1995

Idea Gaps, Object Gaps, and Trust Gaps in Economic Development

Christopher B. Barrett
Utah State University
IDEA GAPS, OBJECT GAPS, AND TRUST GAPS IN ECONOMIC DEVELOPMENT

by

CHRISTOPHER B. BARRETT

Department of Economics
Utah State University
Logan, UT 84322-3530

August 1995
IDEA GAPS, OBJECT GAPS, AND TRUST GAPS IN
ECONOMIC DEVELOPMENT

Christopher B. Barrett, Assistant Professor

Department of Economics
Utah State University
Logan, UT 84322-3530

The analyses and views reported in this paper are those of the author. They are not necessarily endorsed by the Department of Economics or by Utah State University.

Utah State University is committed to the policy that all persons shall have equal access to its programs and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

Information on other titles in this series may be obtained from: Department of Economics, UMC 3530, Utah State University, Logan, Utah 84322-3530.

Copyright © 1995 by Christopher B. Barrett. All rights reserved. Readers may make verbatim copies of this document for noncommercial purposes by any means, provided that this copyright notice appears on all such copies.
IDEA GAPS, OBJECT GAPS, AND TRUST GAPS IN ECONOMIC DEVELOPMENT

Christopher B. Barrett

ABSTRACT

Growth theory emphasizes capital accumulation and technological change or, as Romer [1993] describes them, idea gaps and object gaps. This paper makes the case for a third and final crucial element: trust. Trust has both direct effects on the process of economic development, especially in facilitating increased exchange, and indirect effects through its influence on incentives to investment in human and physical capital (objects) and to the acquisition and processing of knowledge (ideas). Interpersonal trust is fundamental to economic development because irreversibilities, downside risk, and history-dependence are central features of most economic choice.

JEL Classification: O1, O4, D23, D92
IDEA GAPS, OBJECT GAPS, AND TRUST GAPS IN ECONOMIC DEVELOPMENT

For many years, growth theorists focused exclusively on capital accumulation as the engine of growth, assuming technological change exogenous to the economic system (for example, Solow 1956). In this view, growth in human and physical capital stock is central to economic growth and the only channel through which policymakers can sustainably stimulate an economy. Path-breaking advances in modelling the general equilibrium effects of nonconvexities (Dixit and Stiglitz 1977) then enabled a second generation of research that endogenized technological change, in essence, by positing externalities from human or physical capital (for example, Romer 1986; Lucas 1988). A more recent strain of the endogenous growth literature looks less to externalities from capital than to externalities from knowledge (Romer 1990; Grossman and Helpman 1991, 1994). Romer's (1993) seminal essay synthesizes these two strains of growth theory brilliantly; this paper explicitly builds on Romer, in substance and title.

Despite the heady air of progress surrounding most discussions of endogenous growth theory, the existing literature maintains a production-centric conceptualisation that does not fully square with the empirical evidence. At the most basic level, the share of capital in national production would need to be implausibly close to one in order for externalities from human or physical capital to generate the exceptionally rapid rates of growth observed over the past 30 years in countries such as Hong Kong, Korea, Singapore, or Taiwan. At the opposite end of the...
performance spectrum, capital accumulation with positive externalities does not reconcile easily with negative real per capita growth in sub-Saharan Africa. Of the many strands of endogenous growth theory emerging, only those that posit a relationship between openness to trade and productivity improvements to augment capital accumulation (Romer 1990; Grossman and Helpman 1991) appear empirically acceptable, and those perhaps chiefly because we as yet are unable to measure “ideas” in any meaningful way (Pack 1994).

More fundamentally, highly specialized division of labor, commercialized output, and spatially and intertemporally expansive markets are equally central to rapidly growing, modern economies as are sizeable capital stocks and a vibrant flow of ideas. This points to the centrality of exchange, not just production, in economic advancement. Indeed, the trade-oriented endogenous growth literature (Grossman and Helpman 1991, 1994; Romer 1993) points squarely in this direction, emphasizing that improved processes and products come from contact abroad.

Exchange is an inherently interpersonal endeavor, far moreso than production. Arrow (1994) and North (1991), among others, have emphasized the social underpinnings of evolving economic systems. I claim that the evolving human relations of exchange are central to the project of economic development. Both the neoclassical and the newer variants of growth theory continue to treat as exogenous the human environment within which individuals undertake the calculus of savings, investment, invention, innovation, and technology adoption. This paper challenges that notion, invoking both longstanding claims from institutional economics and more recent advances in game theory and the microeconomics of uncertainty. This essay thus attempts to integrate concepts hitherto, and curiously, segregated.
A brief pause to define terms is in order. Ideas involve all the process and product innovations that add value to commercial operations. Objects, including human capital, are the stuff of which all production and consumption patterns are made. In Romer’s (1993: 544) definition, “[t]he notion of an object gap highlights saving and accumulation. The notion of an idea gap directs attention to the patterns of interaction and communication between a developing country and the rest of the world” (emphasis mine). The patterns of interaction and communication among agents within a developing economy is conspicuously absent from this formulation. I introduce the notion of a “trust gap” to fill this important lacuna. For individuals to interact willingly, innovatively, and continuously, they must possess trust in people and institutions—their business associates, the state, unions, or perhaps God—to safeguard them against catastrophe and exploitation, and to provide reliable information. A trust gap signifies the partial or complete absence of such trust. As I develop below, trust cuts to the heart of the problem of idea and object gaps in addition to having independent merits to inquiry about economic development.

Note that trust gaps are a far broader notion than “government failure,” which is both cause and consequence of trust gaps. The recent literature is replete with studies demonstrating the importance of government provision of a facilitating institutional and physical infrastructure and a stable macroeconomic environment. Failure to do these things eliminates the gains from

---

3 As I finished revising this manuscript, a colleague called my attention to Fukuyama’s (1995) book on the economic importance of a culture of trust. While that book and this paper share a common thesis, the reader will find our motivations and methods quite different.

4 The December 1993 issue of the Journal of Monetary Economics offers a nice collection of papers, making this general point. Tirole (1992), Shleifer and Vishny (1993), and Mauro (1995) focus in particular on problems of government corruption.
trade in either ideas or objects, hence, weak macroeconomic performance. These observations, while surely accurate, run the risk of reducing the failure of society at large to provide an enabling environment to investment, innovation, and exchange to a seemingly simpler-to-solve problem of government failure. The strong tidal movement throughout the developing world toward democratisation, reduced government regulatory authority, etc., flows largely from a facile belief that improved government accountability and reduced state obstructionism are exogenous rather than endogenous variables. The lack of any consistent relationship between growth rates and government regime type is evidence that the real obstacle is to be found in society as a whole, which feeds and is fed by state malfeasance, misfeasance, and nonfeasance.  

Perhaps an analogy from high school physics might help motivate the role of trust gaps in economic growth. Potential energy is derived from a particle's position, kinetic energy from its motion. A nation's capital stock, technology set, and the incentives presented by its position in the broader international economy create potential energy. Observing the kinetic energy of a moving body (economy), we can measure its mass (stock of human and nonhuman capital, or objects) and speed (rate of total factor productivity growth), as well as establish whether this speed results from endogenous or exogenous forces. Yet that energy does not translate into motion if the body is blocked by an obstacle, and the body has no speed in this immobile state. I submit that interpersonal trust is such an obstacle to the rapid movement of many economies.

---

5Many prominent economists have written persuasively on the role of cultural endowments in economic development, including Ruttan (1988, 1995), Hoselitz (1952, 1960), Myrdal (1968) and Adelman and Morris (1965, 1967). At the intuitive level, many economists accept these claims but have blatantly disregarded the role of culture in economic growth and development. A principal point of this paper is to show that when one integrates findings from several active lines of economic research, a conceptual model—though not yet a formal, theoretic one—emerges fairly clearly.
Trust gaps also address a methodological shortcoming of the existing growth theory literature. The insight of idea gaps offers a far more optimistic view of the development project than the traditional, object-oriented perspective of growth theorists. Where the latter focuses on the need for restricted present consumption—that is, savings, whether by those facing an object gap or by an external donor who converts savings to aid—the former more optimistically notes the nonrival nature of ideas. Relatively quick and costless dissemination of good ideas can rapidly increase the value of a society’s production, even holding its stock of objects constant and without demanding austerity of anyone.

Just as it appears that capital accumulation is clearly associated with economic growth (Levine and Renelt 1992), few doubt that rapid closing of idea gaps has played a major role in the experience of modern rapidly growing economies. The burst of recent inquiry into idea gaps owes a great deal to the experience of several rapidly growing East Asian economies that aggressively sought out international integration—if on their own terms—and to overwhelming evidence of rapid technological change in those economies. Still, the notion of idea gaps is dangerously incomplete in that it suggests development is a facile task, while the overwhelming mass of empirical evidence suggests otherwise. Contemporaneously with extraordinary growth in East Asia, sub-Saharan Africa has experienced equally striking stagnation, with negative average growth in real per capita GDP for much of the period. Analysts typically accommodate these unfortunate cases in cross-country empirical studies of economic growth by including a dummy variable for the African continent. This asymmetry reveals a methodological bias toward understanding cases of rapid movement and against understanding stasis. This is curious when
one reflects on how other nonexperimental sciences, such as medicine, proceed generally by studying pathological cases in order to understand better the workings of a complex system.\(^6\)

The success-centric method of contemporary growth theory gives rise to the inherently optimistic notion of idea gaps to complement the traditional, more Calvinistic notion of object gaps. Yet it somehow seems a tautology to exclaim that speed (the technological change brought by a free flow in ideas) is associated with energy (economic growth). Surely there is much useful, detailed policy advice to be found in the positive relationship between the closing of idea gaps and economic development. But the more challenging question concerns the obstacles that impede some (economic) bodies converting potential energy to motion (sustained growth). If one's concern is economic development to reduce the human suffering that continues to disfigure our world, it is from inquiry into persistent obstacles that the richest intellectual harvest will most likely come.

Let me emphasise that I do not deny the importance of either idea or object gaps to the development project. Objects and ideas are necessary but not sufficient for growth. If this were not true, the states of the former Soviet Union, especially Russia and Ukraine, would surely be leveraging their considerable relative endowments of education and industrial and infrastructural hardware (objects) and unprecedented volumes of foreign advice (ideas) into Asian-style fast-track growth. They are not, chiefly due to a complex network of interpersonal mistrust, born of history and contemporary institutions that impede commerce and investment, and thus production, invention, and innovation.

\(^6\)Indeed, Stiglitz (1989) argues that the pathological cases make the study of development so interesting and rewarding a branch of economics.
Reflections on Contemporary Growth Theory

Interpersonal trust has strong direct and indirect effects on the process of economic development. Its direct effects are the subject of the next section. Trust impacts indirectly by influencing incentives for individuals to invest in new objects or to acquire and act on new ideas and, thus, on the ability of an economy to close its idea and object gaps. That is the subject of this section.

Since capital accumulation seems to matter to economic development, it would seem useful to consider what drives investment. Recent advances, most reported in Dixit and Pindyck (1994), reveal the importance of irreversibilities and uncertainty to investment. Ceteris paribus, uncertainty surrounding the permanency of property rights, the nature of output demand or input supply, or real interest rates sharply discourages investment involving sunk costs. Sunk costs or irreversibilities exist to virtually all acts of investment, production, or exchange. Transaction costs are an important subset of sunk costs, in that one cannot recover the opportunity costs of resources dedicated to collecting information, making contact with a potential exchange counterparty, monitoring, or contract enforcement. The transactions costs involved in exchange clearly vary inversely with one's trust in the individuals and institutions of commerce. This is thus the first way in which trust influences investment: closing trust gaps reduces transaction costs and, hence, the sunk costs to capital accumulation. Greater trust, by decreasing the irreversibilities associated with investment, reduces the quasi-option value of waiting, perhaps indefinitely (Arrow and Fisher 1974), thereby making present investment more attractive.
The second channel through which trust influences investment is uncertainty, in particular agents' subjective perceptions of downside risk. Because it is the size and probability of adverse events that determines the critical price at which a rational firm undertakes investment (Dixit and Pindyck 1994), an understanding of downside risk is central to any explanation of investment behavior. In the present context, as a firm's trust in the host country government, civil society, and prospective customers and suppliers increases, the subjective downside risk perceived by the firm shrinks and its investment accelerates. This results in part from reduced variability in one's subjective probability function over the present value of the profit stream associated with an investment. But perhaps more importantly it stems from trust in others to maintain a safety net on one's behalf against catastrophe. Such social safety nets can be informal, as through kinship or village reciprocity networks (Fafchamps 1992a), or formal, as in limited liability or bankruptcy law or welfare payments. Societies in which individuals are encouraged to take prudent risks by the maintenance of trustworthy social safety nets, whether by the state or civil society, tend to enjoy more rapid gross fixed capital formation.

Third, irreversibility and downside risk influence an economy's ability to take advantage of potential positive externalities from human or physical capital accumulation. The earliest variants of endogenous growth theory (that is, Romer 1986) relied on increasing returns to scale. But firms' willingness to sink scarce capital into expanding the scale of production diminishes as downside risk grows or as the irreversibilities associated with transaction costs increase. When downside risk and irreversibilities are considerable, firms instead prefer to invest incrementally in

\footnote{The key is that only the prospect of bad news will induce one to put off investment, perhaps permanently. This "bad news principle" has been largely overlooked thus far.}
response to observed shifts in demand. This is the classic description of scale-flexibility trade-off (Dixit and Pindyck 1994). The erosion of interpersonal trust thus diminishes incentives for firms to take advantage of known economies of scale. Conversely, the closing of national trust gaps facilitates rational investment in a more efficient scale of production.

Fourth, firms' and individuals' investment decisions are influenced by their subjective assessments of the depth and probability of downside risk, but how do they arrive at such judgements? A simple Bayesian model of learning illuminates the reach of interpersonal trust into the problem of capital formation and obviates the problems of discounting methods. An agent's prior beliefs about the future, which are by definition the product of history, transition as new information is acquired and processed, generating posterior beliefs that guide subsequent decisions. Learning is a heavily social activity (Arrow 1994). For example, most of us teach and learn in groups; for us, the production of knowledge has a considerable interpersonal component. Ceteris paribus, most of us gather more often with those we trust and place more stock in the lessons offered by trusted colleagues. Trust facilitates social interaction and thus the acquisition and processing of information.

Fifth, a history of exploitation or catastrophe often radically reorients one's beliefs about the future as one becomes acutely aware of the possibility and pain of adverse events. There is path-dependence in trust, just as in technology (David 1985; Arthur 1989). Social psychologists find that to be emboldened again, trauma victims often require active intermediation to update their now pessimistic priors and reduce the subjective assessment of downside risk. Such techniques are used extensively, for instance, for soldiers experiencing combat stress or airplane crash survivors subsequently afraid of flying.
How does this relate to the project of economic development? The histories of most individuals, firms, and nations include dark periods. The active restoration of interpersonal trust is central to recovery onto a virtuous cycle of improved information flow, reduced transaction costs, and diminished perceptions of downside risk and creative interaction with the outside world. Those nations that have enjoyed robust recovery tend to have been blessed with courageous leadership and substantial internal and external support for reconstruction and revitalisation. The American South in the post-bellum period, Germany and Japan following World War II, post-civil war and Franco Spain, Korea after the war on that peninsula in the early 1950s, and Taiwan following the Kuomingtang's 1949 flight from the mainland spring immediately to mind. Firms and individuals rebound similarly from adverse experiences in the presence of moral courage and tangible external support. Trust dispels fears that might otherwise retard recovery. History matters enormously, not just the history of hurt but also the history of healing. We return to this point in the next section.

Sixth, trust facilitates closing idea gaps for many of the same reasons that trust so influences the formation of subjective probability assessments and, consequently, the closing of object gaps through investment. Trust influences both the use of good ideas acquired from others and the invention of improved or new processes and products. Prominent commentators (Grossman and Helpman 1991, 1994) have noted this, but it has not yet received much emphasis in the literature.

The diffusion of ideas relates directly to the social process of learning, a subject tackled earlier. It is likely—even although I can offer no solid empirical evidence to buttress this claim—that

---

8Chrysler, Royal Dutch Shell, Winston Churchill, and Nelson Mandela come to mind.
technology diffusion rates, domestically and internationally, reflect not just the distribution of human and physical capital necessary to process and employ others' ideas or the price structure of an economy that determines a new idea's profitability but also the degree to which individuals and firms interact in a spirit of trust. Do inventors believe others will employ their ideas fairly? Are one's information sources to be believed? Is there broad, free, voluntary interaction among firms and individuals? These are strong indicators of an atmosphere of trust and crucial to a vigorous trade in ideas.

Invention and innovation, as distinct from technology adoption, require some sort of investment in research and development (R&D). Investment in knowledge creation is substantially similar (for our purposes) to investment in capital accumulation. Transaction costs influence the returns from and the irreversibility of investment activity. Downside risk is important, as is the process by which one acquires and processes information. As already discussed, these are substantially influenced by the environment of (mis)trust in which agents operate. Moreover, for a profit-minded firm to undertake inventive or innovative activity, it must trust in its ability to exploit the commercial potential of scientific discoveries so as to (at least) recoup the costs of R&D. Thus do Laing, Palivos and Wang (1995) find that market frictions, such as those induced by insufficient interpersonal trust, impede growth by reducing innovative activity and trade and by lengthening product cycles. The most recent round of multilateral trade agreements explicitly recognised the centrality of intellectual property rights to expanded commerce. It is not the (costly-to-enforce) agreement on intellectual property rights per se, however, that induces a change in behavior in favor of greater commerce. Rather, it is companies' and countries' trust in others to abide by their promise to honor others' intellectual property rights.
A final way in which trust influences economic development indirectly relates to the cross-border flow of capital and ideas. Empirical evidence suggests net long-term capital flows between nations are limited, forcing economies to rely on internal savings to finance investment (Feldstein and Horioka 1980). The theoretical nostrum that profit-minded owners of capital will invest internationally until expected returns are equalised across nations falters in the face of persistent cross-country differences in risk-adjusted rates of return, largely because investors feel uncomfortable with the downside risk associated with foreign investment. Casual observation and common sense suggest that those economies which political risk analysts deem trustworthy—i.e., the downside risk of asset expropriation, sudden currency inconvertibility, or violence are perceived as low by virtue of laws or culture—can sustainably finance much larger current account deficits than can countries with a history of mistreatment of foreign investors. Indeed, this is an extension of one of Romer's (1993) points, wherein he relates the state's hospitality to foreign investors to the closing of idea gaps. The notion extends as well to the financing of object accumulation, with issues of downside risk and irreversibility, and thus of trust, central to the story.

Thus far I have claimed that while the closing of idea gaps and object gaps is central to economic development, the ability of a society to make progress with ideas and objects depends to an important degree on closing any trust gaps it acquires from difficult episodes in its history. The indirect, and pervasive, effects of closing trust gaps may offer a way to reconcile posited externality effects from human or physical capital with observed factor output shares. For instance, DeLong and Summers' (1991) finding of a strong relationship between investment in equipment and aggregate growth is by itself an implausible explanation of either negative growth
in Africa or exceptional growth in East Asia. But, if (for the reasons outlined above) investment in equipment is strongly and positively associated with trust creation, itself an omitted variable, then the latter's broader effects would be captured in statistical estimates of the former's effects on economic growth. I posit that in much of the cross-country empirical work on economic growth, parameter estimates suggesting strong, positive relationships between human or physical capital and economic growth measure, in part, cross-country differences in social environments that induce larger capital stocks, more rapid rates of knowledge creation, and faster economic growth. That is, the estimated value of closing idea and object gaps is inflated by the indirect effects of closing trust gaps.

Commerce, Interpersonal Trust, and Economic Development

The preceding section retained the traditional growth theory fixation with production, including the accumulation of inputs (investment) and technological change. But, as noted in the opening section, empirical regularities of economic development include increased commercialisation of production and interpersonal, intertemporal and spatial expansion of markets. Much of the action is thus in commerce not just in production. This must seem obvious to any student of business, although it has heretofore largely escaped economic growth theorists' notice.

Expanding spheres of exchange are central to economic development for several reasons. Larger markets permit the realisation of economies of scale which can ignite growth by inducing investment (Murphy, Shleifer, and Vishny 1989), although we have already seen how downside risk in the presence of irreversibilities can temper firms' willingness to take advantage of scale
economies. Deepening and widening market areas broaden the universe of people and institutions from which ideas are gathered, thereby contributing to the flow of information that fuels technological change.

Most importantly and ubiquitously, exchange permits specialisation of labor and other factors of production, permitting an economy to reach its production frontier. Existing growth theories posit technical efficiency, but where people fail to specialise their activities according to their comparative advantage, they forego gains from trade. Micro-level autarky leads to immense efficiency losses in the aggregate economy.

Why might households choose a socially inefficient mix of activities? Two basic reasons are familiar from the previous section: downside risk and transaction costs. Commercialisation constitutes investment in the commodification of one's endowments (e.g., labor) or output (e.g., crops), and (as before) interpersonal trust is a *de facto* solution to missing contingency markets in downside risk mitigation as well as a device for reducing the sunk costs associated with transactions.

Increasingly specialized labor implies increasing trade-dependence for the satisfaction of individual utility. Moreover, since both theory and empirical evidence indicate demand for variety in consumption goods increases with income, trade-dependency will, in fact, increase faster than the rate of income-enhancing labor specialisation.

Some basic principles from the economics of uncertainty suggest why rational economic agents might be reluctant to embark on this path. Increased trade-dependence and commercialization of one's production generally implies more variable entitlements, to use Sen's
(1981) term, since one's budget set increasingly falls prey to structural shocks manifest in prices. In the absence of a social safety net, many will be unwilling to accept the downside, potentially catastrophic risk associated with reduced self-reliance (Fafchamps 1992b; Chavas, 1995). Conversely, the firm belief that others—kin, neighbors, a church or a government—will provide support in the event of calamity empowers individuals to take prudent risks, both of the implicit sort associated with increasingly specialised labor and commercialised production and of the explicit sort associated with innovative and inventive activity, what many call “entrepreneurship.” This is an oft-overlooked component to Weber's protestant ethic, which encompassed not just industriousness but also a fatalism that begat the American motto, “in God we trust.”

The study of transaction costs has traditionally been the domain of institutional economists. Nobel Laureate Douglass North, like most of the institutionalists, ascribes considerable importance to trust (North 1981). Economies only operate near their efficiency frontiers when Hobbesian brutishness is held in check by a social ideology that contains exploitative behavior and encourages mutual trust. Belief systems that effectively control exploitative behavior (whether by individuals, firms, or states)—often by heaping opprobrium on those who renege on contracts, fail to support family members or neighbors who fall on hard times, or abuse the trust of their subjects—provide an important extralegal mechanism to limit the transaction costs associated with exchange and the negative externalities associated with

---

9Quantity-rationing, while far rarer than price-rationing in most settings, is especially threatening to trade-dependent consumers (Sen 1981).

10Although much growth theory employs stochastic dynamic programming techniques, the problem's terminal period is invariably exogenous. As discussed earlier, irreversibilities focus economic agents' attention on downside risk. The avoidance of irreversible malnutrition and death is fundamental to the microeconomic behavior of the poor (Chavas 1995) and, thus, to the economic path from poverty to prosperity.
exploitative behavior or catastrophic shocks. This phenomenon operates within firms, helping to resolve moral hazard problems inherent to principal/agent relations in a stochastic world (Williamson 1985) as well as in the extra-firm market environment.

The place of trust in facilitating commerce extends beyond just mitigating downside risk and transaction costs as obstacles to commercialisation. Elementary principles from game theory elucidate the immeasurable value of trust in fostering the commercialisation necessary to economic development. As one's trading network expands beyond family, friends, and neighbors, the quantity and quality of information available about one's commercial counterparts, the likelihood of repeated interaction with them, and the availability of cost-effective extralegal monitoring and contract enforcement mechanisms all tend to decline. Under such conditions, cooperative (subgame perfect) equilibrium strategies become increasingly rare among self-interested players, and potential gains from trade are foregone. As Bromley (1993: 149) observes, “where private resources have to be devoted to the tasks of collecting information about contracting possibilities and arranging and enforcing contracts, market opportunities are artificially attenuated. When market opportunities are attenuated, economic development is inhibited.” Mechanisms enabling interpersonal trust must emerge and expand to facilitate a widening sphere of commercial exchange, including investment, in which the costs and benefits of commerce are separated temporally.

Trust obviates the problems of degraded information, enforcement and monitoring, and a lower probability of repeated interaction with one's customers or suppliers. The rule of law is a special mechanism through which societies provide such trust. Economies need laws not just for enforcing contracts but also for signalling when there is little scope for legal enforcement. Laws
articulate important elements of social ideology. Think of the role of a stoplight in facilitating the smooth flow of vehicle traffic. In approaching a green light, one generally proceeds without braking based on the trust that a car nearing the intersection along the other street will heed the signal and stop, thereby preventing a potentially catastrophic crash. One does not need police or cameras at every stoplight to ensure the enforceability of the rule; most of the value of the stoplight comes from its signalling function. The rule of law is analogously important in signalling socially acceptable conduct, thereby facilitating the smooth flow of commerce.

Yet, the rule of law, while useful, is insufficient (Platteau 1994a, 1994b). Even where widely respected, laws regulate a small minority of commercial transactions. People typically only resort to legal recourse as a last ditch measure, if at all. Individual forebearance and inexpensive extralegal means of enforcement are essential to the smooth expansion of commerce. As the literature on penal codes indicates (Abreu 1988), the only way to maintain a cooperative economic environment is through the credible threat that transgressors will be punished. That is to say, rational undertaking of commerce depends on one trusting in prospective trading partners to exercise restraint when tempted to exploit, in third parties to come to one's aid in the event of exploitation, or both.

Trust in third parties can come either through what Platteau (1994a 1994b) calls "decentralized mechanisms" or through "coordinated public and private order institutions" or through what Moore (1994) calls "institutional reputation mechanisms." Multilateral networks with sufficient frequency of contact, supply of information on members, and capacity to sanction members can provide endogenous cooperation without any external coordination. The

---

11Indeed, in the absence of witnesses, the law is unenforceable if both drivers claim they had a green light.
innumerable ethnic trader networks around the world, the “moral economy” of many peasant villages (Fafchamps 1992a), and the associational life of modern civil society (Putnam 1993) offer fine examples of decentralised mechanisms that enable economic agents to trust one another.

Given the complexity of information and enforcement problems in reasonably large economies, decentralised mechanisms exhibit rapidly diminishing returns to size. At some point, an empowered third party is necessary to enforce ex post compliance with rules agreed ex ante. The state is one such external agent of trust, exercised through its police and judicial powers in enforcing the rule of law. But, as already suggested, laws affect a relatively minor proportion of commerce. An alternative external mechanism is coordinated private order institutions, such as the bonded trading agents, law merchants, and guilds that arose in commercialising medieval Europe (North 1990; Greif 1992; Platteau 1994a). Such developments are endogenous institutional responses to an emerging demand for an expanding network of trust to facilitate commercial expansion. Moore's (1994) institutional reputation mechanisms, which would include brand trademarks, better business bureaus, and credit rating agencies fulfill a similar role, helping to facilitate information flow and, to a limited degree, solve enforcement problems. They are devices to promote interpersonal trust among agents who would not recognize each other on the street.

But a growing literature points to the need for more generalized morality as central to establishing the trust necessary to commercial expansion (Tirole 1992; Platteau 1994a, 1994b; Basu 1995). North (1981) refers to such beliefs and norms as “ideology,” where an ideology articulates the code of conduct to which members of a society subscribe. Establishing and sustaining honesty in a society over time is nonetheless a tricky business. Simply put, honest
people aggrieved by cheaters rationally turn to cheating themselves, eventually if not immediately. This can have enormous, negative externality effects on the economic development of a society.

The emerging literature in evolutionary economics indicates the existence of multiple evolutionarily stable equilibria, each possessing different, but always positive, proportions of dishonest members (Güth and Kliemt 1994). History largely determines which equilibrium prevails. Low-cost penal strategies pursued by honest parties, including those not directly aggrieved, a sense of guilt on the part of cheaters, and the nature of expectations formation all exert influence over the prevalence of generalized morality in a society. The economic benefits of an equilibrium of widespread interpersonal trust are considerable, but generating such trust can be difficult and is not entirely under the control of policymakers.

It may be tempting to lump the values inculcated by families, friends, churches, and civic leaders, which produce interpersonal trust, into the amorphous category of human capital formation to which growth theory has increasingly turned (Lucas 1988). Like skills acquisition through education, individuals and institutions invest considerable resources into building credibility and a reputation for trustworthiness. Still, subsuming trust within human capital would be unwise. Trust has far broader spillover effects than conventional models of human capital formation admit. It not only affects production, for instance by tempering inefficiencies arising from moral hazard problems internal to firms, but exchange and investment, too. As North (1981: 47) succinctly sums up, “[s]trong moral and ethical codes of a society is the cement of social stability which makes an economic system viable.” Moreover, the key point regarding human capital formation is its positive externalities, while it is the negative externalities of distrust and distrustful behavior (e.g., cheating, stealing, failing one’s dependents) that are important.
Allow me a brief narrative digression to illustrate the history-dependence of (dis)trust and its effects on economic development. Romer (1993) clearly identifies one costly legacy of colonialism: low-income country governments' aversion to permitting foreign corporations extraction of any profit. Decades, in some cases centuries, of sometimes violent subjugation, of periodic reneging on contracts, both explicit and implied, built a foundation of distrust that can only (perhaps) be overcome by repeated observation of improved, trustworthy behavior or by the courageous impulse of a nation state's leadership. Where the authentic political leadership of a country allies with foreign firms to continue what some locals perceive as exploitation, as in Iran or Nicaragua, the ultimate, precipitous decline of trust in foreign contacts can be irreversibly injurious.

The legacy of colonialism goes far beyond reluctance to permit foreign corporations opportunities to make repatriable profits, thereby stifling incentives for private agents to close an economy's idea or object gaps. The conduct of colonial policy matters from first to last in its influence on the interpersonal relational foundation of a society's economy, as is perhaps most readily demonstrated by reference to sub-Saharan Africa. The borders of contemporary Africa derive from an arbitrary nineteenth century mapping among European powers with complete disregard to the traditional boundaries, alliances, and animosities between preexisting African nations. With borders established, the European colonial powers routinely pitted populations internal to these artificially delimited states against one another in a sometimes bitter contest for the scraps from the colonial table. The terminal colonial period then often aggravated matters. In places like Algeria, Angola, and Mozambique, the bitter, often bloody struggle for independence entrenched a politics of conflict that never fully transitioned to a politics of governance, leading to
an authoritarian state absent most of the flexibility needed for economic adjustment in an evolving world economy and persistent networks of subterfuge. In other locations, the relatively abrupt withdrawal of the European powers left insufficient time for the emergence of indigenous political movements based on much other than personality cults and clientelism. These patrimonial regimes then depend on perpetuating internal division, but ultimately undermine social order, leading to the chaos we now witness in Cameroon, Nigeria, Togo, and Zaire. The international press repeatedly reminds us of internal ethnic, regional, and religious tensions in places like Rwanda, Sudan, or Nigeria that owe much to the colonial legacy. Yet we economists rarely seriously consider the ramifications of such distrust for the incentives to commercial exchange, investment, or technological innovation. Sure, the most sophisticated cross-country empirical studies of growth now include a measure of political instability among the regressors, and usually find political instability and bureaucratic corruption to have a negative and statistically significant effect on real per capita GDP growth (Barro and Sala-i-Martin 1995; Mauro, 1995). But this again reduces broader social problems to their political symptoms.

Let me be clear that I do not offer the preceding paragraph as an apology for the failings of independent African economies. Rather, the point is that history matters because human relationships have a substantial irreversible component to them. There are considerable sunk costs to overcoming the regrettable history of colonialism, costs that few leaders have been willing to incur, whether due to courage or incentives. Rampant distrust impedes not only fixed capital formation and the dissemination of useful ideas but also commerce and thus the specialisation and division of labor that is central to rapid economic growth. Distrust discourages individuals from perceiving international liaisons as anything but finite-lived interactions, and so
they behave as if playing the "centipede" game, in which the subgame perfect Nash equilibrium is no exchange (Mas-Colell, Whinston, and Green 1995). Pervasive distrust makes honesty a low-return investment, with the unfortunate consequence that the state, the only institution empowered to enforce standards of conduct, itself becomes riddled with corruption and becomes a core part of the problem (Tirole 1992).

Conclusion

Like idea gaps, trust gaps are less amenable to quantitative measurement and precise, formal modelling than are object gaps. Their inconvenience to both formal theorising and empirical testing nonetheless does not reduce their importance to the development project, although we remain regrettably unable to move beyond persuasive discourse on this subject. Nor, as Romer (1993) notes, is it wise to attempt to reduce these three distinct concepts into a scalar measure of a development gap. Romer (1993: 544) notes that “[b]ecause their implications differ, economists must make an accurate assessment of the relative importance of idea and object gaps before they can provide comprehensive guidance on development policy.” His apt remarks deserve expansion to include trust gaps as well. Further loans to fund large capital investments or international exchanges to foster more fluid transfer of ideas likely yield meager returns when the central problem is a massive trust gap in an economy.

But what then? Trust is inherently more difficult to accumulate than either objects or ideas, because, unlike investment in capital or knowledge, investment in healthy interpersonal relations requires coordination and is heavily conditioned by irreversible history. When destroyed through senseless or opportunistic acts, trust can be difficult to reestablish. Bitter history distorts
people's perceptions of downside risk, inflates the (emotional as well as economic) sunk transaction costs of interaction, degrades information channels, and induces a retreat toward self-sufficiency. It is thus myopic to understand import-substituting industrialization or national food self-sufficiency policies in Africa, Asia, or Latin America as just ill-conceived economics without reference to the formative historical experiences of colonialism. It is likewise misleadingly reductionist to explain contemporary kleptocracy in places like Nigeria or Zaire as the inherent by-product of rent-seeking bureaucratic behavior without reference to debilitating civil war or the outlandish conduct of those nations' first leaders.

As North (1981) laments, we remain a long way from a compelling theory of ideology or trust. Regrettably, this paper makes no progress in that direction. But, hopefully, by demonstrating the importance of trust to the economic development of nations, this essay does impress the pressing need for such a theory upon economists interested in the international project of economic development. With the notable exception of institutionalists such as Douglass North, Oliver Williamson, and Dan Bromley, the economics profession has treated the social setting for economic growth as static. Perhaps economists' comparative advantage lies in the exploration of object and idea gaps, and an efficient division of intellectual labor will leave trust gaps to other social scientists. This would suggest economic development is an inherently multidisciplinary project, although economists appear loathe to accept this suggestion. Nonetheless, and despite the promise of recent innovations in game theory and evolutionary economics, I do not believe
the economics profession has invested enough energy in pursuing the economics of trust to know where our comparative advantage truly lies.\textsuperscript{12}

\textsuperscript{12}The economics of manners (Camerer and Thaler 1995) and the dynamics of commercial institutions (North 1990, 1991; Greif 1992; Platteau 1994a, 1994b) are two of the more intriguing lines of inquiry toward these questions.
References


