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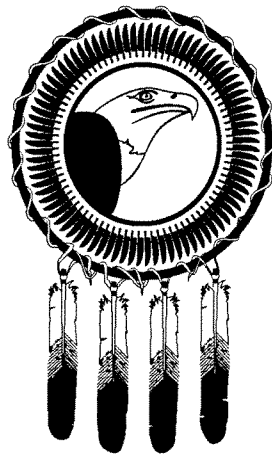
*Where's the Glue? Institutional Bases of
American Indian Economic Development*

by

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WHERE'S THE GLUE? INSTITUTIONAL BASES OF AMERICAN INDIAN ECONOMIC DEVELOPMENT

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Prologue

In the modern Western World, we think of life and the economy as being ordered by formal laws and property rights. Yet formal rules, in even the most developed economy, make up a small (although very important) part of the sum of constraints that shape choices; a moment's reflection should suggest to us the pervasiveness of informal constraints. In our daily interaction with others, whether within the family, in external social relations or in business activities, the governing structure is overwhelmingly defined by codes of conduct, norms of behavior, and conventions...That the informal constraints are important in themselves (and not simply as appendages to formal rules) can be observed from the evidence that the same formal rules and/or constitutions imposed on different societies produce different outcomes.

Douglass C. North
Institutions, Institutional Change and
Economic Performance, 1990.

I. SOME STORIES

Crow: The Crow Indian Tribe is centered on a 2.5 million acre reservation in south-central Montana and has a population of approximately 10,000. The Tribe is one of the four or five largest owners of coal resources in the world. The Crow reservation also contains extensive timber, range, agricultural, water and mineral resources. In the latest audit of its assets, the Tribe's coal and other assets were valued at \$26,820,779,087, indicating tribal wealth (i.e., exclusive of individual holdings) of approximately \$3,283,239 per person (Real Bird, 1988).

Seventy-eight percent of the Crow labor force is unemployed. At the time of the 1990 Census (the last date at which systematic data are available), 55% of Crow tribal members were

receiving public assistance, and 60% reported being unemployed for more than 15 weeks in the previous year. Social pathologies such as alcoholism, crime, and ill health are present in the extreme. 70-80% of reservation employment is in governmental services (Cornell & Kalt, 1990). The only significant income from economic activity within the Tribe's lands consists of a non-Indian coal mine which pays royalties to the Tribe of \$1 to \$1.5 million per year (equal to approximately one half the going market value in the region); land lease payments from local ranchers (at lease rates typically equal to less than one third of market value); and a modest stream of stumpage receipts from timber sales. Annual earnings on the \$27 billion of tribal assets total approximately \$3 million, for an annual rate of return of **0.01%**.¹

White Mountain Apache: The White Mountain Apaches are a tribe of approximately 10,000 occupying 1.6 million acres of forest and rangeland in east-central Arizona. Approximately 750 thousand acres of the Tribe's Fort Apache Reservation is prime logging country, and another 400 thousand acres are high-quality rangeland. The White Mountain Apaches operate nine tribally owned enterprises, including a major ski resort with seven lifts and \$9 million per year in revenues; a sawmill with 95% Apache employees, \$9 million per year in payroll, labor productivity that is 30% higher than the average western U.S. mill and \$30 million per year in revenues; a reservation forest that yields the Tribe approximately \$7 million in net logging royalties per year; pay-per-visit wilderness hunting and fishing that produces annual revenues of approximately \$1.5 million and

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elk hunts that are auctioned on the open market at up to \$20,000 per animal hunted; and a manufacturing enterprise specializing in defense contracts.

Official unemployment among the White Mountain Apaches is approximately 11%, compared with a national average for reservation Indians of 45%. Only 15% of the Tribe's employment is in governmental services, as opposed to enterprises -- compared with a figure of approximately 59% nationally for reservations. 25% of White Mountain Apache families were receiving public assistance at the time of the 1990 Census, compared with 42% for the Indian national population (Cornell & Kalt, 1990). The Tribe's economy is the central driving force in the region, supporting tourism-based non-Indian communities and making the Tribe a recognized and increasingly respected polity.

Pine Ridge Sioux: The Pine Ridge Sioux Reservation is the home of the Oglala Sioux Tribe. The original reservation covered 2.8 million acres in southern South Dakota, prior to certain losses of tribal title. The on-reservation population is approximately 20,000. The primary reservation economic activity is agriculture, with approximately 300 tribal members working in ranching and another 75 employed in farming as of the last Census. Tribal members operate less than 50% of Indian-owned agricultural property, with the remainder leased to non-Indians. Indian-owned lands produce approximately \$10 million in annual gross revenues, with Indian operators accounting for roughly 35% of this total. The Tribe has entered into projects such as a joint venture in a meat packing plant near the reservation which employed 40 tribal members.

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Consistent with a pattern across such projects, however, the Nebraska Sioux Lean Beef enterprise failed within 18 months amidst charges of mismanagement and embezzlement (Jorgensen, 1993).

The Pine Ridge Reservation covers the poorest Census tract in the United States, with per capita income equal to only about one-fourth of the national average. 47% of the reservation population was reported to be receiving public assistance and approximately 50% of the work force was reported to be unemployed for more than 15 weeks at the time of the 1990 Census. As of 1989, 73% of the employable workforce was unemployed. Over 80% of the employed work force is in the governmental sector (Cornell & Kalt, 1990).

Mississippi Choctaw: The Mississippi Band of Choctaw Indians is the second largest employer in the State of Mississippi, after the State Government of Mississippi. Located in natural resource-poor East Central Mississippi, the Mississippi Choctaw reservation is the development “tiger” of Indian Country, employing all tribal members that can and want to be employed and “importing” thousands of white and black workers from surrounding communities to work in enterprises developed well ahead of the wave of gaming that has come to Indian Country. The Tribe’s plastics manufacturing, automobile subassembly, American Greeting Cards, shopping center, electronics manufacturing, printing and direct mail, construction, golf resort, late-arriving casino, and other enterprises generate 12,000 jobs and more than \$170 million in annual wages (Center for Community and Economic Development, 1999). The Tribe’s public sector provision of schools, law enforcement, social services, health services, and public utilities further meets the needs of the citizenry while employing hundreds of professionals and other workers. The rate of

dependence on welfare programs – less than 35 of households – is a fraction of the rate for the US as a whole. Amidst the booming economy and rising standards of living, the rate of Choctaw language use in everyday life is high and rising, as the Tribe invests in its cultural heritage.

II. INTRODUCTION: SOCIAL INSTITUTIONS AND ECONOMIC DEVELOPMENT

In the aggregate, American Indian reservations are notable for their extreme and persistent poverty -- reservation Indians are the poorest minority in the United States. Particularly since the mid-1970s, however, changes in the U.S. legal and political landscape have allowed tribes to assert substantial sovereign powers for the first time in the century. Although jurisdictional disputes still rage and areas of federal and state primacy persist, federal legislative, executive and judicial decisions have resulted in a policy of relative self-determination for Indian reservations. American Indian tribes are now able to assert significant powers of self-government, including the powers to tax, set up courts and police forces, regulate commercial, social and environmental affairs, and determine the disposition of reservation resources. As the foregoing stories imply, concomitant with the assertions of sovereignty, a handful of reservations have begun to exhibit sustained economic development.² What can explain this?

Cross-tribe variations in such factors as natural, human and financial capital resources do provide some progress toward answering this question; and the resources-development link certainly has "other things equal" reasoning going for it. Numerous cases, however, illustrate that a tribe's resources can be wasted or go untapped unless that tribe can establish an incentive

environment that channels them into productive ends. The resource endowment of the Crow Tribe of Montana (described above), for example, makes the Tribe one of the wealthiest groups in North America, yet the Crow Reservation is a place of stark poverty, social disintegration, and simmering civil unrest.

Akin to the case of natural resource endowments, it does not seem plausible that a society's economic progress is founded primarily on technological advance or the stock of human knowledge. Not only is the stock of human capital endogenous, but side-by-side comparisons leave the questions of why only some societies contribute to and productively utilize civilization's stock of knowledge unanswered. The Crow, for example, hold education in high esteem and 52% of adult tribal members have graduated from high school, compared with only 34% at the economically-developing White Mountain Apache Tribe and a national Indian average of 43%.

Resources and knowledge tautologically set the upper bound on a society's potential for growth at any point in time. As is increasingly reflected in the economic development literature, however, how far away a society's performance is from this upper bound depends centrally on the legal, social and political institutions that are imposed on it or selected by it. That is, the origins and paths of growth are determined primarily by the societal institutions which channel effort into productivity, provide payoffs for capital investment, organize the division of labor, and permit exchange (e.g., Olson, 1982; North, 1981). Our thinking on development is now replete with non-ideological references to "the rules of the game," "rent-seeking," "property rights," and "third-party enforcers."

Comparative research into more and less successful reservations thus far suggests the paramount importance of tribes' institutions of self-governance as causal factors (Cornell & Kalt, 199zzz). In this regard, the American Indian context fits with the on-going "demonstration projects" being provided in Latin America, the Pacific Rim, and Eastern Europe. Dissecting the structures of constitutions, legislatures, bureaucracies and other social institutions that "work" presents social scientists with a compelling research agenda. For our part, however, we think that there are analytically prior questions that go to the heart of the "wealth of nations." Since, ultimately, there is no first-mover formal institution that can account for the actual governmental structures that a sovereign society arrives at, what are the foundations of those structures and what is the glue that holds them together? Indeed, these questions are now emerging at the frontier of the rational choice movement in sociology, the public choice approach in economics, and the rational political economy perspective in political science.

Following such analysts as Bates (1988), North (1988, 1990), Douglas (1989), and Coleman (1992), we argue in this paper that construction and adherence to mechanisms of social control and organization must make reference to sociocultural processes. We offer and test certain aspects of a model in which the formal institutions of governance are public goods that are ultimately produced by a society's culture -- where "culture" refers to 1) the cognitive paradigms through which people define and communicate the proper and the possible, and 2) the corresponding informal norms and implicit contracts by which groups of people reward and penalize each other for the group-affecting behavior they engage in. In this model, individuals are

privately rational, but eschew free-riding and uphold formal institutions as a result of the ability of the instruments of culture to define individuals' perceived opportunity sets and satisfy their preferences for privately-experienced moral sentiments. Interpretations and hypotheses are suggested and tested with evidence from the Harvard Project on American Indian Economic Development.

III. ECONOMIC DEVELOPMENT AS A PROBLEM OF COLLECTIVE ACTION

Economic development is a **social** problem. Among other things, it requires that people organize themselves in ways that take advantage of the fact that specialization by individuals in their production activities is critically important to the advancement of their well-being. "Specialization" means concentrating one's labor and capital on fulfilling only a subset of human wants and needs, and then satisfying the full range of wants and needs by exchanging with other people who have specialized differently.

Specialization and exchange require shared mechanisms for defining rights to action and objects. The combination of unlimited wants and limited resources implies conflict and competition for access to resources; and, in the absence of shared mechanisms for defining and enforcing the rules of the game, such conflict and competition implies a Hobbesian struggle in which specialization and exchange are infeasible. The mechanisms by which people are able to specialize in production and exchange with each other are the formal and informal institutions of social control and organization. By "formal" we mean laws, constitutions, and legalistic rules and

regulations. By "informal" we mean the culturally-shared mechanisms of approbation and censure that lower or raise the costs of certain kinds of behavior, and thereby encourage members to conform to societal norms. A society's formal and informal institutions constitute a system of incentives, constraints, and "recipes" that direct individuals into productive or destructive activity, broadly conceived.

Effective systems of specialization and exchange require incentive and enforcement mechanisms that channel conflict and competition over resources -- rent-seeking behavior -- into productive, rather than destructive, activities. Formal (governmental) mechanisms of social control and organization operate on individuals, ultimately, through threats and uses of coercive force. Informal (sociocultural) mechanisms work on the individual through honor, praise, group acceptance, affirmations of identity, and other rewards leading to acquisition or loss of self-esteem, self-righteousness and other emotional responses in a species characterized by self-awareness and instinctive gregariousness. In fact, just as it is possible and useful to think about formal mechanisms of social control and organization as types of contracts and agreements, so, too, can the informal mechanisms be viewed as forms of contract: e.g., "In my society, we will pay for the acquisition of human capital by giving praise, group membership, and elevated status to kids who go on to college."

This kind of reasoning holds special appeal to economists. First, if the implicit "contracts" that are embodied in a society's culture can be identified (if not measured), it may be possible to generate testable hypotheses that could contribute to our explanation of variation in the economic

development of diverse societies: The White Mountain Apache and the Oglala Sioux described above have similar constitutional forms of government (based on a strong chief executive, a one-house legislature, and no independent judiciary). Could it be that differential norms regarding the legitimate power of a central chief executive explain the success of the Apaches and their institutions relative to the Sioux and their institutions? (We put this kind of hypothesis to empirical tests below.)

Second, culture as a set of implicit contracts easily leads to "invisible hand" theories of both formal property rights regimes and cultural norms and standards: cultural norms arise to solve economic problems, and unproductive norms are weeded out. Notwithstanding the appeal of this reasoning by analogy from markets to social institutions, however, it is not justified -- indeed, it is rejected -- by economic theory. Both the formal (legalistic) and informal (cultural) mechanisms of societal control and organization are non-excludable public goods. As such, we should expect them to be subject to market failure -- i.e., suboptimal allocation and distribution (e.g., Stigler, 1971). Stated differently, to argue that we can model individuals' responses to the informal, sociocultural institutions of social control with a rational choice approach is not to say that a group of individuals' sociocultural norms are rational (in the Paretian sense) or even economically endogenous. The implication is that if an invisible hand is at work in these arenas, it is more like Charles Darwin's operating through *cultural* evolution than Adam Smith's operating through economic equilibration.

III.A Social Institutions Are Public Goods: Culture Controls Free Riding

The formal mechanisms of societal control are clearly public goods -- the ultimate social infrastructure. This attribute by itself, however, is not the source of particular analytic difficulty: invisible hands can readily supply public goods when would-be free riders can be made to reveal their demands³ (Demsetz, 1970). The analytic problems for economics arise from the non-excludability of the formal and informal mechanisms of social control and organization. As Buchanan, Hirshleifer, and North have stressed, there is no meta-enforcer of contracts by which we bind ourselves to abide by laws and constitutions, or by which those individuals who control the instruments of government at any particular time can be restricted from wielding that power in destructive rent-seeking (e.g. Buchanan, 1972). Contractarian theories of public choice are incomplete: we cannot write a contract (i.e., a constitution) to abide by our constitution without falling into an infinite regress of such contracts. Formal mechanisms of social control should archtypically be subject to free riding, as ruling cliques whittle away at the constitution, otherwise well-meaning citizens let their neighbors bear the costs of policing these usurpers, scofflaws cheat on their taxes and run traffic lights, and academics cheat on their t-statistics.

The situation is not as bad as the theory of public goods might imply. Constitutions are not instantaneously unstable; people vote; contracts are adhered to without litigation; taxes are paid; people occasionally take to the streets or break down walls for ideological causes; and traffic laws are obeyed without enforcers in sight. To explain this, to explain the origin and stability of formal

property rights regimes, is a central vexing problem of social and economic history. The answers must lie, at least in part, outside of economics and with economists' "sociologically-minded brethren," (Bates, 1988). The key lies in culture: it is only the implicit and informal contracts of culture that stand as the meta-enforcers of a society's mechanisms of control and organization⁴.

The (perhaps) tautological observation that cultural norms serve as a system of implicit contracts that bind individuals to formal institutions of social organization does not, in itself, solve the public goods problem surrounding the origin and development of mechanisms of social control and organization. The informal institutions of cultural norms and approbations are themselves public goods that can be taken for a ride: If I am a member of society (or tribe) X, I can go right on ostracizing "uppity" peers who want to go to college (or who oppose hierarchical divisions of labor, or who oppose a theocracy, etc.) without imposing significant opportunity costs on myself. The associated increases (or reductions) in aggregate social wealth from "enforcement" of such norms are public goods (or bads).

The sociocultural norms that define the informal constructs of social organization are public goods for which no mechanism of policing free riders exists, yet such norms are produced by human societies: they hold together formal institutions of organization and governance and most of us do not live in the Hobbesian world. This setup raises at least two kinds of questions. Where do sociocultural norms (at least of the political-economic kind) come from?; and How do they operate? For reasons discussed below, the first question may not be amenable to a public choice analysis. At this point, we outline a model that addresses the second question.

Culture plausibly operates on individuals' behavior in at least two ways:

III.A.1 Culture as Knowledge Paradigm

Human beings learn at least part of the technology of knowledge production by participating in cultures. Cultures convey and condition notions of feasibility; or, in the language of economics, culture conditions perceived production possibility frontiers. In effect, culture serves as a strategic guide to action. It does so insofar as it consists of a set of paradigms of self, of the world at large, and of appropriate modes of action and interaction that guide individual and collective responses to circumstance⁵. For example, such cultural paradigms of appropriate action and interaction guide supportable definitions of the range of acceptable powers for formal governmental and economic institutions. In the case of Indian tribes, they can provide tribes' "answers" to such questions as whether or not public ownership of enterprises is acceptable, or whether or not a separation of political authority and judicial authority is appropriate (e.g., "An independent judiciary? We don't do things that way here; it wouldn't work for us."). Culture-as-knowledge also can offer strategic guidance at the level of economic activity, selecting for those activities that best fit with indigenous conceptions of self and of appropriate intragroup relations.

III.A.2 Culture as Value Paradigm

Individuals demonstrably have preferences for such common economic goods as self-esteem, feelings of moral rectitude, sentiments of group-belonging, and so forth⁶. Such preferences are the triggers by which ideological concepts such as "fair," "normal," "us," "them,"

"proper," and "improper" call forth apparently altruistic eschewing of opportunistic shirking and free riding. Their existence is attested to by casual observation and introspection, theory (Brennan & Buchanan, 1988), and evidence.⁷ Cultural norms of the political-economic kind are the rules of the game that fill in the substance to "fair," "normal," etc.

The mechanism by which culture as value paradigm operates may be explained by a model in which:⁸

- P1. Individuals are rational in the economist's utility-maximizing sense.
- P2. Individuals have capacities for the "moral sentiments" (to use Adam Smith's designation), such as self-esteem, moral rectitude, worthiness within a group, and guilt.
- P3. Exposure to other individuals' expressions of such matters as group acceptance, linguistic expressions of moral legitimacy, peer approbation or censure can produce in the "receiving" and "sending" individuals private economic goods (or bads) of the type covered by P2.

Within this framework, the following results can be stated (Cornell & Kalt, 1997):

- R1: The "expressions" referred to in P3 will be produced by socially-interacting individuals that constitute sending and receiving nodes in networks.
- R2: "Cultural norms" are produced when the "expressions" referred to in P3 and R1 are coded into a set of political-economic "rules of the game" that serve as the shared network messages by which a sufficient number of "receivers" and "senders" interact and communicate with each other.

"Sufficient" here refers to enough people to make us think of them as a society or polity. By "rules" we do not mean to be esoteric. We mean such familiar edicts as: "Do/don't be a communist;" "Do/don't uphold individual rights;" "Do/don't challenge the authority of leaders to

usurp resources;" "Do/don't select leaders on the basis of kinship relations;" "Do/don't accumulate personal wealth."

When cultural norms support institutions as *legitimate*, it means that the private rewards and penalties of the "social sentiments" are triggered by the social networks within which individuals are embedded in ways that inhibit free-riding and defection vis-a-vis those institutions.⁹ Numerous examples from fieldwork in Indian Country illustrate the "policing" role of culturally-founded legitimacy. If, say, the central government of the Oglala Sioux Tribe of the Pine Ridge Reservation tries to follow the example of many tribes and launch tribally-owned businesses, but Sioux cultural norms locate *legitimate* allegiance to authority at the subtribal level of the reservation's districts, the first time a crisis in such a business' finances or management arises, support for the enterprise withers, free riders are not constrained in consuming available rents, and the enterprise collapses after one round of funding from some federal program.¹⁰ Or, if a tribe's chief executive's formal role as negotiator of external agreements with the outside joint venture investors is not supported by cultural norms because extant norms prescribe *shared* senior leadership, the (e.g.) new manufacturing plant landed with the national automobile company by the tribal chairwoman flounders in mediocrity as other tribal politicians and citizens fail to support the collective effort needed to make it work. Or, archtypically, when the chairwoman opposes the effort by another leader to have that other leader's nephew appointed shift foreman at the auto assembly plant, no patriotic "triggering" speeches for the authority of the office of the chair are made, the chairwoman's support evaporates, a political crises ensues, the chairwoman is

impeached, and the joint venture partner pulls out. Destructive rent-seeking can take numerous forms small and large when governance institutions are not legitimate in the sense stated here.

III.B The Boundaries of the Respective Social Sciences

Where does this get us? Clearly, the model outlined here provides no explanation for the processes that underlie R2. That is, it provides no explanation for which expressions of moral sentiment survive to be coded as cultural norms and which do not. The framework does say, however, that cultural norms operate to affect behavior because private goods (P2) are tied to the receipt and provision of a public good (the cultural norm itself). Indeed, this is the familiar economic story of how non-coercive actors might procure the production of public goods.¹¹

At least for economists, the frustrating aspect of the conception of culture as a value paradigm is that it yields so few testable hypotheses. It might explain why people vote, or why they uphold their formal and informal social institutions, but it does not readily yield up comparative static results. That is, the observation that, say, voter turnout fell or the Supreme Court's independence was eviscerated might simply reflect the unobservable event that "tastes" changed. Nevertheless, the model offered above does indicate how informal sociocultural mechanisms of social control could exist and affect behavior in a rationalist world.¹² The model also provides a possible guide to the respective roles of the various social sciences.

Proposition P1, for example, is the economists' unstable axiom. Proposition P2 says that individuals have the **capacity** for certain kinds of utility. This capacity is a necessary ingredient

for the emergence of norms on which to found the informal, cultural institutions that are the glue to a society's formal property rights and rules regimes. Coupled with the observation that effective "rules of the game" are a necessary condition for productive specialization and exchange, it is plausible that the capacities referred to in P2 have a biological basis. Thus, explanation of the origins of the capacities for such sources of felt well-being ("utility") or dissatisfaction as that associated with self-esteem, self-righteousness, altruism, alienation, guilt, and civic-mindedness may be the realm of the social psychologist and, perhaps, the social biologist.¹³

Notwithstanding a shared **capacity** for the foregoing sources of utility, what fills up this capacity with substantive norms? There appears to be room for a wide range of specific forms that such preferences take: In society X, hierarchical divisions of labor are abhorrent to individuals, while they are approved of in society Y. In society A, subjugation of the individual to the collective or a higher authority is morally repugnant, while in society B, the theocrat is all-powerful. To put it in the Indian context, an effectively separate judiciary beyond the electoral reach of the citizenry may be rejected as illegitimate by the White Mountain Apache, but may be formally embedded in the constitutional parliamentary democracy of the Salish-Kootenai at Flathead (Montana), and never even thought of within the unwritten but highly successful theocracy of Cochiti Pueblo (New Mexico) (Cornell & Kalt, 1997):

At the individual level, Becker has shown that private consumption goods (e.g., my repugnance at my neighbor's endorsement of a strong chief executive as legitimate, and her experiencing my repugnance as a private cost to herself) are not generally subject to survivor tests

that would weed out counter-productive tastes (Becker, 1962). This is particularly likely to be the case when preferences are primarily **socially** counter-productive in the public bads sense: I can go right on self-righteously supporting my society's tradition of eschewing trade with other cultures despite the benefits from trade. After all, the private benefits to me of opening up trade may be quite small, but the benefit of experiencing myself as a good Sioux (or, say, a good Iowa farmer) is entirely private.

In short, we are not sanguine about an **economic** (choice-theoretic) explanation for which cultural norms will emerge in societies (i.e., Result R2), or about an invisible hand theory of their equilibrium and efficiency characteristics (Cornell & Kalt, 1997).¹⁴ We cannot have an economic theory of choice over preferences. Theories and models of the specific content (e.g., hostility or receptivity to hierarchical divisions of labor, or cross-cultural trade, or a separation of powers) that fills up peoples' capacities for the cultural preferences which are the bases for the mechanisms of social control and organization will have to come from sociology, anthropology, and other social sciences.¹⁵ In fact, the research progress in the scientific explanation of cultural norms through evolutionary, rather than invisible hand, mechanisms is substantial.¹⁶

IV. EVIDENCE ON THE CAUSES OF ECONOMIC DEVELOPMENT ON AMERICAN INDIAN RESERVATIONS

The discussion above yields at least two important and testable hypotheses. First, we have argued that institutions of self-government are the key to (i.e., the necessary condition for)

economic development by sovereign societies. This follows since it is the system of incentives and constraints that emanate from institutions that promote or inhibit specialization and exchange, and promote or inhibit destructive rent-seeking.

Second, we have argued that culture "matters" in a particular way: Cultural norms form the glue that holds a society's formal and informal institutions of social control and organization together. Granting the conclusion that successful economic development requires effective institutions that can channel resources and effort into productive ends, we could reasonably expect that a society's formal institutions would be more effective the closer is the match of those institutions to the informal institutions that emanate from cultural norms.

Each of these hypotheses is of particular relevance in the American Indian context. Notwithstanding commonly heard "explanations" of the state of reservation economic development which make reference to tribes' poor land bases, lack of education, inhibited access to capital markets and other resource-based factors, could it be that the institutions of tribal governance are at the root of the discouraging state of development? Second, many American Indian tribes have formal systems of government which were not originally of their own design. Rather, they were presented (mostly in the 1930s) with constitutions and bureaucratic systems by agents of the Federal Government. With the strengthening of tribal sovereignty over the last 15-20 years, it could well be that the governmental structures under which tribes now find themselves operating do not match with underlying cultural foundations of authority and legitimacy. If economic performance is systematically worse where there is a mismatch between formal institutions and

cultural norms, we would have direct confirmation of the hypothesis that "culture matters."

We now turn to examination of empirical evidence on the foregoing hypotheses. While we examine large-sample statistical measures, we also draw on our fieldwork. Over the last decade, we have spent approximately 400 man-days working at a selected sample of reservations. These include Cochiti Pueblo (NM), Crow (MT), Hualapai (AZ), Mescalero Apache (NM), Muckleshoot (WA), Northern Cheyenne (MT), Oglala Sioux (SD), Rosebud Sioux (SD), Flathead (MT), San Carlos Apache (AZ), White Mountain Apache (AZ), and Yakima (WA). In addition to our own fieldwork, our research assistants and masters degree students have performed extensive fieldwork and advisory work for sample tribes, and have produced approximately 225 research studies in the process. This work substantially informs the framework of analysis described below.

IV.A Economic Growth and Governmental Design

All societies face the problem of preventing those who exercise the legitimate powers of government from utilizing such power to transfer social wealth -- or additional power -- to themselves. Such usurpations typically take the form of either direct takings and confiscations or indirect self-enrichment through the biasing of laws, rules, and regulations. Such "Marcosian" (after former President Ferdinand Marcos of the Philippines) rent-seeking (i.e., the use of the power and resources of government to enrich those in power rather than to add to social wealth) is socially destructive. Not only does it unproductively consume resources, but it discourages investment, particularly in fixed capital that cannot flee once it is installed. The task is to limit the

role of those in power to that of "third party" enforcer, rather than self-interested primary party, in disputes and social decisions over the use of a society's resources. Success at this task stands out as a distinguishing characteristic of those sovereign nations that have been able to develop economically from those that have not.¹⁷

The importance of a separation of powers is as true in Indian country as it is elsewhere around the world. At the same time, a staple of story-telling in Indian country has to do with political interference in business activity. Over and over one hears of voided leases, hired or fired cousins, politicized management, and enterprises drained of funds by politician interference. Such problems are hardly unique to Indian country -- witness Chicago or Boston, or the Philippines or Mexico, where the politics of patronage and personal aggrandizement have notable histories. While the details vary across reservations and other sovereignties, their consequences are depressingly similar: costs are raised and competitiveness reduced; earnings are dissipated and capital is not replenished; investors fear being hostage to politics and turn away. Those with claims against either the tribe as a whole or other tribal members, whether themselves tribal members or not, often can appeal only to the tribal council, that is, to an interested party in the dispute.

The range of attempted tribal solutions to the problem of limiting and allocating governmental power is fairly broad. Some tribes (e.g., Salish-Kootenai at Flathead) have parliamentary forms of government, under which the chairperson of the tribe is elected by the tribal council and is, in fact, its chair. Political power is thus dispersed away from the office of the chair and is shared by the council members. This is not necessarily a cure for the problems of limiting

the rent-seeking abilities of tribal politicians; while it limits the power of the chair, it can create "fiefdoms" around individual council members. The latter, for example, seems to take place at Yakima.

Flathead and some other tribes have also formed a strong, effectively independent judiciary. Judges typically are appointed by the tribal council but not subject to direct council control, have terms of office longer than those of council members, can be removed only for gross improprieties, and have the power to resolve disputes. At Flathead, appeals of tribal court decisions have been sent not to the tribal council, but to an independent inter-tribal judicial board. Both Yakima and Rosebud, on the other hand, have experimented with tribal ethics boards empowered to review grievances against politician and bureaucrat behavior. At Rosebud, board members -- usually elders -- are chosen by the tribal council on the basis of their "wisdom, integrity, and knowledge of Lakota culture."¹⁸ Those with grievances can appeal to the board, which hears cases in confidence and then makes recommendations to the council. The board has little formal power beyond its carefully guarded reputation for disinterested action, but that has been sufficient to give it substantial impact in a number of cases.

A third solution is the submission of claims to outside adjudication through limited waivers of sovereign immunity or, since many tribes eschew such waivers, third-party arbitration. In a related vein, tribes occasionally choose to bind their own hands. At Mescalero Apache, for example, the Tribe has demonstrated a long history of staunch demands for self-governance; nevertheless, the Tribe elected to place a multi-million dollar endowment fund for economic

development (won in a legal settlement) out of its own reach and under the control of the U.S. Congress.

Finally, tribes may depend on strict constitutional delineations of powers or on cultural proscriptions of certain kinds of behavior to control what those in power do. At Mescalero Apache and White Mountain Apache, for example, there are strong chief executive forms of tribal government supported by a mixture of the rule of law and the rule of custom. Single, often charismatic individuals effectively hold and exercise much of the power in the governing system, but within varying limits that restrict self-serving behavior. These limits emanate both from the formal (constitutional) organization of government and from culturally-rooted norms and expectations regarding the appropriate behavior of leaders and the nature and scope of centralized self-government.

At Cochiti Pueblo, a seemingly autocratic theocracy with no written constitution rules over a booming economy based on non-Indian retirement homes, a golf resort, and enterprising professionals. Closer examination, however, reveals a stark – albeit, traditional and deeply cultural – system of separations of powers in which ruling theocrats are selected from only certain religious societies while others exercise unquestioned rights of impeachment in the event that the theocrat is found to be engaging in self-serving official conduct (Cornell & Kalt, 1997)

The polar opposite of such separations of powers and constraints on political rent-seeking is found at Crow, which operates under a constitutionally-based, general council form of government. The general council -- the legislature -- consists of all voting-age tribal members (and thereby has

a membership in the thousands), is virtually unlimited in its authority over both the structure and powers of tribal government, and bears little resemblance to pre-reservation forms of Crow governance, which was based largely on clans and warrior societies. At Crow today there are no formal separations of power, no checks and balances.¹⁹ The result is "winner take all" politics in which the power to control a quarterly council meeting is the power to command virtually all disposable resources (e.g., tribal government jobs and budgets in an environment that effectively lacks any private sector alternatives -- see Section I above), albeit for an insecure and typically brief tenure. Individual leaders have little incentive to invest in other than the patronage of their own political factions, at the expense of longer-term tribal interests in economic well-being and social and political sovereignty.

For all intents and purposes, the general council form of government at Crow (and some other reservations) means that there is no third-party resolver of disputes that fall within the tribe's jurisdiction. In fact, quarterly council meetings amount to nothing more than quarterly decisions on who gets control of all tribal resources. The consequence for economic development is an environment in which the Tribe has extreme difficulty in attracting and keeping investment and employment opportunities, a governmental bureaucracy that is paralyzed in its ability to carry out day-to-day administration, and social and political breakdown to the point of violence. Political power is allocated as a common pool resource, and resource and opportunity depletion is the consequence.

The reliance on formal controls on governmental power at, e.g., Flathead and the general

council at Crow are in sharp contrast to the theocracy of Cochiti Pueblo. Cochiti has no written constitution or legal codes. Rather, every December 29th, the religious leader (known as the "cacique") of the Tribe gathers together the male members over the age of 5 and announces who will be governor, who will be chairman of the board of the Tribe's enterprises, and who will fill other executive positions.

Cochiti has demonstrated the ability to combine its traditional forms of self-government with well-managed tribal enterprises. Until 1983, a private party (headed by the Texas Hunt brothers) held a long term lease on thousands of acres of tribal land. This lease was used to launch a large, non-Indian retirement community. Upon the bankruptcy of the Hunt brothers, the Tribe bought back the lease and now operates the community under a tribal development corporation. The community has been returned to profitability, and the Tribe and outside parties are investing steadily in it. The Tribe also runs one of the most popular public golf courses in the country. In the sample of tribes described in Table 1, Cochiti Pueblo has the second highest percentage of adults earning over \$7,000 annually. It also has the lowest official unemployment rate. The cacique of the Tribe is also the building maintenance man at the community's swim and tennis club.

The relative success of Cochiti economically, and the apparent sustainability of its major development efforts, indicate that its approach to the problem of institutional design works, at least for Cochiti. Indeed, the contrast with Flathead's or Mescalero's governing system illustrates the crucial point that all tribes face the same problem of limiting self-serving behavior on the part of tribal leaders, but their solutions may be very different. This accords with (for example)

Pommersheim's conclusion that tribal groups may reasonably reject "both the desirability and the necessity of reform [of tribal governance] along non-Indian lines but rather are desirous of developing policy and institutions that are socially and culturally resonant to tribal members," (Pommersheim, unpublished).

But the check is not blank. The theory of institutions set forth above would suggest that successful tribes have institutions that not only provide a match between cultural norms and formal structures; they also are adequate to the task at hand. "Matched" solutions that fail adequately to constrain the powers and behaviors of those that govern will only further undermine the possibilities of politically, socially, and economically successful development. For example, it seems unlikely that the Crow's general council form of government would promote economic development in the late 20th Century, when the Tribe's primary assets are coal, grazing land, and timber -- even if it might have worked well in an earlier era in which a tribe's primary capital asset migrated on four hooves through tribal territory at will.

IV.B Explicit Hypothesis Testing: Employment

In order to examine the role of tribal governmental structures on American Indian Economic Development, we have assembled data on approximately 70 tribes. These data are intended to capture, to the extent possible, such possible causal factors as tribes' human capital endowments and their natural resource endowments. In addition, we have coded the constitutions of each of the tribes, picking up whether the tribe had an independent judiciary and whether it was

organized under a strong (typically directly elected) chief executive, a strong legislature (typically a tribal council of 7-15 members, with the chair selected from the council members), or a general council (with all members of the tribe in the legislature and with this body having all power of law making).

We wish to test whether and how these various forms of governmental design affect economic development. The hypothesis regarding general council tribes is straightforward. As discussed above, such tribes should be expected to perform more poorly than strong-chief-executive or strong-legislature tribes. Similarly, independent judiciaries are expected to enhance a tribe's economic performance. The predictions with respect to the relative performance of strong-chief-executive and strong-legislature is unclear.

We measure economic development performance with two alternative variables. We have fairly reliable data on employment of tribal members on reservations for 1989 (defined as the percentage of the workforce that is employed). Data are not available on a systematic basis after 1990, but the available data we do have permits a comparison of the level of economic development on reservations during the decade-plus of self-determination that began in the mid-1970s with the changes in federal policy described above. Moreover, by looking at the period from the mid-1970s (when *de facto* self-governance became a reality) up to the end of the 1980s, we can attempt to detect differential degrees of economic development prior to the era of much-publicized and large-scale entry of tribes into gaming. Gaming in the 1990s has provided a handful of tribes with a set of unique niches in which to profit by meeting the demands of large and otherwise

unsatisfied market demands. The attendant economic development has benefited certain tribes, but raises the question of who couldn't thrive in such a lucrative niche. We are interested here primarily in the non-gaming efforts at development that have been undertaken in the era of self-governance. Which tribes have been able to turn opportunities for self-governance into successful development, and which have not? In the 1990 Census and related data at our disposal, a base level of public sector jobs are present on all reservations, and reflects both tribal, state and federal government operations. As we move toward the upper end of the distribution of employment levels on reservations, we are picking up the relative strength of the non-governmental sector and, hence, measuring the ability of the tribe to develop an economy beyond the transfer economy that has so dominated the eras prior to self-governance.

As a second measure of economic development, we have data on the growth in income on reservations over the period from 1977 (when aggregate federal Indian spending peaked) to 1989. This growth measure is based on the Bureau of Indian Affairs' (BIA) reporting of the percent of the adult Indian population (over age 15) earning more than \$7,000 in 1989 and the percent of the adult population earning over \$5,000 in 1977. This difference is reported as the first numerical column in Table 1, which also ranks tribes by the growth measure.

Table 2 reports the results of a regression analysis of employment levels on the sample of 67 reservations described in Table 1. The model of development put forth portrays economic development as a function of a tribe's resources, governmental structure, and cultural norms regarding inter-"national" trade with other societies. To capture a tribe's human capital resources,

we have measured the educational attainment of reservation residents (percent of adults who are high school graduates). A tribe's non-human resources include its natural resources and its location. If a tribe is located in a strong regional economy, this is an indication that the tribe's resource base is employable under existing market conditions. Raw measures of natural resource endowments are not available. Hence, we employ a measure of the health of the adjacent off-reservation economy as a proxy. This "health" is measured by the growth in adjacent county per capita income over 1979-85. In selecting the "adjacent" county, care has been taken to select the county most representative of the on-reservation resource base.

Reservation residents frequently migrate to and from the reservation. It is not uncommon, for example, for young adults to migrate repeatedly to a major metropolitan area for part-year employment or for more extended employment²⁰. In some tribes, however, such behavior is infrequent, and the pattern apparently is not primarily a function of economic variables. Rather, differential patterns of inter-"national" migration appear to reflect, in part, differing cultural norms regarding the desirability of trade and interaction with the off-reservation community. To measure the extent of inter-"national" trade in, at least, labor, we employ a variable measuring the percent of the reservation population that has always lived on the reservation, with high values of this variable reflecting a relatively insular labor force and society.

Finally, employment opportunities on reservations are frequently asserted to be adversely affected by problems emanating from split governmental jurisdictions. Near the turn of the century, many reservations went through a period of "allotment" under which tribal lands were

transferred into private, often non-Indian hands. The current manifestations are checkerboarded ownership patterns and split jurisdictions between tribal and federal and state authority that lead to significant transactions costs associated with land-based economic production and uncertainty regarding the stability of property rights (Miller, 1988). To capture this possible effect, a variable measuring the share of reservation land held under private title is examined.

Table 2 reports the results of the analysis of employment levels on American Indian reservations. The different models shown vary only by the exclusion or inclusion of the high school graduates measure and the split land jurisdiction variable. Econometric fishing was limited to including and excluding apparently insignificant variables. Model II reports the full prior specification. The form of government (strong-chief-executive/strong-legislature/general-council) is coded as a binary variable. The excluded form is general council. Thus, the coefficients on strong-chief-executive and strong-legislature are measures of contribution to economic performance relative to general council forms of government.

As expected, a strong regional economy (as reflected in the health of the adjacent county) is associated with higher reservation employment. Educational attainment, however, does not appear to provide a boost. Similarly, the degree of insularity of the tribe is not a significant explanatory factor in the analysis of employment levels.

The results reported in Table 2 strongly confirm the hypothesis that general council forms of government are outperformed by strong-chief-executive and strong-legislature tribal governments. All else equal, employment under strong-chief-executive government is 4%-5%

higher than under general council government. Employment under strong-legislature government is 10%-13% higher than under a general council system. There is somewhat weaker support for the proposition that independent judiciaries are positive causal factors in tribal development: the contribution is positive at approximately the 70% confidence level. More generally, the pattern of results in Table 2 supports the hypothesis that the institutions of government are central ingredients in determining the state of economic development on American Indian reservations.

IV.C Explicit Hypothesis Testing: Income Growth

Table 3 reports results of the analysis of income growth on our sample of 67 reservations. As described above, income growth is measured by the percentage earning above BIA minimums in 1989 v. 1977. To the extent that the distribution of income was not changing on reservations over this period, this measure reflects the shift in the distribution. The models in Table 3 parallel those reported in Table 2. On the expectation that a tribe starting at a lower base in 1977 might have farther to go and might grow faster in the era of self-determination,²¹ a measure of the 1977 starting point is included (i.e., the 1977 percent of adults earning over \$5,000 annually in Model I, and the difference in 1979 between the reservation's poverty rate and the adjacent county's poverty rate in Models II and III). The split jurisdiction variable examined in Table 2 did not show up as significant in analyzing the **growth** in income, as might be expected.

As in the case of reservation employment, the state of the adjacent county is significant in explaining the growth of income on reservations. The degree of insularity of the tribe appears to

have a negative effect on economic growth. This is consistent with the expectation that, as tribes' incomes become relatively less dependent on the federal government over time, and relatively more dependent on their own economies, an insular tribe that is reluctant to engage in inter-"national" trade would perform less well. Our field experience suggests that the relatively insular tribe is typically characterized by not only insular labor, but also a lack of receptivity to outside investors and non-Indian technical expertise.

Tribes' forms of government appear to have significant explanatory roles in Table 3. Strong-chief-executive government is associated with approximately 2% more income growth than general council government (at approximately the 85% confidence level). Strong-legislature government is associated with 7%-10% more growth than general council government. As in the analysis of employment levels, the independent judiciary does not provide significant independent explanatory power. This may reflect the rarity of the institution (10 tribes in our sample), or an absence of real independence.

Both Tables 2 and 3 support the hypothesis that institutions are keys to economic development. They also confirm the expected poor performance of general council forms of government. There is, further, some indication that strong-legislature government outperforms strong-chief-executive government: while both are more effective than general councils, the strong-legislature governments seem to contribute more to employment and income growth. Before jumping to this conclusion, however, we should recall the discussion of Section III. Both forms of institutions "work" in a relative sense; it may be that there are simply more or better

"matches" between informal institutions of governance and political legitimacy at the strong-legislature tribes. Tables 2 and 3 would hardly form the basis for recommending, for example, that the strong-chief-executive Apaches adopt the Flathead's strong-legislature parliamentary government. It could well be that the Apaches would perform abysmally under the Flathead system -- if the underlying cultural norms of Apache power and legitimacy are supportive of strong tribal chairmen.

It goes without saying that testing for this kind of effect presents daunting problems of data and method. How does the social scientist determine whether there is a match between culture and formal institutions? We have approached this problem by turning to examination of the historical cultural norms and governing structures of the sample tribes in our field research. This forces us into a smaller sample and different techniques of analysis.

V. CULTURAL NORMS AND FORMAL GOVERNMENTAL INSTITUTIONS

It might be wondered how a society could end up with formal institutions of government that do not match, are not more or less consonant with, that society's cultural norms regarding political authority and legitimacy. After all, the "culture matters" story comes dangerously close to sounding like an explanation which says that society X has that form of government because they like it. As noted above, however, the American Indian context provides an arguably unique situation. Following the establishment of the reservation system, the Federal Government embarked upon a number of different Indian policies, ranging from concentration camp treatment

at, e.g., San Carlos Apache to eventual establishment in the 1930s of tribal governments under constitutional forms drafted by federal authorities (Goodwin, 1942). Thus, as we enter a period of a federal policy of Indian self-determination in the 1970s, we encounter tribes who have been dealt a set of formal governing institutions that may or may not accord with the way a particular tribe historically governed itself (and may continue to try to govern itself). If we can determine cultural norms of political legitimacy around such questions as the propriety of vesting central authority in the hands of a strong chief executive, it may be possible to test whether culture matters in the way hypothesized above. Accordingly, we have set about trying to test whether a match between cultural norms and formal institutions of governance is a necessary condition for formal institutions to be effective at establishing an economy's rules of the game, and hence a necessary condition for economic development.

Under the assumptions that the pre-conquest political organization and authority systems under which tribes governed themselves were a reflection of each tribe's political-economic cultural norms, and that those norms have not been extinguished, we have studied the historical and anthropological literature that covers the tribes in our field sample and that are listed in Table 4. We believe the noted assumptions are supportable.²²

Consider the case of the Oglala Sioux, for example. The Oglala historically have organized themselves politically around sub-tribal "tiyospayes" based on local and often kin-based allegiances. In the late 20th Century, the Tribe is operating under a federal-designed constitution that creates a central tribal administration as the fundamental arm of government. Despite the fact

that this central government is the funnel through which federal monies come and with which government-to-government dealings take place, many Oglalas "do not identify with the tribe as a political group and would prefer to run their own affairs at the local level, under the direction of local leaders whose support comes from community faith in their abilities (DeMallie, 1978)." In fact, a form of shadow district governments operates despite the absence of a constitutional base. The notion of the central tribal leadership as the carrier of Oglala identity, legitimacy and authority is strikingly absent in the present situation. The tribe would appear to be a candidate for some form of federalist system, which leaves a central government intact for purposes of extra-tribal affairs and negotiations, while allowing law and administration to be made at the district level.

The situation could probably not be more different at White Mountain and Mescalero Apache.²³ The tribes have strong-chief-executive constitutions that parallel that of the Oglala. Yet, the Apaches function far better under their government. Apache allegiance appears to be centered directly on the tribal government and the person of the tribal chairman (the chairman that prevailed over the entire era of self-determination at Mescalero Apache until his death in 1998 served for 40 years; the chairman at White Mountain that held office for 20 of the 24 years prior to 1997). Moreover, the Apache chairmen appear to operate within a set of cultural norms that severely restrict their possible Marcosian behavior, with apparently minor instances of such behavior cause for quick loss of support from tribal members, notwithstanding a long record of prior success.²⁴ The chair is legitimately powerful enough so that the notion of a separate judiciary is not taken seriously. The Apache term for "leader" or "chief" translates into "he who convinces us."

The Apache "match" with strong-chief-executive government is historically rooted. As an interesting anecdotal support of the hypothesis that institutions matter, we find that within a handful of years after the Spanish began to colonize what is now central Mexico, a single tribe emerged as dominant economically and militarily from a group of dozens -- the Apaches. Even before European contact, the Apaches had a peace leader who "was less a symbol of the welfare of the group than an actual administrator and judge. He directed agricultural activities and judged in disputes between families. He had the responsibility of taking care of poor families, such as those of widows. He was also the representative of the band in any dealings with other bands."

Based on information of this type, as well as quantitative and field materials, Table 4 presents a mapping of tribes into a binary system describing the presence/absence of theoretically plausible causal factors that explain economic development on reservations. The identified causal factors are those examined in the statistical analyses of Tables 2 and 3, with the addition of the Factor H, which assesses whether or not current formal constitutional form matches indigenous cultural norms. The resulting matrix of attributes forms the basis for a so-called "Boolean" analysis of comparative cases.²⁵ The basic idea of this analysis is that the indicated attributes across tribes constitute an algebraically logical set of statements that can be reduced so as to isolate the common causal factors in cases of successful development.

Boolean analysis embodies the familiar logic of regression analysis in so far as it asks what stands out (i.e., what is the variation) in causal factors that correlate with the dependent variable (here expressed as a binary Yes/No determination of whether a tribe is on a path of significant,

sustainable economic development). But the technique is suited to small sample sizes and identification of the groups of causal factors at play (as opposed to the marginal contribution of a factor, which regression techniques divulge). Given that the purpose of our analysis is to determine the causal combinations that produce economic development, rather than the marginal contribution of a little more cultural match or a little more general council government, the Boolean analysis is appropriate and potent.

To understand the technique, consider the first two entries under A and B for Cochiti and Flathead (i.e., two developing tribes). Under Boolean analysis (and, for this illustration, assuming that A and B are the only identified factors), Cochiti would be coded as $Y = aB$; Flathead would be coded $Y = AB$. Lower case letters designate the absence of a factor, while upper case indicates the presence of a factor. Multiplication in Boolean analysis is read as "and," while addition is read as "or."

In the simple case of Cochiti and Flathead with only A and B as possible factors, the resulting expression of the causes of economic development would be stated as $Y = aB + AB$. Because development occurs in this expression so long as B is present, and no matter what the state of A/a is, this expression can be reduced to a "prime implicant" of the form $Y = B$. In words, this would mean that reservation economic development is caused by a strong economy in the adjacent county.

Prime implicants indicate necessary and sufficient conditions in the following way:

$Y = B$ B is both necessary and sufficient.

$Y = A + B$ A and B are each sufficient, but not necessary.
 $Y = AB$ Both A and B are necessary, but not sufficient.
 $Y = A(B+C)$ A is necessary, but not sufficient.

Extending the logic of prime implicants and applying the usual rules of algebra, yields the prime implicant for our cases:

$$Y = HDg*[Ei*(AB + BC + AC) + FI(ABC)] .$$

Thus, factors H (match of cultural norms to constitutional type), D (cultural norms supporting specialization and trade), and g (the absence of a general council form of government) **together** constitute a set of necessary, but not sufficient, conditions for economic development. Within the brackets [], the results indicate that the factors required for development depend on whether or not a tribe is operating under a strong-chief-executive (E) or a strong-legislature (F) constitution. Based on the sample of tribes that we have examined, all that we can conclude is that economic development by a strong-chief-executive tribe does not require an independent judiciary (the i term), but does require some combination or another (AB or BC or AC) of natural resources, a strong adjacent economy, and substantial human capital. For the strong-legislature tribes (F) that have satisfied the necessary conditions of a cultural match (H), and a receptivity to specialization and trade (D),²⁶ our sample of tribes makes each of the remaining attributes (I, A, B, and C) look necessary. This conclusion is not compelling on theoretical grounds, and reflects the fact that our sample has only Flathead as a developing strong-legislature tribe. Hence, Flathead's attributes

(beyond HDg) appear to be necessary to such a tribe's development. Interestingly, insularity (d) – unwillingness to specialize and engage in exchange – is seen to be wholly incompatible with reservation economic success. Not only does this accord with one of the most basic precepts of economics (that specialization and exchange are the twin roots of both individual and collective improvements in economic well-being), but gives lie to a commonly heard mercantilist theme in Indian Country which holds that “self-sufficiency” is beneficial.

To summarize, our case studies of tribes have yielded evidence on the causes of economic development -- evidence which accords with theory, well as the more familiar statistical analyses reported in Section IV. In particular, the pattern of results supports the conclusion that it is institutions that matter in generating economic development – the separations of powers and checks and balances that restrain rent-seeking are necessary but not sufficient for sustained economic development. But culture also matters. Because the formal institutions of self-rule are themselves public goods subject to the panoply of free-riding and defection strategies that access to the tools of government can permit, institutions that are not backed by cultural “match” – i.e., congruence between pre-constitutional norms of legitimacy concerning the role of governmental power and the formal institutions of government – are less likely to produce the informal social controls that regulate free-riding and defection. Economic development is sacrificed through the resulting instability and rent-seeking. From our analysis, it appears that economic development does not take off in Indian Country without cultural “match,” a separation of powers, a willingness to trade, and (perhaps) opportunities in the form of access to markets, human capital, and/or natural

resource endowments.

VI. Conclusions

Clearly, much remains to be learned. Nonetheless, at a general level, several conclusions emerge from our analysis. First, from a public policy point of view, the federal policy of self-determination is making economic development possible for the first time in Indian country. But such a policy only makes development a possibility; it does not guarantee it. Of those obstacles that Indian tribes themselves can directly affect, we believe that the institutional one is paramount. Generous resource endowments, human capital, and access to financial capital will be virtually useless if tribes are incapable of making collective decisions and sustaining collective action, and if they lack the institutional structures necessary to maintain a hospitable environment for human and financial investment.

As for what those structures should be, there is no one ideal solution for every tribe. While all tribes must solve similar problems of separations of powers and controlling rent-seeking as they wrestle with development dilemmas, the answers will be tribally specific, responding to particular sets of opportunities, constraints and cultural contexts. The reason for this note of “cultural appropriateness” lies in the concept of cultural “match.” Specifically, the Indian cases support the theory that says that informal, sociocultural institutions are crucial to development. This study has tried to understand how these matter. Culture informs and legitimizes conceptions of self, of social and political organization, of how the world works, and of how the individual and group

appropriately work in the world. In its political-economic manifestation, culture serves as a set of implicit contracts by which individuals are credibly bound to the system of incentives and constraints embodied in formal and informal mechanisms of social control and organization. It does this by providing shared preferences and perceived options that dampen incentives to free ride on these mechanisms, which are classic public goods.

REFERENCES

- Allman, Wm. (1994). The Stone Age Present New York: Simon and Schuster.
- Barkow, J, Cosmides, L. & Tooby, J. (1992). The Adapted Mind New York: Oxford University Press.
- Bates, R. (1988). Contra Contractarianism: Some Reflections on the New Institutionalism. Politics and Society, 16.
- Bates, R., "Macro-Political Economy in the Field of Development." Unpublished manuscript. Chapel Hill: Duke University.
- Becker & Stigler. (1977, June). "De Gustibus Non Est Disputandum," American Economic Review, pp. 76-90:
- Becker, G. (1962). "Irrational Behavior and Economic Theory," Journal of Political Economy 70, No. 1, pp. 1-13.
- Bordeaux, Rose (1988, summer). Board member, interview, Rosebud Reservation.
- Boyd, R. & Richerson P. (1985). Culture and the Evolutionary Process Chicago: The University of Chicago Press.
- Brennan, G. & Buchanan, J.M., (1988). "Voter Choice and the Evaluation of Political Alternatives: A Critique of Public Choice", Kyklos.
- Buchanan, J. (1972). "Before Public Choice" in Tullock, G., ed., Explorations in the Theory of Anarchy Blacksburg, VA: Center for the Study of Political Choice, Virginia Polytechnic Institute.
- Center for Community and Economic Development, University of Southern Mississippi. (1999). The Economic Impact of the Mississippi Band of Choctaw Indians and Their Affiliated Enterprises on
- Cornell and Kalt, "Where's the Glue..."**

the State of Mississippi.

Clastres, P., (1977). Society Against the State: The Leader as Servant & the Humane Uses of Power Among the Indians of the Americas New York: Urizen Books, pp. 178-79.

Coleman, James S. (1990). Foundations of Social Theory. Cambridge: Harvard University Press.

Cornell, S. & Kalt, J. (1997). "Cultural Evolution and Constitutional Public Choice: Institutional Diversity and Economic Performance on American Indian Reservations," in Lott, J., ed., Uncertainty and Economic Evolution: Essays in Honor of Armen A. Alchian London: Routledge.

Cornell, S. & Kalt, J. (1997). "Successful Economic Development and Heterogeneity of Governmental form on American Indian Reservations," in Grindle, M.S., ed. Getting Good Government: Capacity Building in the Public Sectors of Developing Countries, Cambridge: Harvard University Press.

Cornell, S. & Kalt, J. (1995, July) "Where Does Economic Development Really Come From?: Constitutional Rule Among the Contemporary Sioux and Apache," Economic Inquiry, 402-426.

Cornell, S. & Kalt, J. (1994). The Redefinition of Property Rights in American Indian Reservations: A Comparative Analysis of Native American Economic Development. In Lyman H. Legters and Fremont J. Lyden (Eds.) American Indian Policy and Economic Development. Westport: Greenwood Press.

Cornell, S. & Kalt, J. (1992). Culture and Institutions as Public Goods: American Indian Economic Development as a Problem of Collective Action. In Anderson, T. (Ed.). Property Rights and Indian Economies. Lanham: Rowman & Littlefield Publishers, Inc.

Cornell, S. & Kalt, J. (1992). "Reloading the Dice: Improving the Chances for Economic Development on American Indian Reservations," in Cornell, S. & Kalt, J. (Eds.). What Can Tribes Do? Strategies and Institutions in American Indian Economic Development. Los Angeles: The American Indian Studies Center, UCLA.

- Cornell, S. & Kalt, J. (1990). Pathways from Poverty: Economic Development and Institution Building on American Indian Reservations. American Indian Culture and Research Journal, 14.
- DeMallie, R. (1978). "Pine Ridge Economy: Cultural and Historical Perspectives," in Sam Stanley, ed., American Indian Economic Development The Hague: Mouton, p. 274
- Demsetz, H. (1970). "The Private Production of Public Goods," Journal of Law and Economics, 13, pp. 295-306.
- Douglas, Mary., (1989). Culture and Collective Action. In Freilich, M. (Ed.). The Relevance of Culture. New York: Bergin and Garvey.
- Durham, Wm. (1991). Coevolution: Genes, Culture and Human Diversity Palo Alto: Stanford University Press.
- Durkheim, E. (1965). The Division of Labor in Society New York: The Free Press.
- Elster, J. (1989). "Social Norms and Economic Theory," Journal of Economic Perspectives 3, No. 9, pp. 99-117.
- Frank, Robert H. (1988). Passions Within Reason New York: W.W. Norton and Co.
- Geertz, C. (1973). Ideology as a Cultural System.
- Gil-Swedberg, M. & Cornell, S. (1990). "Socio-historical Factors in American Indian Economic Development: A Comparison of Three Apache Cases" unpublished, Harvard Project on American Indian Economic Development.
- Goodwin, G. (1942). The Social Organization of the Western Apache Chicago: University of Chicago Press.
- Hirshleifer, J. (1978). "Competition, Cooperation and Conflict in Economics and Biology," American

- Economic Review Proceedings 68, pp. 238-43.
- Jorgensen, M. (1993). Case Study: Nebraska Sioux Lean Beef. Project Report, Harvard Project on American Indian Economic Development.
- Kalt, J. & Zupan, M. (1990, April) "The Apparent Ideological Behavior of Legislators: On-the-Job Consumption or Just a Residual?," Journal of Law and Economics 33, pp. 103-32.
- Kalt, J. & Zupan, M. (1984). "Capture and Ideology in the Economic Theory of Politics," American Economic Review 74, No. 3, pp. 279-300.
- Lipset, S. (1963). Political Man: The Social Bases of Politics New York: Anchor.
- Miller, M. (1988, April). "Tribal Responses to Federal Land Consolidation Policy," Project Report, Harvard Project on American Indian Economic Development.
- Niskanen, Wm. (1971). Bureaucracy and Representative Government. Chicago: Aldine-Atherton.
- North, Douglass. (1988, Spring/Summer). Ideology and Political/Economic Institutions, Cato Journal, 8, 15-28.
- North, D. (1981). Structure and Change in Economic History. New York: W.W. Norton.
- Olson, M. (1965). The Logic of Collective Action Cambridge: Harvard University Press.
- Olson, M. (1982). The Rise and Decline of Nations. New Haven: Yale Univ. Press.
- Pommersheim, F., "Native Americans and Theory of Dependency." Unpublished manuscript, University of South Dakota, Vermillion, South Dakota, pp. 18-19.
- Putnam, Robert. (1992). Making Democracy Work: Civic Traditions in Modern Italy. New York: Princeton University Press.

- Ragin, C. (1987). The Comparative Method University of California Press.
- Real Bird, R. (1988). In Search of Peace and Prosperity: The Crow Tribal Struggle for Economic Sovereignty. Project Report, Harvard Project on American Indian Economic Development.
- Sahlins, M. (1976). Culture and Practical Reason Chicago: University of Chicago Press.
- Snipp, M.(1989). American Indians: The First of This Land New York: Russell Sage Foundation, Chap. 9.
- Spicer, E., (1962). Cycles of Conquest Tucson: University of Arizona Press.
- Stanley, S. & Thomas, R.K. (1978, March) "Current Demographic and Social Trends Among North American Indians," Annals of the American Academy of Political and Social Science, pp. 111-20.
- Stigler, G. (1971). "The Economic Theory of Regulation," Bell Journal of Economics 2, pp. 3-21.
- Uhlener, C. (1989). "'Relational Goods' and Participation: Incorporating Sociability into a Theory of Rational Behavior," Public Choice 62, No. 3, pp. 253-87.

NOTES

- ¹ Data provided by the Crow Tribe.
- ² We argue elsewhere that this appearance of signs of development at a time when federal and state domination has been receding is not mere coincidence (Cornell & Kalt, 1994). Our basic argument invokes a Niskanen (1971) model of the U.S. Bureau of Indian Affairs, which faces strong incentives to "market" poverty to the U.S. Congress.
- ³ See Demsetz (1970).
- ⁴ This is a central theme of, e.g., Durkheim (1965).
- ⁵ See, for example, Swidler (1986) and Ruttan (1988).

- ⁶ For a discussion of the roots of these types of preferences, which economists take as given, see Geertz (1973).
- ⁷ See, e.g., Kalt and Zupan (1984) (1994).
- ⁸ See, e.g., the pathbreaking work of the evolutionary psychologists, Barkow, Cosmides & Tooby, (1992), Frank, (1988), and the survey of Allman, (1994).
- ⁹ Formally, institutional legitimacy is the ability of the institutions to trigger supportive social sentiments. Presumably, in a path-dependent setting, legitimacy increases with a track record of effectiveness (Lipset, 1963). Such a track record supports *positive* norms of the feasible. As North's focus noted above on shared "ideologies" (with their normative overtones) suggests, legitimacy also requires concordance with *normative* norms concerning the right, proper and moral. In both cases, norms of political culture may evolve through "pre-adaption;" i.e., norms regarding sources of proper political power may originate in religious affairs, and be melded by "natural selection" into political institutions when pre-existing institutions are subjected to environmental stress (Cornell & Kalt, 1997).
- ¹⁰ A dissection of Sioux governance structure prior to subjugation by the U.S. Army in the late nineteenth century reveals the decentralization described here (Cornell & Kalt, 1995).
- ¹¹ See e.g., Olson (1965).
- ¹² Uhlener has called the preferences at issue here "relational goods," and demonstrated their role in counteracting free rider incentives see Uhlener (1989).
- ¹³ For an economist's exploration, see, for example, Hirshleifer (1978).
- ¹⁴ For similar skepticism regarding invisible hand explanations of social norms, see Elster (1989 and Sahlins (1976).
- ¹⁵ This notion of "filling up" preferences is consistent with the view of preferences put forth by Becker and Stigler (1977). Everyone has the same "raw" preferences, but each individual has different exposures, experiences, and learning that results in different expressed preferences. Living in a culture is, of course, to have exposures, experiences, and learning.
- ¹⁶ See, esp. Boyd & Richerson (1985) and Durham (1991).
- ¹⁷ See Uhlener (1989).

¹⁸ From the tribal ordinance establishing the Rosebud ethics board, quoted by Bordeaux (1988).

¹⁹ The Crow constitution, like many tribal constitutions, provides the Secretary of the Interior (or the Secretary's agent -- the BIA) with the right of disapproval over Council actions.

²⁰ See, for example, Snipp (1989) and Stanley and Thomas (1978).

²¹ See Cornell, & Kalt (1994).

²² A notable exception may be San Carlos Apache, which appears to have gone through a form and degree of subjugation over the end of the last century and the beginning of this century that had the effect of extinguishing the institutional, familial, religious, and social bases of political authority. See Gil-Swedberg & Cornell (1990).

²³ The Apache and Sioux forms of indigenous government are examined in detail in Cornell & Kalt (1995).

²⁴ The long-time chair of the White Mountain Apache, who directed the Tribe's rapid growth over the late 1960s through the first half of the 1980s, failed in his bid for a fifth term of office in 1986. His defeat came amid charges of nepotism (Cornell & Kalt, 1994). A similar fate befell Geronimo: Despite considerable success in his rebellion, his power and following waned when it was perceived that his personal agenda was superseding his service to his band's interests (Clastres, 1977).

²⁵ The analysis which follows is based on the methods set forth by Ragin (1987).

²⁶ If a tribe is F, it obviously is not g.

Table 1

INCOME CHANGES ON AMERICAN INDIAN RESERVATIONS: 1977-89
 (Change in percent of American Indian adults earning above BIA minimum)

RANK	RESERVATION	STATE	CHANGE IN INCOME	ADULTS w/	1989 BLS UNEMPLOY.	1989 TOTAL UNEMPLOY.
				1989 INCOME > \$7000		
1	SAGINAW CHIPPEWA	MI	30%	45%	35%	39%
2	DEVIL'S LAKE	ND	21%	39%	27%	48%
3	SOUTHERN UTE	CO	20%	38%	31%	31%
4	UTE MOUNTAIN UTE	NM	19%	28%	37%	58%
5	GILA RIVER	AZ	17%	31%	27%	31%
6	ONEIDA	WI	16%	37%	22%	26%
7	FLATHEAD	MT	16%	39%	20%	41%
8	RED CLIFF	WI	15%	21%	50%	50%
9	FOND DU LAC	MN	14%	21%	47%	50%
10	WHITE MOUNTAIN APACHE	AZ	12%	33%	11%	21%
11	LAC COURTE OREILLES	WI	10%	17%	52%	73%
12	COCHITI PUEBLO	NM	10%	43%	10%	22%
13	MAKAH	WA	10%	23%	37%	48%
14	MISSISSIPPI CHOCTAW	MS	9%	36%	26%	27%
15	MESCALERO APACHE	NM	9%	18%	52%	58%
16	COLVILLE	WA	8%	31%	52%	55%
17	WHITE EARTH	MN	7%	12%	73%	73%
18	HOOPA VALLEY	CA	7%	17%	56%	62%
19	TOHONO O'ODHAM	AZ	7%	23%	13%	30%
20	MUCKLESHOOT	WA	6%	16%	50%	57%
21	SALT RIVER	AZ	5%	28%	28%	49%
22	TULALIP	WA	5%	28%	53%	55%
23	UNITAH & OURAY	UT	5%	26%	22%	51%
24	OMAHA NEBRASKA	IA	5%	17%	55%	66%
25	BLACKFEET	MT	4%	26%	45%	56%
26	FORT BELKNAP	MT	4%	30%	60%	60%
27	QUINULT	WA	1%	22%	48%	48%
28	COLORADO RIVER	AZ	1%	30%	42%	49%
29	HOPI	AZ	1%	12%	28%	42%
30	DUCK VALLEY	ID	1%	13%	49%	49%
31	SISSETON	SD	0%	15%	50%	75%
32	JICARILLA APACHE	NM	-0%	30%	17%	18%
33	PINE RIDGE SIOUX	SD	-1%	21%	61%	73%
34	NAVAJO	AZ	-1%	26%	49%	50%
35	QUECHAN	AZ	-1%	22%	44%	47%
36	FORT HALL	ID	-2%	21%	58%	64%
37	UMATILLA	OR	-3%	18%	31%	34%
38	CHEYENNE RIVER SIOUX	SD	-4%	28%	61%	61%
39	LAGUNA PUEBLO	NM	-4%	14%	70%	75%
40	LEECH LAKE	MN	-4%	9%	70%	70%
41	WARM SPRINGS	OR	-5%	34%	40%	54%
42	PUYALLAP	WA	-5%	2%	63%	66%
43	RED LAKE CHIPPEWA	MN	-5%	18%	36%	51%
44	EASTERN CHEROKEE	NC	-6%	21%	40%	45%

45	LOWER BRULE SIOUX	SD	-6%	29%	29%	51%
46	SAN CARLOS APACHE	AZ	-7%	16%	51%	62%
47	YANKTON	SD	-8%	5%	77%	81%
48	LAC DU FLAMBEAU	WI	-8%	24%	49%	56%
49	ROSEBUD SIOUX	SD	-10%	4%	90%	93%
50	TURTLE MOUNTAIN	ND	-10%	24%	49%	59%
51	ISLETA PUEBLO	NM	-10%	21%	22%	35%
52	SPOKANE	WA	-10%	24%	30%	70%
53	FORT BERTHOLD	ND	-10%	12%	55%	79%
54	LUMMI	WA	-11%	19%	46%	58%
55	HUALAPAI	AZ	-11%	11%	45%	74%
56	FORT PECK	MT	-12%	21%	61%	63%
57	CROW	MT	-12%	11%	67%	78%
58	NEZ PERCE	ID	-12%	17%	73%	76%
59	YAKIMA	WA	-12%	20%	61%	63%
60	BADRIVER	WI	-13%	7%	81%	81%
61	COEUR d'ALENE	ID	-15%	11%	71%	71%
62	NORTHERN CHEYENNE	MT	-15%	29%	48%	55%
63	ROCKY BOYS	MT	-16%	10%	72%	72%
64	MENOMINEE	WI	-25%	26%	33%	45%
65	STANDING ROCK SIOUX	ND	-25%	9%	87%	87%
66	PYRAMID LAKE	NV	-29%	14%	27%	48%
67	ZUNI	NM	-29%	10%	13%	39%
	SAMPLE AVERAGE		-2%	23%	46%	55%

SOURCE: U.S. Department of the Interior, Bureau of Indian Affairs,
 "Indian Service Population and Labor Force Estimates," January 1989.

Table 2

DETERMINANTS OF EMPLOYMENT LEVELS ON
AMERICAN INDIAN RESERVATIONS, 1989
(% workforce employed)

Explanatory Variable	Model I	Model II	Model III
CONSTANT	-0.223 (-1.50)	-0.077 (-0.54)	-0.154 (-1.08)
STRONG EXECUTIVE	0.049 (2.80)	0.037 (2.10)	0.04 (2.32)
STRONG LEGISLATURE	0.123 (2.09)	0.108 (1.88)	0.114 (2.04)
INDEPEND. JUDICIARY	0.056 (1.15)	0.05 (1.06)	0.053 (1.15)
INSULAR LABORFORCE	0.099 (0.69)	0.093 (0.67)	0.109 (0.80)
ADJACENT COUNTY GROWTH	0.388 (3.33)	0.344 (3.01)	0.344 (3.03)
%HIGH SCHOOL GRADUATES	-0.094 (-0.50)	-0.121 (-0.66)	--
SPLIT PROPERTY JURISDICTION	--	-0.141 (-2.30)	-0.139 (-2.27)
R-Squared N = 67	0.29	0.35	0.34

Table 3

DETERMINANTS OF INCOME GROWTH ON
 AMERICAN INDIAN RESERVATIONS, 1977-89
 (Change in % adults w/ income over BIA minimum)

Explanatory Variable	Model I	Model II	Model III
CONSTANT	0.081 (0.90)	-0.068 (-0.59)	-0.128 (-1.13)
STRONG EXECUTIVE	0.017 (1.59)	0.019 (1.39)	0.02 (1.55)
STRONG LEGISLATURE	0.072 (2.02)	0.098 (2.09)	0.103 (2.36)
INDEPEND. JUDICIARY	0.006 (0.21)	-0.001 (-0.02)	--
INSULAR LABORFORCE	0.001 (0.01)	-0.173 (-1.56)	-0.165 (-1.53)
ADJACENT COUNTY GROWTH	0.197 (2.77)	0.189 (2.06)	0.192 (2.14)
%HIGH SCHOOL GRADUATES	-0.08 (-0.69)	-0.083 (-0.50)	--
ADULTS w/ 1977 INCOME > \$5000	-0.772 (-6.48)	--	--
1979 RES. v COUNTY POVERTY	--	0.323 (1.84)	0.365 (2.41)
R-Squared N = 67	0.51	0.20	0.20

Table 4

BOOLEAN ANALYSIS OF ECONOMIC DEVELOPMENT
ON AMERICAN INDIAN RESERVATIONS

RESERVATION	CAUSAL FACTORS									DEVELOPING
	A	B	C	D	E	F	G	H	I	?
COCHITI PUEBLO	0	1	1	1	1	0	0	1	0	Y
CROW	1	0	1	1	0	0	1	1	0	N
FLATHEAD	1	1	1	1	0	1	0	1	1	Y
HUALAPAI	0	0	1	1	1	0	0	0	0	N
MESCALERO APACHE	1	0	1	1	1	0	0	1	0	Y
MUCKLESHOOT	0	1	0	1	0	1	0	1	0	?
NORTHERN CHEYENNE	1	0	1	0	1	0	0	0	0	N
PINE RIDGE SIOUX	0	0	1	0	1	0	0	0	0	N
ROSEBUD SIOUX	0	0	1	0	1	0	0	0	1	N
SAN CARLOS APACHE	1	0	0	1	1	0	0	1	0	N
WHITE MTN APACHE	1	1	0	1	1	0	0	1	0	Y
YAKIMA	1	1	1	1	0	0	1	1	1	N

SPECIFICATION OF CAUSAL FACTORS

- FACTOR A: The reservation's natural resource endowment.
 FACTOR B: Employment and investment opportunities in the adjacent non-Indian economy.
 FACTOR C: Human capital accumulation, as reflected in educational attainment.
 FACTOR D: Absence of governmental and cultural barriers to inter-"national" trade in capital, labor, technology and goods.
 FACTOR E: Constitutional form provides for strong chief executive.
 FACTOR F: Constitutional form provides for strong representative legislature/weak chief executive.
 FACTOR G: Constitutional form provides for strong general council legislature/weak chief executive.
 FACTOR H: Indigenous political organization matches constitutional form.
 FACTOR I: Independent judicial function being performed.

BOOLEAN STATEMENT OF PRIME IMPLICANTS:
NECESSARY AND SUFFICIENT CAUSES OF DEVELOPMENT
(Upper Case = Present; Lower Case = Absent)

$$Y = HDg * [Ei * (AB + BC + AC) + FI * (ABC)]$$

