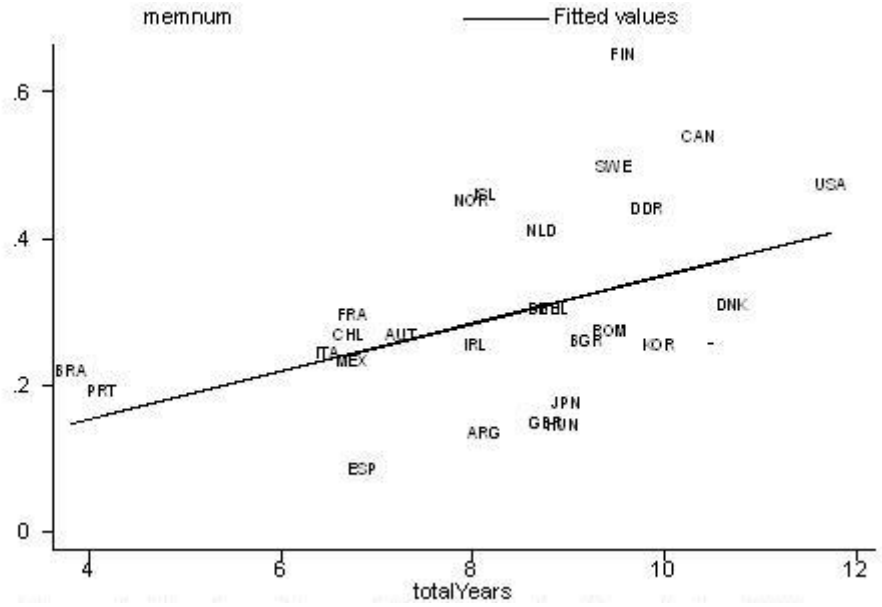


Figure 4: Membership and Education by Country in 1990

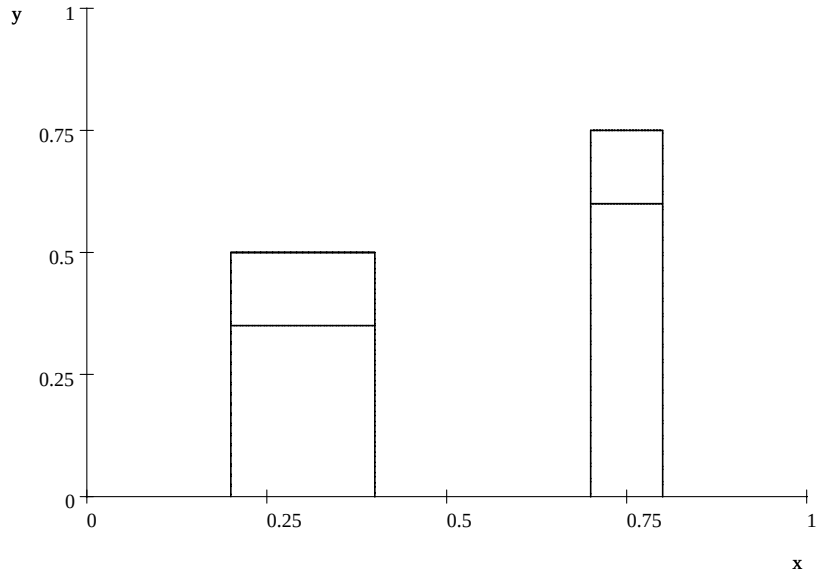


Figure 5: Support for two regimes as a function of *h*

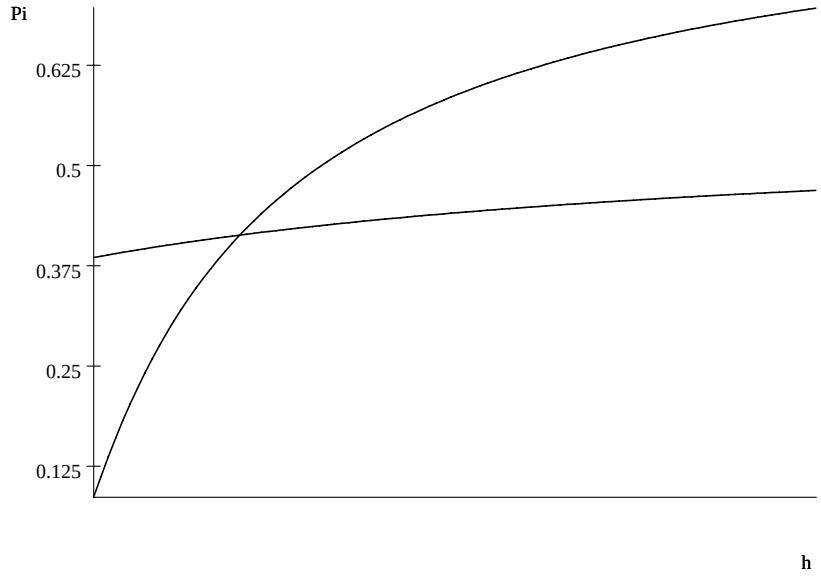


Figure 6: Probability of success for a more democratic regime

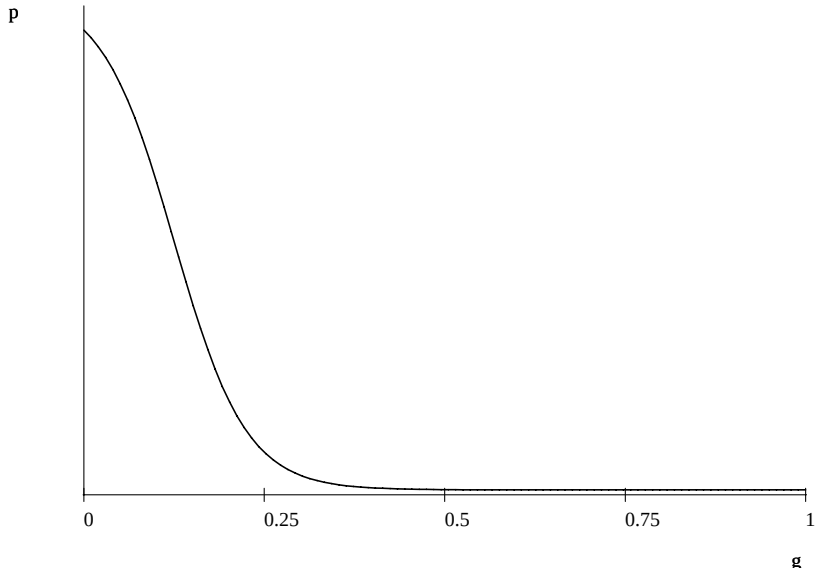


Figure 7: An example of cost function with $p' < 0$ and $p''' > 0$

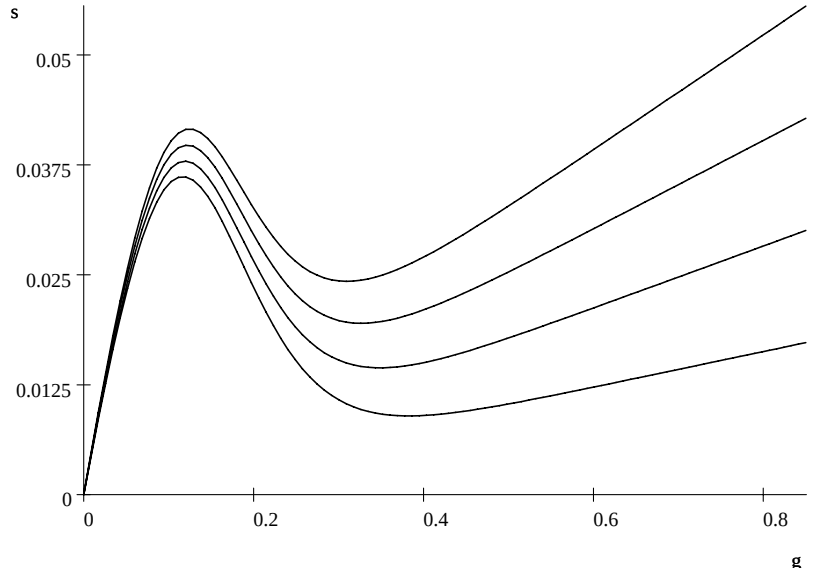


Figure 8: Support for a challenger to an oligarchy G : g = 0.15

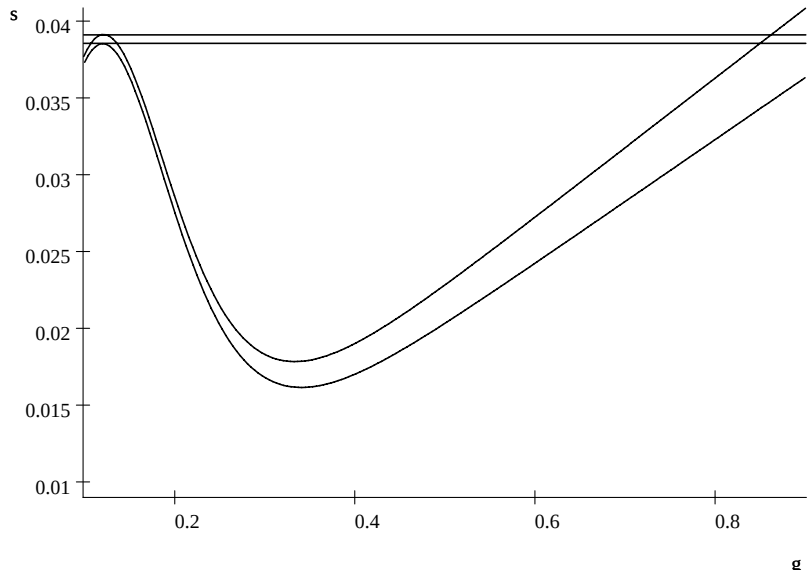


Figure 9: Discrete jump in g^* as h crosses the threshold

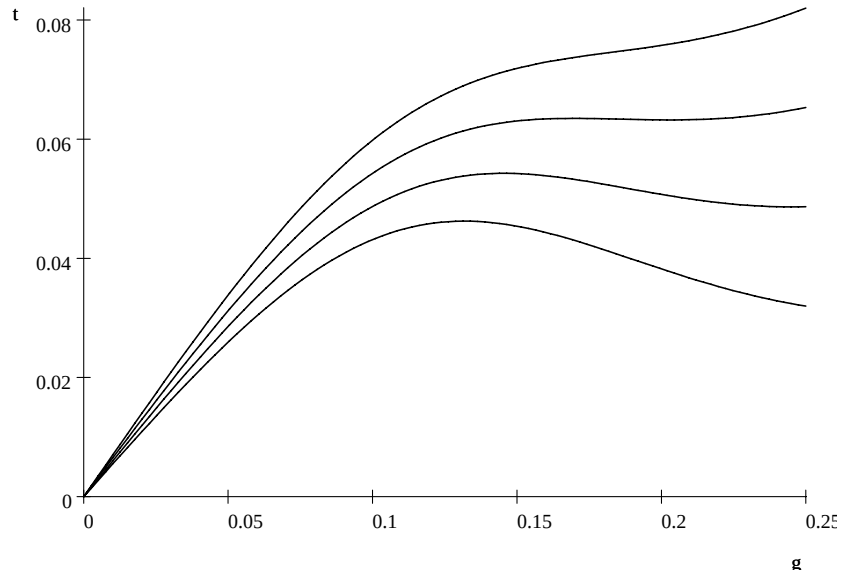


Figure 10: Support for a coup against perfect democracy

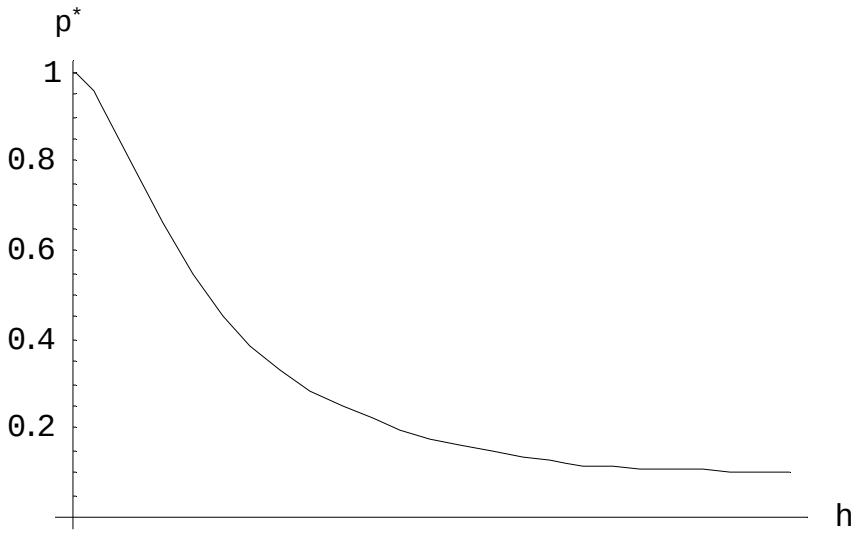


Figure 11: Maximum probability of overthrowing democracy

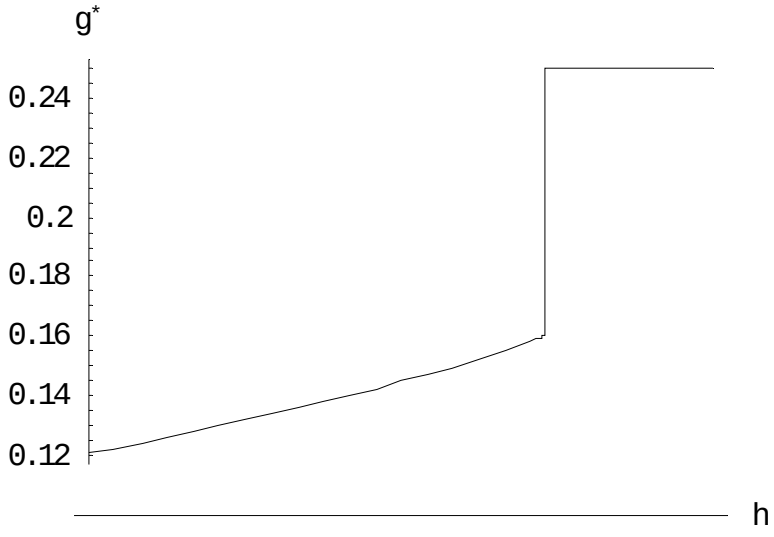


Figure 12: Size of the most effective oligarchic coup

Table 1a – The Stability of Democracy and Dictatorship in High Education Countries (>5.0115)					
Initial Year and Total countries	Number of Countries that are:	Number of Countries still after 10 years:	Number of Countries still after 20 years:	Number of Countries still after 30 years:	Number of Countries still after 40 years:
1960: Democracy	20	20	19	19	19
22 Dictatorship	2	2	2	0	0
1970 Democracy	22	20	20	20	
26 Dictatorship	4	2	0	0	
1980 Democracy	25	25	25		
34 Dictatorship	9	1	0		
1990 Democracy	38	37			
46 Dictatorship	8	3			

Table 1b – The Stability of Democracy and Dictatorship in Intermediate Education Countries (2.6785-5.0115)					
Initial Year and Total countries	Number of Countries that are:	Number of Countries still after 10 years:	Number of Countries still after 20 years:	Number of Countries still after 30 years:	Number of Countries still after 40 years:
1960: Democracy	11	6	5	5	5
17 Dictatorship	6	6	4	3	0
1970 Democracy	7	7	7	7	
19 Dictatorship	12	10	5	1	
1980 Democracy	9	9	8		
24 Dictatorship	15	12	6		
1990 Democracy	13	13			
27 Dictatorship	14	11			

Table 1c – The Stability of Democracy and Dictatorship in Low Education Countries (< 2.6785)					
Initial Year and Total countries	Number of Countries that are:	Number of Countries still after 10 years:	Number of Countries still after 20 years:	Number of Countries still after 30 years:	Number of Countries still after 40 years:
1960: Democracy	4	2	2	2	2
18 Dictatorship	14	13	13	11	5
1970 Democracy	3	1	1	1	
21 Dictatorship	18	18	16	9	
1980 Democracy	4	3	2		
24 Dictatorship	20	17	9		
1990 Democracy	5	2			
16 Dictatorship	11	4			

Table 2 - The Effect of Education on Democracy, 1865-2000

Independent Variable	1960-2000 Only	1960-2000 Only	1960-2000 Only	1865-2000	1865-2000	1865-2000 with no country clustering	1865-2000 with country clustering
Secondary Coefficient	-	0.181		0.290	-	0.238	0.499
		(0.053)		(0.046)		(0.496)	(0.136)
University Coefficient	-	-	0.633	-	0.850	0.532	1.825
			(0.196)		(0.172)	(0.183)	(0.430)
Years of Schooling	-0.237	-	-	-	-	-	-
	(0.150)						
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	No
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countries	101	132	132	133	133	133	133
Years	9	9	9	25	25	25	25
Observations	777	691	691	1316	1316	1316	1316
R-Squared	0.799	0.879	0.879	0.788	0.786	0.790	0.210

Dependent variable is the democracy score from: Jaggers, Keither and Monty G. Marshall (2003). "Polity IV Project." Center for International Development and Conflict Management, University of Maryland. Online at http://www.cidcm.umd.edu/inscr/polity/index.htm.

Average Years of Schooling data (column 1) from: Barro, Robert J. and Jong-Wha Lee, International Data on Educational Attainment: Updates and Implications. Source: Barro and Lee (2000) Data posted on http://www.cid.harvard.edu/ciddata/ciddata.html.

Enrollment data (columns 2-7) from: Banks, Arthur S (2004). *Cross National Time-Series Data Archive*. CD-ROM. Binghamton, New York: Arthur S. Banks.

Data are every 5 years from 1865 to 2000 with the exception of 1915, 1940, and 1945, for which data are unavailable.

Table 3: Social Engagement and Education							
	Attended church or other place of worship	**Attended a class or seminar**	**Worked on a community project**	**Wrote a letter to the editor**	**Contacted a public official**	**Are you a registered voter?**	**Gave someone the finger while driving**
Dependent variable mean	22.7	4.8	2.4	0.5	2.1	88%	2.1
High School grad	0.1794 [12.22]**	0.181 [7.01]**	0.1209 [8.69]**	0.0353 [1.88]	0.1044 [2.15]*	0.4673 [7.89]**	-0.1413 [3.01]**
College grad	0.1593 [14.45]**	0.4011 [23.18]**	0.1997 [19.10]**	0.0865 [6.50]**	0.1828 [4.65]**	0.1632 [4.63]**	-0.159 [5.84]**
Survey year	-0.018 [14.38]**	-0.0169 [3.27]**	-0.0069 [5.85]**	0.0002 [0.10]			0.04 [1.69]
Female	0.2515 [27.66]**	0.0282 [1.92]	0.0733 [8.51]**	0.005 [0.45]	-0.1546 [4.77]**	0.1167 [3.77]**	-0.2101 [8.74]**
Age	0.0103 [36.12]**	-0.0111 [24.02]**	0.0056 [20.55]**	0.0016 [4.66]**	0.0027 [2.50]*	0.0119 [12.18]**	-0.0122 [16.34]**
Black	0.0983 [4.61]**	-0.0549 [1.84]	0.0095 [0.47]	0.0138 [0.57]	-0.1619 [1.64]	0.1167 [2.10]*	
Asian	-0.303 [5.61]**	0.1815 [2.74]**	-0.0641 [1.25]	0.0607 [1.06]	0.0778 [0.15]	-0.533 [4.61]**	
Other	-0.1549 [2.76]**	0.0918 [1.27]	0.0688 [1.29]	0.3124 [5.01]**	-0.1327 [0.46]	-0.0172 [0.12]	
Log income in 2000 dollars	0.02 [3.08]**	-0.0659 [6.17]**	0.052 [8.45]**	-0.0181 [2.29]*	0.0063 [0.20]	0.1299 [5.84]**	-0.0038 [0.22]
Missing income data	-0.0243 [1.04]	-0.0149 [0.48]	0.0085 [0.39]	0.0295 [1.14]	-0.1134 [0.83]	0.0164 [0.19]	0.0143 [0.27]
Constant	34.7132 [14.01]**	34.6147 [3.37]**	12.7943 [5.44]**	-0.4271 [0.09]	-0.2611 [0.85]	-2.4316 [10.15]**	-79.0522 [1.67]
Observations	47459	18888	47808	30710	3229	3617	6747
R-squared	0.05	0.07	0.02	0	0.02	0.08	0.05

Notes: Absolute value of t statistics in brackets. * Indicated significance at 5%; ** Indicates significance at 1%. Data from DDB Needham

World Politics 50.2 (1998) 203-234

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman *

Figures

Tables

Much of our analysis of the politics of economic reform is based on an assumption about the distribution of the costs and benefits of reform, known informally as the J-curve. Simply stated, reforms are expected to make things worse before they get better. In the short term economic reforms are believed to generate transitional costs in the form of high unemployment, price increases, and production declines as the economy adjusts to the tremendous institutional and policy changes necessary to achieve the long-term efficiency gains of an effectively functioning market. Yet the timing of the costs and benefits of reform presents politicians with a serious problem: how can they initiate and sustain reforms that demand severe sacrifices in the short run for the mere promise of future gains? Surely losers in the short term will take revenge against reformers at the first opportunity and spark a backlash against reform. Anticipating this reaction, politicians in democratic systems are understandably reluctant to undertake radical economic reforms. The central political challenge of reform, as expressed in Adam Przeworski's apt metaphor, is therefore to traverse the "valley of transition" in order to climb the "higher hills" of the reformed system. [1] This logic has led to a series of political prescriptions centered around the same theme--to insulate the state from the pressures of the short-term losers until the reforms have created a constituency of winners powerful enough to sustain them. [2] **[End Page 203]**

Though economic reforms in the postcommunist countries have certainly created more than their fair share of transitional costs, the expected political dynamics normally associated with these costs have been much less evident. The most radical reform programs in the region have been introduced and sustained in the most competitive political systems, where politicians have been most vulnerable to electoral backlash by the short-term losers. Although voters in many cases have rejected radical reform governments in the first postreform elections, the reform programs themselves have endured and, in some cases, even intensified. More surprisingly, the politics of postcommunist economic reforms has not been dominated by the traditional short-term losers of economic transition--striking workers, resentful former state bureaucrats, impoverished pensioners, or armies of the unemployed.

Instead, the most common obstacles to the progress of economic reform in postcommunist transitions have come from very different sources: from enterprise insiders who have become new owners only to strip their firms' assets; from commercial bankers who have opposed macroeconomic stabilization to preserve their enormously profitable arbitrage opportunities in distorted financial markets; from local

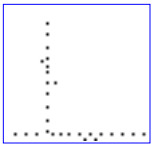
officials who have prevented market entry into their regions to protect their share of local monopoly rents; and from so-called mafiosi who have undermined the creation of a stable legal foundation for the market economy. These actors can hardly be classified as short-term net losers in the overall reform process. On the contrary, they were its earliest and biggest winners. These net winners did not oppose the initiation of the reform process, nor have they sought a full-scale reversal of reform. Instead, they have frequently attempted to block specific advances in the reform process that threaten to eliminate the special advantages and market distortions upon which their own early reform gains were based. Instead of forming a constituency in support of advancing reforms, the short-term winners have often sought to stall the economy in a *partial reform equilibrium* that generates concentrated rents **[End Page 204]** for themselves, while imposing high costs on the rest of society.

While conventional models of the politics of economic reform are driven by the short-term incentives of the net losers, the postcommunist transitions appear to have faced far more serious obstacles to the progress of economic reforms from the net winners. Moreover, the obstacles have come less in the form of ex ante opposition to the onset of reform or ex post electoral reversals of reform than in the prolonged maintenance of partial reforms and their associated market distortions. This suggests that the prescriptions derived from conventional models about the political institutions most conducive to economic reform need to be reexamined. This paper concludes that the emphasis on insulating the state from the short-term losers--the major focus of many existing models--needs to be replaced with a recognition of the importance of restraining the winners in the early stages of reform.

The paper begins by testing the applicability to the postcommunist transitions of models based on a J-curve distribution of the costs and benefits of reform. It examines both the ex ante and ex post political constraints on reform predicted from such a model. As for the ex ante constraints, the evidence from these transitions suggests that those countries with more frequent elections and shorter executive tenures, that is, those most susceptible to electoral challenge from short-term losers, have been more likely to adopt comprehensive economic reforms than states that are more insulated from electoral pressures. As for the ex post constraints, annual rankings of the progress of economic reform are examined to demonstrate the weakness of the threat of electoral reversals of reform in the postcommunist transitions.

The paper then presents a model of the politics of economic reform in which the primary political challenge derives from the net winners in the overall reform process. Partial economic reforms are shown to produce market distortions that generate a pattern of concentrated gains and dispersed losses in the short term. Winners have an incentive to try to preserve these sources of considerable rents as long as possible by blocking any measures to eliminate these distortions. Recent evidence on changes in the concentration of incomes in the postcommunist countries is used to confirm this pattern of gains and losses. Transition economies that have introduced only partial reforms have experienced a higher redistribution of income to a narrower constituency than have those countries with either more comprehensive reforms or few reforms at all. The paper concludes with an alternative view of the political institutions most conducive to sustained progress in economic reforms given the challenge posed by the winners. **[End Page 205]**

The J Curve



Most existing models of the politics of economic reform are based on an analysis of the costs and benefits of reform that conforms to a J-curve, depicted in Figure 1. The simple, compelling idea is that economic reforms generate transitional costs in the short term before they begin to produce their promised economic gains. The magnitude of these costs is believed to be positively correlated with the comprehensiveness (or radicalness) of the reforms adopted. Inefficient enterprises must be closed or restructured, state subsidies and social spending must be reduced, and domestic prices must be raised to world levels--a program that in the short term is expected to generate unemployment, sharp declines in production, and falling living standards. Only when the economy begins to adjust to the new structure of incentives can one expect any amelioration of the situation. Indeed, some analysts even expect the onset of reforms to increase the misallocation of resources in the short run, as poorly defined property rights, the absence of developed financial markets, the continued presence of monopolies, and insufficiently developed human capital distort the response to market incentives. [3]

The depiction of the costs and benefits of reform as a J-curve is particularly compelling from a political standpoint, as it provides a plausible explanation for the central paradox of the political economy of reform: if reforms ultimately make all or a majority of a country's citizens better off, why are they so politically contentious, especially in democratic systems? The standard answer has been that reforms are subject to a time inconsistency problem, requiring actors to accept losses in the short term for the mere promise of future gains. If the government cannot make a credible commitment to maintain those reforms until the promised benefits arrive or to insure that those gains are not confiscated once they do arrive, then it may be rational for economic actors to reject the reforms ex ante. [4]

The J-curve distribution of costs and benefits is also assumed to create a collective action problem that generates political obstacles to economic reform. It is commonly argued that the losses from economic reform are concentrated among specific groups--namely, those who were privileged or subsidized by the previous status quo--while the **[End Page 206]** benefits of reform are more widely dispersed. Low inflation, increased availability of goods and services, a stable currency, and so forth--these nonexcludable benefits accrue to society as a whole and thus have the characteristics of public goods. If the losses are concentrated and the gains dispersed, then the losers should have greater selective incentives to engage in collective action than the winners. [5] Thus, the losers' political opposition to economic reforms is expected to be more effective than the winners' political support of reform, even if the latter outnumber the former.

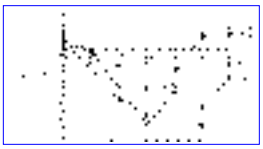
The time inconsistency and collective action problems are believed to produce both ex ante and ex post political obstacles to reform. Politicians in democratic systems will be reluctant to introduce any reforms whose benefits will not be realized before the next elections. Since radical reforms are believed to generate higher short-term costs, if they are adopted they are expected to face a high likelihood of ex post reversal as the losers react to the high costs. Politicians are therefore expected to favor more moderate reform programs. **[End Page 207]**

These ex ante and ex post political constraints on reform have led many analysts and reform practitioners to emphasize the benefits of insulating reform governments from the pressures of the losers, at least in the initial stages of the reform process. In the earlier literature on the politics of reform, this was the basis for the view that authoritarian governments had an advantage in implementing economic reforms. This

has largely been replaced with an emphasis on the benefits of state autonomy, the concentration of executive power, and the delegation of power to technocrats for the adoption of economic reforms. [6] Yet the justification for both views is the same: political institutions need to be structured to shield state actors from the pressures of the short-term losers until the realization of gains from the reforms creates the necessary political constituency to sustain them.

Although the implications of the J-curve approach to the politics of economic reform have been widely accepted, they are based on a number of assumptions that have not been subjected to systematic empirical tests. [7] This approach assumes that economic reforms will generate transitional costs prior to the realization of benefits and that these costs will be greater with the adoption of more extensive reform programs. On the political dynamics of reforms, this approach leads to a simple hypothesis: political systems in which reformers are more susceptible to the reaction of the losers are less likely to adopt extensive economic reforms and more likely to suffer reversals of reform if such measures are adopted. The postcommunist transitions provide an ideal opportunity to test these assumptions about transition costs and the behavior of reformers on a new set of cases.

The recent availability of reliable cross-national data from the postcommunist transitions allows us to test some of the economic assumptions inherent in models based on the J-curve. [8] Though the data **[End Page 208]** confirm that the introduction of economic reforms entails substantial transitional costs, they challenge the assumption linking the magnitude of these costs to the extensiveness of the reforms adopted. Table 1 presents data on the average annual growth rates for the entire set of postcommunist cases, as well as for those transition countries not affected by war. The transitional costs of reform as reflected in declining growth rates do appear to follow a J-curve pattern. The average growth rate for the region begins to fall in 1990 (-4.5) dropping to its lowest level in 1992 (-17.7 percent), and then beginning a gradual recovery. However, an examination of the postcommunist countries grouped by the extent of their economic reforms reveals an unexpected picture.



The World Bank has developed a set of indicators to measure the extent of liberalizing reforms adopted in three broad areas (internal prices, external prices, and private sector entry) across all the transition economies. [9] On the basis of these indicators, the transition economies can be separated into four main groups: advanced reformers, high intermediate reformers, low intermediate reformers, and slow reformers. [10] Figure 2 compares the average annual change in growth rates for each group. It is not the advanced reformers that have suffered the sharpest declines in real GDP, as the J-curve approach would predict, but the intermediate reformers. Indeed, the advanced reformers have the lowest overall output declines and the most rapid recoveries. [11] The average ratio of real GDP in 1994 to the 1989 level in the advanced reform group was 83 percent. The average ratio declined to 65 percent for the high intermediate reformers, 57 percent for the low intermediate reformers, and 72 percent for the slow reformers. [12] Among the postcommunist **[End Page 209]** countries the preliminary evidence suggests that the deeper the economic reforms adopted, the less steep is the valley of the transition in terms of overall transitional costs. In other words, the costs of reform are not positively correlated with the extensiveness of the reforms adopted. [13]

The pattern of unemployment among the postcommunist countries--generally seen as a critical factor

shaping the politics of economic reform--conforms more closely to the expectations of the J-curve approach. Table 2 presents data on registered unemployment in the postcommunist countries, grouped by their scores on the World Bank's liberalization index. [14]

The countries that have undertaken reform do exhibit considerably higher unemployment than the slowest reformers, but the relationship between the extensiveness of adopted reforms and the level of unemployment is less clear. Åslund, Boone, and Johnson find no statistically significant correlation between the extent of economic reforms and unemployment rates once some basic control variables are included in the regression. [15] In addition, the evidence from individual cases is mixed. Despite having introduced and maintained one of the most comprehensive **[End Page 210]** reform programs, the Czech Republic has kept its unemployment rates quite low. At the same time, less comprehensive reformers, such as Albania, Bulgaria, and Romania, have suffered from relatively high unemployment. States of the former Soviet Union (FSU) have generally maintained lower unemployment than those of Eastern Europe, **[End Page 211]** but the most comprehensive reformers within the FSU (the Baltic states) have had the highest unemployment rates.

The political implications of the J-curve model have never been tested systematically. If ex ante political incentives are an impediment to the adoption of comprehensive economic reforms, one would expect politicians facing greater electoral pressures and having a shorter expected tenure to be less likely to initiate such reforms. As Haggard and Kaufman argue, from the politician's point of view, some degree of security of tenure "would appear to be a minimal requirement of successful reform, since a high degree of insecurity shortens time horizons and increases the discount rate to future payoffs [from economic reforms]." [16]

Table 3 presents data on the number of executive turnovers and the average length of government tenure in the postcommunist states, excluding those affected by war. [17] Again, the countries are grouped by their World Bank liberalization scores. The first column indicates the number of executive turnovers that has occurred from the onset of the transition through the end of 1995. [18] Both the advanced and the intermediate reformers have an average of just over three and half executive turnovers, while both groups of slow reformers average no more than one turnover in the same period. Poland, one of the most celebrated cases of radical reform in the region, has had seven prime ministers and three presidents between 1990 and 1997. The Baltic countries, which have been the most advanced reformers of the FSU, have all had no fewer than four prime ministerial turnovers since independence. While other advanced reformers have had more stable governments, all of them have experienced some turnover in their prime ministers since the beginning of their transitions. In contrast, among the slow reformers, Ukraine and Belarus are the only countries that have changed their chief executives since the onset of the transition.

The differences in executive turnovers are reflected from another vantage point in the evidence on the tenure of postcommunist governments from Table 3. [19] The countries of the first two reform groups had **[End Page 212]** an average government tenure of approximately twenty-five months. Six of the eleven countries in these two groups had an average government tenure of less than eighteen months. While some of the most successful reformers--the Czech Republic, Hungary, and Slovenia--have had individual governments with relatively long tenures, these governments do not necessarily fit well with the standard image of reform governments as strong, streamlined, and relatively autonomous, with the capacity to push through reforms despite bureaucratic and popular opposition. In Slovenia the Drnovsek government, which has been in office since May 1992, began as an explicitly transitional government

until parliamentary elections in December 1992. Since the elections Drnovsek has headed a fragile, five-party coalition government that has **[End Page 213]** been subject to frequent no-confidence votes and whose continued survival has often been tenuous. [20] In Hungary the government of Josef Antall, though quite secure, rejected the radical approach to economic reform and pursued an explicitly gradual strategy that benefited from Hungary's prior history of communist-era reforms. [21] The only case of radical economic reform pursued by a stable government with a high degree of security and autonomy is the Klaus government in the Czech Republic. [22]

The slow reformers generally have political leaders with the longest and most secure tenures in the region. With the exception of Belarus and Ukraine, all of the slow reformers have been ruled continuously by the same respective presidents since the start of their transitions. [23] Among the advanced and intermediate reformers, Romania had a similar unbroken presidential rule until the recent defeat of Ion Iliescu in the November 1997 presidential election. [24]

The postcommunist countries with more frequent executive turnovers and shorter government tenures have generally been the most far-reaching economic reformers. Politicians with shorter expected time horizons have nevertheless been far more likely to adopt economic reforms. [25] Those political leaders with the greatest security of tenure have **[End Page 214]** tended to introduce partial economic reforms or have delayed reforms altogether, even though they would appear to have faced the weakest threat of electoral or popular challenge to more comprehensive reforms. Although this evidence cannot support a causal link between executive turnovers, government stability, and economic reform, it does challenge the notion that the threat of electoral revenge against the short-term costs of economic reform is a substantial ex ante obstacle to the adoption of reform in the postcommunist transitions.

If the political threat to economic reform is primarily ex post, then we would expect to see economic reforms reversed or otherwise moderated in the electoral cycle following their initial adoption. Przeworski argues that the high short-term costs of reform are likely to spark an electoral backlash and subsequent reversal or moderation of reforms. This creates a familiar stop-and-go pattern of economic transition in which reforms "proceed in spurts: advancing, stumbling, retreating and advancing again." [26] The postcommunist countries have certainly experienced the pressures of electoral backlashes against reform. In three of the five countries in the advanced reform group--Hungary, Poland, and the Slovak Republic--reform governments have been voted out of office to be replaced by parties advocating more moderate reforms. Similar reversals of reform governments have occurred in three of the six countries in the high intermediate reform group--Bulgaria, Estonia, and Lithuania. However, these electoral reversals have not been accompanied by any major reversals in the course of economic reform in these countries.

Table 4 presents the annual scores on the three categories of the World Bank's liberalization index for the six countries listed above that have had electoral backlashes against reform governments. By the end of 1994 there were only two instances in which these liberalization scores declined from year to year. In Bulgaria scores on the liberalization of internal and external prices declined slightly from 0.9 in 1993 to 0.8 in 1994 (on a 0-1 scale with 1 as fully liberalized), as the nonparty government of technocrats led by Luben Berov was replaced after a general election by the Bulgarian Socialist Party. A similarly modest decline in the liberalization score on external prices from 0.9 to 0.8 was recorded between 1992 and 1993 in the Slovak Republic following the breakup of Czechoslovakia. According to the World Bank scores, there were no other substantial reversals of liberalizing reforms in any of the postcommunist countries that experienced electoral backlashes against **[End Page 215]** reform governments. Indeed, out of the

entire set of postcommunist countries the two minor declines described above were the only two reversals in reform scores from 1989 to 1994. [27]

Electoral backlashes did occasionally slow the rate of progress in particular areas of economic reform. The speed of large-scale privatization slowed considerably in Lithuania and Poland after the electoral victories of communist successor parties in those countries. Voucher privatization was also delayed in the Slovak Republic after the breakup of Czechoslovakia. [28] Yet there have also been cases in which electoral backlashes against reform-oriented governments were followed by an **[End Page 216]** intensification of reform in some areas. Russia made the greatest progress in large-scale privatization only after the reform government of Egor Gaidar was forced out of office. [29] Hungary and Lithuania implemented tough macroeconomic stabilization programs after electoral victories by socialist parties. [30] Estonia has continued its rapid pace of economic reform following the replacement of the reform government of Mart Laar by the far more moderate Vahi government.

Though in most cases the introduction of comprehensive economic reform programs did spark revenge at the ballot box against reform governments, the electoral reversals did not generate the expected reform reversals. The notion that politicians would be forced to reverse reforms in response to the popular reaction against high transitional costs has to date not been evident in the postcommunist transitions. [31]

The postcommunist countries present a paradox in the political economy of reform. In the conventional view, comprehensive reforms face ex ante and ex post political obstacles from losers who react against the short-term transitional costs of reform, despite the promise of benefits in the long term. Yet in the postcommunist transitions, more comprehensive reform programs appear to have inflicted lower transitional costs in the short term than have intermediate or slow reforms. Moreover, it has been precisely those countries in which the political leaders have been most vulnerable to the demands of the short-term losers that have adopted and sustained the highest levels of economic reform. Governments that have been insulated from electoral pressures and that have enjoyed a high level of tenure security--which traditionally have been seen as the most capable of initiating necessary, but costly economic reforms--have proven to be the laggards in the postcommunist economic transitions. Why have so many postcommunist countries chosen a course of partial reforms with higher social costs in the short term and lower expected gains in the long term? If the pressure to adopt a suboptimal course of reform does not derive from the traditional losers--unemployed workers, impoverished pensioners, superfluous state bureaucrats, and so on--what are the political dynamics driving partial reforms? **[End Page 217]**

The Politics of Partial Reform

The exclusive focus on the net losers in the political economy of reform has deflected attention from analyzing the interests and incentives of the net winners. The conventional approach to the politics of economic reform is based on a simple, seemingly uncontroversial assumption, that economic reforms create winners who gain stakes in defending and extending those reforms. One of the goals of reform, therefore, is to create a constituency of winners that will support ongoing efforts to advance the transition to a market economy. [32] The most frequently cited problem of relying on the winners in the short term is that the gains from reform are dispersed throughout the entire economy, while the losses are concentrated within particular groups. The efficiency gains normally associated with economic reform--reducing inflation, creating a stable currency, lowering fiscal deficits, and increasing the availability of goods and services--can be considered as public goods. Therefore, the beneficiaries of these policies face barriers to

collective action. By contrast, the losers face concentrated costs in the short term and thus have strong selective incentives to engage in collective action against the reforms. [33] Though the winners and potential winners are seen as the best hope of creating a constituency for reform, the pattern of gains from reform in the short term is assumed to weaken their effectiveness as a political force.

This raises a question that has not been investigated in the political economy of reform: who gains from partial economic reforms? [34] Partial reforms entail the selected introduction of market mechanisms into an **[End Page 218]** economy in which substantial spheres of economic activity still operate according to alternative mechanisms of coordination. It was recognized early in the transition that partial reforms threatened to disrupt the stability and effectiveness--however limited--of the existing economic system without necessarily generating the efficiency gains associated with fully functioning markets. [35] As a result, partial reforms were predicted to generate higher social costs in the short term than both comprehensive reforms and maintenance of the status quo. At the same time, partial reforms were expected to generate rent-seeking opportunities arising from price differentials between the liberalized sectors of the economy and those still coordinated by nonmarket mechanisms. [36]

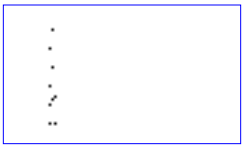
Examples of such rent-seeking activities have been ubiquitous in the postcommunist transitions. Rapid foreign trade liberalization with incomplete price liberalization has allowed state enterprise managers to sell their highly subsidized natural resource inputs (for example, oil and gas) to foreign buyers at world market prices. Price liberalization without concomitant progress in opening market entry or breaking up monopolies has created opportunities for some producers to earn monopoly rents. Privatization without reform of the credit mechanism has allowed managers to divert subsidized state credits earmarked to uphold production into short-term money markets at high interest rates. In each case, these arbitrage opportunities have generated rents to those in a position to take advantage of these market distortions. Yet the redistribution of rents leads to a misallocation of resources in comparison with the more efficient rationing that might be expected from a fully functioning market.

To some extent, these rent-seeking opportunities should exist regardless of the reform strategy adopted. The transition from a command economy to a market economy requires an extensive set of policy and institutional changes, many of which have different time horizons. Clearly, prices can be liberalized far more quickly than monopolies can be broken up. Interest rates can be changed more quickly than new commercial banks capable of evaluating loan requests can be created. Restrictions on foreign and domestic trade can be lifted more quickly than adequate mechanisms for contract enforcement can be put into **[End Page 219]** place. These differentials in the time horizons of various components of comprehensive reform produce temporary market distortions similar to the gaps associated with the explicit introduction of partial reforms.

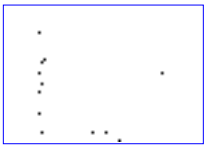
Both comprehensive and partial economic reforms produce winners in the short term, with gains partly or wholly determined by rents generated by the existence of distortions in the developing market economy. Moreover, these rents are highly concentrated, benefiting those in a position to arbitrage between the reformed and unreformed sectors of the economy.

If economic reforms continue to progress over time, then the market distortions that produce these concentrated rents should gradually be eliminated. Further price liberalization undermines arbitrage operations between the fixed-price state sector and the free-price export sector. The progressive hardening of enterprise budget constraints eliminates the misallocation of state subsidies. Privatization coupled with the creation of an effective corporate governance structure reduces asset stripping by

enterprise insiders. While these measures produce efficiency gains for the economy, they also alter the flow of private gains to the initial winners of reform. The winners give up a concentrated stream of rents generated by the initial market distortions for a share of the overall efficiency gains associated with further market reforms. As a result, progress in the implementation of market reforms could reduce the private gains to the initial winners over time, while increasing efficiency gains for the economy as a whole.



From the perspective of the winners, the traditional J-curve is reversed, as in Figure 3. Their incomes rise rapidly in the short term as the initial market distortions generate concentrated rents. Yet over time, the progress of reforms gradually eliminates those distortions, dissipating the rents from the initial stages of reform. The shape of this winner's curve would depend on the comprehensiveness of the reform at the start of the transition and the continued pace of reforms over time. In Figure 3, the line W_p represents the winners' consumption curve in a country that began the transition with partial reforms. The line W_c denotes the winners' income curve in a country that began with a more comprehensive reform program. The flatter curve suggests that comprehensive reforms generate less concentrated rents for the winners in the short term and less steep income declines as the reforms progress.



By adding these winners' curves to the traditional J-curve, a different picture of the political economy of reform in postcommunist transitions emerges. If partial reforms generate higher social costs in the short **[End Page 220]** term, then the increasing concentration of rents to the winners should entail a corresponding decrease in consumption of the losers. In Figure 4, the losers' consumption curve in a partially reformed economy, L_p, is the mirror image of the winners' curve, W_p. As the private gains to the winners from partial reform increase, the costs to the losers increase as well. If the distortions of partial reform are gradually eliminated over time, then the winners face a reduction in their rents, while the losers share in the efficiency gains of further market reforms, thus narrowing the gap between the two curves. Countries that adopt more comprehensive reforms at the start have a narrower gap between the income curves of the winners and losers, W_c and L_c. The transitional costs of reform in the short term are lower than under partial reform and the losers begin to see gains from reform at an earlier point in the process and at a higher level.

In the standard J-curve approach, if elections are called prior to the point at which the reforms have begun to produce benefits for the majority of voters, the voters will react to the short-term costs by casting their ballots for a reversal or moderation of the reforms. Yet the addition of the winners suggests a different approach to the political obstacles to economic reform. The politics of economic reform is usually portrayed as a set of choices between omnibus reform programs (radical versus gradual) at key junctures in the political process (namely, **[End Page 221]** elections) in which voters play the deciding role. Yet the process might be more realistically depicted as a sequence of many distinct choices over time on separate components of an overall reform plan--liberalization, stabilization, privatization, and many more--that do not necessarily coincide with the electoral calendar. In such a process, the winners with their concentrated gains would be expected to play a more decisive role, given their greater

resources, their smaller number, and their selective incentives for collective action. Indeed, it is reasonable to assume that the winners might have an implicit veto power in the decisions over separate components of economic reform, especially those that affect their existing rent streams.

Returning to Figure 4, if the process of reform consists of a sequence of decisions over time, then the winners will continue to support the advance of reforms until time t_1. Beyond t_1, the winners have an incentive to veto any reform proposals that move the economy toward more comprehensive reforms, since such measures will begin to decrease the rents they gained at the earlier stage of the reform process. Thus, the winners prefer to freeze the emerging market economy in some partially reformed state that maximizes the concentration of rents to themselves, though at a significant social cost. While the political challenge of the J-curve was to maintain reforms through the valley of the **[End Page 222]** transition, the challenge of partial reform is to sustain the momentum of reform past the "peak of transition," that is, the point at which further reforms threaten the rents accruing to winners from the distortions created by earlier reforms.

This highly stylized model of the politics of economic reform differs sharply from the standard approach. While the J-curve approach assumes that the costs of reform are concentrated and the benefits are dispersed, this model begins with the opposite assumption. The gains from reform are highly concentrated within a narrow group of winners in the short term and are dispersed over time only if the reform process progresses. The costs of reform, by contrast, are dispersed across the entire economy from the start. The J-curve approach assumes that the transitional costs of comprehensive reforms in the short term are greater than those accompanying more gradual reforms, while this model again assumes the opposite. The conventional approach characterizes the politics of economic reform as a choice between omnibus reform programs made by voters at key points in the political calendar. This model portrays the reform process as a sequence of decisions on separate components of reform that is continuous over time and in which the winners who gained from earlier decisions have the decisive voice.

On the basis of these alternative assumptions, the partial reform model presented here suggests a very different characterization of the political obstacles to economic reform in the postcommunist transitions. The political dilemma of economic reform is not how to sustain reform in the face of opposition from the net losers in the short term, but how to advance reform in the face of efforts by the net winners to preserve the market distortions that produced their gains in the short term.

Evidence

One of the key predictions of this alternative approach is that countries that have maintained partial reforms should exhibit a greater concentration of gains to the winners and a higher level of transitional costs than those countries that have pursued more comprehensive reforms. One way to gauge the degree of partial reforms is to examine different levels of progress in each of the separate components that are generally considered to constitute a comprehensive reform program. The European Bank for Reconstruction and Development (EBRD) defines nine separate dimensions of the reform process: privatization (large- and small-scale), enterprise restructuring, price liberalization, foreign trade liberalization, competition policy, banking reform, securities **[End Page 223]** market reform, and legal reform. [37] The EBRD provides a rating of cumulative progress along each dimension on a 1-4 scale. By taking the variance (that is, the dispersion around the mean) of these ratings for each of the

postcommunist countries, we obtain a very rough measure of imbalances in the level of progress across the separate dimensions. [38] The variances are reported in the first column of Table 5. Higher variances indicate more unbalanced progress across the different dimensions of economic reform and, hence, a greater degree of partial reforms. The average variances for each of the four groups of countries show a curvilinear pattern among the groups. Both the advanced and the slow reform groups have low variances across their reform scores, while the intermediate groups have considerably higher variances suggesting more uneven progress in economic reform.

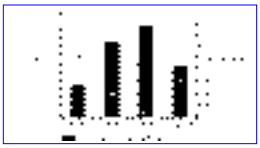
If the countries of the intermediate groups have maintained the most uneven or partial economic reforms, then they should demonstrate a higher concentration of gains from reform along with higher overall social costs. Though highly incomplete, recent data on inequality and income concentration across the transition economies show some interesting trends. [39] The transition in the postcommunist countries has sparked an extremely rapid redistribution of income. Since the beginning of the transition, the level of income inequality has risen in every postcommunist country with the exception of the Slovak Republic. The average Gini coefficient--one of the standard measures of inequality--for the entire region jumped by one-third, from 24 in 1987-88 to 32 in 1993-94, a pace virtually unprecedented in the postwar era. [40] In a time **[End Page 224]** span of five to seven years the transition economies have moved from inequality levels below those of most OECD countries to, in several cases, levels on a par with or higher than the most unequal OECD countries. The Gini coefficients are listed in Table 5.

The extent of the redistribution differs across the reform groups. From 1987-88 to 1993-94, Gini coefficients increased in the two intermediate reform groups by 43 percent (high intermediate) and 53 percent (low intermediate), as compared with 18 percent among the advanced reformers and 30 percent among the slow reformers. The highest Gini coefficients in the transition economies are among the low **[End Page 225]** intermediate reformers, while the most advanced reformers have maintained the lowest levels of inequality. Russia stands out among the transition economies for having doubled its degree of inequality during the period.

Figure 5 relates the average changes in inequality across the reform groups to their average variances on the EBRD transition indicators. The curvilinear pattern is roughly similar. Though this evidence cannot support any causal claims, it does suggest an interesting relationship between the imbalances associated with partial reforms and increasing levels of inequality among the postcommunist countries.

The increase in inequality in the postcommunist transitions has been driven by a substantial concentration of incomes in the highest income group, though data on income concentration are less complete than for overall inequality. Table 5 reports the change (in percentage points) of total income share for the top income quintile between 1987-88 and 1993-94. The increase in income share for the top quintile in the intermediate reformers exceeds that of the advanced reformers with the exception of the Czech Republic. The top quintile in the high intermediate reformers increased its income share by an average of 7.8 points, while the average share in the advanced reform group increased by only 2.8 points. The two countries among the low intermediate group for which such data are available also show substantial increases in the concentration of income. Again, Russia stands out with a remarkable 20-point increase in the income share of the top quintile. With the **[End Page 226]** exception of Hungary and the

Slovak Republic, all of the postcommunist countries have experienced a highly regressive redistribution of income since the start of the transition. Yet the evidence suggests that this redistribution reached a considerably higher magnitude in those countries that have maintained partial reforms.



The variation in the pattern of inequality and concentration among reform groups is closely matched by the cumulative output declines during the transition, the standard measure of the costs of reform. The last column of Table 5 lists the ratio of 1993-94 GDP to 1989 GDP for the postcommunist countries. The average cumulative decline in GDP for the two intermediate reform groups exceeds both the advanced and the slow reformers. By 1994 GDP had fallen by an average of 43 percent among the countries of the lower intermediate reform group and 35.2 percent among the countries of the high intermediate group. The advanced reformers suffered a much lower average GDP loss at 19.4 percent, while the slow reformers fell by an average of 28.3 percent. As Figure 6 suggests, the average declines in GDP across the reform groups match the percentage increases in inequality as measured by the average Gini coefficients for each reform group.

The limited evidence available on changes in inequality, the concentration of incomes, and GDP across the postcommunist countries **[End Page 227]** supports the predictions of the partial reform model. Though postcommunist economic reforms have clearly generated high costs in the short term, the gains they have produced have been highly concentrated among a narrow group of winners. Countries that have adopted and maintained partial reforms have had the highest concentration of these gains, while at the same time experiencing the highest short-term costs among the transition economies. The net winners have gained more relative to the losers in partially reformed economies than have their counterparts among either the advanced or the slow reformers. Moreover, as the variances of the EBRD transition indicators demonstrate, these gains have been associated with imbalances in the adoption of reforms and the market distortions they create. If the correction of these distortions through further market reforms threatens to reduce the rent flows to the short-term winners, then they should be expected to oppose such measures as long as their share of the efficiency gains generated by further reforms does not exceed the lost rent flows. The winners have an incentive to maintain a partial reform equilibrium in order to maximize the concentration of rents in the economy. While existing analyses of the politics of economic reform tend to assume that the net winners constitute a political constituency in favor of sustaining and advancing market reforms, the partial reform model suggests that these winners could constitute a powerful obstacle to the steady advance of the reform process.

The main political implication of the partial reform model is clear: if the winners from partial reforms have a veto power over policy, then the transition should result in a partial reform equilibrium that concentrates gains among the winners at a high social cost. [41] Therefore, the primary political challenge of reform in this model is to restrain the net winners. Political systems that concentrate more power in the hands of the winners are more likely to preserve partial reforms over time. By contrast, political systems more open to the participation of the losers in the policy-making process should generate a greater dispersion of the gains of reform. If the initial rents in the early stages of reform are more thoroughly dissipated, then winners might find the efficiency gains from comprehensive reforms to be more attractive than the reduced rent flows from a partial reform equilibrium. **[End Page 228]**

It is difficult to measure with any precision the concentration of power in the hands of the short-term

winners in the transition economies. One option is to try to measure the continued power of the former communist elite, since partial reforms are believed to benefit precisely those--such as state enterprise managers, collective farm chairmen, ministerial bureaucrats, and party officials--who are in a position to arbitrage between the highly regulated and subsidized state sector and the less constrained free market sector. It is possible to measure the remaining political power of the former Communist Party and its successor organizations in postcommunist political institutions. Alternatively, the extent of personnel turnover in government posts or key economic sectors from the communist era to the transition period could be surveyed. However, such measures would miss the influence of other groups benefiting from partial reforms, those whose gains are not necessarily linked to their positions in the previous communist system, such as new commercial bankers, investment fund managers, and a whole range of private entrepreneurs. In many postcommunist systems these actors have also made extraordinary short-term gains from distortions in the developing market economy and are believed to wield substantial political power. [42]

Another possible approach to this problem is to measure the extent to which postcommunist political systems are open to pressures from the short-term losers. This assumes that the greater the participation of the losers in the political process, the more constrained will be the power of the winners. Greater participation of the losers can be expected to check the power of the winners to veto reform measures that do not coincide with the latter's short-term interests. More importantly, politicians who face regular, genuinely competitive elections may be constrained from pursuing policies that concentrate gains to a narrow segment of the electorate while generating high social costs.

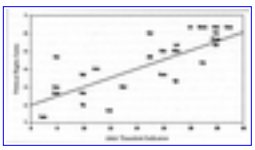
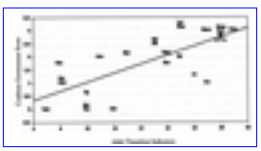


Figure 7 presents a scatterplot relating the level of democracy to the extent of economic reforms in the postcommunist countries. The economic reform scores are based on the EBRD 's cumulative transition indicators for 1994. [43] The measure of democracy is based on the average of each country's annual score on the Freedom House index of political rights over the course of the transition. [44] The Freedom House index **[End Page 229]** measures individual rights to participate freely in the political process, focusing especially on the political inclusiveness of the electoral system. The scatterplot reveals a strong positive correlation between political rights and economic reform (r = 0.78). More inclusive political regimes have adopted and sustained higher levels of economic reform than those with more restrictive political rights. Given that losers outnumber winners in the short term, we can assume that a more inclusive political regime gives the losers of the economic reform process greater opportunities to influence political outcomes than a less inclusive regime.



Another more specific proxy measure of the inclusiveness of the political system focuses on the size of coalition governments. As the number of political parties in a coalition government increases, the number of actors and groups whose agreement must be coordinated for effective policymaking increases as well. [45] This tends to weaken the concentration of power in the hands of any single political party or group. Broader coalition governments should have a lower risk of being captured **[End Page 230]** exclusively by the net winners of reform than should governments dominated by a single party. One way to measure the size of coalition governments is a simple scale developed by

Roubini and Sachs in their studies of coalition governments and budget deficits in OECD countries. [46] Figure 8 shows a scatterplot of the relationship between the size of coalition governments and the sum of the 1994 EBRD transition indicators for each postcommunist country. There is a strong positive correlation (r= 0.72) between coalition governments and economic reform. As more political forces are brought into the policy-making process, governments appear to be more likely to adopt and sustain more comprehensive economic reforms.

Neither of the proxy variables--the extent of political freedoms or the size of coalition governments--directly measures the relative power of the winners and losers of economic reform over government policy-making. **[End Page 231]** However, they do measure the extensiveness of political participation in the policy-making process. Political inclusion could alter the dynamics of the reform process in two possible ways. First, greater political inclusion could lead to a greater dissipation of the rents from partial reforms, as more groups demand their share of the short-term gains. As the private gains to specific groups decrease, the advantages of partial reforms over comprehensive reforms are also reduced. Second, the greater the degree of political inclusion in the decision making on economic reform, the less likely it is that the winners will be able to impose policies that bring them private benefits at a high social cost. Political inclusion can act as a constraint on the winners, undermining their capacity to hold the economy in a partial reform equilibrium.

Conclusions

Though many of the postcommunist countries have made tremendous strides toward the creation of a market economy in a remarkably short period of time, the costs of this transition have been substantial, even in the best of cases. To varying degrees, each country has faced some combination of high inflation, high unemployment, declining real incomes, decreasing state services, and increasing uncertainty--a mix of hardships that has produced a familiar pattern of advances and reversals of economic and political reforms in other regions of the world. Yet in contrast to the political dynamics of economic reform in these regions, the losers in the postcommunist transitions have not constituted the main political obstacle to the progress of reform. This paper has shown that it is precisely those countries in which governments have been most vulnerable to the losers' threat of an electoral backlash against reform that have adopted and sustained the most comprehensive reform programs. In contrast, governments insulated from electoral pressures have made, at best, only partial progress in reforming their economies. Moreover, economic reforms, once adopted, have rarely been reversed, even when the reform governments that initiated them have been ousted.

Though postcommunist transitions have not suffered the standard ex ante and ex post political obstacles to reform, they have faced an equally difficult set of challenges from an unexpected source. Actors who enjoyed extraordinary gains from the distortions of a partially reformed economy have fought to preserve those gains by maintaining the imbalances of partial reforms over time. Bankers who gained from financial liberalization have been a powerful force opposing macroeconomic **[End Page 232]** stabilization. State managers turned private owners, who were the big winners from privatization, have prevented the creation of effective corporate governance structures and thus have delayed much needed enterprise restructuring. Rising financial-industrial conglomerates, reconstituted on newly emerging securities markets, have used their power to block new market entry. New entrepreneurs-cum-mafiosi, who have gained tremendously from the liberalization of domestic and foreign trade, have undermined the formation of a viable legal system to support the market economy. In each case the winners from an

earlier stage of reform have incentives to block further advances in reform that would correct the very distortions on which their initial gains were based. In effect, they seek to prolong the period of partial reforms to preserve their initial flow of rents, though at a considerable social cost.

This paper has shown that the challenge posed by the winners is based on a set of assumptions about the costs and benefits of reform that differs from the assumptions of the conventional J-curve pattern upon which most existing models of the political economy of reform are based. The J-curve assumes that economic reforms generate concentrated costs in the short term and dispersed benefits over the long term. This paper has demonstrated that in the postcommunist transitions, economic reforms have tended to produce highly concentrated gains to particular groups in the short term, while dispersing the transitional costs of reform throughout the economy. Over time, the progress of economic reform is expected to dissipate the initial concentration of rents as the complementary elements of a market economy are all put into place. As a result, while the winners have acquired an early stake in the reform process, they have also developed a stake in the very distortions that impede the realization of the efficiency gains of a fully functioning market.

The recognition that the process of economic reform is threatened less by the net losers than by the net winners has important implications for our understanding of the political institutions that enable or impede economic reform. While conventional political economy models have emphasized the importance of insulating the state from the pressures of the losers through various forms of state autonomy, the partial reform model stresses the need to restrain the winners by increasing competition with other groups or by restricting their ability to veto reform measures unilaterally. In this view, expanding political participation to include the losers in the policy-making process could place limits on the concentrated political power of the winners and prevent them from sustaining a partial reform equilibrium. This paper has **[End Page 233]** shown that postcommunist systems with a higher level of political participation and competition have been able to adopt and maintain more comprehensive economic reforms than states largely insulated from mass politics and electoral pressures.

The partial reform model offers an explanation for a number of puzzling aspects of the postcommunist transitions. It explains why some countries have maintained partial reforms over time, even though the short-term costs are higher and the overall gains are lower than those associated with more comprehensive reforms. It explains why postcommunist countries in which the net winners of the reform process appear to have significant political power over economic policy-making nevertheless have remained mired in a partially reformed economy. Finally, it provides a possible explanation for the strong link between democracy and economic reform among the postcommunist transitions that stresses the advantages of including the very groups that suffer from the transitional costs of reform.

One of the fundamental tenets of the politics of economic reform has always been to create a constituency of winners with a stake in sustaining and advancing the reform process. This has been a common strategy both for making the reforms irreversible and for building up the necessary political support for further reforms. Yet a comparison of the postcommunist transitions suggests that the winners can do far more damage to the progress of economic reform than the losers. As a result, the success of economic reform depends both on creating winners and on constraining them. Paradoxically, the most effective means of constraining the winners in the postcommunist transitions has been to guarantee the political inclusion of the very constituency that most existing political economy models seek to exclude: the short-term losers of reform.

Joel S. Hellman is currently Political Counsellor at the European Bank for Reconstruction and Development.

* The work leading to this paper was supported from funds provided by the National Council for Soviet and East European Research and the Kennan Institute for Advanced Russian Studies, which, however, are not responsible for its contents or findings. This paper was originally presented at the 1996 annual meeting of the American Association for the Advancement of Slavic Studies and the 1997 annual meeting of the American Political Science Association. I would like to thank the participants in those meetings for their very helpful comments, as well as seminar participants at Harvard University and St. Antony's College, Oxford. The views expressed here do not represent those of the European Bank for Reconstruction and Development.

Notes

1. Przeworski, *Democracy and the Market* (New York: Cambridge University Press, 1991), 138.

2. Variations on this theme have stressed the virtues of autonomous states (Peter Evans, "The State as Problem and Solution: Predation, Embedded Autonomy, and Structural Change," in Stephan Haggard and Robert R. Kaufman, eds., *The Politics of Economic Adjustment* [Princeton: Princeton University Press, 1992]); powerful executives (Stephan Haggard and Robert Kaufman, *The Political Economy of Democratic Transitions* [Princeton: Princeton University Press, 1995]); insulated technocrats (John Williamson, "In Search of a Manual for Technopols," in Williamson, ed., *The Political Economy of Policy Reform* [Washington, D.C.: Institute for International Studies, 1994]); and substantial external assistance (Jeffrey Sachs, "Western Financial Assistance and Russia's Reforms," in Shafiq Islam and Michael Mandelbaum, eds., *Making Markets: Economic Transformation in Eastern Europe and the Post-Soviet States* [New York: Council on Foreign Relations, 1993]). Przeworski himself does not support such a view, which he believes will lead to problems in the consolidation of democracy; Przeworski, "Economic Reforms, Public Opinion, and Political Institutions: Poland in the Eastern European Perspective," in Luis C. B. Pereira, Mario M. Maravall, and Adam Przeworski, *Economic Reforms in New Democracies: A Social-Democratic Approach* (New York: Cambridge University Press, 1993).

3. This is one of the arguments made against the radical or "big bang" approach to economic reform. For a review of the political economy case against such an approach, see Gerard Roland, "The Role of Political Constraints in Transition Economies," *Economics of Transition* 2, no. 1 (1994).

4. In the expected utility function of any given actor, the benefits of reform would be discounted by the probability that the reform will be reversed prior to the receipt of the benefits. For a review of this problem in the politics of economic reform, see Mariano Tommasi and Andres Velasco, "Where Are We in the Political Economy of Reform?" (Manuscript, Cambridge, Mass., 1995).

5. Haggard and Kaufman (fn. 2, 1995).

6. On the earlier literature, see the classic treatment of this issue in Samuel Huntington, *Political Order in Changing Societies* (New Haven: Yale University Press, 1968); and the review in Stephan Haggard, *Pathways from the Periphery: The Politics of Growth in the Newly Industrializing Countries* (Ithaca,

N.Y.: Cornell University Press, 1990). The recent work on the advantages of state autonomy and insulation is voluminous. Some prominent examples are Evans (fn. 2); Haggard and Kaufman, "Economic Adjustment and the Prospects for Democracy," in Haggard and Kaufman (fn. 2, 1992); idem (fn. 2, 1995); and the contributions to Williamson (fn. 2).

7. Nelson argues that this approach can be directly applied to the postcommunist transitions; Joan M. Nelson, "The Politics of Economic Transformation: Is Third World Experience Relevant in Eastern Europe?" *World Politics* 45 (April 1993).

8. Broad, cross-national comparisons of the postcommunist transitions include EBRD, *Transition Report, 1994* (London: European Bank for Reconstruction and Development, 1994); idem, *Transition Report, 1995* (London: European Bank for Reconstruction and Development, 1995); and World Bank, *World Development Report, 1996* (Washington, D.C.: World Bank, 1996). Other studies include Anders Åslund, Peter Boone, and Simon Johnson, "How to Stabilize: Lessons from the Postcommunist Countries," *Brookings Papers on Economic Activity* (1996); Martha de Melo, Cevdet Denizer, and Alan Gelb, *From Plan to Market: Patterns of Transition*, World Bank Policy Research Working Paper, no. 1564 (1996); and Stanley Fischer, Rajiv Sahay, and Carlos Vegh, "Stabilization and Growth in Transition Economies: The Early Experience" (Manuscript, Washington, D.C., 1996).

9. World Bank (fn. 8).

10. The groups exclude those countries affected by war: Armenia, Azerbaijan, Croatia, Georgia, Macedonia, and Tajikistan.

11. Similar results can be obtained by replacing the economic reforms ratings of the World Bank with transition indicators developed by the EBRD that measure progress in six categories of reform; EBRD (fn. 8, 1994). The EBRD measures include more institutional variables in their ratings.

12. De Melo, Denizer, and Gelb (fn. 8).

13. Åslund, Boone, and Johnson (fn. 8) find no direct statistical correlation between the extent of economic reforms adopted and the magnitude of cumulative output declines once some basic control variables are added to the regression. They do not test for the existence of a nonlinear relationship as Figure 2 would suggest. Nevertheless, they reach the same conclusion through comparative case analysis.

14. Unemployment data from the postcommunist countries have serious reliability problems and therefore must be used cautiously.

15. Åslund, Boone, and Johnson (fn. 8).

16. Haggard and Kaufman (fn. 2, 1995), 156.

17. Postcommunist cases affected by war are excluded because executive turnovers are much more likely to be affected by the dynamics of war.

18. Executive turnovers consist of the number of times the country's lead policy-making executive has been replaced during the time period. In presidential systems, presidential turnovers are counted. In parliamentary and semipresidential systems, prime ministerial turnovers are counted. A count of zero signifies that the same executive governing the country under communist rule was still governing the

country through the transition, thus indicating no executive turnovers at all.

19. Government tenure consists of the number of months in which the leading executive (president in presidential systems and prime minister in parliamentary and semipresidential systems) has remained in office.

20. On Slovenia, see Sabena Petra Ramet, "Slovenia's Road to Democracy," *Europe-Asia Studies* 45, no. 5 (1993); and Boris Pleskovic and Jeffrey D. Sachs, "Political Independence and Economic Reform in Slovenia," in Oliver J. Blanchard, Kenneth A. Froot, and Jeffrey D. Sachs, eds., *The Transition in Eastern Europe* (Chicago: University of Chicago Press, 1994), 1.

21. On Hungary, see David L. Bartlett, "Stabilization, Adjustment, and Reform: The Political Economy of Transition in Hungary" (Manuscript, 1995); Laszlo Bruszt and David Stark, "Remaking the Political Field in Hungary: From the Politics of Confrontation to the Politics of Competition," in Ivo Banac, ed., *Eastern Europe in Revolution* (Ithaca, N.Y.: Cornell University Press, 1992); and Valerie Bunce and Mario Csanadi , "Uncertainty in the Transition: Post-Communism in Hungary," *East European Politics and Society* 7, no. 2 (1993).

22. Even Vaclav Klaus has faced strong electoral pressures, as evidenced by his poor performance in the 1996 parliamentary elections. Klaus' s three-party coalition government lost its majority share and has been governing as a minority coalition. On the Czech Republic, see Mitchell Orenstein, "Out of the Red: Building Capitalism and Democracy in Post-Communist Europe" (Ph.D. diss., Yale University, 1996).

23. This should not be taken as a proxy measure for the continued dominance of former communist rulers in the postcommunist era. Not all of the slow reformers have faced continuous rule by former communist leaders. Kazakhstan, Turkmenistan, and Uzbekistan did continue to be governed by chief executives who were former first secretaries of their respective communist parties prior to the transition. The first leader of Ukraine, Leonid Kravchuk, was formerly second secretary of the Ukranian Communist Party. In Belarus, Kyrgyzstan, Moldova, and Russia, new chief executives were elected, most of whom held previous positions--though not the leading positions--in the communist parties of their respective republics prior to the transition.

24. Romania is a semipresidential system in which the popularly elected president shares considerable powers with a parliamentary government. Since 1990 Romania has had three prime ministers with an average tenure of twenty-one months each. On Romania, see Katherine Verdery and Gail Kligman, "Romania after Ceausescu: Postcommunist Communism?" in Banac (fn. 21).

25. In a recent paper on the politics of stabilization in postcommunist systems, I show that stabilization programs are as likely to be introduced just before elections--the moment of greatest insecurity in a politician's tenure--as immediately after electoral victories; see Joel S. Hellman, "Competitive Advantage: Political Competition and Economic Reform in Post-Communist Transitions" (Manuscript, 1996).

26. Przeworski (fn. 1), 179.

27. Similarly, the EBRD's transition indicators measuring progress in economic reform in six categories in 1994 and nine categories in 1995 do not reflect any backtracking on reform scores in any of the postcommunist countries; EBRD (fn. 8, 1994, 1995).

28. For detailed accounts of the privatization process in Central Europe and the Baltic states, see Roman Frydman and Andrzej Rapaczynski, *The Privatization Process in Central Europe* , 2 vols. (Budapest: Central European University, 1993).

29. Ibid.

30. For assessments of macroeconomic policy in Hungary and Lithuania, see the country sections in EBRD (fn. 8, 1995).

31. Of course, this does not preclude such reform reversals in the future, nor is it necessarily advantageous for the creation of a stable democracy. Przeworski (fn. 2) expresses the concern that electoral backlashes against reformers that do not lead to backtracking on economic reform can be politically destabilizing in emerging democracies. If voters continue to find that their votes are not reflected in policy changes, then they could lose confidence in the democratic process and be more attracted to authoritarian solutions.

32. This assumption is especially important in political economy models that are designed to highlight the advantages of gradual reforms. Roland argues that the best political strategy of reform is to start with measures that produce winners in the short term who gain a stake in the reform process that they will continue to defend once more costly measures need to be adopted down the road. See Gerard Roland, "Political Economy of Sequencing Tactics in the Transition Period," in Laszlo Csaba, ed., *Systemic Change and Stabilization in Eastern Europe* (Aldershot, U.K.: Dartmouth Press, 1991); and idem (fn. 3). This is also the spirit of Murrell's critique of the shock therapy reform program; Peter Murrell, "Conservative Political Philosophy and the Strategy of the Economic Transition," *East European Politics and Societies* 6, no. 1 (1993); and idem, "Evolution in Economics and in the Economic Reform of the Centrally Planned Economies," in Christopher Clague and Gordon C. Rausser, eds., *The Emergence of Market Economies in Eastern Europe* (Cambridge, Mass.: Blackwell, 1992).

33. Haggard and Kaufman (fn. 2, 1995), chap. 1, emphasize this collective action dilemma in the political economy of reform.

34. The only work that explicitly examines the dynamics of partial reform is Kevin M. Murphy, Andrei Shleifer, and Robert Vishny, "The Transition to a Market Economy: Pitfalls of Partial Reform," *Quarterly Journal of Economics* 57, no. 3 (1992). Ronald I. McKinnon touches on this issue in his analysis of different sequences of economic reform; see McKinnon, *The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy* (Baltimore: Johns Hopkins University Press, 1991). Richard E. Ericson discusses the social costs of partial reforms in the specific context of the transition from centrally planned economies, though he does not explore the distribution of gains from such reforms; see Ericson, "The Classical Soviet-Type Economy: Nature of the System and Implications for Reform," *Journal of Economic Perspectives* 5, no. 4 (1991).

35. Ericson (fn. 34).

36. The fact that such market distortions exist does not guarantee that actors will be able to take advantage of them in these partially reformed economies. It is possible that a highly restrictive state could build walls between the liberalized and more highly controlled spheres of the economy, preventing actors from gaining access to these rent-seeking opportunities. This is often the explanation for the

success of China's partially reformed economy, though press reports of high levels of corruption within China's state sector suggest that there are limits to the state's capacity to enforce such restrictions; Murphy, Shleifer, and Vishnay (fn. 34).

37. Of course, these are not the only components of comprehensive reform, but they do encompass what are generally considered to be the key elements of reform. See EBRD (fn. 8, 1995).

38. Such a measure assumes that the distance separating the thresholds of the 1-4 scale within each dimension are directly comparable across all the dimensions, which may not necessarily be the case. As a result, this measure of partial reform should be interpreted with considerable caution. Given the potential measurement error in gauging partial reform, it would not be appropriate to use these data in any sophisticated statistical tests. Rather, at this stage the data are more suggestive of trends that are worthy of further empirical investigation.

39. The World Bank has collected the only detailed data on inequality and the concentration of incomes in the transition economies based on household surveys. Unfortunately, because data are not available on the entire set of transition economies, it is impossible to make any statistical tests on this small sample of countries. Branko Milanovic presents the data and provides an interesting analysis of the relationship between inequality and poverty. See Milanovic, *Poverty, Inequality and Social Policy in Transition Economies* ," World Bank Policy Research Working Paper, no. 1530 (1995); and idem, *Income, Inequality and Poverty during the Transition* , Transition Economies Division Research Paper Series 11 (1996). Data on inequality among postcommunist countries require more than the standard caveats in this field, given the strong incentives to hide income from taxation at all levels. Gini coefficients from the prereform period should be biased downward, given the ideological constraints on revealing inequalities in socialist systems and the numerous forms of perquisites in kind available to the *nomenklatura* . In the transition period Gini coefficients are likely to be biased downward, as higher income groups have greater access to outlets for hiding income than do those in lower income groups.

40. Milanovic (fn. 39, 1996), chap. 4.

41. Countries that adopt radical economic reforms from the very start are not necessarily immune from this problem. Even the most radical reform programs are composed of multiple elements each with a different time horizon giving rise to temporary market distortions and arbitrage opportunities that produce concentrated gains in the short term. Since the reform process does not consist of a single choice of reform programs, but rather is a sequence of numerous choices on separate dimensions of reform over time, there are still many opportunities for the short-term winners to scale back the intentions of radical reformers.

42. Dmitriev et al. provide a detailed analysis of the rents to newly created commercial banks directly related to the lack of macroeconomic stabilization in the context of a highly liberalized financial system and how quickly those rents declined as the economy began to stabilize. See Mikhail E. Dmitriev et al., *Rossiiskie Banki Nakanune Finansovoi Stabiliaztsii* (Russian banks on the eve of financial stabilization) (St. Petersburg: Norma, 1996).

43. EBRD (fn. 8, 1994).

44. Freedom House, *Freedom in the World, 1993-1994* (New York: Freedom House, 1994).

45. Tsebelis argues that increasing the number of parties in a coalition government increases the number of veto points in the policy-making process; see George Tsebelis, "Decision-Making in Political Systems: Veto in Presidentialism, Parliamentarism, Multicameralism and Multipartyism," *British Journal of Political Science* 25 (1995).

46. The scale is slightly modified for the postcommunist countries to include a category for single-party governments that explicitly restrict party competition. The scale is as follows: 1 = one-party authoritarian government (competition restricted); 2 = one-party majority parliamentary government or united presidential government; 3 = two-party coalition government or divided presidential government; 4 = three- or more party government; and 5 = minority government. Monthly coalition government scores were coded for each postcommunist country beginning with the first free election or the formal declaration of independence. A weighted average of the monthly scores is used in the scatterplot graph. See Nouriel Roubini and Jeffrey Sachs, "Government Spending and Budget Deficits in the Industrial Countries," *Economic Policy* 8 (1989); and idem "Political and Economic Determinants of Budget Deficits in the Industrial Democracies," *European Economic Review* 33 (1989).

World Politics 50.2 (1998)

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

Figures

Figure 1. The J Curve

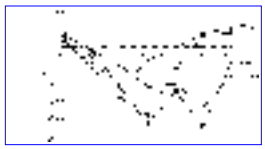


Figure 2. GDP by Reform Group

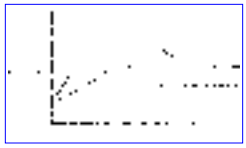


Figure 3. The Winner's Curve

Figure 4.

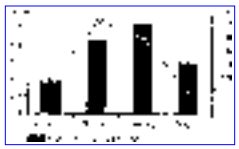


Figure 5. Reform and Inequality

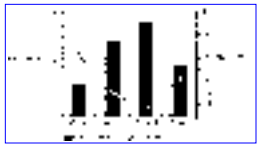


Figure 6. Inequality and GDP Growth

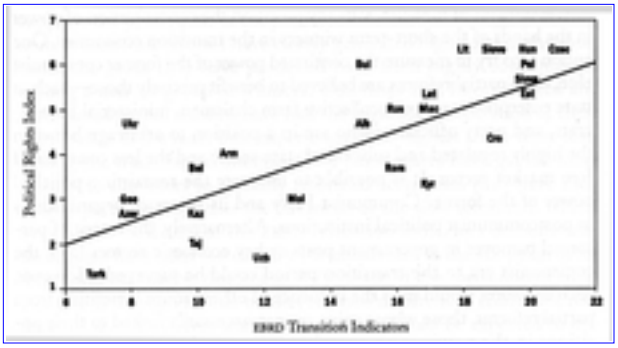


Figure 7. Democracy and Economic Reform

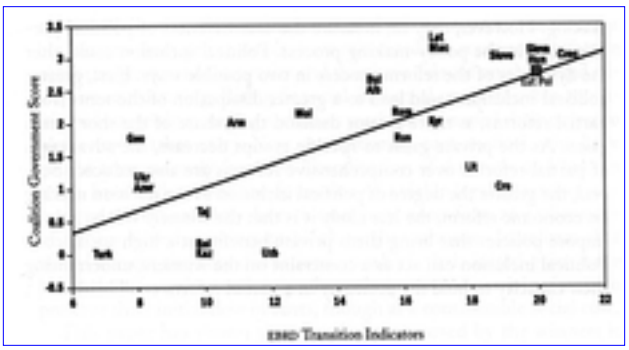


Figure 8. Coalition Government and Economic Reform

World Politics 50.2 (1998) 207

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

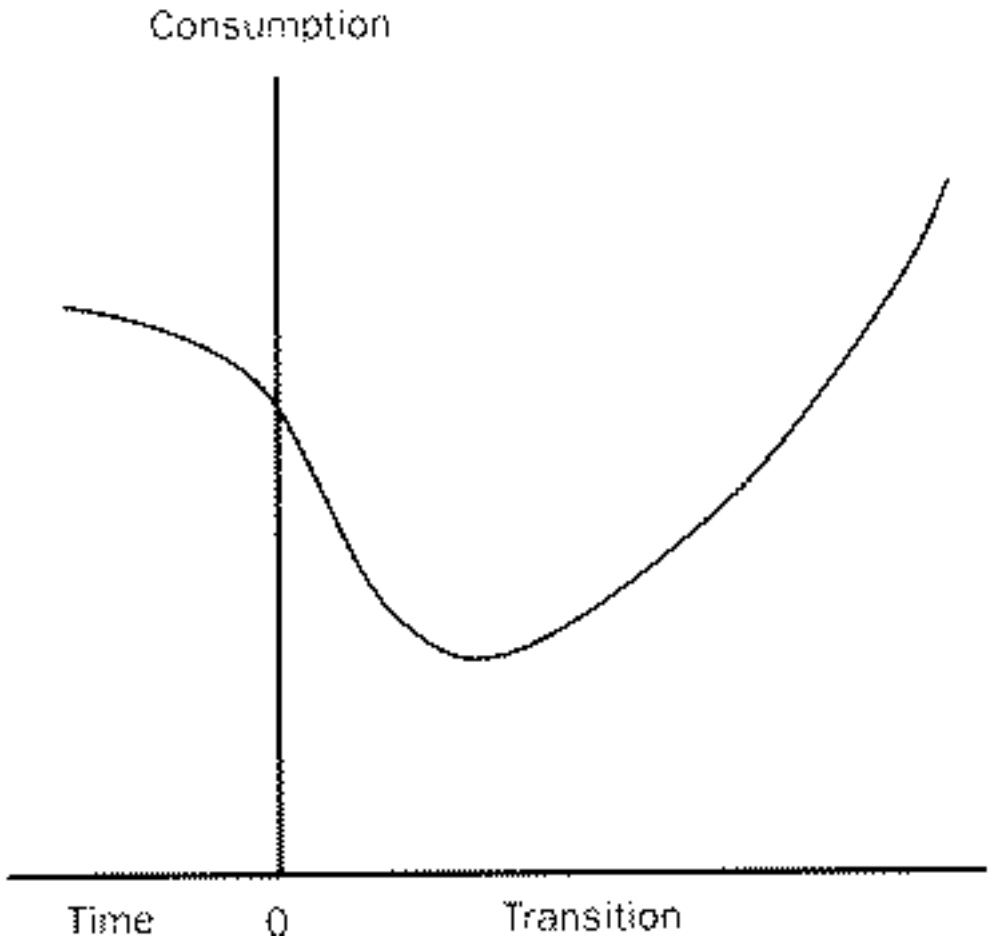
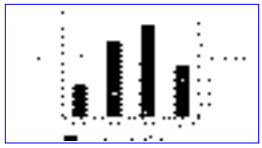
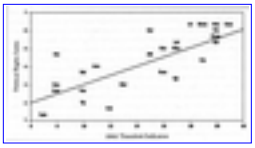
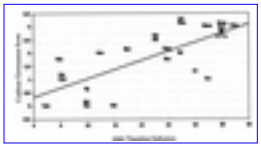


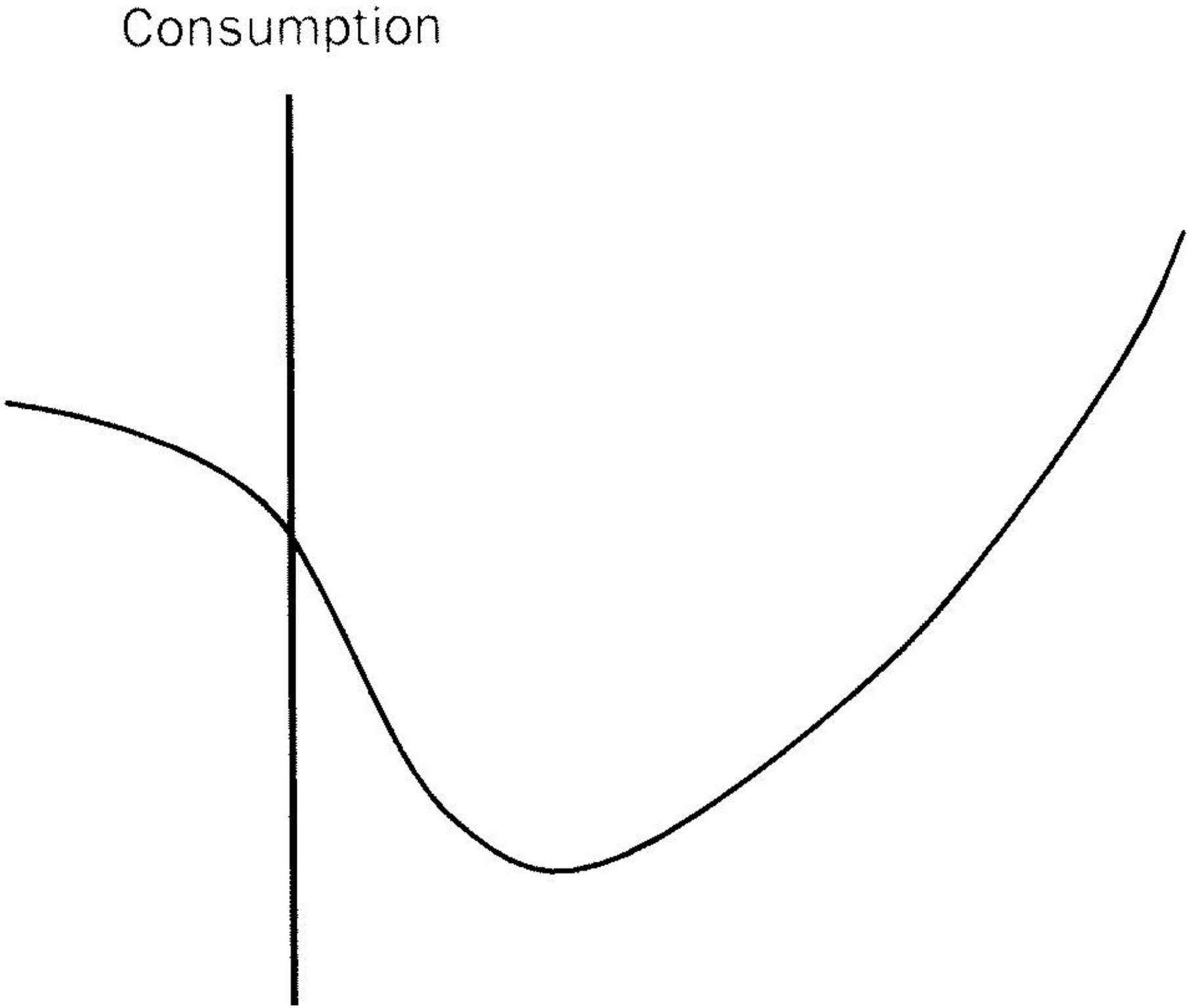
Figure 1. The J Curve

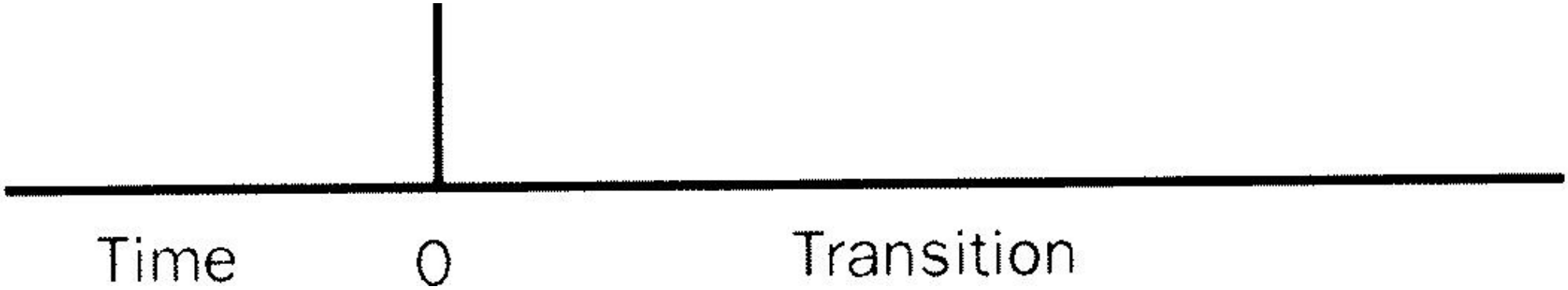
Full size JPEG (40K; 1056 x 1000 pixels)

Return to In-Text Image

Figures: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions


Consumption


Time
0
Transition

World Politics 50.2 (1998) 210

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

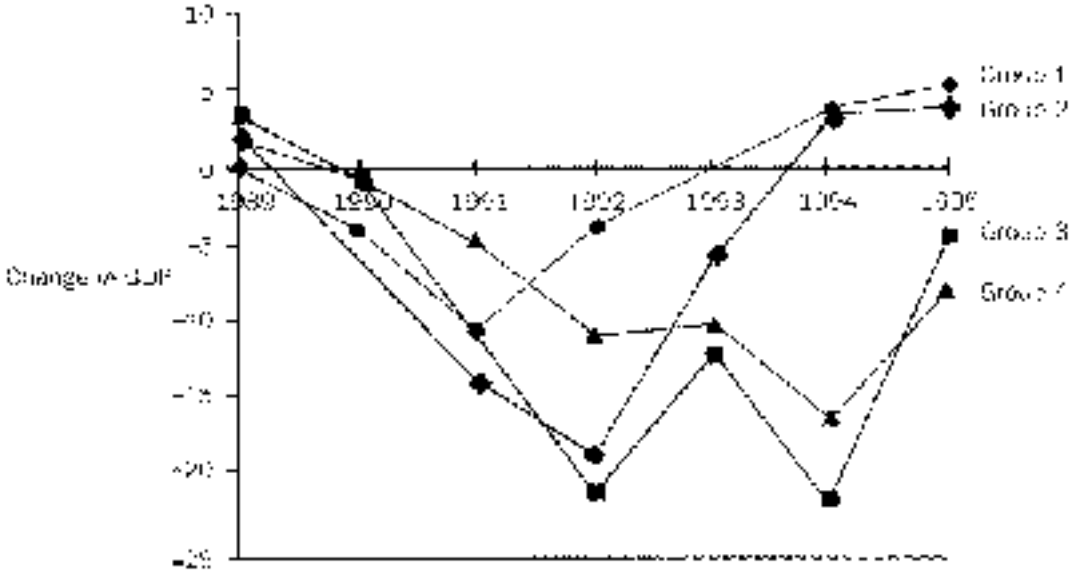
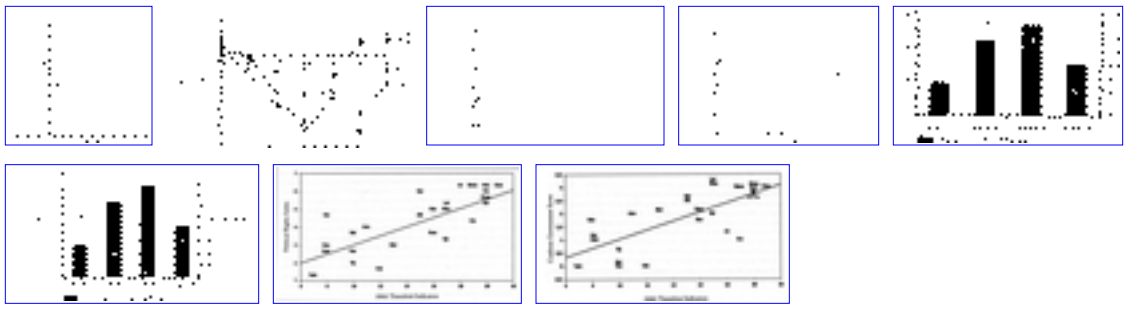


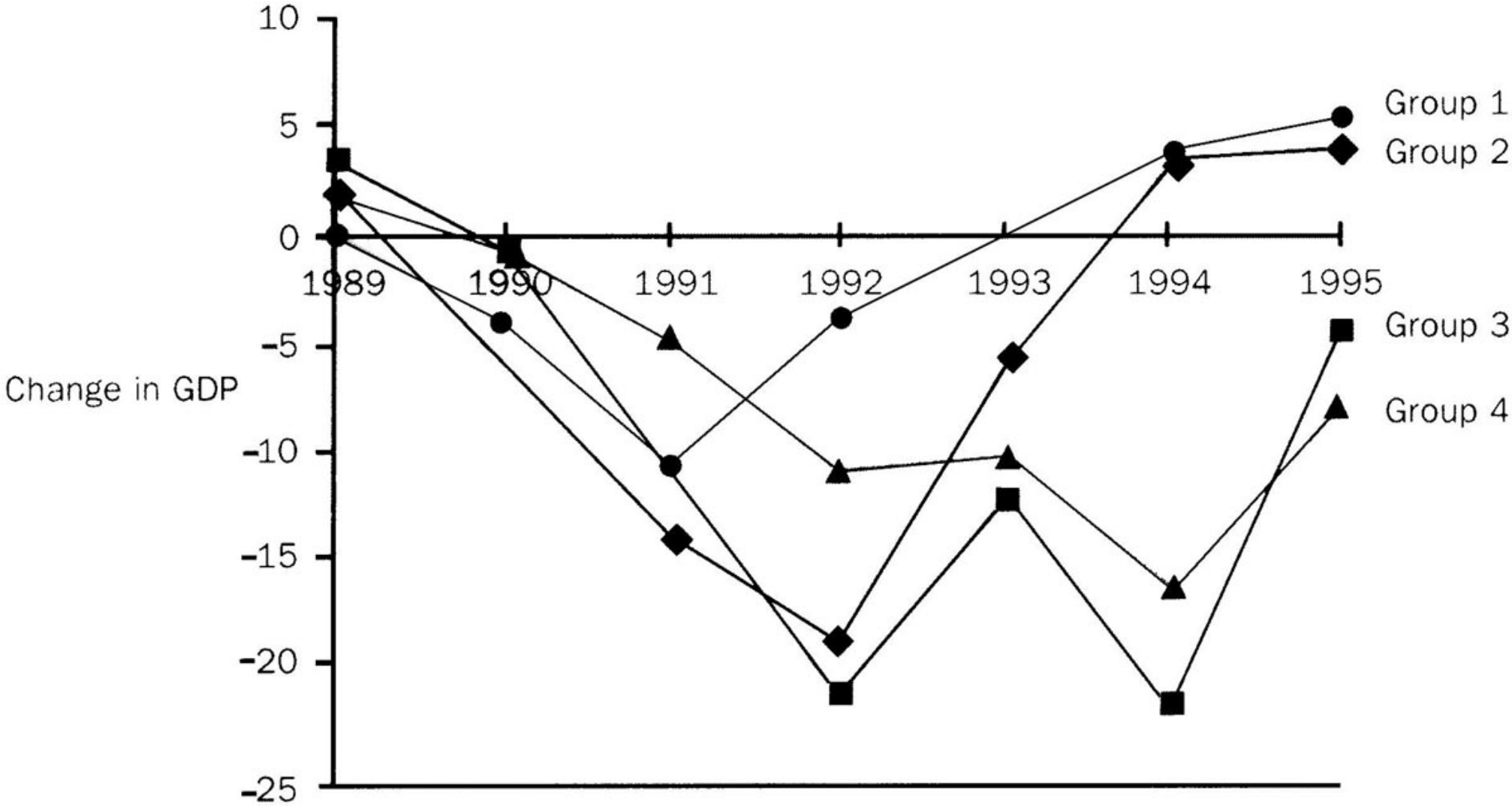
Figure 2. GDP by Reform Group

Full size JPEG (748K; 1200 x 638 pixels)

Return to In-Text Image

Figures: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions




10
5
0
-5
-10
-15
-20
-25
1989
1990
1991
1992
1993
1994
1995
Change in GDP
Group 1
Group 2
Group 3
Group 4

World Politics 50.2 (1998) 221

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

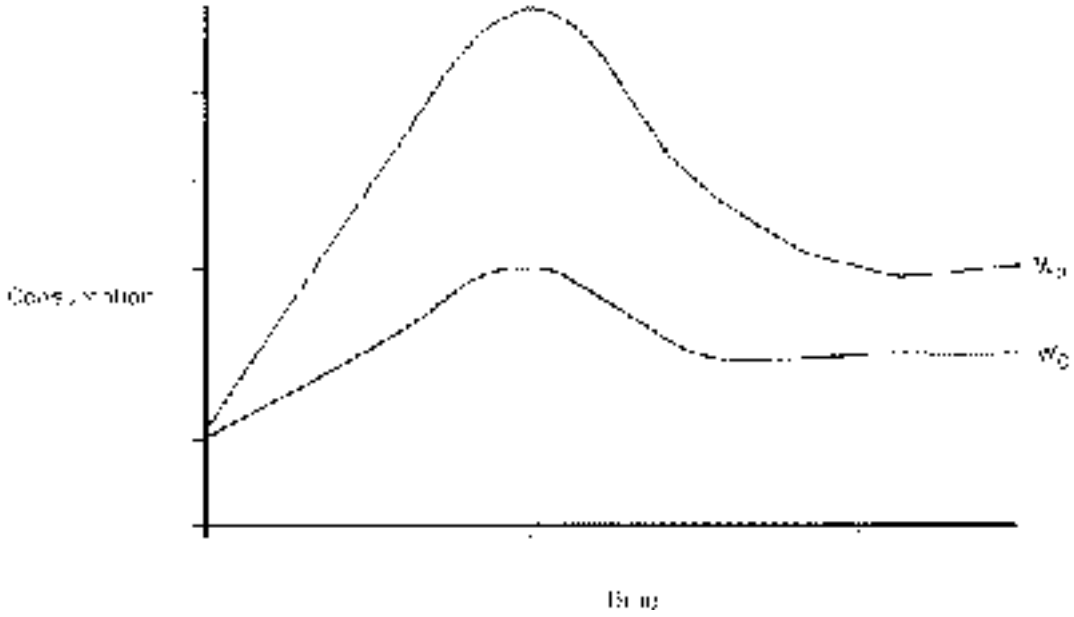
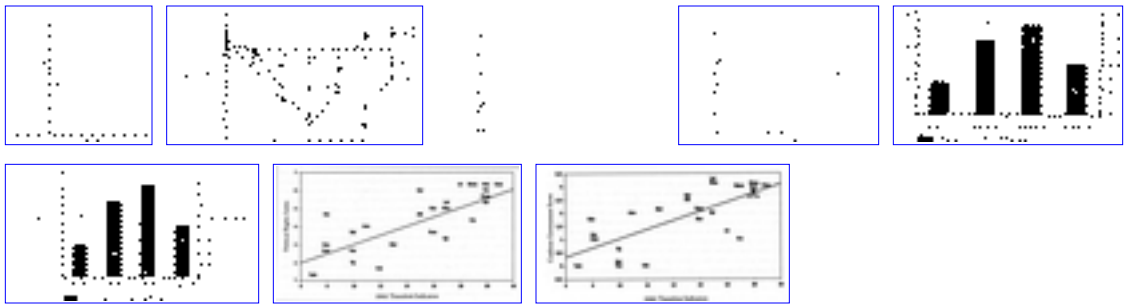


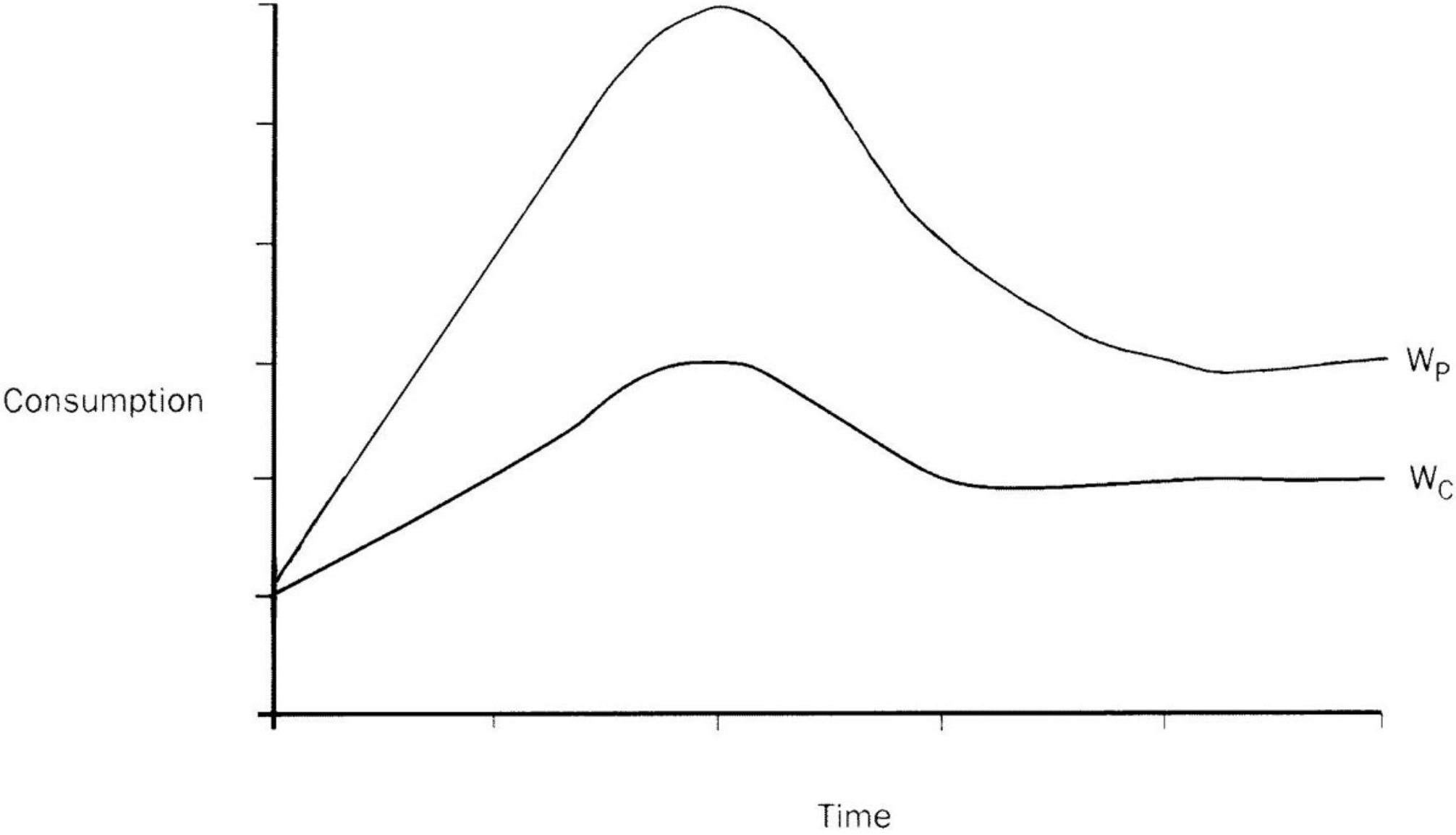
Figure 3. The Winner's Curve

Full size JPEG (807K; 1200 x 688 pixels)

Return to In-Text Image

Figures: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions




Consumption
W_P
W_C
Time

World Politics 50.2 (1998) 222

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

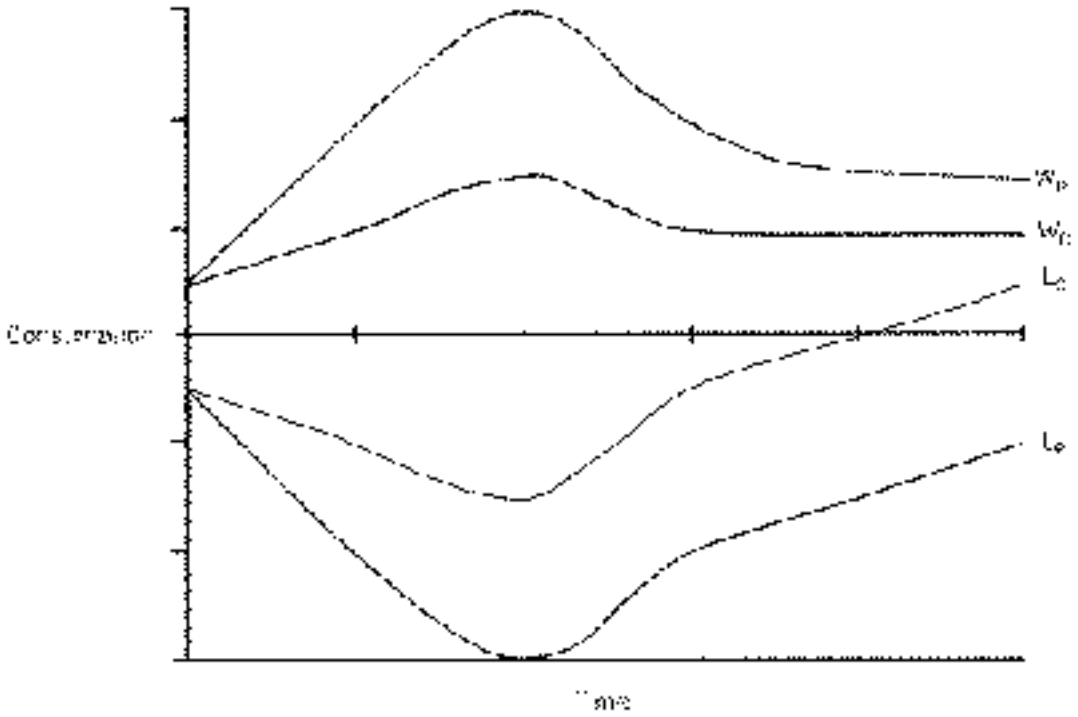
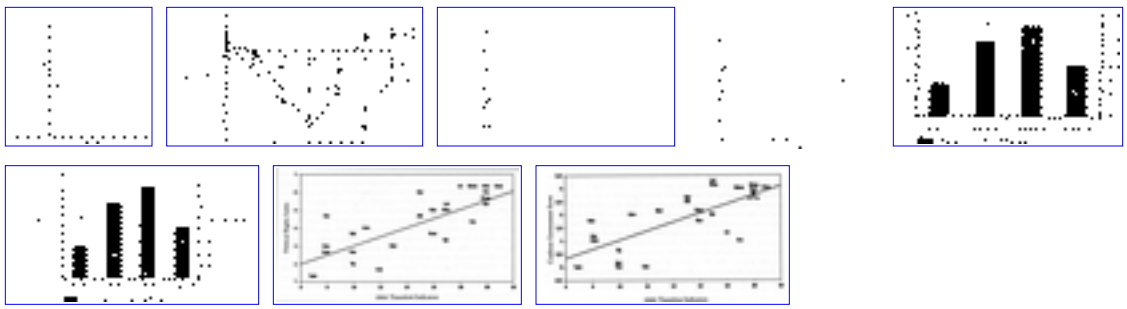


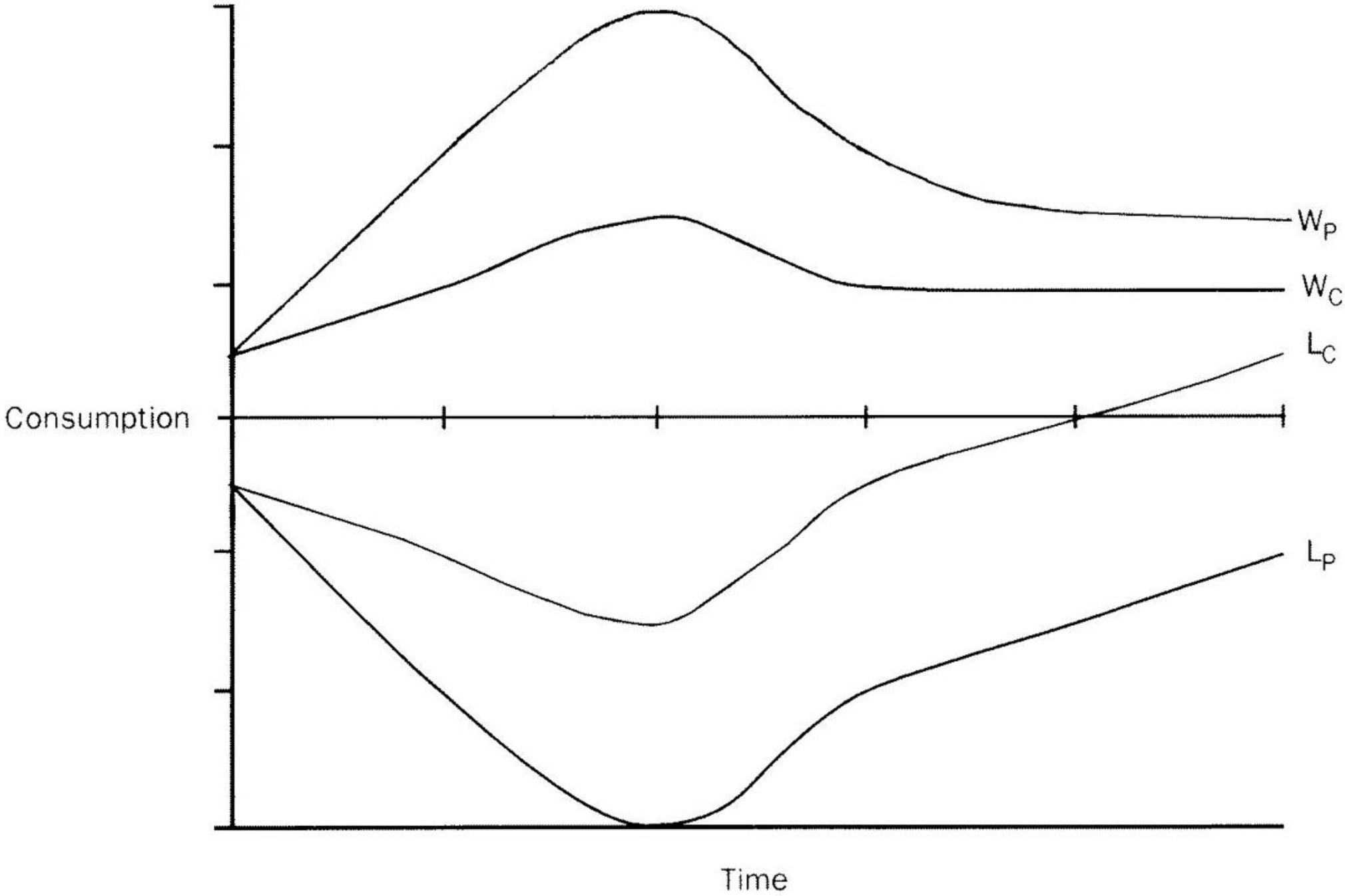
Figure 4.

Full size JPEG (963K; 1200 x 821 pixels)

Return to In-Text Image

Figures: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions




W_P
W_C
L_C
Consumption
L_P
Time

World Politics 50.2 (1998) 226

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

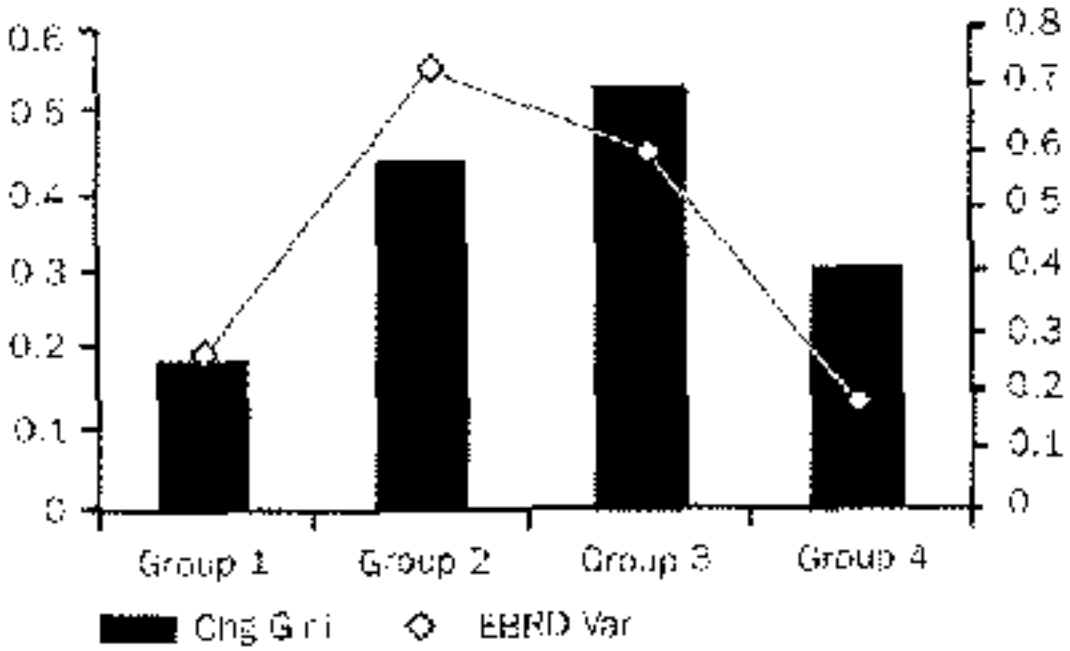
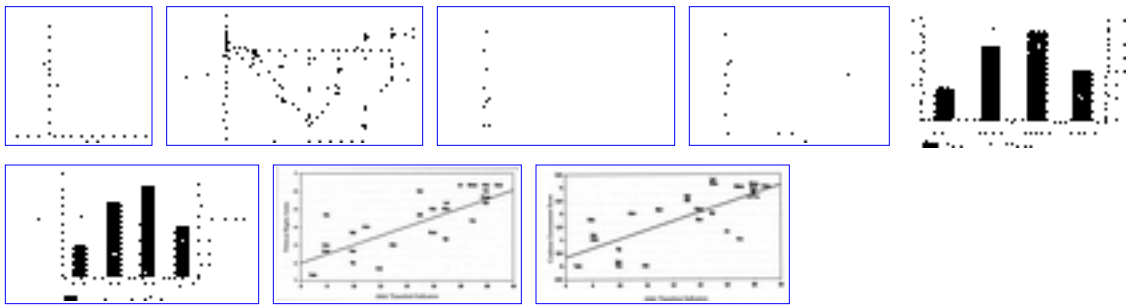


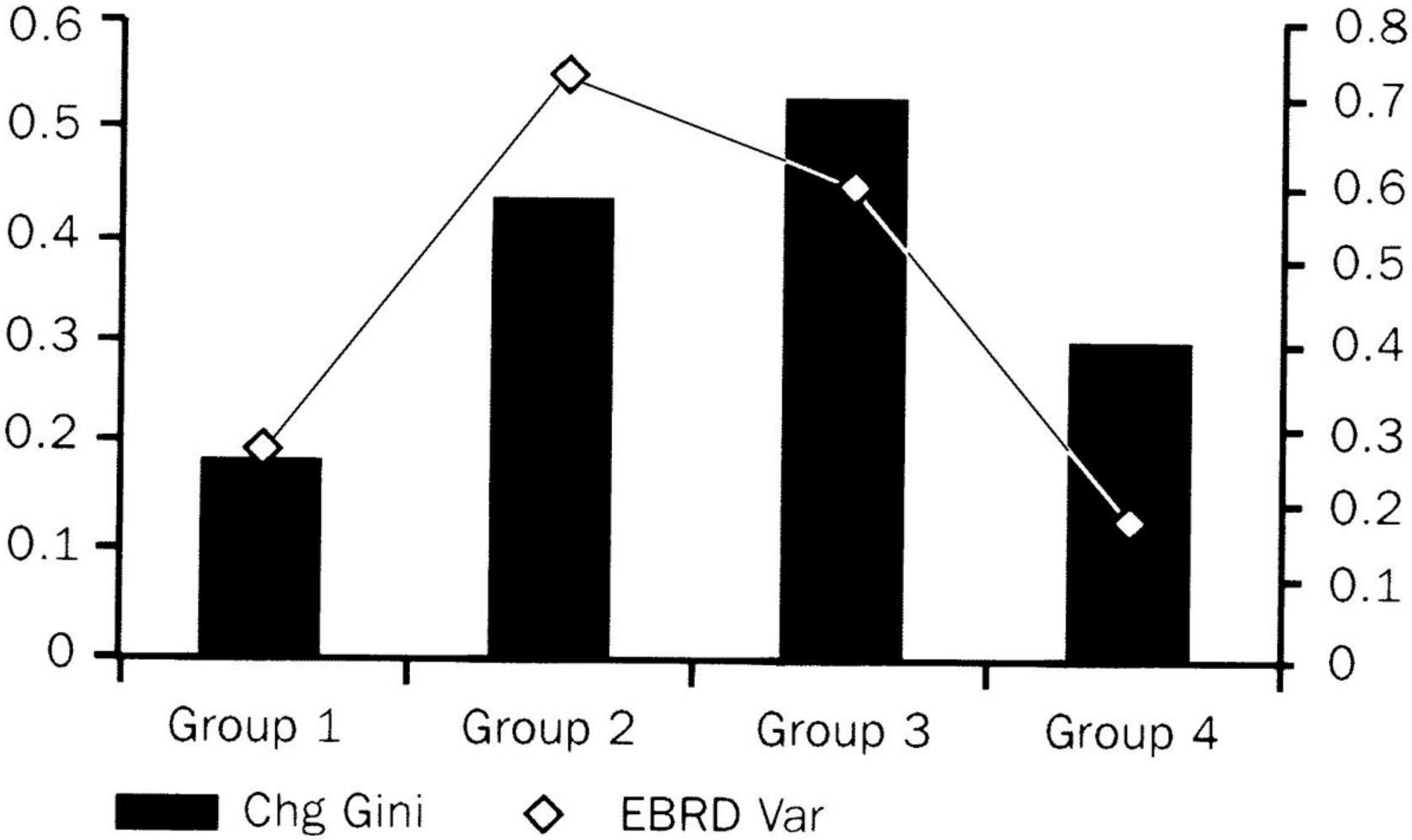
Figure 5. Reform and Inequality

Full size JPEG (836K; 1200 x 713 pixels)

Return to In-Text Image

Figures: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions




0.6
0.5
0.4
0.3
0.2
0.1
0
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Group 1
Group 2
Group 3
Group 4
Chg Gini
EBRD Var

World Politics 50.2 (1998) 227

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

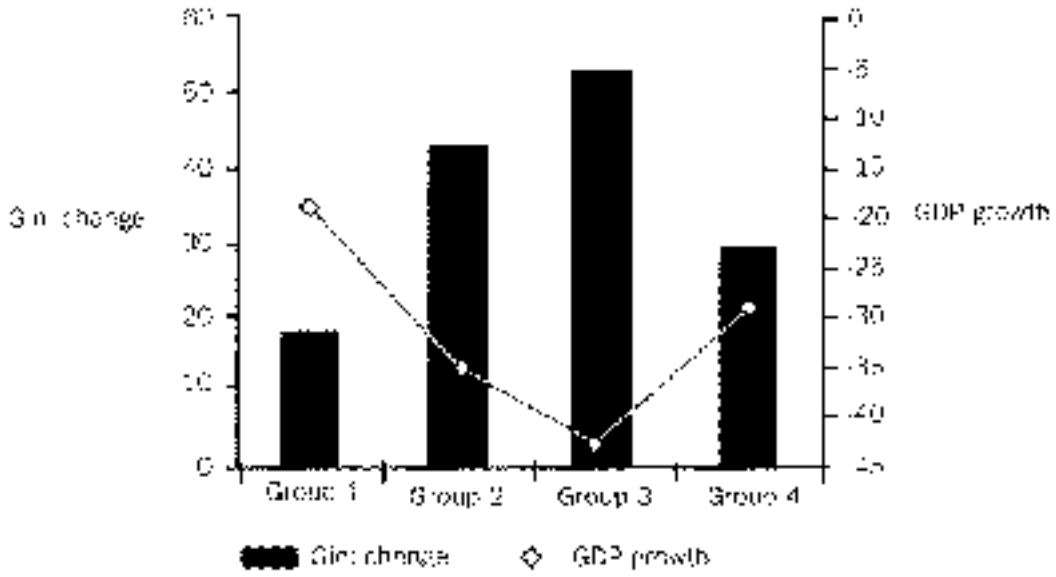
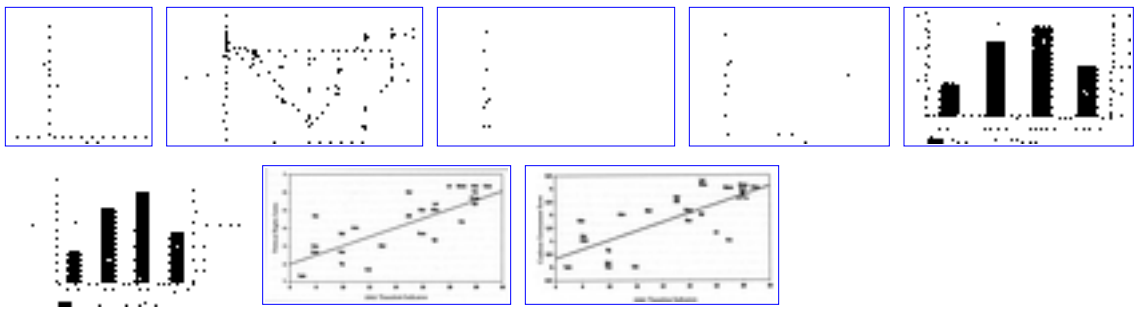


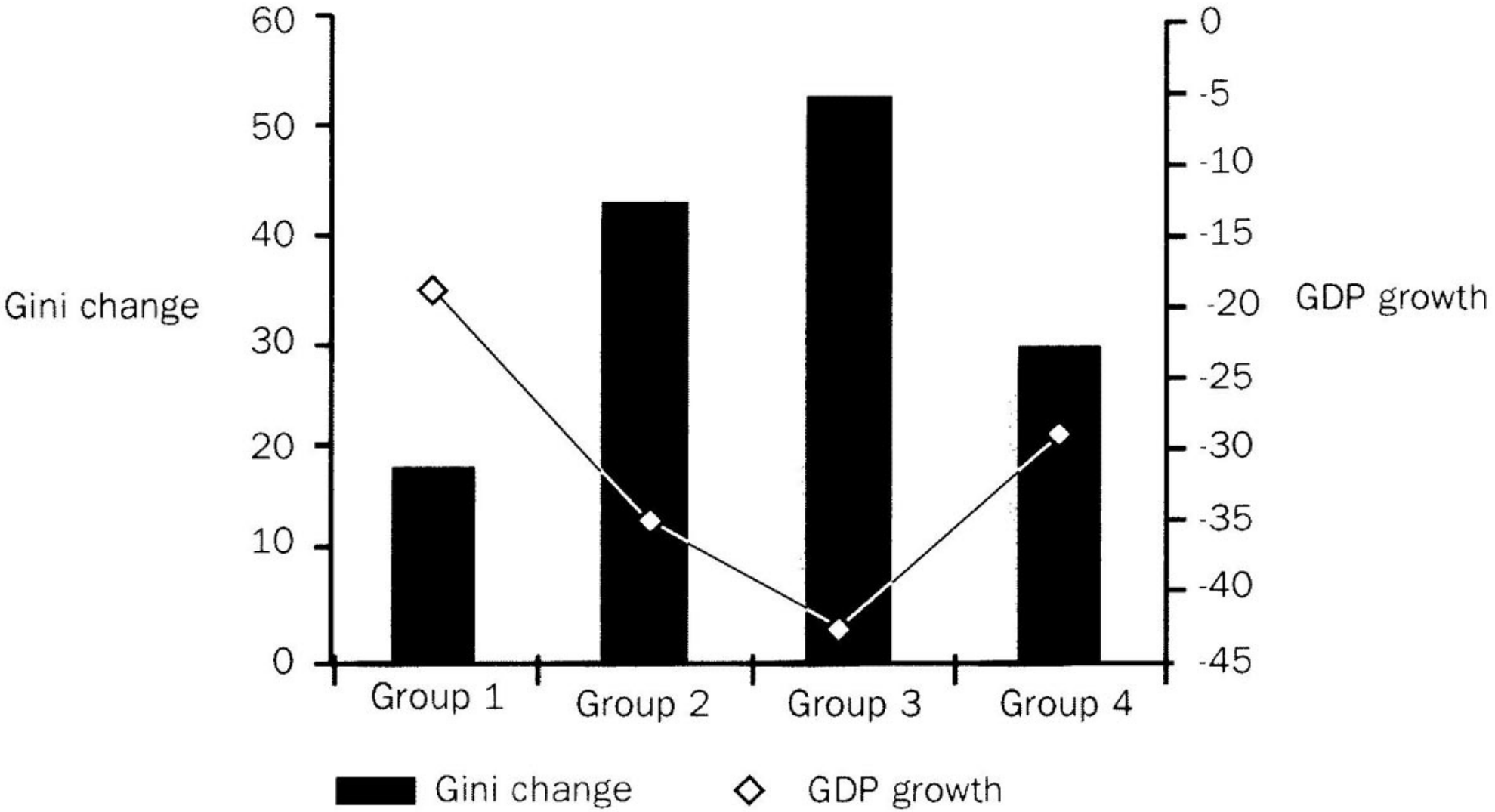
Figure 6. Inequality and GDP Growth

Full size JPEG (761K; 1200 x 649 pixels)

Return to In-Text Image

Figures: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions




Gini change
60
50
40
30
20
10
0
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
GDP growth
Group 1
Group 2
Group 3
Group 4
Gini change
GDP growth

World Politics 50.2 (1998) 230

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

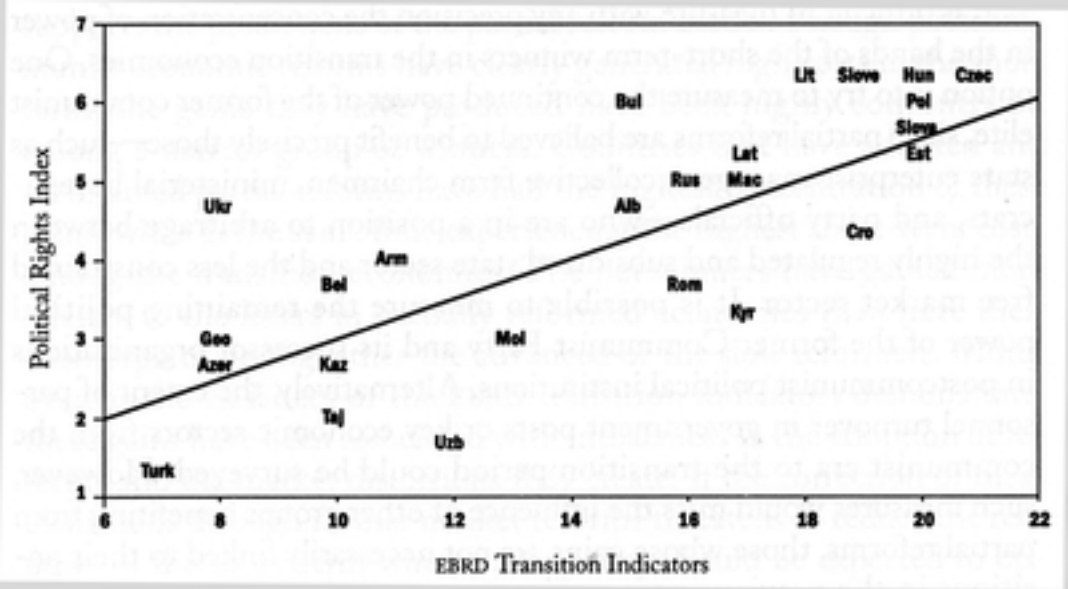
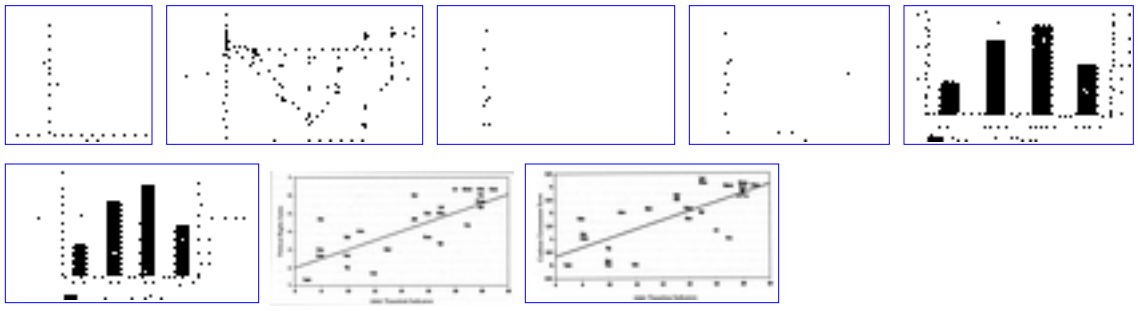


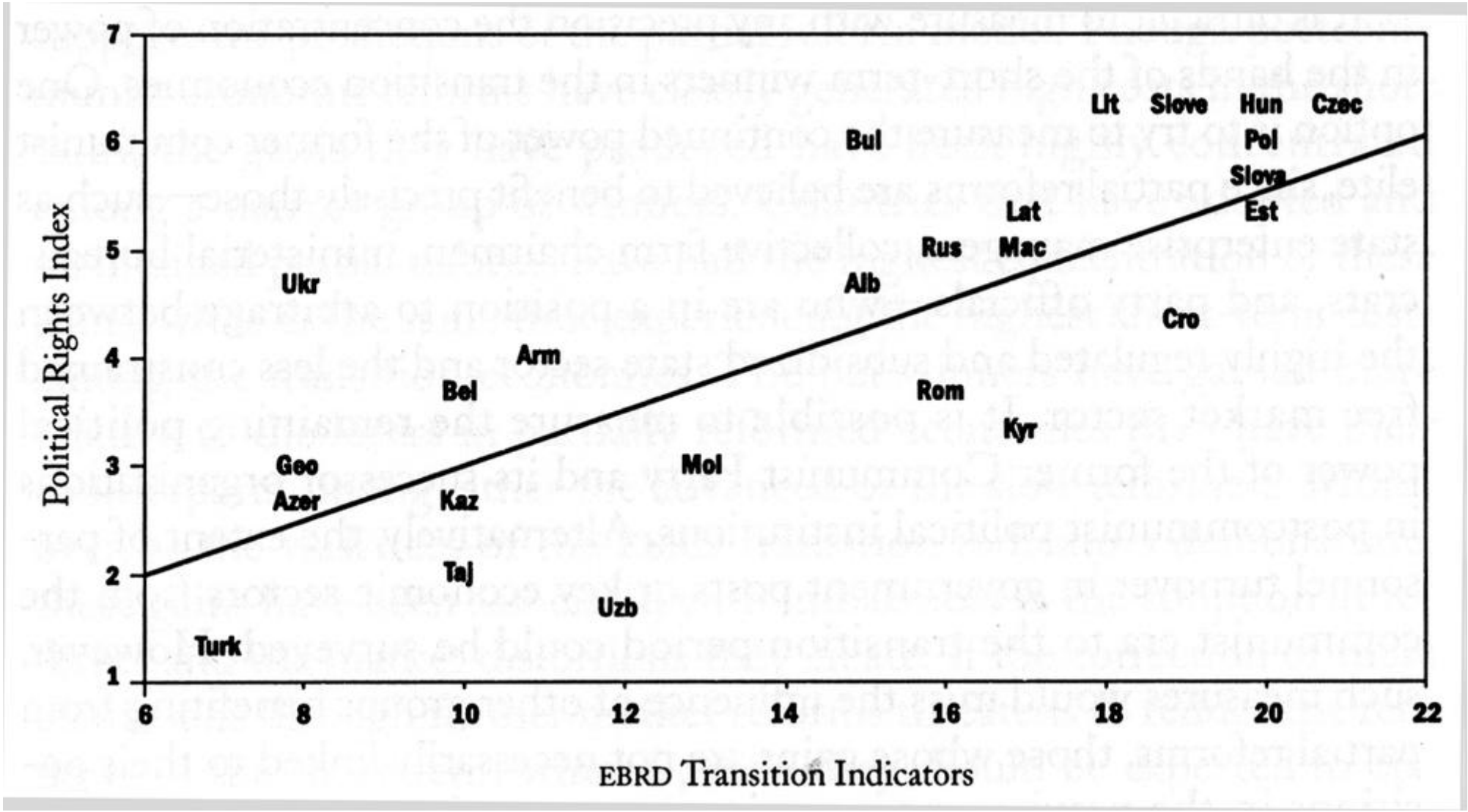
Figure 7. Democracy and Economic Reform

Full size JPEG (0K; x pixels)

Return to In-Text Image

Figures: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions




Political Rights Index
EBRD Transition Indicators
7
6
5
4
3
2
1
6
8
10
12
14
16
18
20
22
Lit
Slove
Hun
Czec
Bul
Pol
Slova
Lat
Est
Rus
Mac
Ukr
Alb
Cro
Arm
Bel
Rom
Kyr
Geo
Mol
Azer
Kaz
Taj
Uzb
Turk

World Politics 50.2 (1998) 231

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

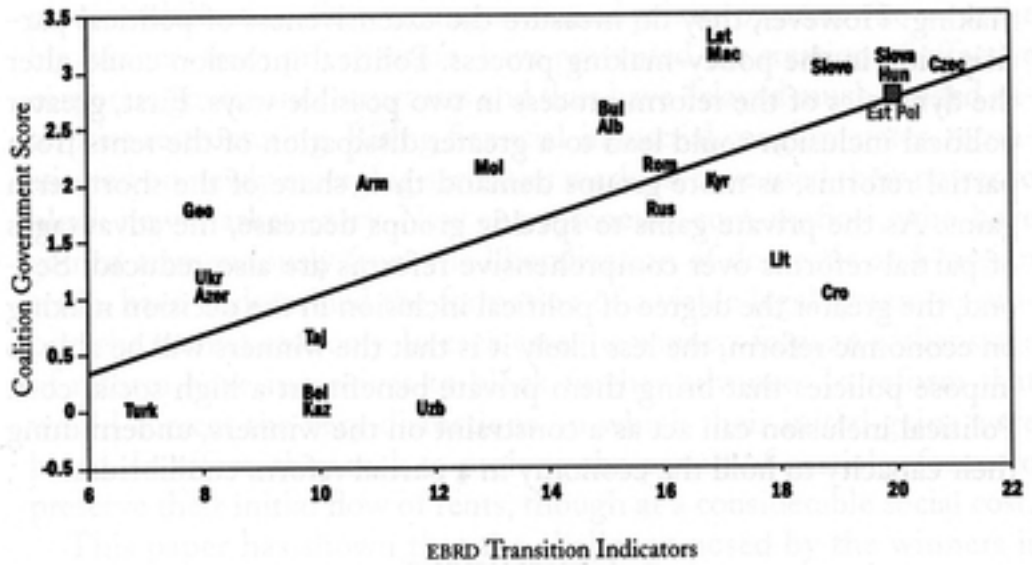
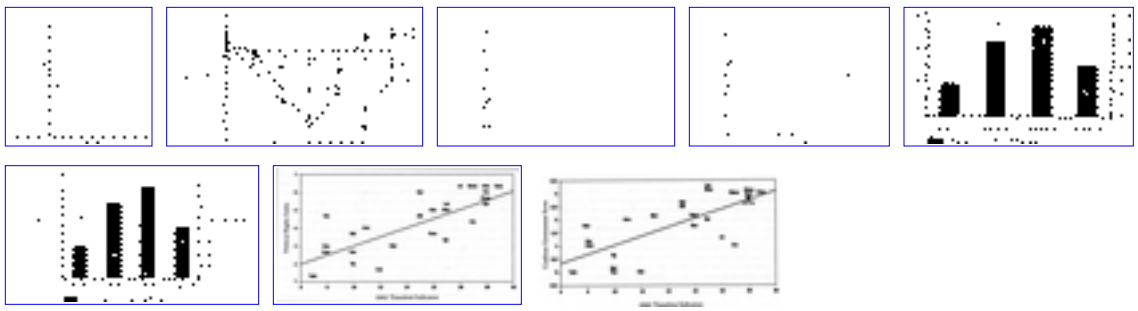


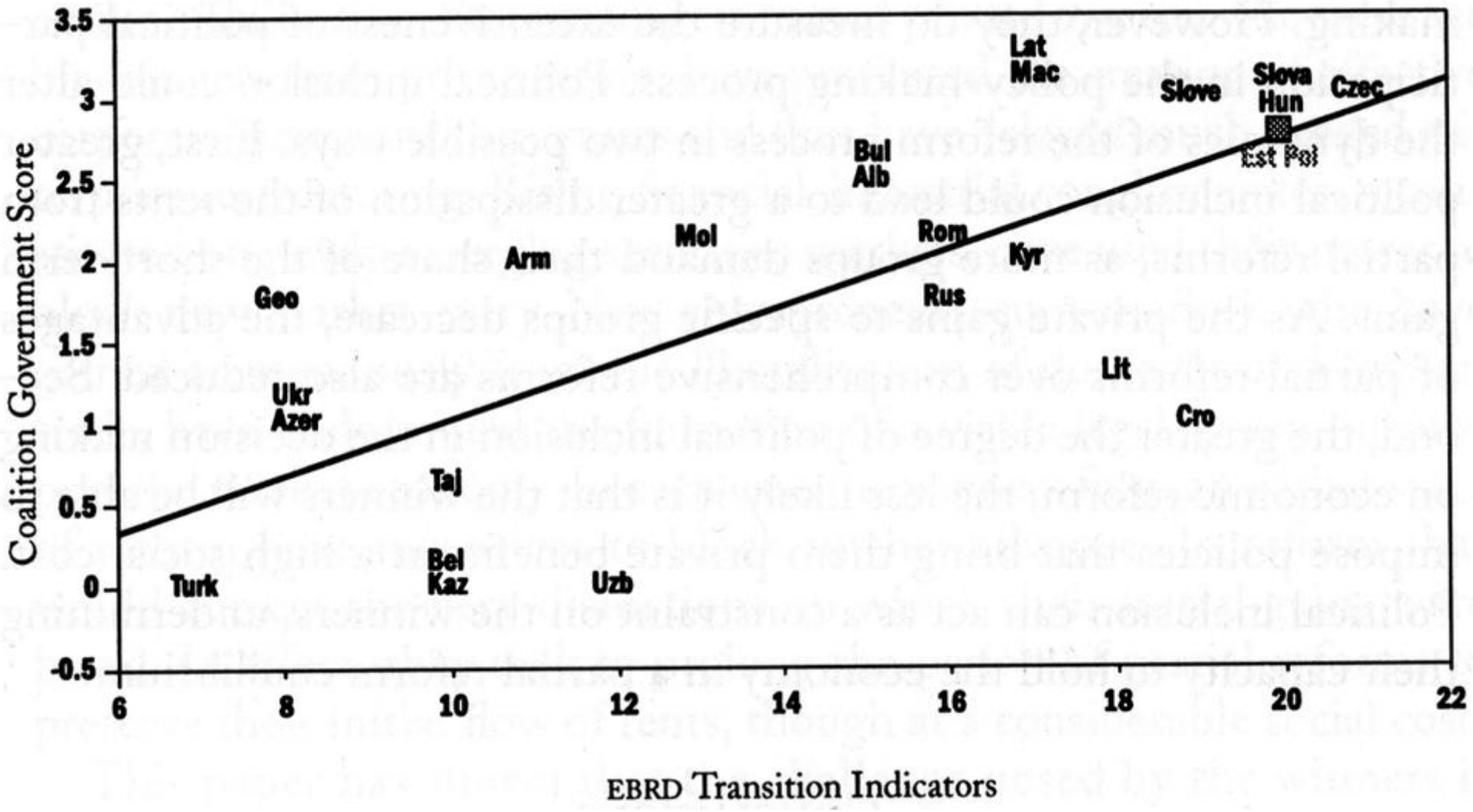
Figure 8. Coalition Government and Economic Reform

Full size JPEG (0K; x pixels)

Return to In-Text Image

Figures: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions




Coalition Government Score
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
6
8
10
12
14
16
18
20
22
EBRD Transition Indicators
Lat
Mac
Slove
Slova
Hun
Czec
Est Pol
Bul
Alb
Mol
Rom
Arm
Kyr
Geo
Rus
Lit
Ukr
Azer
Cro
Taj
Bel
Kaz
Turk
Uzb

World Politics 50.2 (1998)

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

Tables

.

World Politics 50.2 (1998) 209

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

Table 1
Change in GDP

	1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
All countries	1.55	-4.50	-10.45	-17.17	-9.29	-7.74	-0.84
Excluding war	1.93	-3.20	-10.65	-13.79	-6.67	-6.02	0.11

Source: EBRD (fn. 8, 1995).

Return to Text

Tables: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

[Table 1] [Table 2] [Table 3] [Table 4] [Table 5]

.

World Politics 50.2 (1998) 211

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

Table 2
Unemployment

	1990	*1991*	*1992*	*1993*	*1994*
Advanced					
Poland	6.1	11.8	13.6	16.4	16
Slovenia	4.7	8.2	11.1	14.5	14.5
Hungary	2.5	8.0	12.3	12.1	10.9
Czech Republic	0.8	4.1	2.6	3.5	3.2
Slovak Republic	1.5	11.8	10.4	14.4	14.8
Average	3.1	8.8	10.0	12.2	11.9
High intermediate					
Estonia	0.0	0.1	4.8	8.8	8.1
Bulgaria	1.5	11.1	15.3	16.4	12.8
Lithuania	0.0	0.3	1.3	4.4	3.8
Latvia	0.0	0.1	2.1	5.3	6.5
Albania	7.7	8.6	26.9	28.9	19.5
Romania	0.0	3.0	8.4	10.2	10.9
Average	1.5	3.9	9.8	12.3	10.3
Low intermediate					
Kyrgyzstan	0.0	0.0	0.1	0.2	0.7
Russia	0.0	0.1	0.8	1.1	2.2
Moldova	0.0	0.0	0.7	0.8	1.2
Kazakhstan	0.0	0.1	0.5	0.6	1.0
Average	0.0	0.1	0.5	0.7	1.3
Slow					
Uzbekistan	0	0	0.1	0.2	0.3
Ukraine	0	0	0.3	0.4	0.4

Belarus	1	1	0.5	1.5	2.1
Turkmenistan	0	0	0	0	n.a.
Average	0.3	0.3	0.2	0.5	0.9
War					
Armenia	1	3.5	3.5	6.2	5.6
Azerbaijan	0	0.1	0.2	0.7	0.9
Georgia	0	0	5.4	8.4	n.a.
Tajikistan	0	0	0.3	1.1	1.7
Croatia	9.3	15.5	17.8	17.5	18
Macedonia	n.a.	18	19	19	19
Average	2.1	6.2	7.7	8.8	9.0

Source: De Melo, Denizer, and Gelb (fn. 8).

Return to Text

Tables: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

[Table 1] [Table 2] [Table 3] [Table 4] [Table 5]

.

World Politics 50.2 (1998) 213

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

Table 3
Government Stability

	Executive Turnovers	*Average Government Tenure (# Months)*
Advanced		
Poland	6	14
Slovenia	2	34
Hungary	3	26
Czech Republic	2	35
Slovakia	5	14
Average	3.6	24.6
High intermediate		
Estonia	4	17
Bulgaria	6	13
Latvia	4	15
Lithuania	5	14
Albania	2	27.5
Romania	1	67
Average	3.7	25.6
Low intermediate		
Kyrgyzstan	1	62
Russia	1	54
Moldova	1	61
Kazakhstan	0	69
Average	0.8	61.5
Slow		
Turkmenistan	0	62

Ukraine	2	24
Uzbekistan	0	62
Belarus	2	26
Average	1	43.5

Return to Text

Tables: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

[Table 1] [Table 2] [Table 3] [Table 4] [Table 5]

.

World Politics 50.2 (1998) 216

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

Table 4
Selected CLI Scores

	1990	*1991*	*1992*	*1993*	*1994*
Hungary					
Internal prices	0.8	0.9	0.9	0.9	0.9
External prices	0.7	0.9	0.9	0.9	0.9
Private sector entry	0.3	0.5	0.6	0.7	0.8
Poland					
Internal prices	0.7	0.7	0.9	0.9	0.9
External prices	0.9	0.9	0.9	0.9	0.9
Private sector entry	0.5	0.6	0.9	0.7	0.8
Lithuania					
Internal prices	0.3	0.5	0.8	0.9	0.9
External prices	0.3	0.2	0.5	0.9	1.3
Private sector entry	0.1	0.3	0.4	0.6	0.8
Estonia					
Internal prices	0.3	0.5	0.9	0.9	0.9
External prices	0.1	0.3	0.7	1.3	1.3
Private sector entry	0.2	0.2	0.4	0.6	0.8
Slovakia					
Internal prices	0.3	0.9	0.9	0.9	0.9
External prices	0.3	0.8	0.9	0.8	0.8
Private sector entry	0.4	0.7	0.8	0.8	0.8
Bulgaria					
Internal prices	0.3	0.9	0.9	0.9	0.8
External prices	0.5	0.9	0.9	0.9	0.8
Private sector entry	0.1	0.2	0.3	0.3	0.4

Source: World Bank (fn. 8).

Return to Text

Tables: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

[Table 1] [Table 2] [Table 3] [Table 4] [Table 5]

.

World Politics 50.2 (1998) 225

Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

Joel S. Hellman

Table 5
Partial Reform and Inequality

	Variance in EBRD Scores	*Gini Coeff 1988-89*	*Gini Coeff 1993-94*	*% Change Gini 1988-94*	*Change in Income Share Top Quint*	*GDP 1993-94 GDP 1988-89*
Advanced						
Poland	0.25	26	31	0.19	3.43	88
Slovenia	0.36	24	28	0.17	3.76	84
Hungary	0.28	21	23	0.10	1.07	81
Czech Republic	0.28	19	27	0.42	5.77	81
Slovakia	0.19	20	20	0.00	-0.10	79
Average	0.27	22	25.8	0.18	2.79	82.6
High intermediate						
Estonia	0.44	23	39	0.70	13.61	73
Bulgaria	0.53	23	34	0.48	7.78	69
Latvia	0.75	23	27	0.17	4.01	60
Lithuania	0.69	23	36	0.57	9.75	44
Albania	1.25	n.a.	n.a.	n.a.	n.a.	74
Romania	0.78	23	29	0.26	4.08	69
Average	0.74	23	33.0	0.43	7.85	64.8
Low intermediate						
Kyrgyzstan	0.94	26	35	0.35	n.a.	61
Russia	0.53	24	48	1.00	20.02	57
Moldova	0.53	24	36	0.50	8.89	53
Kazakhstan	0.36	26	33	0.27	n.a.	57
Average	0.59	25	38.0	0.53		57.0
Slow						
Turkmenistan	0.11	26	36	0.38	n.a.	69

Ukraine	0.19	23	33	0.43	n.a.	56
Uzbekistan	0.25	28	33	0.18	n.a.	89
Belarus	0.11	23	28	0.22	n.a.	73
Average	0.17	25	32.5	0.30		71.75

Source: Milanovic (fn. 39, 1996), 58.

Return to Text

Tables: Winners Take All: The Politics of Partial Reform in Postcommunist Transitions

[Table 1] [Table 2] [Table 3] [Table 4] [Table 5]

.

ВЫСШАЯ ШКОЛА ЭКОНОМИКИ

Rinat Menyashev, Leonid Polishchuk

DOES SOCIAL CAPITAL HAVE ECONOMIC PAYOFF IN RUSSIA?

Working Paper WP10/2011/01
Series WP10
Center for Institutional Studies
Working Paper Series

Москва
Высшая школа экономики
2011

УДК 65.012.2
ББК 330.147
М 56

Editors:
Kuzminov Yaroslav, Yudkevich Mariya

М56 **Menyashev, R.** Does Social Capital Have Economic Payoff in Russia? : Working paper WP10/2011/01 [Text] / R. Menyashev, L. Polishchuk ; Higher School of Economics. – Moscow: Publishing House of the Higher School of Economics, 2011. – 44 p. – 150 copies.

In a number of studies social capital is shown to have substantial positive impact on economic development, institutional performance, and quality of governance. So far no such analyses were available for Russia, and the present paper is intended to fill this gap. We propose a model which differentiates the impact on economic welfare of bridging and bonding forms of social capital. The empirical part of the study is based on 2007 survey data collected in the Geo-Rating project. We establish significant positive relationship between bridging social capital and urban development in Russia. Bonding social capital works in the opposite direction: its impact on development is negative. It is further shown that the transmission mechanism between social capital and economic outcomes is based on municipal governance: bridging social capital improves government accountability, whereas bonding social capital reduces the political costs of malfeasance and thus facilitates the abuse of power.

УДК 65.012.2
ББК 330.147

Препринты Высшей школы экономики
размещаются по адресу: http://new.hse.ru/org/hse/wp

In the course of the last few decades there were several major updates of economists' views of the factors of economic growth and welfare. The conventional growth theories dominant in 1950s—1970s emphasized the importance of investments in physical and human capital. From 1980s onwards the emphasis has shifted on institutions, such as markets, contracts, property rights, rule of law, accountable governance etc. A large body of evidence was presented to supports the claim that good institutions are indispensable for economic efficiency and factor accumulation. The "Institutions Rule" view (Rodrik, Subramanian, Trebbi, 2004) had straightforward policy implications — key to economic development is in institutional and policy reform.

However, in many instances institutional reforms in transition and developing countries have failed to deliver expected outcomes — the allocation of economic roles, power and resources remained unaffected by institutional change (the resilience known as 'the invariance principle' (Acemoglu, Robisnon, 2008). Moreover, on some occasions institutions and policies that were expected to improve welfare and facilitate growth had the opposite effect, making matters worse (Putnam, 1993).

Such 'surprises' of institutional reform (Roland, 2000; Polterovich, 2007) highlighted a yet another important development resource — a 'missing link' (Guiso, Sapienza, Zingales, 2010) commonly known as *social capital*. Broadly defined, social capital characterizes the society's capacity for self-organization and collective action in pursuit of some common good. Main ingredients of social capital are trust, social norms, values, and networks. Social capital could be instrumental for economic development in two important ways. First, it cuts transaction costs in the private sector: trust and social connections facilitates investments and trade (Arrow, 1972), whereas self-organization offers private solutions of public problems. Second, social capital is indispensable in resolving the agency problem between government and society. Government accountability can only be ensured if there is sufficient civic culture (Almond, Verba, 1963) at the grassroots, i.e. the appreciation of political rights and freedoms, awareness of public affairs, and the sense of civic duties and personal responsibility for social well-

being. These two mechanisms represent resp. horizontal and vertical 'transmission channels' between social capital and economic outcomes.

Social capital often complements institutional reform — without sufficient social capital new policies and institutions are either idled or captured and subverted by narrow interests. Social capital reduces the need in government's presence in the economy and society, and whenever such presence is still required, improves efficiency of economic regulation and public services. All of the above implies that social capital could be highly relevant and instrumental for economic development and social welfare.

In numerous publications such relevance has been empirically supported at the macro-, meso-, and micro levels — for nations, regions, cities, local communities, as well as for various public services and fields of social and economic activities. These studies, while generally supporting the view of social capital as a development resource, produce a more nuanced and complex picture — the impact of particular ingredients, forms and types of social capital is highly context-specific. Thus, what is known as 'bonding' social capital upholds collective action within narrow confines of smaller groups providing 'club goods' for group members. The impact of such activities for broader social welfare could be detrimental, if smaller 'Olson groups' are engaged in socially wasteful rent-seeking, or if such groups divert their resources and energy from eliminating root causes of social and economic problems. On the other hand, 'bridging' social capital facilitates the creation of broad society-wide coalitions ('Putnam groups') which advance social welfare by producing public goods, such as efficient public sector governance.

Economic payoff to social capital is measured in the literature by using national or regional data. In such studies various indicators of economic development, welfare, quality of institutions and governance are related to panoply of social capital measures. Cross-country studies reveal tangible relations between economic outcomes and social capital; however, profound differences between countries, which are only partly captured by control variables, make such estimations less reliable. More appropriate framework for establishing an association between social capital and economic performance is provided by regional data within a given country. Such analyses have been performed for US states, as well as for regions of Germany, the UK, Poland, the European Union, China, etc. In most of these studies (regional) government efficiency, public service delivery and other outcomes are shown to be in statistically significant relations to relevant measures of social capital.

No such estimates so far have been obtained for Russia. While for most other countries social capital is shown to have significant economic returns, there are reasons to doubt whether payoff of comparable magnitude could be observed in Russia as well.

First, there are doubts about the quantity and quality of social capital in Russia. One of the most commonly used measures of social capital — the index of trust calculated by using data of the World Values Survey — puts Russia and most other countries of the former Soviet Union below the median among the nations covered by the survey. Lack of trust and other ingredients of social capital in Russia is consistent with the conjecture, posited by Putnam (1993) and later supported by an in-depth econometric analysis for European countries and regions (Tabellini, 2008), that social capital accumulation is fostered by non-authoritarian political regimes. Furthermore, economic transition in the former Soviet Union and Central and Eastern Europe is shown to have significantly eroded social capital (Aghion et al., 2010), and such losses in Russia were the most profound across the post-communist region. Quality-wise, Rose (1998) maintains that the existing stock of social capital in Russia, low as it may be, is also obsolete and unsuitable to maintain modern institutions of market democracy. This concern finds support in the international distribution of the aggregate index of 'civic capital' which puts Russia in the bottom quartile among 70 plus countries (Guiso, Sapienza, Zingales, 2010). Last but not least, high degree of centralization of economic and political life in contemporary Russia (known as the 'vertical power') leaves little space for grassroots initiative and self-organization.

All of the above makes one to expect that evidences of economic payoff to social capital in Russia would be hard to find, as social capital in the country is likely insufficient and/or 'idled' by the political system and excessive government control. According to a contrarian view (Durlauf, Fafchamps, 2005), weakness of official institutions and lack of public goods supplied by the government in fact raise the returns to social capital which provides informal grassroots fixes of institutional and governance failures. An empirical confirmation of either of these views would support the opinion, commonly expressed in the current policy debates in Russia, that the society cannot be a driving force in the country's development and modernization. Vice versa, if those views are refuted, Russia can be considered 'a normal country' (Shleifer, Treisman, 2005) where social capital can improve institutions and governance; in that case a development scenario in which the society plays

an active role becomes possible. Measurement of economic payoff to social capital in Russia is therefore a matter of not just academic, but also practical significance. It is also important to find out what kinds of social capital, if any, could affect social and economic outcomes in Russia.

In this paper we propose a simple economic model that describes outcomes of bridging and bonding forms of social capital for social welfare and public sector governance. Predictions of the model lead to hypotheses which are tested by using data from a major survey conducted in Russia in 2007 as part of the "Geo-Rating" project. Links between social capital and development are explored at the city level. Factor analysis reveals three forms of social capital — bridging, bonding, and civic culture, which are latently present in the data. Stocks of social capital exhibit significant variations from one city or town to the other; it can therefore be concluded that there are more and less "civic" cities in Russia. The observed variations are found to be associated with socio-economic conditions in the city (town, village); moreover, bridging social capital and civic culture advance local development, whereas bonding social capital retards it. Russia therefore is a 'normal country', at least when it comes to the impact of social capital on economic outcomes: more civic cities are better-off than less civic ones.

It is further demonstrated that the main 'transmission mechanism' between social capital and economic outcomes is the performance of municipal governments, which is significantly improved by bridging social capital and civic culture, and adversely affected by bonding social. It is noteworthy that such links cannot be established at the *regional* level; one possible explanation is the political difference between Russian cities and regions (oblasts, krajs, and republics) — city mayors are more often than not electable, while regional governors since 2004 are federal appointees.

Causality between social capital and economic outcome is confirmed by using two-stage least squares regression analysis, where the size of the middle class is shown to be a valid instrument for bridging social capital, thus confirming the role of the latter as an (urban) development factor and resource.

1. Social capital impact measurement

Earlier social capital studies were mostly qualitative by their nature and did not attempt to establish an empirically grounded relationship between

social capital and development. Putnam's famous book (1993) was the first scholarly work where payoff to social capital was supported by data: it was argued that higher stocks of social capital in the northern part of Italy allowed northern provinces to make full use of a devolution of power and resources from the central government to the regions, whereas insufficiency of social capital in the South of Italy precipitated failure of the same reform.

Since Putnam (1993) measuring payoff to social capital has become a rapidly growing 'cottage industry' in social science; the vast literature on the subject is reviewed in (Halpern, 2005; Durlauf, Fafchamps, 2005; Guiso, Sapienza, Zingales, 2010). In the first attempts to prove (and measure) the economic impact of social capital by means of econometric analysis, Knack and Keefer (1997) and La Porta et al. (1997) used cross-country data. In these papers rates of economic growth and measures of social welfare and government performance were dependent variables in regression models,, while various social capital indexes served as independent variables. It was shown that trust had positive statistically significant relations to economic outcomes (with causality confirmed by appropriately chosen instrumental variables), whereas no such relation was found for associational activities. This was an indication, repeatedly confirmed by subsequent studies, that contrary to Putnam's earlier expectations, social capital is not a generic "commodity" with all of its components invariably relevant in any development, organizational etc. context, and that the identification of types of social capital that are economically valuable under particular circumstances is a non-trivial problem and should be dealt with on a case-by-case basis.

Putnam's pioneering work opened a strand of empirical research where social capital's impact was measured by using regional data. Knack (2002) established a significant impact of social capital on state governments' performance in the US. It was shown that trust in the society, volunteering, and indexes of civic maturity are good predictors of the quality of state government services and regulations. Associational membership was not found to be of economic significance, and an attempt to find such relations by differentiating between 'Olson-like' and 'Putnam-like' groups was unsuccessful. However, in a different study using US data association membership was shown to have tangible economic impact at the county level (Rupasingha, Goetz, Freshwater, 2002).

Similar links have been confirmed for a number of other countries. Thus, in Chinese regions trust is highly correlated with population income, economic growth, investments and the number of firms (Zhang, Ke, 2003).

Casey (2004) established statistically significant correlation between trust among individuals and in political institutions, on the one hand, and bureaucratic efficiency, on the other, for British regions. At the same time some other studies present less clear-cut pictures. Thus, for German regions the contribution of social capital in its traditional interpretation is 'fading' in the shadow of more significant cultural factors, such as 'market' or 'hierarchical' values (Blume, Sack, 2008). In Poland social capital, measured by associational membership, is not found to be making statistically significant contribution to economic growth and tax collection in various administrative units of the country (Dzialek, 2009).

Measurement of economic payoff to social capital is closely related to the identification of social capital's roots and origins — the latter could serve as causality-establishing instruments for social capital. On a number of occasions religion and social homogeneity were used as such instruments, but lately more popular choice was political history, based on Putnam's conjecture that historic experience of democratic self-rule creates social capital. This view is confirmed by Guiso, Sapienza, and Zingales (2008), who show that Italian cities and regions that were self-governed in the past have higher social capital endowments than those that were under colonial rule, and that such differences are indeed valid instruments for social capital. Tabellini (2008) reaches the same conclusion by using data for 69 European regions.

Studies of social capital's outcomes in Russia so far have been more qualitative than quantitative and not sufficiently comprehensive. Petro (2001) argues that greater success of economic reforms in Novgorod region was due to higher social capital stock measured by association membership and civic initiative participation. Marsh (2000) calculates a 'civic society index' for Russian regions, which is shown to be positively correlated with political engagement of population; however no attempt was made to estimate economic payoff to the so measured social capital. Kennedy and Kawachi (1998) found a link between the insufficiency of social capital and steep increase in mortality observed in Russia in the first decade of marker reforms; this is consistent with the robust relationship, observed in other countries, between social capital and physical and mental health (Halpern, 2005). A more recent study (Eberstadt, 2010) concludes that social capital deficiency could be one of main causes of the present demographic crisis in Russia, which is a 'negative' confirmation of social capital's significance for the country's social and economic outcomes.

The reviewed literature demonstrates that measurement of economic payoff to social capital is a complex but realistic task. Its complexity is in part due to multiplicity of social capital's interpretations and meanings (Woolcock, Narayan, 2002, Durlauf, 2002, Guiso, Sapienza, Zingales, 2010) and well-known difficulties of accurate measurement of trust (see e.g. Glaeser et al., 2000) values, associational activities etc. Nonetheless more often than not the impact of culture and capacity for self-organization for economic outcomes can be empirically confirmed, and Russia, as we show later in this paper, is no exception to this pattern.

2. The model

Modeling social capital's impact on economic outcomes is still in its infancy, and no sufficiently universal and encompassing approaches have been developed so far. Zak and Knack (2002) offer a model that captures trust's beneficial impact for investments; this model therefore deals with the 'horizontal' transmission channel for social capital. Weingast (1997) uses game theory to demonstrate importance of social capital for sustaining democracy, rule of law, and limited government. Glaeser et al. (2002) model individual investments in social capital in conjunction with externalities and network effects. Tabellini (2008) explores bilateral links between institutions and culture; his analysis demonstrates how trust creates grassroots demand for good institutions and governance, which in their turn facilitate productive economic activities and suppress rent-seeking. Polishchuk (2008) uses an economic model to investigate the role of social capital in the working of corporate social responsibility. Aghion et al. (2010) present a model where trust and values in the society are related to the scale and scope of government's presence in the economy and the quality of government regulations.

The stylized model that follows is concerned with the vertical 'transmission channel' of social capital, whereby the latter's role is to improve government accountability. The model is custom-built to capture the impact of different kinds of social capital. It incorporates Weingast's (1997) idea that good governance ensues when sufficiently large social coalitions defend their economic and political rights against possible expropriation by the government when it 'transgresses' its constitutional boundaries and other-

wise abuses power (see also Kuran, 1991). Effectiveness of such actions requires *bridging social capital* and *civic culture* — the former is needed so that coalitions of sufficient size acting in public interest be formed and sustained, and the latter — so that such coalitions' joint objective is government accountability which is perceived by coalition members as a matter of high importance and personal responsibility.

In the model the *bonding* form of social capital is mobilized to mitigate the damage caused by government's malfeasance, rather than stopping such malfeasance in the first instance. The relief is achieved locally within smaller groups, and materializes in the form of club goods that substitute for insufficient pubic goods supplied by the government, or in the form of shielding group members from government abuse. Government accountability that precludes transgression cannot be an objective of such groups which are too small, isolated and dispersed for the task and do not have such matters on their agendas.

One should expect positive economic payoff to bridging social capital and civic culture through improved public sector governance. The impact of bonding social capital on socio-economic outcomes is a priory ambiguous: on the one hand it has a positive *direct* effect by improving the lot of small groups' members who obtain relief from government abuse, but on the other hand it *indirectly* encourages greater abuse by lowering its economic and hence political costs.

We follow the tradition in the political economy literature (see e.g. Grossman, Helpman, 2001) to model imperfect government accountability by assuming that the government maximizes a weighted sum $W_G + aW_S$ of its own immediate economic welfare W_G and the aggregate welfare W_S of the rest of society (private sector); here the multiplier $a \in [0,1]$ represents the degree of government accountability. In what follows this multiplier is an aggregate of bridging social capital and civic culture, as both of these ingredients are required for accountable governance.[1]

Suppose that the government abuses power in order to extract and appropriate income $D \le \overline{D}$ from the society (private sector); $\overline{D}$ represents physical, institutional etc. limits to such expropriation. The private sector comprises a unit continuum of agents, and government's action causes each agent a loss $C_0(D)$; however if an agent is a member of an organized group

[1] In a more detailed version of the model bridging social capital and civic culture are present explicitly and separately from each other; results of such model's analysis remain qualitatively the same.

that seeks collective grassroots protection from government abuse, these losses are reduced to $C_1(D)$. The width of such grassroots protection depends on the stock of bonding social capital which is measured by the share $w \in [0,1]$ of agents which are organized in such groups.[2] We assume that

$$D \le C_1(D) \le C_0(D), \forall D \ge 0, \tag{1}$$

(the first of these inequalities implies that grassroots protection can at best eliminate excess burden $C_0(D) - D$ of government abuse), and that functions $C_0(D), C_1(D)$, and $C_0(D) - C_1(D)$ are all monotonically non-decreasing. If W_0 is the aggregate welfare of the private sector before government transgression, then after the transgression private sector welfare is reduced to

$$W_S = W_0 - wC_1(D) - (1-w)C_0(D), \tag{2}$$

and assuming $W_G = D$, the expropriated income can be found from the following problem:

$$\max_D [D - a(wC_1(D) + (1-w)C_0(D))]. \tag{3}$$

Comparative statics analysis of the above problem leads to the following conclusion.

Proposition. The expropriated income $D = D(a,w)$ is (non-strictly) increasing in *w* and decreasing in *a*.

Proof According to the "supermodularity lemma", the solution of the problem

$$\max_x [f(x) + \alpha g(x)]$$

is monotonically non-decreasing in α as long as the function $g(x)$ is monotonically increasing. To establish the required property of D as a function of w, the government's objective function should be rearranged as $D - aC_0(D) + aw(C_0(D) - C_1(D))$, and of a — as

$$\frac{1}{a} D - (wC_1(D) - (1-w)C_0(D)).$$

[2] One can think of group formation as random events in which case *w* is the expected share of agents organized in such groups; alternatively bonding social capital could be confined to certain parts of society, in which case *w* is the share of such parts.

The above analysis of the model shows that bridging social capital and civic culture work through government accountability to restrict possible abuse of power and thus improve the quality of governance. Bonding social capital on the contrary is unconditionally detrimental for the quality of governance as it makes the society more tolerant to abuse of power and thus reduces the political costs of malfeasance.

An immediate corollary of the above proposition is that bridging social capital and civic culture also improve private sector welfare $W_S = W_0 - wC_1(D) - (1-w)C_0(D)$, which monotonically decreases in D and hence increases in a.

The dependence of private sector welfare on bonding social capital w is not as straightforward due to the presences of the direct and indirect effects described earlier in this section. These effects work in opposite directions, and as a result such dependence could be "non-linear". The relative strength of the direct and indirect effects depend inter alia on the level of government accountability a, which integrates bridging social capital and civic culture. When such features of society are absent, the government is completely unaccountable ($a = 0$) (sets its expropriation at the highest possible level $D = \overline{D}$, and the indirect effect thus disappears. In the meantime the direct effect of private protection from rampant government abuse could be non-negligible, and therefore the overall returns to bonding social capital in the absence (or near absence) of bridging social capital and civic culture could be mildly positive — in this case bonding social capital could serve as an imperfect substitute for the bridging one. At the opposite extreme of full accountability ($a = 1$) which corresponds to very high stocks of bridging social capital and civic culture, the government refrains from expropriation ($D = 0$), and therefore there is no need for private protection, and bonding social capital is idled. The returns to bonding social capital in this case should be zero.

Various specifications of the above model presented in Appendix I show that for intermediate levels of the accountability the indirect effect could be stronger than the direct one. In this case the substitution between various kinds of social capital disappears and the returns to bonding social capital become negative not only for the quality of governance, but for the private sector welfare, too — bonding social capital is still helpful ex post, for a given level of government abuse, but causes far greater damage ex ante by increasing the scale of such abuse.[3]

[3] Such working of bonding social capital is somewhat similar to economic consequences of corruption which helps individuals and businesses to navigate through excessive administrative barriers, but motivates the bureaucracy to raise such barriers in the first instance (Rose-Ackerman, 1999).

The above analysis summarizes in the following hypotheses.

1. Bridging social capital and civic culture have positive impact on government performance and social welfare.

2. Bonding social capital adversely affects government performance; its impact on social welfare could be positive at very low levels of bridging social capital and civic culture, then becomes (increasingly) negative as bridging social capital and civic culture grow bigger, and goes back to zero for very high levels of bridging social capital ensuring full government accountability.

We now turn to empirically testing these hypotheses and measuring economic payoff to social capital in Russian cities.

3. Data

Our main source of data was an all-Russia survey conducted in September 2007 in joint project of the Center for Studies of Civil Society and Non-Profit Sector at the Higher School of Economics, and of the Public Opinion Foundation as part of the ongoing GeoRating polling program which covers a broad range of economic, social, political and cultural issues. The survey sample comprised 34,038 adult respondents from 1924 cities, towns and villages located in 68 Russian regions; in each covered region the sample was representative and included at least 500 respondents.

The survey questionnaire comprised three clusters of questions: (i) on respondents' views, norms and values — answers to such questions are commonly used in social capital measurement; (ii) on respondents' satisfaction with economic and social conditions in their places of residence, and on their assessment of accountability and performance of local governments; and (iii) on individual characteristics of respondents. The first and second groups of questions were used to calculate resp. independent (explanatory) and dependent variables, whereas the third group supplied control variable; the latter also included size and administrative status (national capital, regional capital etc.) of the city.

The first group of questions resembles (and at times replicates) those used in the World Values Survey and similar international polls (see Appendix II Table 1)); these questions reveal respondents' *perception* of the cohesion, self-help and propensity for collective action in the surrounding society. Other questions from the same group characterize respondents' *own* norms, views and practices, such as trust, help to others, willingness to join

collective action, and the sense of responsibility for the situation in respondents' families, local communities, and cities (towns, villages). We did not use data on philanthropy and associational membership as possible sources of social capital indexes — philanthropy in rudimentary in contemporary Russia, whereas reported association membership is often fictitious or purely nominal.[4]

Respondents' satisfaction with their lives was used to proxy economic outcomes; no other reliable data that would serve this purpose were immediately available at the city level. Government effectiveness and accountability assessed by respondents (answers to the question "Do you think authorities understand and take into account interests of people like you?") plays a dual role in the study — on the one hand accountable governance is of independent value of its own and thus an important outcome of social capital (Putnam, 1993; Knack, 2002); on the other hand government performance is a plausible link between social capital and economic outcomes in a vertical transmission channel.

Individual characteristics of respondents included age, gender and ethnic origin (the latter were found insignificant in our regression analyses), education, income and self-assessed material welfare. Control variables also included size and administrative status of the city (settlement) — predictably, those were strongly correlated with income and welfare of residents (Appendix II Table 2).

An important decision in choosing our empirical strategy was to select an appropriate territorial entity to establish links between social capital and economic outcomes. Social capital by definition is a community resource[5], and communities are often proxied, for a lack of better practical options, by some territorial boundaries. In studies of economic payoff to social capital for other countries the territorial units considered as social capital reservoirs were usually regions (US states (Knack, 2002), German Länder (Blume, Sack, 2005), provinces etc. elsewhere in the world (Tabellini, 2008)). In the present study we opted instead for the city (town, village) level of analysis.

---

[4] It is noteworthy that in a number of studies seeking to measure economic payoff to social capital associational membership did not have a significant impact on economic performance and government efficiency (see e.g. Knack, Keefer, 1997).

[5] Perhaps at the cost of slight abuse of terminology, one could still talk about *individual* social capital that characterizes trust and trustworthiness of a person, her internalization of pro-social values, as well as participation in various social networks (Glaeser, Laibson, Sacerdote, 2002; Halpern, 2005).

This choice was due to profound intra-regional variations of social values and norms, as revealed by our data (see also Petrov et al., 2010) which override the weaker sense of regional cultural identity. With such variations, potentially valuable information would be lost if regional averages were used. Besides, GeoRating data did not include performance assessment for regional administrations. The downside of studying the economic impact of social capital at the city level is a dearth of social and economic statistical data that would complement (and verify) respondents' subjective assessment of social and economic conditions in their cities — urban statistical data in Russia are much more scarce than those collected for regions.

Within cities and towns cultural attitudes are more homogeneous, but exhibit significant inter-city variations across the sample — standard deviations could be as high as 45% of the sample average. This means that there are, simply put, noticeably more and less civic cities, towns and localities in Russia. Among large cities (with population 100,000 and more) such variations are somewhat less pronounced, but still quite perceptible (Appendix II Table 3). Furthermore, local governments' performance and residents' satisfaction with conditions in their cities etc. fluctuate within broad margins, too. The observed variations bode well for measuring the impact of social capital for social and economic outcomes at the city level.
Indexes of social capital

Some of the respondents' values and attitudes are significantly correlated with each other (Appendix II Table 4) — these correlations could be evidences of more general latent features that underlie reported norms and behavior. Making such features explicit is important from substantive and instrumental points of view. Substantively, this could reveal particular types and patterns of social capital relevant for socio-economic outcomes; instrumentally, it would prevent multicollinearity in regression analysis.

Factor analysis of our data indeed produces three dominant factors (Appendix II Table 5). The first factor aggregates with high positive weights features of social solidarity, accord, mutual help and propensity for collective action. Trust also enters into this factor, although with somewhat smaller coefficient. Overall, the first factor characterizes the capacity for collective action within broad societal coalitions ('Putnam groups'), and can therefore be interpreted as a measure of *bridging social capital*.

The second factor integrates with highest weights the indexes of restricted and exclusive social connectedness and limited embeddedness of trust

and pro-social norms (trust only in those who have much in common with a respondent, and preference to dealing with such people). Indexes measuring social cohesion and propensity for broad collective action enter the second factor with significant *negative* coefficients, reflecting cautious and possibly adverse attitude to 'aliens'. There are reasons to interpret the second factor as an index of *bonding social capital,* which by definition facilitates the formation of exclusive 'Olson groups' providing club goods for their members, rather than working for common good at the society at large. Sensing threat to their well-being or shortage of essential resources and services, 'Olson groups' are mobilized to alleviate such threats or provide necessary resources for their members internally, within the groups' confines.

Finally, the third factor is positively linked with the sense of responsibility for what is happening in the community and in the city. Such perception reflects awareness of citizen's rights and duties, and can be interpreted as an index of *civic culture*.

The proposed interpretation of these three factors is somewhat imprecise and subject to caveats (common for the social capital terminology), but by and large it agrees with the prevailing understanding and perception in the literature of the above concepts. The obtained aggregation is robust: alternative factor analysis techniques produce similar results.

The three types of social capital are significantly correlated with individual characteristics of respondents (Appendix II Table 6); in particular bridging social capital is positively correlated with education, income, and material well-being. Positive contribution of education in accumulation of social capital is a well-established fact (see e.g. Gaeser et al, 2004), which has also been recently confirmed empirically for Russia (Natkhov, 2010). Bonding social capital, on the contrary, is more prevalent among less educated and less economically successful groups. It is noteworthy that bridging social capital is positively, and bonding — negatively associated with respondents' age; this could be due to the damage caused to the social capital of older cohorts by the two decades of tumultuous economic transition (Aghion et al., 2010). Finally, civic culture decreases with income (perhaps this reflects greater satisfaction with the status quo and higher private costs of civic activism to wealthier individuals), as well as with the size and status of the city — in large megapolises there could be stronger sense of alienation from public affairs and feeling of impossibility to influence public decision-making.

The capital city of Moscow (where the survey sample is representative) is a case in point. The stock of bridging social capital in Moscow is close to the national average, whereas bonding social capital is above, and civic culture — well below their average levels. The average level of bridging social capital is sustained by education of Moscow residents, lack of civic culture is due to higher incomes, and higher stocks of bonding social capital can be explained by abnormal concentration of wealth and significant social and economic inequality which adversely affects trust and breeds rivalries and rent-seeking.

In what follows social capital indexes are normalized so that their minimal values are zero, and standard deviations equal unity.

4. Social capital and development: an empirical analysis

In most of the studies reviewed in Section 2 the payoff to social capital is measured in terms of quality of governance *or* various socio-economic outcomes. In our regressions we follow both of these traditions. In the first case the dependent variable (hereafter *Outcome*) is produced by averages of respondents' assessments of socio-economic conditions in their cities and other types of settlements. This variable is regressed on the three indexes of social capital — bridging, bonding, and civic culture (resp. *BridgingSC, BondingSC,* and *CivicCulture*), which are also averaged across the same localities. In the second case the dependent variable is the average of respondents' assessment of the performance of their local governments (*Performance*); however such variable can also serve as an explanatory one, to assess the contribution of governance to local development and investigate the role of governance as a transmission mechanism between social capital and economic outcomes. Control variables are cities' size, status, regional dummies, and the averages of various individual characteristics of respondents.

The first regression model estimates the contribution of social capital to local development ad welfare:

$$Outcome_i = const + \beta_1 BridgingSC_i + \beta_2 BondingSC_i + \beta_3 CivicCulture_i + \\ + \gamma_{ik} Control_k + RegionDummy_i + \varepsilon_i. \quad (4)$$

Here *i* is a settlement index. OLS estimation of this model (Appendix II Table 7, column 1) provides strong support to the hypothesis that bridging

social capital makes positive contribution to development: the corresponding coefficient is significant at the 1% level and quite substantial: a one standard deviation change in the bridging social capital index is associated with improvement of social and economic conditions in the city by quarter of a standard deviation. The contribution of bonding social capital is highly significant, too, but negative. Finally, the contribution of civic culture is, similarly to bridging social capital, positive (and significant at the 0.05 level), but of lesser magnitude. The obtained estimation is fully consistent with the predictions of the theory presented in Section 3.

To check robustness, we include in the regression various controls; such modifications leave estimated coefficients and their significances practically intact (columns 2–4 of Table 7). In particular, size of the city and material well-being of residents have the expected positive impact on the dependent variable, but the inclusion of these controls does not affect the magnitude and significance of social capital contributions. Overall we can conclude that more civic among Russian cities and towns enjoy ceteris paribus higher prosperity and well-being.

In the second regression model the dependent variable is government performance:

$$Performance_i = const + \beta_1 BridgingSC_i + \beta_2 BondingSC_i + \beta_3 CivicCulture_i + \\ + \gamma_{ik} Control_k + RegionDummy_i + \varepsilon_i; \quad (5)$$

Estimations of the above model (Appendix II Table 8) show that social capital's impact on the quality of local governance is essentially the same as for social and economic outcomes — government effectiveness is positively and highly significantly associated with bridging social capital and civic culture, and also highly significantly, but negatively — with bonding social capital. Here again the hypotheses generated by the theoretical model find full confirmation in the data. In the regression model (5) the association of the dependent variable with social capital is even stronger than in (4): the corresponding coefficients have larger absolute values. These conclusions are also robust to variations in the composition of control variables (columns 2 and 3 and the table). Moreover, they remain qualitatively unchanged if the full sample is reduced only to larger cities (100,000 residents and up; columns 4–7), and the impact of social capital on government performance for such sub-sample becomes even stronger: one standard deviation in the bridging social capital corresponds to one standard

deviation of the quality of governance index. Figure 1 in Appendix II illustrates this close association between social capital and the quality of urban governance. These are evidences that more civic of the Russian cities and towns are by and large better governed.

Finally, in the third model social and economic outcomes — the dependent variable — are regressed on government performance; the set of dependent variables in such model can also include indexes of social capital (Appendix II Table 9, resp. column 1 and columns 2–4):

$$\begin{aligned} &Outcome = const + \beta_0 Performance_i + \\ &+\beta_1 BridgingSC_i + \beta_2 BondingSC_i + \beta_3 CivicCulture_i + \\ &\gamma_{ik} Control_k + RegionDummy_i + \varepsilon_i. \end{aligned} \quad (6)$$

The first column of Table 9 shows that the quality of local governance is highly significant for social and economic outcomes. In combination with OLS estimations of the equation (5) which demonstrate the significance of social capital for the quality of governance, we can now conclude that the data point out to the working of a vertical transmission channel between social capital and development, and local governments are the linchpin of such channel. This channel carries up to 50% of the contribution of social capital to development: when social capital indexes are included in the regression *alongside* the government performance index, the coefficients with such indexes (reflecting the horizontal channel) decrease almost by half in comparison with the regression model (4). In large cities the vertical channel becomes predominant and the horizontal one nearly disappears — for such sub-sample social capital coefficients in the model (6) become insignificant.

The above empirical models also shed light on the interplay between different types of social capital in affecting local development and governance. In particular the theory presented in Section 3 suggests that the adverse impact of the bonding social capital grows stronger as the stock of the *bridging* social capital increases in a low-to-medium range. We test this conjecture by dividing the sample in three parts with lower, interim, and higher stocks of the bridging social capital, and estimating the regression model (4) separately for each part. The results are reported in Appendix II Table 10 which shows that the coefficient of the bonding social capital is insignificant (and small) for the lower portion, and then becomes negative, significant at the 1% level and growing in magnitude as the bridging social

capital increases from the middle to the top third of the sample. These estimations concur with the theoretical model (and its specifications in the Appendix 1): the first portion of the sample corresponds to the low range of the bridging social capital where the returns to the bonding social capital turns from initially positive to negative; such returns remain negative and increasing in magnitude thereafter (apparently the stock of the bridging social capital in our sample does not reach the level when the bonding social capital starts losing its significance.) We can therefore conclude that the bonding social capital becomes increasingly a drag on local development when civic awareness and capacity for collective action grow stronger.

5. Validation and causality

Validity of the above findings and conclusions could be questioned due to possible omitted variable bias, measurement errors in data collection, and reverse causality. Control variables included in the regression models, and various robustness checks deal with the omitted variable bias. Concerns about the quality of measurement could be raised inter alia due to the fact that almost all of our data come from a single survey and are thus susceptible to sampling and polling errors. To address such concerns, we have performed external validation by using similar data from other sources.

The proxy for social and economic outcomes — respondents' satisfaction with situations in their cities — was validated by data from other Geo-Rating surveys conducted before (2005) and after (2008, 2009) the 2007 poll. In those surveys respondents were asked about satisfaction with social and economic conditions in their *regions,* rather than cities, and therefore and therefore such surveys' data are only partially compatible with the 2007 poll, but still allow for meaningful cross-checking (Appendix II Table 11).

Replacing outcome measures by those similarly derived from other years' surveys do not qualitatively change the conclusions about the impact of bridging and bonding social capital and civic culture for local development.

Our search for external validation of the quality of governance and accountability measures is still work in progress. Electoral statistics to which one would normally turn for measures of political competition and other proxies for government accountability has not been very useful so far, possibly due to massive irregularities in Russian local elections.

We have similarly performed validation of social capital indexes by using measures of social accord and cohesion derived from a recent 2009 GeoRating survey; the obtained results were close to those reported in the previous section. We were unable to rely on blood donation and referenda participation data which are often used in social capital measurement due to concerns about their accuracy and adequacy of such measures in Russia (e.g. much of blood donation in the country is motivated by material rewards).

Finally, we turn to the endogeneity problem in the association between social capital and economic outcomes. One can argue that social capital is not only a factor, but also a product, of development; one possible explanation of such reverse causality is that development expands and improves education which is known to be a powerful driver of social capital accumulation. Similarly good governance could instill greater trust in institutions and broader cooperation that would also be conducive for social capital buildup.

To be able to argue that social capital affects development, we need valid instruments for the social capital indexes. Features that were used as instruments for social capital elsewhere in the literature (see Section 2) in our case either failed the validity test, or no satisfactory data and/or measures for such potential instruments were found. We had more luck with using the size of the middle class as a potential instrument.

Middle class is known to be conducive for the cultivation of civic values (see e.g. Moore, 1966; Hooghe, Stolle, 2003), and as such could indeed serve as a potentially valid instrument for social capital. Among multiple sources of information on middle class which reflect various measures and interpretations of this broad concept we have selected, based on availability and reliability of data, a survey conducted in 1980 by the Institute of Sociological Studies of the Soviet Academy of Science (Levyikin et. al., 1980) that was comparable in its scale, scope and methodology to the 2007 Geo-Rating survey. The survey did not specify cities, but available information on regions and city types enabled us to collect a sub-sample including 52 cities and towns. While such sample falls short of what is ideally required for instrumental variable analysis, it still produces a satisfactory instrument for the 2007 index of cohesion and accord). The middle class proxy that was used to obtain the instrument was respondents' description of their social status (*sluzhashchie* — professionals, white collars, etc., as opposed to workers and peasants). Two-stage least squares estimation shows that our proxy for the middle class in 1980 is indeed a valid instrument for social capital in today's Russia (see also Appendix II Figure 2). The avail-

ability of such instrument lends some support to the causality that runs from social capital to development.

6. Conclusion

We have shown that social capital does have substantial economic payoff in Russia, despite serious reasons to expect otherwise. It means that Russia, being a 'normal country', can rely on its social capital as a development resource.

This conclusion however is subject to an important qualification: while some kinds of Russian social capital advance development, others obstruct it. Rose (1998, p. 18) pointed out to a path dependency in Russian social capital which 'encouraged people to create informal networks as protection against the state'. Such bonding forms of social capital are considered 'anti-modern', as opposed to modern ones, which ensure accountable governance and uphold economic, legal and political institutions (Polishchuk 2010). Our analysis demonstrates that in today's Russia modern and anti-modern types of social capital co-exist in proportions that vary from one city and region to the other and likely evolve over time. It means that the agenda of Russian modernization, apart from its technological and institutional aspects, has an important social dimension, and that the *evolution* of the social capital mix could have far-reaching implications for the nation's economic and political development.

A sanguine development view holds that economic growth and accumulation of human capital foster civic culture and pro-social values (Glaeser, Ponzetto, Shleifer, 2007), which in their turn improve institutions and governance in the economy and society (Glaeser et al., 2004). On the other hand bonding social capital could disrupt this dynamic virtuous circle by perpetuating ineffective and unaccountable governance and debasing modern institutions. Corruption, lawlessness and government predation erode trust in institutions and among individuals, and suppress investments in bridging social capital and cultural transmission of pro-social norms and civic virtues (Tabellini, 2008), while entrenching anti-modern social practices of adjustment to bad institutions.[6]

[6] "If you expect to live in a corrupt society, you would rather learn to pay and demand bribes" (Aghion et al., 2010, p. 1027).

The outcome of such "race" between different kinds of social capital is uncertain, and multiple equilibria are possible, Further research, theoretical and empirical, is required to get a better insight into the processes of accumulation and amortization of different kinds of social capital. Such insight would be invaluable in designing policies that would tip the race between modern and anti-modern social capital towards a path where civil society, economic development, and good governance support and reinforce each other.

References

Acemoglu, D, and J. Robinson. (2008) Persistence of Power, Elites, and Institutions. *American Economic Review,* 98, 267–293.

Aghion, P., Y. Algan, P. Cahuc, and A. Shleifer. (2010) Regulation and Distrust. *Quarterly Journal of Economics*, 125, 1015–1049.

Almond, G., and S. Verba (1963). *The Civic Culture. Political Attitudes and Democracy in Five Nations.* Princeton: Princeton Univ. Press.

Arrow, K. (1972). Gifts and exchanges, *Philosophy and Public Affairs,* 1, 343–362.

Blume L., and Sack D. (2008). Patterns of Social Capital in West German Regions. *European Urban and Regional Studies*, 15, 229–248.

Casey T. (2004) Social capital and regional economies in Britain. *Political Studies*, 52, 96–117.

Durlauf S. (2002) On The Empirics Of Social Capital *Economic Journal*, 112*,* F459–F479.

Durlauf, S., and M. Fafchamp. Social Capital. (2005). In: Ph. Aghion, S. Durlauf (ed.), Handbook of Economic Growth, Vol.1, 1639–1699, Amsterdam: Elsevier.

Dzialek, J. (2009) Social Capital and Economic Growth in Polish Regions. MPRA Working paper 18287.

Eberstadt, N. (2010). Russia's Peacetime Demographic Crisis: Dimensions, Causes, Implications. NBR Project Report.

Glaeser, E., D. Laibson, J. Scheinkman, and Ch. Soutter. (2000) Measuring Trust. *Quarterly Journal of Economics,* 115, 811–846.

Glaeser, E., D. Laibson and B. Sacerdote. (2002) An Economic Approach to Social Capital. *Economic Journal*, 112, F437–F458.

Glaeser, E., R. La Porta, F. De Silanes, and A. Shleifer. (2004). Do Institutions Cause Growth? *Journal of Economic* Growth, 9, 271–303.

Glaeser, E., Ponzetto, G., and Shleifer, A. (2007) Why Does Democracy Need Education? *Journal of Economic Growth*, 12, 77–99.

Grossman, G., and E. Helpman (2001). *Special Interests Politics,* Cambridge MA and London UK: The MIT Press.

Guiso, L., P. Sapienza, and L. Zingales. (2010) Civic Capital as the Missing Link. NBER Working Paper No. w15845.

Halpern, D. (2005). *Social Capital.* Cambridge: Polity.

Hooghe, M., and D. Stolle (eds.) (2003) *Generating Social Capital. Civil Society and Institutions in Comparative Perspective*. New York: Palgrave Macmillan.

Knack, S. Social Capital and the Quality of Government: Evidence From the U.S. States. (2002) *American Journal of Political Science* 46, 772–785.

Knack, S., and Ph. Keefer. (1997) Does Social Capital Have an Economic Payoff? A Cross-Country Investigation. *Quarterly Journal of Economics,* 1251–1288.

Kennedy, B., and Kawachi, I. (1998) The Role of Social Capital in the Russian Mortality Crisis. *World Development,* 26), 2029–2043.

Kuran, T. (1991) The East European Revolution of 1989: Is it surprising that we were surprised?" *American Economic Review*, 81, 121–125.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny. (1997) Trust in Large Organizations. *American Economic Review*, 87, 333–338.

Levykin I., T Dridze, E Orlov, Y. Reyzema. (1981) State and Main Trends of the Soviet Way of Life. (In Russian) Materials of a Public Opinion Poll.

Marsh, Ch. (2000) Social Capital and Democracy in Russia. *Communist and Post-Communist Studies,* 33, 183–199.

Moore, B. (1966) *Social Origins of Dictatorship and Democracy*, Boston; Beacon Press.

Natkhov, T. (2010). Education and Social Cohesion in Russia. An Empirical Evidence. Mimeo.

Petrov N., and A Titkov A. (2010) Irregular Triangle: State-Business-Society Relations in Russia's Regions (in Russian) Moscow: Rosspen.

Polishchuk, L. (2010) Misuse of Institutions. Lessons from Transition. UNU-WIDER Working Paper No 2010/75.

Polterovich, V (2007). *Elements of Reform Theory* (in Russian). Moscow: Economics Publishers.

Putnam, R. (1993) *Making Democracy Work: Civic Tradition in Modern Italy.* Princeton: Princeton Univ. Press.

Rodrik, D, Subramanian, A., Trebbi, F. (2004) Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development, *Journal of Economic Growth*, 9, 131–165.

Roland, G. (2000) *Transition and Economics. Politics, Markets, and Firms*. MIT Press.

Rose, R. (1998) Getting Things Done in an Anti-Modern Society: Social Capital Networks in Russia. Social Capital Initiative Working Paper No. 6. World Bank.

Rose-Ackerman, S. (1999) *Corruption and Government: Causes, consequences,and reform*. Cambridge: Cambridge University Press.

Rupasingha A, S. Goetz and D. Freshwater (2002) Social and Institutional Factors as Determinants of Economic Growth: Evidence from the United States Counties *Papers in Regional Science* 81, 139–155.

Shleifer, A., and D. Treisman. A Normal Country: Russia After Communism. (2005). *Journal of Economic Perspectives,* 19, 151–174.

Tabellini, G. (2008) Institutions and Culture. *Journal of the European Economic Association* 6, 255–294.

Weingast, B. (1997). The Political Foundations of Democracy and the Rule of Law. *American* Political *Science Review*, 91, 245–263.

Woolcock, M. Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework. Theory and Society, 27, 151—208.

Zak, P. and S. Knack. (2001). Trust and Growth. *Economic Journal,* 111, 295–321.

Zhang Zh., and Ke R. (2003) Trust in China: A Cross-Regional Analysis, William Davidson Institute Working Paper No. 586.

Appendix I

We present two specifications of the general model described in Section 3. In both versions government resorts to distortionary tools of income extraction that impose excess burden on the private sector. Bonding social capital allows members of small groups to eliminate the excess burden by means of self-organization and reduce losses from $C_0(D)$ down to $C_1(D) = D$.

Specification 1: Extortionary taxation

Suppose that the government extracts income from the private sector through an extortionary tax with flat rate $t \in [0,1]$. Assuming agents' quasi-linear utilities $x - v(l)$, where x is income and l — labor, labor supply $l = l(t)$ can be found from the equation $v'(l) = 1 - t$ (market wage is normalized to unity), and government revenue is $D = R(t) \equiv tl(t)$. Residual welfare of a taxpayer after taxes is $V(t) \equiv (1-t)l(t) - v(l(t))$, and when there is no grass-roots protection from taxation, the cost of government predation to agents is as follows: $C(D) = V(0) - V(t) = R(t) + L(t)$, where $L(t)$ is the deadweight loss of a distortionary tax.

Bonding social capital enables agents within small groups to accumulate the required tax payment per member trough direct contributions without sustaining the deadweight losses;[7] the saved deadweight losses comprise economic returns (which accrue to group members) to bonding social capital. In this case $C_1(D) = D$, and the tax rate $t = t(a,w)$ selected by the government from problem (3) satisfies the following first-order condition:

$$\frac{1-a}{a} R'(t) = (1-w) L'(t).$$

The social welfare as a function of a and w is as follows:

$$W_S(a,w) = W_0 - R(t(a,w)) - (1-w) L(t(a,w)).$$

This function is increasing in a, and one can easily check that under the "neoclassical" assumptions about $v(\cdot)$, decreases in w for large enough a.

[7] Such outcome obtains e.g. as political equilibrium when agents' groups are lobbies making contributions to government in order to prevent taxation of group members (Grossman, Helpman, 2001).

This is illustrated by the profiles of $W_S(a,w)$ and $D(a,w)$ for $v(l)=l^2$ (Chart 1 below).

Specification 2: Diversion of public funds

Assume agents' preferences of the form $x+f(G)$, where x is private consumption, and G — local public good, with a "neoclassical" function f. Local public goods are supposed to be provided by the government for N identical communities of equal size $1/N$ (consumers are still assumed to form a unit continuum). Optimal provision $G=G^*$ of the local public good for each community can be found from the equation

$$f'\left(G^*\right)=N.$$

Suppose that the government collects the required revenues NG^*, but can divert portion D of this amount for its own enrichment, leaving the public goods undersupplied. In this case (assuming equal (under)funding of each of the local public goods) the cost to the agents of such diversion is $C_0(D)=f\left(G^*\right)-f\left(G^*-D/N\right)$.

Bonding social capital could help agents within a given community to resolve the collective action problem and make up for the shortfall of funding of the local public good by jointly supplying the missing amount D/N; in such case each member of the community will have to make a private contribution D, and the private cost of government malfeasance is reduced from $C_0(D)$ to $C_1(D) = D$. The stock of bonding social capital is measured by the share w of the communities where such local effort occurs; in this case problem (3) takes the following form:

$$\max_D\left\{D-a\left[wD+(1-w)\left(f\left(G^*\right)-f\left(G^*-D/N\right)\right)\right]\right\},$$

and the optimal diversion of funds $D = D(a, w)$ satisfies the equation

$$f'\left(G^*-D/N\right)=N\frac{1-aw}{a(1-w)}.$$

Here too $D = D(a, w)$ monotonically decreases in a and increases in w, and the social welfare is as follows:

$$W_S(a,w)=W_0-wD(a,w)+(1-w)\left(f\left(G^*\right)-f\left(G^*-D(a,w)/N\right)\right).$$

As it was the case with the previous specification, with the "neoclassical" assumptions this function can also be shown to decrease in w at least when a is sufficiently large. We illustrate this by the profile of $W_S(a,w)$ and $D(a, w)$ for $f(G)=\sqrt{G}$ (Chart 2).

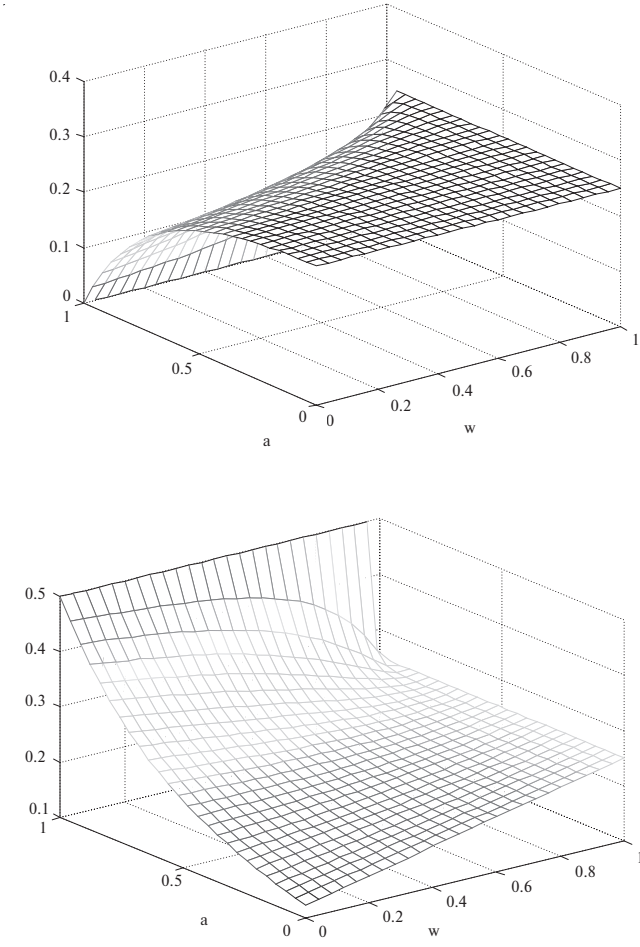


Chart 1. The profiles of $D(a, w)$ and $W_S(a, w)$ for $v(l) = l^2$ (specification 1)

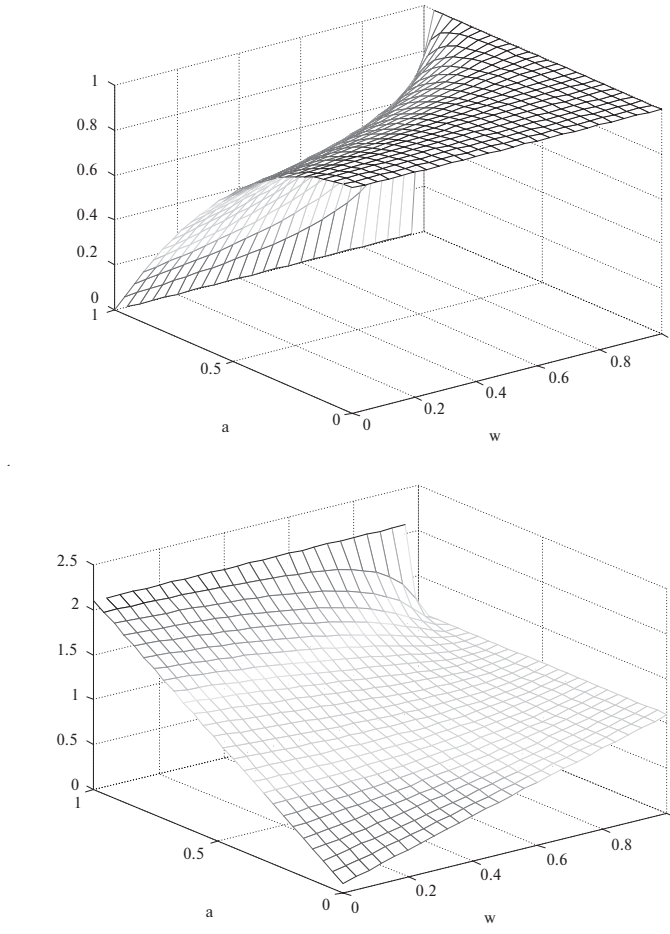


Chart 2. The profiles of $D(a, w)$ and $W_S(a, w)$ fo $f(G) = \sqrt{G}$ r (specification 2)

Appendix II

*Table 1: So*cial norms, attitudes, and outcomes.

Variable	Question	Min	Max
sc_unit	How often people around you are prepared for collective action to jointly solve their problems?	0	4
sc_unit_self	How often people around you are prepared for collective action to jointly solve social problems, even if the latter have no immediate bearings for them?	0	4
sc_agr_all	In your opinion, what is more common in our country today — social accord and cohesion, or discord and alienation?	0	3
sc_agr_close	In your opinion, what is more common among people around you — social accord and cohesion, or discord and alienation?	0	3
sc_trust	Do you think that people can be trusted, or you cannot be more careful in dealing with people?	0	1
sc_com_val	Do you meet people that have much in common with you?	0	3
sc_trust_com	Do you trust those who have much in common with you more, less, or the same as all others?	0	3
sc_help	How often people around you are ready to help each other?	0	3
ind_unit	Some people are ready to join others for joint action only if they have the same interests and share the same ideas. Others are ready for joint action even if partners' interests and ideas are different. To which of these two groups you are closer?	0	3
ind_help	Have you over the last year offered assistance and support to those who are not your immediate family members?	0	3
resp_fam	How strongly you feel responsibility for the situation in your family?	0	3
resp_outdrs	How strongly you feel responsibility for the situation in your apartment building or local residential area?	0	3
resp_city	How strongly you feel responsibility for the situation in your city (town, village)?	0	3
soc_pow	Do you think authorities understand and take into account interests of people like you ?	0	3
soc_outc	Overall, are you satisfied or dissatisfied by the situation in your city (town, village)?	0	3

Answers are usually given in 0 to 3 or 0 to 4 scales; greater value corresponds to higher frequency, stronger agreement etc.

*Table 2: Di*stribution of Individual characteristics of respondents

Size and status of settlement	Sample	Average age	Average years of education	Average welfare	Average income
Moscow	1	45	11.68	3.21	9.91
St. Petersburg	1	44.54	11.2	3.22	10.55
Regional capital with more than 1,000,000 residents	11	43.8	10.72	3	5.86
Regional capital with less than 1,000,000 residents	56	44.2	10.82	2.93	5.54
Towns, small urban settlements	909	44.46	10.24	2.74	4.75
Villages	844	46.9	9.44	2.49	3.59
Total	**1822**	**45.58**	**9.89**	**2.63**	**4.25**

Notes: Respondents were asked to estimate their material welfare in a one ("not enough money even for food") to six ("experience no financial difficulties, could buy a house or apartment if need be") scale. Income was reported in thousands of rubles.

*Table 3: Va*riations of city averages across the sample and among larger cities

Variable	Full Sample (1822 observations)				Large cities (149 observations)			
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
sc_unit	1.67	0.53	0.00	3.40	1.74	0.36	0.41	2.80
sc_unit_self	1.23	0.56	0.00	3.30	1.23	0.43	0.08	2.41
sc_agr_all	0.84	0.38	0.00	2.80	0.82	0.29	0.17	1.60
sc_agr_close	1.64	0.45	0.10	3.00	1.76	0.31	1.00	2.82
sc_trust	0.19	0.16	0.00	1.00	0.18	0.10	0.00	0.50
sc_com_val	2.02	0.34	0.68	3.00	2.03	0.24	1.10	2.63
sc_trust_com	1.92	0.42	0.17	3.00	1.96	0.31	1.20	2.80
sc_help	1.86	0.46	0.30	3.30	1.94	0.31	0.56	2.88
ind_unit	1.84	0.51	0.00	3.00	1.82	0.39	0.44	2.76
ind_help	1.76	0.50	0.00	3.00	1.78	0.37	0.70	2.61
resp_fam	2.71	0.26	1.29	3.00	2.68	0.16	2.00	3.00
resp_outdrs	1.78	0.59	0.00	3.00	1.36	0.37	0.12	2.61
resp_city	1.08	0.52	0.00	3.00	0.91	0.35	0.08	2.35
soc_pow	0.89	0.38	0.00	2.38	0.89	0.30	0.20	1.84
soc_outc	1.11	0.47	0.00	2.63	1.31	0.38	0.20	2.25

*Table 4: Pa*irwise correlations of social norms and attitudes

	sc_unit	sc_unit_self	sc_agr_all	sc_agr_close	sc_trust	sc_com_val	sc_trust_com	sc_help	ind_unit	ind_help	resp_fam	resp_outdrs
sc_unit												
sc_unit_self	0.68											
sc_agr_all	0.40	0.41										
sc_agr_close	0.28	0.16	0.34									
sc_trust	0.19	0.18	0.35	0.18								
sc_com_val	0.19	0.09	-0.01	0.26	0.16							
sc_trust_com	0.04	-0.05	-0.13	0.24	0.06	0.46						
sc_help	0.61	0.40	0.37	0.36	0.23	0.23	0.15					
ind_unit	0.29	0.22	0.11	0.27	0.11	0.35	0.28	0.22				
ind_help	0.14	0.09	-0.02	0.16	-0.01	0.30	0.24	0.28	0.31			
resp_fam	0.03	-0.01	-0.07	0.07	-0.05	0.11	0.15	0.05	0.16	0.22		
resp_outdrs	0.01	0.07	0.01	0.05	-0.03	0.04	0.04	0.00	0.16	0.11	0.34	
resp_city	0.16	0.20	0.16	0.08	0.08	0.05	-0.02	0.10	0.20	0.09	0.23	0.57

*Table 5: Fac*tor analysis results. Proportion of factors in variation and factor loadings for the whole sample and for large cities only

Factor	Eigenvalue	Proportion	Cumulative	Variable	Full Sample				Large cities			
					Factor1	Factor2	Factor3	Uniqueness	Factor1	Factor2	Factor3	Uniqueness
Factor1	2.68	0.61	0.61	sc_unit	0.74	-0.30	0.02	0.36	0.67	-0.39	-0.31	0.30
Factor2	1.29	0.29	0.90	sc_unit_self	0.61	-0.32	0.17	0.50	0.44	-0.46	-0.24	0.54
Factor3	0.99	0.23	1.13	sc_agr_all	0.49	-0.39	0.13	0.60	0.51	-0.43	-0.05	0.56
Factor4	0.37	0.09	1.21	sc_agr_close	0.48	0.05	-0.16	0.74	0.57	0.30	0.02	0.58
Factor5	0.14	0.03	1.24	sc_trust	0.32	-0.15	-0.05	0.87	0.43	-0.16	-0.13	0.77
Factor6	0.01	0.00	1.25	sc_trust_com	0.25	0.43	-0.37	0.62	0.41	0.50	-0.09	0.58
Factor7	-0.01	0.00	1.25	sc_com_val	0.40	0.35	-0.33	0.61	0.47	0.45	-0.17	0.55
Factor8	-0.06	-0.01	1.23	sc_help	0.67	-0.14	-0.13	0.51	0.61	-0.05	-0.03	0.63
Factor9	-0.12	-0.03	1.20	ind_unit	0.48	0.29	-0.08	0.68	0.59	0.23	-0.01	0.59
Factor10	-0.18	-0.04	1.16	ind_help	0.34	0.34	-0.15	0.75	0.39	0.43	0.08	0.66
Factor11	-0.23	-0.05	1.11	resp_fam	0.16	0.40	0.18	0.78	0.13	0.26	0.39	0.77
Factor12	-0.24	-0.05	1.06	resp_outdrs	0.20	0.42	0.54	0.50	0.28	-0.14	0.74	0.35
Factor13	-0.24	-0.06	1.00	resp_city	0.32	0.25	0.55	0.53	0.34	-0.27	0.68	0.35

*Table 6: Co*rrelations of social capital and individual characteristics

	Factor 1	Factor 2	Factor 3	Age	Educa-tion	Well-being	Income
Factor 1							
Factor 2	-0.03						
Factor 3	0.01	0.01					
Age	-0.16	0.14	0.05				
Education	0.17	-0.06	-0.09	-0.33			
Well-being	0.18	-0.08	-0.11	-0.26	0.37		
Income	0.12	-0.08	-0.21	-0.20	0.36	0.47	

*Table 7: Re*gression of social and economic outcomes on social capital

VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**
Bridging SC	0.122***	0.114***	0.122***	0.114***
	(0.010)	(0.012)	(0.010)	(0.014)
Bonding SC	-0.091***	-0.088***	-0.091***	-0.088***
	(0.003)	(0.002)	(0.003)	(0.015)
Civic culture	0.019**	0.025**	0.021***	0.025*
	(0.006)	(0.009)	(0.005)	(0.014)
Population	0.0013***	0.0010**		
	(0.0002)	(0.0003)		
Age		-0.003		-0.003
		(0.005)		(0.003)
Education		0.002		0.003
		(0.009)		(0.012)
Wellbeing		0.115***		0.116***
		(0.016)		(0.029)
City size dummy	NO	NO	YES	YES
Regional effects	YES	YES	YES	YES
Observations	1822	1822	1822	1822
R-squared	0.267	0.282	0.266	0.280

Robust standard errors clustered at settlement type are in parenthesis. ***:1%, **: 5%, *: 10.

*Table 8: Re*gression of government performance on social capital

Total sample

VARIABLES	(1)	(2)	(3)
Bridging SC	0.128***	0.124***	0.123***
	(0.002)	(0.004)	(0.004)
Bonding SC	-0.098***	-0.095***	-0.095***
	(0.004)	(0.005)	(0.005)
Civic culture	0.057**	0.060**	0.059**
	(0.018)	(0.020)	(0.020)
Population		-0.0001	
		(0.0001)	
Age		-0.003*	-0.003*
		(0.001)	(0.001)
Education		-0.007***	-0.004***
		(0.001)	(0.001)
Wellbeing		0.064***	0.065***
		(0.000)	(0.000)
City size dummy	NO	NO	YES
Regional effects	YES	YES	YES
Observations	1822	1822	1822
R-squared	0.289	0.296	0.297

Large cities

VARIABLES	(4)	(5)	(6)	(7)
Bridging SC	0.205***	0.204***	0.183***	0.165***
	(0.016)	(0.012)	(0.017)	(0.028)
Bonding SC	-0.136***	-0.136***	-0.118***	-0.131***
	(0.027)	(0.027)	(0.022)	(0.022)
Civic culture	0.101***	0.101***	0.116***	0.122***
	(0.008)	(0.006)	(0.009)	(0.003)
Population		-0.002	-0.015	-0.022*
		(0.012)	(0.011)	(0.009)
Age			0.000	-0.006
			(0.006)	(0.009)
Education			0.002	0.025**
			(0.026)	(0.006)
Wellbeing			0.167***	0.162***
			(0.011)	(0.008)
Observations	86	86	86	65
R-squared	0.521	0.521	0.561	0.505

Robust standard errors clustered at settlement type are in parenthesis. ***:1%, **: 5%, *: 10.

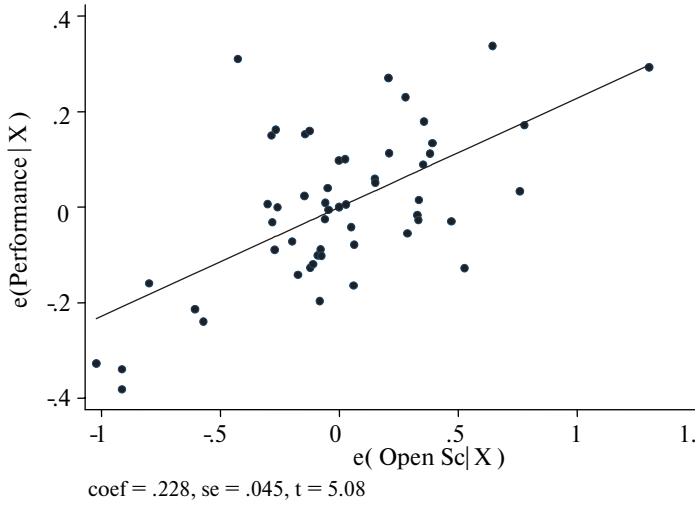


Figure 1: Social capital and quality of governance in larger cities.
Partial regression plot between the performance and bridging social capital measures
(controlling for average income, education and city type)

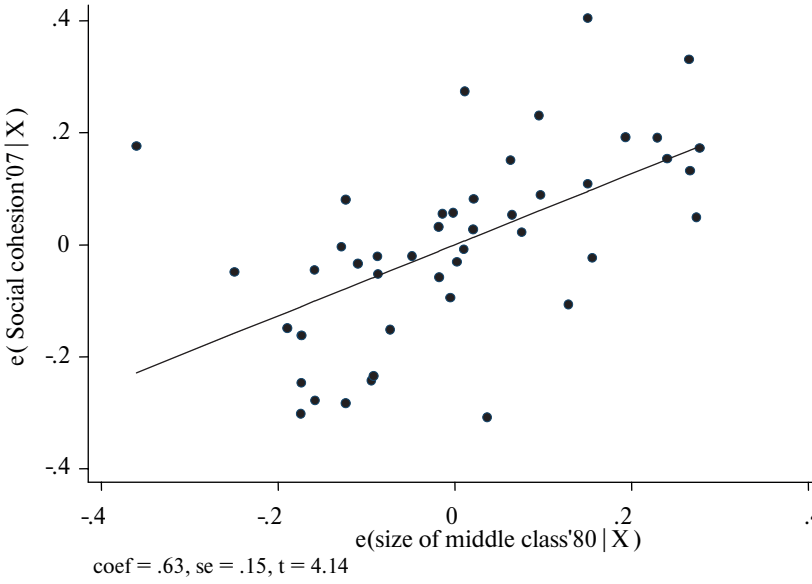


Figure 2: Partial regression plot between the size of middle class in 1980 and social cohesion in 2007 (controlling for average income, education in 1980 and 2007 and city type)

*Table 9: Im*pact of governance and social capital for social and economic outcomes

Total sample

VARIABLES	(1)	(2)	(3)	(4)
Quality of governance	0.450***	0.352***	0.338***	0.338***
	(0.022)	(0.014)	(0.015)	(0.016)
Bridging SC		0.078***	0.072***	0.072***
		(0.008)	(0.009)	(0.009)
Bonding SC		-0.060***	-0.056***	-0.056***
		(0.006)	(0.002)	(0.003)
Civic culture		-0.007	0.005	0.005
		(0.005)	(0.004)	(0.002)
Population			0.0011***	
			(0.0003)	
Age			-0.002	-0.001
			(0.005)	(0.005)
Education			0.005	0.004
			(0.010)	(0.008)
Wellbeing			0.094***	0.093***
			(0.014)	(0.014)
City size dummy	NO	NO	NO	YES
Regional effects	NO	YES	YES	YES
Observations	1822	1822	1822	1822
R-squared	0.137	0.319	0.336	0.335

Large cities

VARIABLES	(1)	(2)	(3)	(4)
Quality of governance	0.813***	0.813***	0.855***	0.972***
	(0.059)	(0.058)	(0.176)	(0.075)
Bridging SC	-0.038	-0.036	-0.027	-0.054
	(0.034)	(0.045)	(0.041)	(0.052)
Bonding SC	0.058**	0.059*	0.048*	0.040
	(0.021)	(0.026)	(0.017)	(0.024)
Civic culture	-0.096	-0.096	-0.116	-0.207***
	(0.082)	(0.084)	(0.089)	(0.020)
Population		0.003	0.027	0.024
		(0.036)	(0.036)	(0.071)
Age			-0.041***	-0.030
			(0.008)	(0.014)
Education			-0.123*	-0.159**
			(0.046)	(0.041)
Wellbeing			-0.079	-0.244**
			(0.192)	(0.065)
Observations	86	86	86	65
R-squared	0.197	0.197	0.267	0.292

Robust standard errors clustered at settlement type are in parenthesis. ***:1%, **: 5%, *: 10.

*Table 10: R*egression of outcomes on bonding social capital by quantiles of bridging social capital distribution

	the first third of the bridging SC distribution	**the second third of the bridging Sc distribution**	**the last third of the the bridging sc distribution**	**the first third of the bridging SC distribution**	**the second third of the bridging Sc distribution**	**the last third of the the bridging sc distribution**
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Bridging SC	0.118***	0.00993	0.0987***	0.122***	0.0125	0.0993***
	(0.0319)	(0.0720)	(0.0316)	(0.0320)	(0.0721)	(0.0318)
Bonding SC	-0.0207	-0.0553***	-0.133***	-0.0221	-0.0512***	-0.134***
	(0.0193)	(0.0181)	(0.0170)	(0.0194)	(0.0181)	(0.0171)
Education	0.0281	0.00626	0.0116	0.0181	0.00666	0.0160
	(0.0337)	(0.0330)	(0.0338)	(0.0349)	(0.0344)	(0.0351)
Wellbeing	0.160***	0.129***	0.0929**	0.156***	0.128***	0.0937**
	(0.0383)	(0.0357)	(0.0377)	(0.0385)	(0.0358)	(0.0380)
Age	-6.04e-05	0.00134	-0.000108	0.00112	-0.000218	-0.000570
	(0.00444)	(0.00449)	(0.00442)	(0.00456)	(0.00453)	(0.00447)
Population	0.0007	0.0009**	0.0005	-0.0004	0.0008	0.0008
	(0.0009)	(0.0004)	(0.0007)	(0.002)	(0.001)	(0.002)
City size dummy	NO	NO	NO	YES	YES	YES
Observations	610	614	608	610	614	608
R-squared	0.077	0.059	0.136	0.084	0.074	0.140

Robust standard errors clustered at settlement type are in parenthesis. ***:1%, **: 5%, *: 10.

*Table 11: C*orrelations between respondents' assessments of socio-economic conditions in their cities in 2007 and similar regional assessments for other years

	Total sample (1816)	**Larger cities (85)**	**Regional capitals (66)**
2005 regional survey	0,22	0,60	0,65
2008 regional survey	0,34	0,73	0,79
2009 regional surveys	0,21	0,62	0,70

Меняшев, Р. Экономическая отдача на социальный капитал: о чем говорят российские данные : препринт WP10/2011/01 [Текст] / Р. Меняшев, Л. Полищук ; Высшая школа экономики. — М.: Изд. дом Высшей школы экономики, 2011. — 44 с. — 150 экз. (на англ. яз.).

В ряде исследований установлено, что социальный капитал оказывает существенное влияние на экономическое развитие, работу институтов и качество государственного управления. Для России такой анализ до сих пор не проводился, и настоящая работа призвана восполнить этот пробел. Мы предлагаем модель, которая разделяет воздействие на состояние экономики открытой (bridging) и закрытой (bonding) разновидностей социального капитала. Эмпирическая часть работы основана на данных опроса 2007 г., проведенного в рамках проекта «Георейтинг». Установлено, что оценка респондентами положения дел в городах находится в отчетливо выраженной статистически значимой положительной связи с открытым социальным капиталом, и в отрицательной зависимости от закрытого социального капитала. Показано, что «передаточным механизмом» между социальным капиталом и положением дел в городах является работа городских администраций.

Препринт WP10/2011/01
Серия WP10
Научные доклады
Института институционального анализа

Меняшев Ринат Шамильевич, Полищук Леонид Иосифович

Экономическая отдача на социальный капитал:
о чем говорят российские данные
(*на английском языке*)

Выпускающий редактор *А.В. Заиченко*
Технический редактор *О.А. Иванова*
Корректор *Ф.Н. Морозова*

Отпечатано в типографии Высшей школы экономики
с представленного оригинал-макета.

Формат 60×84 $^{1}/_{16}$. Бумага офсетная. Тираж 150 экз. Уч.-изд. л. 2,5
Усл. печ. л. 2,6. Заказ № . Изд. № 1317

Высшая школа экономики
125319, Москва, Кочновский проезд, 3
Типография Высшей школы экономики

Тел.: (499) 611-24-15