SOCIAL CAPITAL, SOCIOPOLITICAL INSTABILITY, AND ECONOMIC DEVELOPMENT: A GENERAL EQUILIBRIUM MODEL

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Abstract

This essay describes the main features of a general equilibrium model of social capital and social conflict. According to the model, agents decide to participate in a number of conflict events while, at the same time, accumulate social capital. In the process, the government interacts with the economic actors by discouraging civil disobedience and social violence. The results show that social conflict is decreasing with the accumulation of physical capital, human capital, social capital, and government expenses on social development programs. Output growth in the economy depends positively upon accumulation of all types of capitals and social development funding, and negatively upon social conflict. More importantly, social capital is found to have a considerable positive effect on growth not only directly via investment, as suggested by recent empirical literature, but also indirectly by reducing the levels of social conflict. The model shows that the growth trajectories of the economy display a history-dependent pattern of growth with multiple-equilibria where countries converge to a nontrivial stable steady-state in the long-run. We also provide evidence in favor of the "club convergence" hypothesis which is predicated upon the initial levels of all types of capitals and the underlying level of social conflict.

A significant insight of New Institutional Economics concerns the identification of transaction costs as serious elements in economic exchange. Their presence led Douglass North and Robert Putnam to recognize, respectively, institutions and social capital as means of mitigating these costs. North defines *institutions* as "... the rules of the game in a society or, more formally, [as] the humanly devised constraints that shape human interaction" and also as "a set of rules, compliance procedures, and moral and ethical behavioral norms designed to constrain the behavior of individuals in the interest of maximizing the wealth or utility of principals." Putman, in turn, defines *social capital* as "the stock of norms of reciprocity and networks of civil engagement that enable people to act collectively" for mutual benefit. Social capital encompasses, at least partially, the concept of institutions, and social norms are the nonformalized realm of social capital, as yet uncodified in law.[1]

After briefly reviewing the concept of social capital and associated empirical work in regard to social capital, trust, and economic growth and development, we sketch a computational model (with some details provided in the Appendix) and present its main findings. Our major contribution in this article lies in the explicit theoretical and empirical inclusion of the concept of social capital in thinking about sociopolitical instability and violence, an inclusion that is frequently ignored in the literature.

Social capital

According to Robert Putman, important relations exists between and among civic engagement, civil society, and social capital. For Putnam, civic engagement and membership in voluntary associations help constitute civil society, and they occupy the space between family and state. Each member of an association agrees to abide by certain rules of behavior and, therefore, generates trust among them. The larger is the number of such associations, the richer society's fabric becomes. This fabric becomes society's social capital. Social capital is important because it encourages and supports decisionmaking. While monitoring the actions of public servants becomes an endless principal-agent problem, social values and norms make individuals more self-aware of the effects of their behaviors and can help lead to socially beneficial self-regulation.

Accordingly, since the early 1990s the concept of social capital has emerged as a useful concept to help explain the effect social forces and collective action may have on economic activity. Along with human and physical capital,

social capital is now recognized as one of the salient elements of capital.

Social capital is captured in social relations, reflecting structural constraints and opportunities, choices, and actions on the part of the individual. It is a bridge that connects individuals with their communities. In principle, the concept is simple: Individual actors acquire social capital with the expectation to profit from this investment in the marketplace, viewed here broadly in all its economic, political, and sociological aspects. Social capital may result in profits in the usual sense but it may also enhance the level of nonpecuniary utility an individual enjoys.

Acquiring, processing, and disseminating information in the marketplace are expensive and take time. Investments in social capital—expressed in terms of social relations and the social ties any one actor has invested in—may substantially reduce the transaction costs associated with identifying and processing the information regarding available opportunities.

By the early 1990s, Putnam's work on the importance of associational activity and group membership on economic performance assumed the main stage. For Putnam, social capital signifies the measurable number and density of a society's human connections and memberships that relate actors to each other through the actions of organized civil society. Putnam's view of social capital as the stock of "norms of reciprocity and networks of civic engagement" contributes to the explanation as to how citizens can overcome obstacles to collective action. He argues that social capital contributes to good governance and economic development and also that it is the outcome of path-dependent historical processes.[2]

Trust, growth, and development

The theoretical development of the concept of social capital found empirical support in the seminal works of LaPorta, *et al*., and Knack and Keefer. LaPorta and colleagues argued, for example, that trust (i.e., social capital) determined the performance of a society's institutions. Empirically, they were interested in the effects of trust on the performance of large organizations in a cross-section of 40 countries. The data supported their hypothesis.[3] Beyond organizations, it has been argued that social trust promotes efficiency in the functioning of democratic processes and enhances the stability of democratic regimes at large. In addition, characteristics such as tolerance and compromise, and its beneficial effects on transaction costs, lead to social capital promoting economic growth and decreasing sociopolitical instability. In particular, Almond and Verba argued that "trust is a generalized resource that keeps a democratic polity operating ... Without it, democratic politics is impossible." Similarly, Inglehart writes

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that "interpersonal trust is a prerequisite to the formation of secondary association, which in turn is essential for effective political participation in any large democracy."[4]

Knack and Keefer, using indicators for trust and civic norms supplied by the World Values Survey and sampling 29 market economies, provide evidence that social capital is associated with measurable improvement in economic performance. Their findings, in turn, set the stage for further empirical research regarding the implications of social capital on economic performance. The importance of social capital has also been linked to policymaking. Several World Bank studies related to its Social Capital Initiative have provided a number of policy prescriptions based on the perceived importance of social capital in low-income, developing countries as a plausible means to counterbalance the effects of poverty.[5]

Woolcock and Narayan provided a concise and practical definition of social capital as "the norms and networks that enable people to act collectively," a definition we adopt for our empirical work. In addition, they recognize that social capital can be an asset or a liability. For instance, where communities and networks are isolated from society's collective interests (as in gangs and drug cartels), social capital becomes a "dark force" that hinders growth and development.[6]

Our use of social capital only considers growth-promoting activities. Its perverse or liability side is viewed as part of social conflict and attributed mainly to three reasons: (1) institutional (e.g., ideological, cultural, and political), (2) behavioral, and (3) economic (e.g., income distribution). This summarizes all types of grievances that have appeared in the social landscape throughout history manifested as rebellions, revolutions, insurrections or, more generally, in a great deal of various forms sociopolitical instability.

Concerning the economic reasons that induce individuals to participate in social conflict, an extensive body of literature exists. Early theoretical and empirical analyses in specific regard to income distribution and sociopolitical instability, for example, include Alesina, Venieris, and their co-authors. These studies documented that economic, social, and political grievances figure prominently among the motivations that set the stage for individuals to engage in sociopolitical instability.[7]

The model

We study the effects of social capital and sociopolitical instability on growth and development by constructing a two-period general equilibrium model in the overlapping generations tradition where consumption by individuals, production decisions by firms, and the services provided by the state all are based on optimal choices by the corresponding agents.

In this model, social capital is accumulated by young adults over successive generations and they transmit the sum of social resources gathered to promote positive collective action. The government plays an important role not only as an enforcer of the rule of law by means of reactive policies that restrain both sociopolitical uprisings and the violation to property rights but also as an entity that designs and implements preventive policies aimed to providing an appropriate climate for the formation of physical, social, and human capital as well as address various social grievances.

We derive the conditions of a general equilibrium with economic, political, and institutional dimensions and, in particular, a competitive equilibrium that is the set of prices and the number of aggregate conflicts that result in a certain level of sociopolitical instability. This assumes certain given laws of motion for social, human, and physical capital as well as a sequence of government policies. Initial values are set for physical capital, average social capital, human capital, and the working population. Consumers maximize utility, firms maximize profits, and government sets optimal policies to maximize capital-deepening, social development, and security, and all markets clear.

This equilibrium is completely specified by the dynamic sequence of aggregate conflicts and average social and physical capital. At each point of time t, a unique equilibrium exists because the objective functions of consumers and firms are strictly concave. A mathematical sketch of the model is provided in the Appendix.

The findings

The results of the model run may be summarized as follows. First, the optimal number of conflicts for individuals and the related levels of sociopolitical instability (SPI) are decreasing as physical, social, and human capital accumulates. Second, fiscal policy instruments (social development programs and police protection) are positively related to all forms of capital. That is, more physical, human, and social capital lead to more funding of social development programs and police spending because optimal policies derived from the planning problem are state-dependent. Intuitively, more accumulation of all forms of capital leads to an increase in output growth which, in turn, increases funding for government policies. Third, when a nation is in a poverty trap because of high levels of SPI, the exercise of macroeconomic stabilization policies might become ineffective. Even if set at their optimum levels, stabilization policies will be unable to lift an economy out of the trap. Fourth, output growth in the economy depends on the accumulation of all types of capitals and social development outlays; conversely, growth relates negatively to political conflict and SPI. Fifth, social capital (i.e., trust and a healthy, active civil society) positively affects output growth, not only directly via investment but also indirectly by reducing rates of internal conflict and SPI.

Sixth, the development trajectories of the economy display a history-dependent pattern of growth with multiple equilibria. Our results provide evidence in favor of the "club convergence" hypothesis in the case of middle and upper-income societies but not in the case of the poorest ones.[8] Seventh, our model provides evidence that countries are poor because they suffer from initial stocks of physical, social, or human capital that are too low and rates of social conflict and SPI that are too high. Eighth, our analysis shows that there is room for policymakers to improve the performance of their economies provided that they take care of the causes of social conflict and SPI. Ninth, the empirical findings confirm the importance of the relationship between social capital and growth: Social capital is capable of affecting growth positively through a number of mechanisms: (1) it raises the performance and stability of government; (2) it provides grounds for more efficient protection of property rights; (3) it inhibits corruption and political conflicts; and (4) it reduces ethnic and religious tensions. All these improve the climate for long-run decisionmaking. Finally, tenth, we identify a number of variables that affect social capital (trust): Group membership and the degree of associational activity increase trust but income inequality reduces trust in a significant way. This suggests that economic polarization has detrimental effects on society not only through "conventional wisdom" mechanisms (i.e., its impact on aggregate demand, increasing conflicts, etc.), but also through its effects on trust.

Conclusion

Social capital is an important determinant for the growth and development of nations. Sociopolitical instability is a central problem of development. Policymakers are ill-advised to ignore the nexus of social capital, sociopolitical instability, growth, and development.

Notes

1. North (1981, p. 201); Putnam (1993, p. 167).

2. Putnam (1993). The notion of "stock" implies that social capital can accumulate through new investments but also that it can deaccumulate through sociopolitical instability (hereafter SPI).

3. LaPorta, *et al*. (1997); Knack and Keefer (1997).

4. Almond and Verba (1963, p. 357); Inglehart (1990, p. 23).

5. Knack and Keefer (1997). Further research: See, e.g., Zak (2001). World Bank: See, e.g., Colletta and Cullen (2002).

6. Woolcock and Narayan (2000). Dark force: Hirshleifer (1994).

7. Venieris and Gupta (1986); Steward and Venieris (1987); Alesina and Perotti (1996).

8. The club convergence hypothesis states that countries with similar initial economic, political, and cultural conditions should all converge to the same level of income per capita. The initial conditions for any form of capital accumulation determine if developing countries can take off and join the wealthy economies or contract into a poverty trap.

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Appendix

Here we present an outline of the model. The full model and the empirical results are available upon request from the corresponding author.

The consumer

Consider a country with a large number of agents who vary in their level of social capital and type of violence displayed in events of social conflict. The index $i \in \varkappa$ identifies individuals by their level of social capital, π^i, so that if $q > p$, then $\pi^q > \pi^p$. Moreover, let j be a dichotomous index assuming the values 0 or 1, depending on whether the i-th individual participates in nonviolent or violent events, respectively. Thus, an agent with social capital π^i who displays violence type j is identified as π^{ij}. Agents live for two periods in overlapping generations. At each point in time young and older adults are alive. It is assumed that agents are productive only when young. Combining these elements, the lifetime utility maximization problem for an ij young individual at time t=1 assumes the form

$$(1)\quad \underset{c_t^{ij},\, c_{t+1}^{ij},\, e_t^{ij}}{Max}\; u(c_t^{ij}, c_{t+1}^{ij}; e_t^{ij}) = (1-\beta)\ln(c_t^{ij}) + \beta\ln(c_{t+1}^{ij}) + \gamma\ln(e_t^{ij}),$$

subject to

$$(2)\quad c_t^{ij} = w_t h_t \pi_t^{ij}(1-\tau_t) - b_t^{ij} e_t^{ij} - s_t^{ij}$$

$$(3)\quad c_{t+1}^{ij} = R_{t+1} s_t^{ij}$$

$$(4)\quad e_t^{ij} \geq 1, \forall i, j, t,$$

where $\beta \in (0,1)$ denotes the preference to consume when young

versus old, $\gamma > 0$ is the preference for participating in conflict events, e denotes the number of conflicts the ij-th individual participates in, b is the cost of participating in events of conflict, and s stands for savings. The solution of this maximization problem yields the following optimum amount of savings and number of conflict events for the individual:

$$(5)\quad (s_t^{ij})^* = \frac{\beta w_t h_t \pi_t^{ij}(1-\tau_t)}{(1+\gamma)}$$

$$(6)\quad (e_t^{ij})^* = Max\left\{\frac{\gamma}{D(1+\gamma)\left[w_t h_t \pi_t^{ij}(1-\tau_t)\right]}, 1\right\}.$$

Next, equation (7) assumes that the social capital of individual ij at time t+1 is related to the social capital previously accumulated and the number of conflicts that the individual participated in during the previous period:

$$(7)\quad \pi_{t+1}^{ij} = \frac{\tilde{\rho}\pi_t^{ij}}{(e_t^{ij})^{\theta}}, \text{ with } \begin{cases} \theta \geq 1 \rightarrow j = 1 \\ 0 < \theta < 1 \rightarrow j = 0 \end{cases},$$

where $\tilde{\rho} = (1+\rho)$ represents the rate of intergenerational transmission of social capital (with $\rho > 0$), while $\theta > 0$ is a dilution effect resulting from the participation of each ij individual in multiple conflict events.

The firm

The second actor in the model is the firm, assumed to maximize profits. That is, a representative firm, at time t, chooses physical capital per effective worker, $\tilde{k}_t \equiv K_t / L_t$, to maximize profits by solving

$$(8)\quad \underset{\tilde{k}_t}{Max}\left[f(\tilde{k}_t) - r_t \tilde{k}\right]_t,$$

where r_t is the rent on physical capital. Solution to this profit maximization problem, using a given production function, yields the firm's demand for physical capital and labor per effective worker and, hence, produces the market clearing wage, w_t, and the return on savings from t–1 to t, $R_t = 1 + r_t - \delta$.

Next, we substitute labor income, determined by the optimization of the firm's behavior, into optimal savings (5) and the optimal number of conflicts (6), to obtain the equilibrium conditions for an individual's utility maximization as a function of the economy's state-variables:

$$(9)\quad s_t^* = \beta(1-\alpha)(1-\tau_t)(1+\gamma)^{-1} k_t^{\alpha} (\sigma_t \pi_t h_t)^{1-\alpha}$$

$$(10)\quad e_t^* = Max\left\{\frac{\gamma}{D(1+\gamma)(1-\alpha)(1-\tau_t)k_t^{\alpha}(\sigma_t \pi_t h_t)^{1-\alpha}}, 1\right\}$$

where σ_t stands for the social development policy instrument and h_t for average human capital. Equation (9) shows that optimal average savings is increasing in physical capital per worker and decreasing in the preference for conflict events. Also note that the government's policy instrument, σ_t, the human capital, h_t, and the average social capital accumulation, π_t, all are positively related to the optimal level of average savings and negatively related to the optimum number of conflict events, as they should.

Next, we aggregate to obtain the equilibrium dynamics for the economy which maps the saving decisions of all individuals into the demand for investment by firms. This yields the law of motion for physical capital (to keep the exposition parsimonious we do not spell out the particulars of the aggregation):

$$(11)\quad K_{t+1} = \sum_{i=1,\forall j}^{N_t} (s_t^{ij})^*.$$

But since we assumed that agent ij is the typical agent in our model, we rewrite the capital market equilibrium condition (11) as the sum of the optimal savings function of the representative agent (9):

$$(11a)\quad K_{t+1} = N_t s_t^*.$$

Because only young adults save, aggregate average savings from time t to time $t+1$ is given by (11a) which, in turn, firms use to invest in physical capital at time $t+1$. Combining equations (11) and (11a) permits us to generate the capital market equilibrium condition which is used by government to derive its optimal policies. This yields the law of motion for physical capital:

$$(12)\quad K_{t+1} = N_t s_t^* = \beta(1-\alpha)(1-\tau_t)(1+\gamma)^{-1} K_t^{\alpha} (\sigma_t \pi_t h_t N_t)^{1-\alpha}.$$

Equation (12) shows that next period's physical capital stock, K_{t+1}, is increasing in the current period's physical, human, and social capital stocks, is decreasing in taxes and preference for conflict events, and increases as funding in social development programs rises.

Next, we obtain the aggregate number of conflicts that take place by summing the optimal conflict functions of all agents. That is, equation (6) at time t:

$$(13) \qquad E_t^* = \sum_{\forall e_t>1} (e_t^{ij})^* + \sum_{\forall e_t=1} (e_t^{ij})^* = \sum_{\forall j=0} (e_t^{ij})^* + \sum_{\forall j=1} (e_t^{ij})^* .$$

Total conflict events are obtained either by aggregation of the number of events the *ij* agent participates in [i.e., first section of the right hand side of (13)], or if conflicts are aggregated according to the type of violence [i.e., second section of right hand side of (13)].

Equation (13) provides us with the total number of conflict events. These are optimally derived considering the set of heterogeneous individuals. It registers the main source of sociopolitical instability in this country. Hence, we can define sociopolitical instability as the following mapping:

$$(14) \qquad SPI = SPI(E_t^*, Z_t): \Re^2 \rightarrow [0,1],$$

where Z_t is a vector of variables that affect the levels of sociopolitical instability such as police expenditure and income inequality, corruption by public officials, and a litany of other grievances. But since $E_t^* = E(k_t, \sigma_t \pi_t h_t)$, then

$$(14a) \qquad SPI_t = SPI(E(k_t, \sigma_t \pi_t h_t), Z_t): \Re^5 \rightarrow [0,1] .$$

In addition to the implied relations this SPI function, and given the monotonic relation between conflicts and SPI, equation (14a) suggests that sociopolitical instability is decreasing in the accumulation of per capita physical capital, social development programs, social capital, and human capital, that is,

$(\delta SPI_t/\delta E_t^*)(\delta E_t^*/\delta k_t) < 0,$
$(\delta SPI_t/\delta E_t^*)(\delta E_t^*/\delta \sigma_t) < 0,$
$(\delta SPI_t/\delta E_t^*)(\delta E_t^*/\delta \pi_t) < 0,$ and
$(\delta SPI_t/\delta E_t^*)(\delta E_t^*/\delta h_t) < 0,$

respectively. The importance of these results is twofold: First, social conflict, derived from individual decisionmaking, is linked to sociopolitical instability in a tractable way and, second, the derived SPI mapping can be verified empirically.

The state

We close the model by considering the role of government. We assume that policymakers maximize a capital-deepening (growth) function, equation (15), subject to two constraints: first, the capital market equilibrium condition (16) and, second, the government budget balance-relation (17). Note that the budget can easily be expanded to include a deficit or surplus as well as many other items. As usual, though, more detail comes at the cost of less clarity and additional length. No generality is lost with the simpler formulation:

$$(15) \qquad \underset{\sigma_t, P_t, T_t}{Max}\left(\frac{K_{t+1}}{K_t}\right),$$

subject to

$$(16) \qquad K_{t+1} = \beta(1-\alpha)(1-\tau_t)(1+\gamma)^{-1} K_t^{\alpha} (\sigma_t \pi_t h_t N_t)^{1-\alpha}$$

$$(17) \qquad T_t = \sigma_t + P_t.$$

Equation (17) represents the government budget constraint for this planning problem in which tax revenues, T_t, are used to underwrite police expenditure and social development expenses. The optimum values of the various governmental activities are

$$(18) \qquad \sigma_t^* = \left[(1-\omega)(1-\alpha)^2 (\pi_t h_t N_t)^{1-\alpha} K_t^{\alpha}\right]^{1/\alpha}$$

$$(19 \qquad P_t^* = \omega(1-\omega)^{(1-\alpha)/\alpha}(1-\alpha)^{2/\alpha}(\pi_t h_t N_t)^{(1-\alpha)/\alpha} K_t ,$$

and

$$(20) \qquad T_t^* = (1-\alpha)\tau_t^* Y_t = (1-\omega)^{(1-\alpha)/\alpha} (1-\alpha)^{2/\alpha} (\pi_t h_t N_t)^{(1-\alpha)/\alpha} K_t .$$

Equations (18), (19), and (20) show that the activities of the state (e.g., public investment) are increasing in physical capital, K_t, and in aggregate contributions of average social capital and human capital, $N_t \pi_t h_t$.

Empirics

Our tests are based on a sample of 61 developed and developing countries spanning the period 1980-2000. We used a larger time span for SPI. We generated an SPI index by estimating a logit equation that relates government crises to domestic conflict events which capture two types of acts: Violent uprisings and collective protests or anomic violence. For this we used the dataset generated by Banks (1996). We construct the index of SPI by using assassinations (*Assass*), guerilla warfare (*Guerwar*), purges (*Purges*), general strikes

(*Gstrikes*), riots (*Riots*), and anti-government demonstrations (*Antigovdem*) to explain the incidence of major government crises. (The list of variables is in endnote 1.[1]) We also relate government crises to a dichotomous variable, assuming the values 0 or 1, depending on whether a country is a developing or developed economy, respectively. Numbers in parentheses are standard errors.

(21) $SPI_{it} = -2.125 + 0.116(Assass)_{it} + 0.339(Guerwar)_{it}$
(0.046) (0.039) (0.066)
$+ 0.371(Purges)_{it} + 0.546(Gstrikes)_{it} + 0.065(Riots)_{it}$
(0.059) (0.069) (0.035)
$+ 0.054(Antigovdem)_{it} - 0.473(Dum)$
(0.035) (0.137)

Likelihood: -2,602.26 | Obs: 6,889 | Wald Chi-Sq.(7):244.8

We present only a few of the estimated equations. For each, there are several tables of estimates depicting different specifications and using various estimators. The complete set of empirical work is available upon request from the corresponding author.

SPI and internal conflict equations

Hypothesis 1: Conflict and sociopolitical instability decrease when (1) government funding of social development programs rises; (2) social capital increases; (3) human capital increases; and (4) physical capital increases.

(22) $Conflict_i = 7.746 - 0.964(I/GDP)_i - 0.216(SocialDev)_I$
(1.629) (0.359) (0.119)
$- 0.672(Literacy)_i - 0.404(Trust)_i$
(0.202) (0.132)

R-sq. (adj.): 0.377 | Obs: 58 | Estimator: 2SLS
Notes: Instruments for 2SLS regressions include terms of trade, price of investment goods, and inflation rate.

(23) $Conflict_{it} = 5.160 - 0.570(K)_{it} - 0.348(SocialDev)_{it}$
(0.538) (0.263) (0.084)
$- 1.109(School)_{it} - 0.130(Culture)_{it}$
(0.110) (0.043)

R-sq. (adj.): 0.487 | Obs: 725 | Estimator: FE-IV
Notes: Instruments for FE-IV regressions include terms of trade and inflation rate.

(24) $SPI_{it} = 3.064 - 1.356(K)_{it} - 0.208(SocialDev)$
(1.998) (0.468) (0.088)
$- 0.591(School) - 0.385(INGO)$
(0.397) (0.097)

R-sq. (adj.): 0.183 | Observations: 522 | Estimator: FE-IV
Notes: Instruments for FE-IV regressions include terms of trade and inflation rate.

Optimal government policies

Hypothesis 2: Fiscal policy components (i.e., tax revenues, social development, and police protection) are increasing and log-linear in (1) physical capital, (2) social capital, and (3) human capital.

(25) $Taxes_i = -7.109 + 0.120(GDP)_i + 0.114(Primary)_i$
(1.650) (0.048) (0.071)
$+ 0.322(Secondary)_I + 0.995(Civic)_i$
(0.112) (0.454)

R-sq. (adj.): 0.363 | Observations: 54 | Estimator: 2SLS
Notes: Instruments for 2SLS include terms of trade, price of investment goods, and inflation rate.

(26) $Taxes_{it} = -7.511 + 0.172(PhysicalCap)_{it}$
(1.241) (0.048)
$- 0.078(SocialCap)_{it} + 0.488(HumanCap)_{it}$
(0.454) (0.111)

R-sq. (adj.): 0.267 | Observations: 599 | Estimator: FE-IV
Notes: Instruments for FE-IV regressions include terms of trade and inflation rate.

(27) $SocialDev_{it} = -13.279 + 0.285(PhysicalCap)_{it}$
(2.480) (0.088)
$+ 0.707(HumanCap)_{it} + 0.063(SocialCap)_{it}$
(0.163) (0.029)

R-sq. (adj): 0.372 | Observation: 551 | Estimator: FE-IV
Notes: Instruments for FE-IV regressions include terms of trade, price of investment goods, and inflation rate.

(28) $PoliceExp_{it} = -13.852 + 0.225(PhysicalCap)_{it}$
(3.014) (0.115)
$+ 0.538(HumanCap)_{it} + 0.137(SocialCap)_{it}$
(0.199) (0.039)

R-sq. (adj.): 0.309 | Observations: 545 | Estimator: FE-IV
Note: Instruments for FE-IV regressions include terms of trade and inflation rate.

Hypothesis 3: The development trajectory of the economy depends upon (1) physical capital, (2) social capital, (3) human capital, (4) social development policies, and (5) preference for conflict-SPI events. Physical capital (and hence output) growth is increasing in social capital, human capital, and social development programs, and is decreasing in social conflict and SPI.

(29) $\text{Growth}_i = 0.320 - 0.157(\text{GDP80})_i + 0.231(\text{Literacy})_i$
$(0.626)\ (0.048)\qquad (0.117)$
$- 0.182(\text{Conflict})_i + 0.199(\text{Trust})_I$
$(0.080)\qquad (0.081)$

R-sq. (adj): 0.254 | Observations: 62 | Estimator: 2SLS
Notes: Instruments for regressions include ethnic tensions, religious tensions, ethno-linguistic fractionalization, and democratic accountability.

(30) $\text{KGrowth}_{it} = 16.224 + 0.074(\text{SocialDev})_{it}$
$(1.134)\ (0.023)$
$+ 0.301(\text{INGO})_{it} + 0.313(\text{Secondary})_{it}$
$(0.037)\qquad (0.040)$
$- 0.736(\text{InitCap})_{it} - 0.037(\text{Conflict})_{it}$
$(0.050)\qquad (0.009)$

R-sq. (adj): 0.422 | Observations: 483 | Estimator: FE-IV
Notes: Instruments for FE-IV regressions include ethnic tensions, religious tensions, and democratic accountability.

(31) $\text{KGrowth}_{it} = 16.963 + 0.079(\text{SocialDev})_{it}$
$(1.113)\ (0.021)$
$+ 0.494(\text{INGO})_{it} + 0.117(\text{Secondary})_{it}$
$(0.039)\qquad (0.039)$
$- 0.788(\text{InitCap})_{it} - 0.018(\text{SPI})_{it}$
$(0.050)\qquad (0.011)$

R-sq. (adj): 0.427 | Observations: 441 | Estimator: FE-IV
Notes: Instruments for FE-IV regressions include ethnic tensions, religious tensions, and democratic accountability.

Spline regressions

Our model deals explicitly with the basic question of growth and development: "Why are we so poor and they are so rich"? For this reason we add aggregate social behavior to the list of causes for long-run growth and the debate about convergence.

Hypothesis 4: The dependence of physical capital accumulation on preferences for conflict, social development, human capital, and social capital accumulation will yield a history-dependent pattern of growth with multiple steady-state equilibria. The development trajectory of the economy will display three different phases: A poverty trap, a period of transitional dynamics, and a balanced (endogenous) growth path. This implies the presence of "convergence clubs."

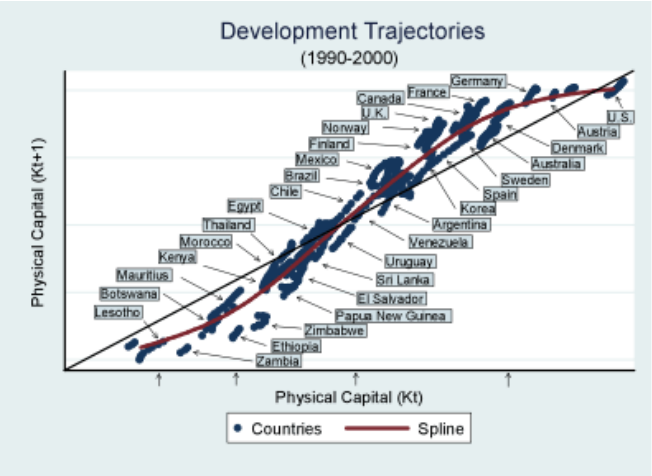

Figure 1: Spline regression.

In accordance with Hypothesis 4, the dependence of output growth on conflict, social development, and the various forms of capital leads to patterns of growth which are characterized not only by differences in structural characteristics but also by differences in initial conditions and, thus, are consistent with the club convergence hypothesis (see, e.g., Zak, 2000).

To test Hypothesis 4, we present an IV-type estimates by using a spline estimator. In particular, we estimate a natural or restricted cubic spline considering the arguments on the right-hand-side of the capital market equilibrium condition as regressors.

(32) $\text{KGrowth}_{it} = 16.753 + 0.030(\text{SocDev})_{it} + 0.347(\text{INGO})_{it}$
$(2.229)\ (0.020)\qquad (0.026)$
$+ 0.139(\text{Secondary})_{it} + 0.23(\text{InitCap1})_{it}$
$(0.039)\qquad (0.094)$
$+ 0.62(\text{InitCap2})_{it} - 2.28(\text{InitCap3})_{it} - 0.02(\text{Conflict})_{it}$
$(0.21)\qquad (0.65)\qquad (0.01)$

R.-sq. (adj): 0.694 | Observations: 498 | Estimator: FE-IV.
Notes: HCSE variances. Instruments for FE-IV regressions include ethnic tensions, religious tensions, and democratic accountability.

The development trajectory portrayed in Figure 1 is consistent with models that display history-dependent patterns of growth and multiple-equilibria (e.g., Zak, 2000). In this sense, our theoretical model and the empirical findings suggest that initial conditions such as the stock of social capital and

base levels of conflict and violence are important in determining whether countries grow or contract into poverty. The role of social capital and social conflict in an economy will eventually determine the developmental path that will be followed by the economy. A visual inspection of Figure 1 is also helpful in validating our results. Recall that the coefficients of initial capital in equations (30) and (31) were negative and statistically significant, pointing out that low-income countries gained growth advantages from being poor in catching up with the wealthy ones. But once we take into account equation (32), we can conclude that the conditional convergence effect of middle and high-income countries eclipses and, therefore, force us erroneously to conclude that all countries converge. Indeed, this is not the case. Poor countries, unfortunately, do not enjoy this benefit.

Note (Appendix)

1. List of variables: *SPI*=Index of Sociopolitical Instability; *Assass*=Number of assassinations; *Gstrikes*=Number of general strikes; *Guerwar*=Number of guerrilla warfare; *Purges*=Number of purges; *Riots*=Number of riots; *Antigovdem*=Number of anti-government demonstrations; *Dum*=Dummy variable; *Conflict*=Number of internal conflicts; *I/GDP*=Investment/GDP; *SocialDev*=Government expenses on social development programs (i.e., health, education, and social security); *Literacy*= Literacy rate; *School*=Level of education considering primary and secondary enrollment; *Culture*=Government expenses on recreational, cultural, and religious affairs; *INGO*=International nongovernmental organizations; *Growth*=Rate of growth of output; *KGrowth*=Rate of growth of physical capital; *GDP80*=GDP in 1980; *InitialCapital*=Initial level of physical capital; *InitialCapital[1]*=Initial level of physical capital at first stage of growth in spline regression (i.e., level of physical capital at first knot); *InitialCapital[2]*=Initial level of physical capital at second stage of growth in spline regression (i.e., level of physical capital at second knot); *InitialCapital[3]*=Initial level of physical capital at third stage of growth in spline regression (i.e., level of physical capital at third knot).