

ECONOMY OF ASSIMILATION:
LAND POLICY IN ABORIGINAL COMMUNITIES

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by

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Beginning the 1880's, the United States government entered a period of active assimilation for Native peoples. Key to this programme was the practise of privatizing reserve lands, known as allotment. The complex structure of property rights that evolved out of the allotment era fractionated land title and locked Native peoples into forced co-ownership, making it impossible for land owners to coordinate economic activities and use land resources efficiently. While assimilationist policy makers sacrificed their short-term goals of allotting lands in private ownership, fractionation served their long-term objectives to force a change in informal economic institutions. By using allotment to limit enforcement mechanisms and exacerbate collective action problems, assimilationists destroyed Native community groups and eroded pro-social norms of cooperation to promote norms of individualism and independent action that corresponded to their vision of American mainstream values.

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Preface

Originally, I decided to undertake this project because I wanted to *study economics*. That intention—it seemed relatively simple at first—took on an array of meanings as I began to develop my ideas, explore the available literature, and grapple with the organizational challenges of applied research. Throughout this process, I was forced to dissect my own understanding of what it means to study economics, and I have roughly settled into a division of two parts that corresponds to the main objectives in my essay that follows.

The first of these parts is substantive: I attempt to develop a theoretical framework that explores one particular aspect of the economic history of Native peoples in the United States, and to apply that theory in restructuring the story of how assimilation policies determined the path of economic development in Native communities¹. The project from this perspective has been to use some of the tools the economic discipline—mathematical logic in game theory, rational actor theory, and collective action theory—to reinterpret the historical record and present historical events in a new and creative way. In this sense, I tried to *study within economics* by using the resources traditionally available to researchers in the field. My success in this endeavour can be adjudicated on the cogency of my arguments, the clarity of my formulation, and the consistency of my predictions with historical experience.

The conceptual difficulties I encountered in meeting this first objective motivated the second dimension of this project, which evolved into a *study of the economic discipline itself*. As I continued to explore Native peoples' experiences with the privatization of reservation

¹I use the terms *Native peoples*, *Aboriginals*, and *First Nations* interchangeably throughout the text.

lands, I began to question the particular role of traditional approaches in economics and their broader implication for understanding social phenomena. It was not long before these questions began to bog me down: How does the process and method of modelling in economics shape the way that we think about social, economic and political life? What are the limits that the assumptions in these models place on our understanding? Where does “economics proper” connect to other fields of study in the social sciences, when can this collaboration be useful, and when does it pose insurmountable obstacles derived from separate epistemologies? To confront these question head on, I have devoted much energy and considerable space in the essay itself to, if not resolving the issues altogether, at least presenting my own assumptions and understanding in a more precise way.

In stepping backwards, I worry that I may have crossed the boundaries of what is normally considered acceptable for an “economics project”. If this is true, then all I can really claim as an excuse is to have been faithful by following my academic nose to pursue the questions that interest me, and to capture a deeper understanding of how researchers, theorists and thinkers contribute to society in a meaningful way. What I have learned is that where economics holds the most promise for exploring some of the very meaningful and interesting questions in social life, it also presents significant obstacles to a more comprehensive understanding of interconnected social phenomena. By placing more emphasis on the role of communities and other modes of social organization, I think we can escape the dichotomies that have limited new insight. Overall, I would argue that the best way to press forward with an integrative approach to economic inquiry is to engage in active discourse about the core assumptions and methodological tools of economic theory, and for economists to take up this initiative themselves. Rather than diminishing the value of perspectives from economics, this challenge suggests that what economists have offered to research in the social sciences in the past may, in the future, prove to be only the tip of the iceberg.

Chapter 1

Assimilating America

The “One People, One Nation” slogan of the assimilationist ideologue has been an elementary force in American economic history. Successive national governments, carried by generations of faithful Americans, have shared the vision of a unified society defined by a core set of cultural values, habits and beliefs (Barkan, 1995). A list of these values include a strong commitment to independent action and individual rights, preservation of the nuclear family, and unrestricted access to private property—though this list is by no means exhaustive. Minority groups on the periphery, whether long-established or newly immigrated, are expected to conform to core cultural norms as a prerequisite to becoming legitimate citizens, irrespective of claims that these ideals may clash with their own values and particular beliefs. For those who will not enter willingly into the assimilationist programme, reformers have mobilized a range of political, legal and informal social sanctions to impress the benefits of capitulating, and to impose heavy costs on those who continue to defy the tacit exchange of minority cultural cohesion for American-centred norms and material success.

The political development and social implications of the assimilation programme are widely studied, but the logic of assimilation has been little understood from an economic view¹. By *economic view* I mean a perspective that links *modes of formal and informal regula-*

¹See Gordon (1964) for a political history of assimilation in America. Rumbaut and Weeks (1997) provide one example of the possible socio-economic effects of assimilating minority groups. They study how the “Americanization” of new immigrants impacts on infant health.

tion to social, political, and economic outcomes through the behavioural characteristics of individuals that operate both inside and outside a community or group. This definition is more inclusive than what economists might normally consider within the spectrum of their field. Studies that concentrate on outcomes—such as the impact of assimilation policies on per capita income in minority groups—are more common, and address what I call *economic ends*. Some individuals and some groups as a whole have benefitted from assimilation, generating improved employment and income profiles and increasing overall standard of living; others have fared less well, and assimilation has imposed high economic—as well as social—costs².

By way of contrast, the economic effects of a particular policy can be intermediate steps pursuant to a broader political, social and/or economic agenda. Legislators may, consciously or unconsciously, exploit individual responses to political action as *endogenous effects* on the system itself to alter the composition of formal or informal institutions. They do so by changing the conditions of the social and economic environment where individual interaction takes place, in anticipation that certain behavioural characteristics will ultimately generate an equilibrium outcome that matches political goals. To understand the feedback and feedforward effects at work—what I call *economic means*—we need to place objectives and outcomes in context. With respect to economic history, this requires a richly textured account of past happenings that gives substance to the underlying *logic* of policies and moves beyond limited surveys that document how political action is manifested in societies³. Instead, we need to look to the underlying social, economic and cultural processes that are being evolved.

Reformers in America have used many flavours of carrot and many sizes of stick to

²Assimilationists in the past, along with contemporary supporters of the policy, have pursued the assimilation programme because of a central belief that American core values are coincident with economic success: see Bateman (1996) for an application to Aboriginal policy in Canada and the United States.

³This approach to economic history, which focuses on modes of institutional change and applies the theoretical tools of game theory and neoclassical economics, has been pioneered by Avner Greif and is commonly referred to as *Historical Institutional Analysis* (HIA). For a representative work that deals explicitly with cultural beliefs, see Greif (1994)

pressure minority groups into a homogenous whole. The logic of how these incentives and disincentives have been applied throughout history is not always clear. The present essay goes some way to structuring the investigation and provides at least one concrete example. In particular, I argue that federal policies intended to assimilate Aboriginal community groups into the American mainstream exploited the logic of collective action problems inherent to Aboriginal cultural practises and imposed externally by the policies themselves. I suggest that the economic means and the economic ends that motivated assimilationist policies from 1880 onward may be confused in the present understanding, and that the ultimate goal of reformers to evolve social norms of cooperation into norms of individual action was, paradoxically, facilitated by creating new problems of collective action that exploited incentives to defect. Whether or not the mechanism by which these policies affected cultural assimilation were intended or understood by the individuals who designed them will remain an open question. My purpose here is limited to describing how the assimilationist programme may, on the whole, have been more deliberate and more rational than scholars have previously lead us to believe.

1.1 Foundations of the Assimilationist Programme

By the late nineteenth century, the physical, external boundaries of America were largely fixed, and the government shifted its focus to internal boundaries defining group membership according to race, ethnicity and national background (King, 2005). Politicians in Washington, by far the majority of whom represented and were members of the dominant group of white anglo-Americans, began to formulate a more definitive ideology of assimilation, embodied in the slogan of "One People, One Nation". This ideal was modelled on the mainstream of white settlers, homesteaders and urbanites, who provided a "standard for Americanization" (King, 2005, p.22). Successive nationalist governments pursued policies, enacted bills in Congress and formulated laws that mandated and coerced minority

groups to change their habits, customs and cultural traditions to bring them “in line” with mainstream society. Native peoples, various immigrant groups, and eventually, Blacks, were all targeted as divergent groups to be absorbed into the homogenous nation-state⁴.

The ideology of assimilation was motivated by a radical individualism sweeping the American nation, and the Western world more broadly. Whereas capitalist development had always been premised on the isolated choices of individuals, it was not until this period in American history that the individual began to hold a place in competition to communities. At this point, strong communities, in which membership was limited, came to be viewed with some suspicion against core liberal American values of a individualism. That is not to say that communities were regarded as *bad* per se, but that their position of importance in the hierarchical social structure began to fall far below that of the nuclear family and the individual person. In consequence, individualists and, eventually assimilationists, would support communities and community development only so long as membership was not exclusive, and any shared characteristics did not take precedence over the rights of the individual and the dominant values of the nation⁵.

Assimilation of minorities into the American mainstream was commonly envisioned as an evolving process that first required the acculturation of groups to make them more *culturally pliable* and thus more susceptible to dominant cultural values. This approach has been highlighted particularly in education policy, where children were targeted in their early years and inundated with assimilationist content in hopes of aligning traditions and values with the mainstream, while they were still undergoing a process of personal and cultural development (Armitage, 1994). For example, in the United States, as in Canada, boarding schools were created for Aboriginal children. Children were taken away from

⁴For a discussion of how the Black population of the rural South was targeted for assimilation—or, some would argue, extermination—subject to similar legal rules as those of Native peoples, see Mitchell (2001).

⁵This social individualism was endorsed by and developed its correlate in economic thinking. The growing dominance of a micro-approach and the widespread success of the Walrasian model in the early part of the twentieth century was premised on these similar ideals of self-interested individuals. These ideas shaped the course of economics over the last century and continue to dominate thinking in the field (Bowles and Gintis, 2000). While no connection between this movement in economic philosophy and wider social trends has been made explicit, I think this observation poses an interesting research question in itself.

their families—forcibly in some cases—in order to separate them from their traditional cultural ties and acclimatize them to American habits and values. Language was a central concern, and Aboriginal children were taught to speak, read and write English to more easily assimilate them into the mainstream. These policies were generally representative of the assimilationist approach and were by no means limited to First Nations peoples:

School was of general importance to nation-building. It was meant to socialize all groups into a one-people sense of shared nationhood. Country schools taught patriotism to farmers' children. In cities, new immigrants were socialized by public elementary schools, attendance at which continued until age fourteen. At least in theory, education transformed Americans from members of ethnic groups into individuals holding a common national identity. (King, 2005, p.27)

However, education policies themselves were only means to an end. Aboriginal children were placed in boarding schools because educational institutions were meant to replace indigenous cultural attitudes, customs and knowledge with American substitutes. They were not, by contrast, taken from their families with the intention of keeping them permanently separated, which would have been politically unfeasible and not particularly conducive to the dissemination of the new norms these children were supposed to learn. All this amounts to saying that educational reform was a *process* of assimilation intended to shape the individual, rather than a way to impose direct physical and cultural fragmentation. This observation seems fairly obvious in the case of education, but is easily overlooked in the study of other government assimilation strategies. Requiring that immigrants wear certain kinds of dress, for example, has little to do with the desire to create a singular uniform for American society. Rather, it is the process of breaking down and discarding cultural ties outside of the American mainstream that is the primary goal.

One strategy of particular relevance to the case of assimilating Aboriginal peoples is the transformation of ownership rights in land. Private property is central to the American ideal of a society of individuals, and enshrines the concept of individual freedoms (Ackerman, 1977). The ideological force of private property—in opposition to forms of

communal rights or cases where property rights are undefined—therefore carries a separate (albeit related) importance to assimilationists, apart from the material benefits it may offer as an institutional portal into the market economy. Or, as one author notes, the reciprocal side of this argument is that “Land has an important role to play in economic advancement, particularly as a key source of capital. But it is also a source of identity and centre of cultural pride, which imposes a major influence on the decision-making process” (Kingi, 2004, p.2).

From their earliest interaction with European settlers, land has played a pivotal role in Aboriginals’ relations with their so-called conquerors, and no less so as Native peoples moved through various stages of federal policy that ran the gamut from genocide and extermination to unfettered assimilation. As the federal government ushered in the heyday of the assimilation programme in the late nineteenth and early twentieth centuries, Aboriginal land and systems of property ownership would continue to play a prominent role as a focus for assimilationist rhetoric, but also and importantly as a tool to effect cultural change.

1.2 Prime Targets

Aboriginal communities were prime targets for assimilationists. Well-defined geographically by their confinement to reservation lands, often close-knit and historically resistant to white settlers’ attempts to “Americanize” them, Aboriginal peoples were anathema to the assimilationists’ vision of a single unified nation.

At the beginning of the 1880’s, Indian reservations in the United States occupied just over 138 million acres of land (McDonnell, 1991). Within the vast diversity of First Nations communities, tribal governments held significant powers over governance issues in law, property, social services, education and health. But as assimilationist advocates pressed forward with their agenda, tribal sovereignty was rapidly eroded and property rights in

land became a central fixture in the drive toward assimilation. A group of eastern intellectuals who called themselves “Friends of the Indian” were the most vehement advocates of assimilationist policies for Native Americans. They promoted the privatization of reservation lands as both a leap toward assimilation into the individualistic ideals of American society, and also as a method of rapid Christianization (Prucha, 1973). The general thrust of assimilationist policies were to break apart tribal and community solidarity based on traditions of cooperation, so that individual Aborigines could be free to pursue the atomistic American dream. Extended kinship systems were viewed as a major challenge to acculturation because they undermined individualism and social order (Stremlau, 2005). Merrill E. Gates, a prominent member of the “Friends of the Indian”, expressed this sentiment in his writings:

The rigid tyranny of tribal custom,...the intense emphasis with which tribal life demands of the individual absolute conformity to its customs and standards, and insists upon uniformity of action and feeling on the part of all...these features of savage life are familiar...[I]f civilization, education and Christianity are to do their work, they must get at the individual...The deadening sway of tribal custom must be interfered with. The sad uniformity of savage tribal life must be broken up! Individuality must be cultivated...we must get at them one by one...[W]e must break up the tribal mass, destroy the binding force of savage tribal custom, and bring families and individuals into the freer, fuller life where they shall be directly governed by our laws, and shall be in touch with all that is good in our life as a people...[T]his law is a mighty pulverizing engine for breaking up the tribal mass. (Prucha, 1973, p.244)

Communal land ownership, the assimilationists argued, would drive close-knit Indian families and communities deeper into poverty as they continued to forego the benefits from participation in the market economy. They stressed the importance of private enterprise and self-interest in promoting the proper “work ethic” that Aboriginal peoples needed to become productive members of American society. Communal ownership, the argument went, provided no basis to harvest the material gains from one’s own effort and provided no means to pass accumulated wealth onto one’s heirs.

However, conceptions of property and property rights regimes in First Nations com-

munities, from activists then and many activists/historians now, are fuzzy at best. The vague claim that Indians held all property communally or, equivalently in some minds, had no conception of private property at all, does not stand up to closer scrutiny. The multitude of different Indian tribes and communities did not share a single property regime. Rather, countless different conceptions of property existed between communities. These ranged from customary rights based on specific intra-tribal relationships and traditions to more formal tribal laws that concisely delimited rights to property in land⁶.

Scholars critical of assimilationist policies have gone to great lengths to show that First Nations communities often held some form of private property rights⁷. This vein of research has become popular as a way of demonstrate the ignorance and/or ill-intent of assimilationist policy makers. Agricultural tribes, from New England to the southwest, frequently held rights of private use to cultivated areas and farming residences. These agriculturalists provided the model from which assimilationists could draw their policies, and a vision of the Indian as a small hold subsistence farmer began to shape much of the later policies. By contrast, in tribes where hunting was of more primary importance, various forms of open-access rights were often upheld.

Needless to say, advocates of assimilationist policies made sweeping generalizations about Indian communities under the assumption that all First Nations subscribed to single, well-defined set of cultural values and traditional practises and that these were in direct opposition American ideals of private property and individual freedoms. The true degree to which land was held in some form of common ownership *across* Aboriginal communities is not an issue I intend to address here. It will be sufficient to note that with

⁶Some careful attention by scholars, especially in economics and in law, has drawn critical attention to the great diversity of property rights regimes in Native communities and many authors have explored the connection between these property systems and economic development. For example see Ellickson (1993) who discusses the connection between property systems and development more broadly, and Ruffing (1976) who concentrates on the Navajo nation specifically. Carlson (1981), Anderson and Lueck (1992), McChesney (1992), and Keay and Metcalf (2004) study the role of government policy in determining economic success under different property systems. Bailey (1992) and Cooter and Fikentscher (1998) discuss questions of optimality and efficiency in Native customary law.

⁷See Bobroff (2001) for a detailed survey.

deeply paternalistic and, no doubt for some, honest intentions of promoting a narrow view of economic development, reformers were committed to combating communal ideals and to replacing these perceived traditions with individual commitments to private property.

1.3 The Dawes Act

As frontier settlement in the United States continued to expand in nineteenth century, especially in the Eastern states, the large tracts of land occupied by Aboriginal peoples began to pose some serious difficulties for the national government. Federal policy before 1850 solved this “Indian problem” by relocating Native tribes west of the Mississippi River and onto tracts of reservation land that were less desirable to white settlers (Carlson, 1981). While fraught with problems, the reservation system did offer limited protection to Native communities from wholesale land loss. Some communities, such as the “Five Civilized Tribes” in Oklahoma who had long practised permanent agriculture, were relatively successful under the reservation system (Blend, 1983). Others were not so fortunate, and dispossession locked many communities into a cycle of deep poverty where subsistence relied on government transfers and social support systems. During this period through to the beginning of the 1880’s, the military power of many tribal groups also declined, opening the way for legislative measures to play a more effective role in the assimilation of Native groups (Carlson, 1981).

But as land settlement by whites pressed westward, the reservation system encountered increasing challenges as a solution to the “Indian problem”. Aboriginal populations were by now commonly viewed as segregated, impoverished communities (which they were) and the dependency of these separate societies became a growing concern (McDonnell, 1991). Political measures veered toward an active agenda to dismantle Aboriginal communities so that they could more easily assimilate into white society. By 1877, political endorsements began to appear for a national *allotment policy* (Carlson, 1981). With cultural



Figure 1.1: Reservation Lands Before the Allotment Era. Source: McDonnell (1991)

assimilation as its primary goal, a policy of allotment was intended to privatize reservation lands by dividing land under tribal control into individual tracts and distributing these to individual band members. On a practical level, legislators envisioned allotment as facilitating a shift of labour and capital utilization in Native communities toward permanent agricultural livelihoods for subsistence farming, and perhaps surplus production. At the ideological level, an allotment policy that targeted the Native land base was intended to offer incentives to individuals to abandon cultural traditions and adopt mainstream norms of individualism and private ownership. As McDonnell (1991) has noted, "The idea was not only to discourage native habits but to encourage Indians to accept the social and economic standards of white society." Speaking about the general view of politicians through the allotment period, McDonnell (1991) describes Indian Affairs commissioner Charles Burke:

Like his predecessors, Burke wanted to promote Indian self-support and assimilation by allotting tribal land. He believed that Indians who had their own tracts of land would cast off their old communal traits and customs, become independent, and embrace white civilization, a process necessary for their survival. Although certain native traits and customs should be honored and perpetuated, Burke argued, 'it is not desirable or consistent with the general welfare to promote his tribal characteristics and organization.' Only after tribal relations were dissolved could the Indians be assimilated. (9)

Support for the allotment concept culminated in the *General Allotment Act*, passed in Congress February 8, 1887. Popularly known as the *Dawes Act* after Senator Dawes, its principle sponsor, the bill gave the U.S. president executive power to force the allotment of a reservation, irrespective of individual wishes or tribal support⁸. Under the Dawes Act, reservation lands were surveyed by federal officials and divided into standard-size plots. Individual band members were allowed to select their preferred plots within a four-year period of the official land survey, after which time they were assigned a particular parcel. Standard plot sizes ranged from 160 for a family, 80 acres for an individual over 18

⁸General Allotment (Dawes) Act, ch. 119, §1, 24 Stat. 388 (1887).

years, and 40 acres for individuals under 18. Where lands were only suitable for grazing, allotment sizes were doubled.

After allotments were made to all members of a given tribe, any “surplus lands” that had previously been part of the reservation were made available for purchase to non-Indians. Between 1887 and 1900, the federal government allotted 32,800 parcels totalling 3,285,000 acres, and tribes sold or ceded 28,500,000 acres of surplus land (McDonnell, 1991). By 1934, when allotment ended, 90 million acres of Native peoples lands were lost, representing two-thirds of their original land base before 1887 (Bobroff, 2001).

1.3.1 Legal Fractionation

The relatively simple schematic proposed for land allotment belies the legal and bureaucratic complexities that became synonymous with the process of allotment itself. Allottees were not granted complete fee rights to their lands, as one might expect given the emphasis on economic entitlement and self-sufficiency. Instead, land parcels were granted to individual owners as *trust patents*, meaning that the federal government in fact retained ownership of the lands for a period of 25 years following the allotment. During the trust period, individuals were afforded rights of use, but were restricted from selling their land or encumbering it in any way. Justification for this pattern of allotment was supplied by legislators concerned about wholesale transfers of Aboriginal lands to non-Aboriginals, resulting in an immediate and irreversible loss of ‘traditional lands’ (Semour, 1926). In part, this restriction was likely motivated by a genuine concern about exploitation by non-Aboriginals. But it was undeniably rooted in a long history of paternalism by a United States government that viewed Native peoples as unable to govern their own affairs or provide for their own needs. As evidence, the legislation automatically granted Aboriginals of mixed ancestry (i.e. part Caucasian) a fee simple patent to their allotted land, deeming them mentally and culturally capable of the right of private property (Shoemaker, 2003).

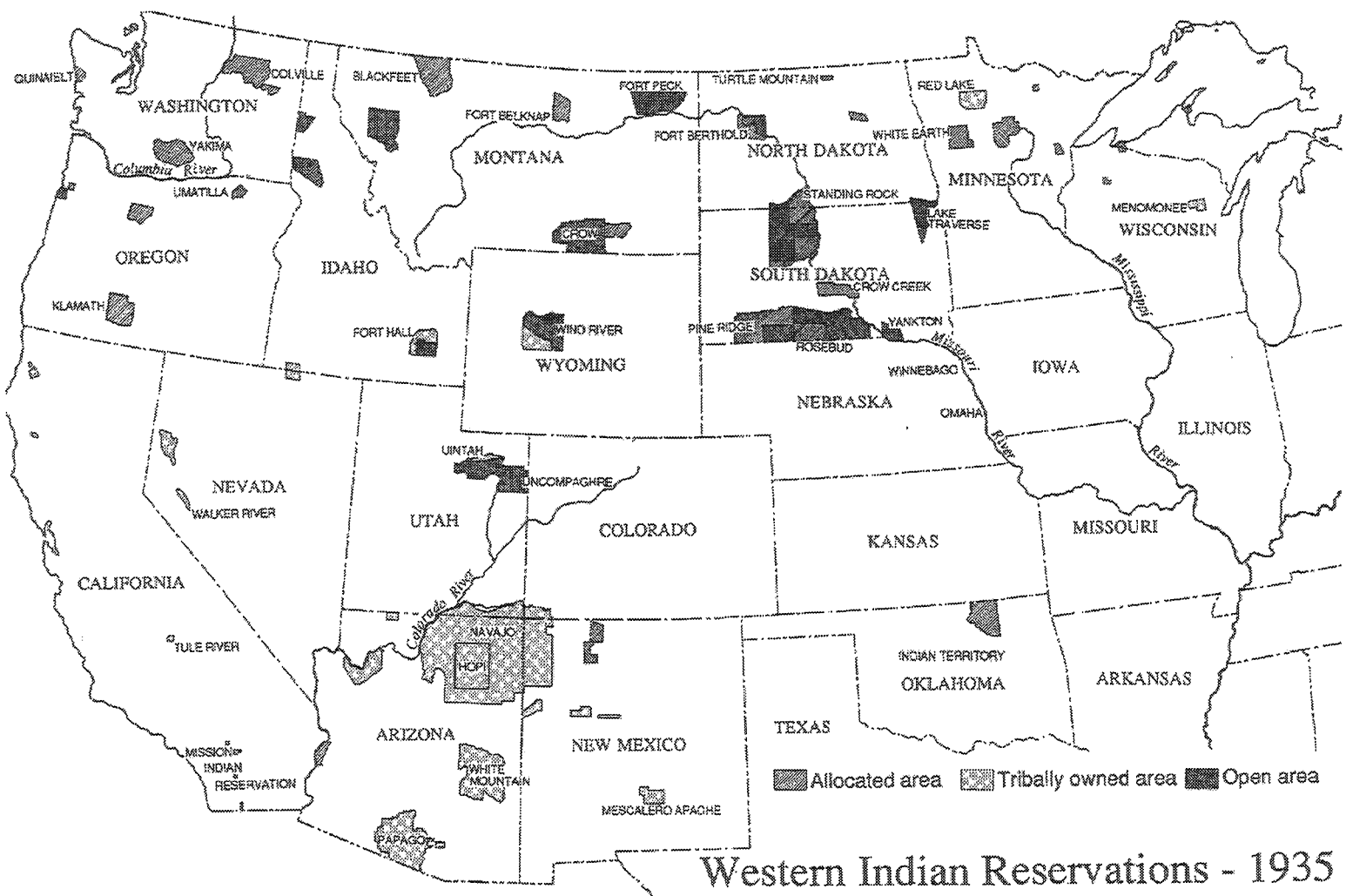


Figure 1.2: Reservation Lands After the Allotment Era. Source: McDonnell (1991)

A second restriction on allotted lands created the legal conditions for what came to be known as the *fractionation problem*. Allottees were prohibited from making legal wills, meaning that they died without the ability to determine the distribution of their property to their heirs (legally, called death *intestate*). Upon the death of an allottee, new ownership rights in the land were determined laws of intestate succession. While the particulars of succession laws varied from state to state, these statutes commonly prescribed that property in land be passed to an individual's surviving heirs in something called *undivided interests*⁹. Individuals holding interests in heirship property were then bound in a concurrent ownership relationship called *tenancy in common* (referred to here also as *cotenancy*). This particular common law concept differs from other forms of concurrent ownership in that it carries no right of survivorship, meaning that upon the death of a cotenant her interest passes to her heirs down the line of descent, further dividing that interest among potential heirs. For example, if individual A dies leaving three surviving children, B, C, and D, each take a $\frac{1}{3}$ interest in the property. If D subsequently dies leaving three surviving children, E and F, each of these take a $\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$ interest. In this way, interests in the land become fractionated through successive generations.

Since intestacy and succession laws applied to non-allotted land as well, it might not be immediately obvious why this situation created a problem for Native landowners. The critical differences, at least during the initial trust period, were restrictions placed on sale of the allotted land, including any interests acquired by inheritance. Problems with this arrangement were noted early on:

[U]pon the death of the original grantees the right to the land gets so divided and subdivided that no one has sufficient preponderance of property in the land to make it to his interest to improve it. After a few subsequent deaths of the heirs the title becomes so interminable mixed that it is next to impossible to clear it up. Not being alienable there can be nothing done. (Bobroff (2001, 1616) quoting the *Annual Report of the Secretary of the Interior*, p.193)

⁹An undivided interest in land refers to a *legal*, as opposed to *physical*, division of the property, with rights to enjoy the *entire* physical piece of land so long as it does not infringe on the rights of other cotenants to the same (Moynihan and Kurtz, 2005).

These two restrictions—on making wills and selling the land or interests—effectively eliminated any alternative to fractionation for Native peoples and forced ownership into a patchwork of overlapping rights and liabilities. While these rights could, legally, be re-assembled at the end of the 25 year trust period by sale, the fractionation problem quickly escalated and created potential coordination problems that locked these properties in their divided state. The scale of fractionation quickly became unmanageable, and by the early part of the twentieth century land rights to individually allotted parcels had become so highly divided that merely determining the true chain of title was a difficult task.

A federal task force was commissioned in 1960 to assess the ongoing fractionation problem, which continued to escalate even after allotment as an official policy ended in 1934. The resulting two-volume *Indian Heirship Land Study* documented in detail the scale of fractionation on Native lands, and provided a striking portrait of the problem's adverse effects on community development (Aspinall, 1961). Study participants frequently reported enormous costs involved in administering new estates with hundreds or even thousands of co-owners. Because fractional interests in allotted land had by this time often reached miniscule proportions, the revenue generated from rents or other surpluses, if any, were very small and infrequently offset the costs involved in maintaining ownership. Though the trust period on most allotted tracts had expired by the time of the study, technically allowing for property sales, the re-consolidation of undivided interests through sale of the full property proved impossible in many cases. Since the sale of a property in undivided interests requires the consent of a majority of, or in some cases all, of the co-owners, alienation presented a vast coordination problem between co-owners, within individual legal costs normally exceeding any potential gains (Johnson, 1980).

1.3.2 Allotment's "End"

A number of legislation changes and additions followed the Dawes Act in the late nineteenth and early twentieth century. Notably, the Burke Act of 1906 allowed that the orig-

inal twenty-five trust patent on allotted lands could be extended if individual allottees were declared “incompetent” to manage their own affairs and become full citizens of the United States. Those who were declared competent were granted citizenship and released from trust status, granting them fee status in their land with the ability to sell to any able buyer, which many did immediately (Carlson, 1981).

During the years of the depression-era New Deal under President Franklin Roosevelt, the federal Bureau of Indian Affairs underwent a complete overhaul of Indian policy in the United States. Passed in 1934, the Indian Reorganization Act officially ended the allotment of Indian lands. Unallotted tribes were protected from any future allotment and granted some limited discretion to manage tribal lands. Initial provisions were made to return unsold “surplus lands” to communities and funding was earmarked for tribes to purchase lands for community use and to make loans for community development. However, no plans were made to undo the damage of past allotments through land loss, nor to correct the growing fractionation problem that by 1934 plagued a majority portion of Aboriginal lands across the United States.

1.4 The Allotment Paradox

For a government policy that was overtly assimilationist in its goals, the ensuing fractionation debacle is immediately puzzling. If the objective of policy makers was to instill Native peoples with the value of private property, to disassemble communities, and to foster the benefits of participation in the market economy, why did they allow—indeed, force—allottees into the complicated legal entanglement of fractionated property? The results of allotment, which by and large forced Aboriginal communities deeper into poverty and further away from integration with the American mainstream, appear very much out of line with reformers’ economic goals for Aboriginal peoples. Many historians, sociologists, anthropologists and a few economists have attempted to resolve this puzzle using a

divergent range of criteria. Some have suggested that allotment policy was successful in what they perceive to be the true goal of legislators and special interest groups, namely the dispossession of Aboriginal peoples and the taking of their original land base (Shoemaker, 2003). Others have implied additional motivations for allotment. McChesney (1992) suggests that implementation and subsequent retraction of allotment policy was designed to bolster the budget of the Bureau of Indian Affairs, and in this was also very successful.

Ultimately, we cannot accurately discern whether or not allotment turned out as reformers had hoped. What is obvious from the historical record is that a primary goal of the assimilationist programme was to force an acculturation of Aboriginal communities away from norms of communal ownership and towards ideal of private property. But keep in mind that:

to the reformers responsible for allotment legislation, land was of interest only because tribes owned it communally. Communal land empowered tribalism and social systems based on kinship. Together, these institutions impeded the kinds of changes in Native cultures that reformers believed were necessary to enable Indian people to enter into American society...while reformers did not anticipate their policies to materially impoverish Indian people, they did conspire to rob them of the values and behaviors associated with the kinship systems that so thoroughly permeated their cultures. (Stremlau, 2005, 266)

We can ask to what extent the allotment policy and subsequent fractionation problems facilitated these goals. Was allotment a successful means to destroy Native communities, acculturate Native individuals, and absorb these individuals into the wider American society?

A partial answer is that, using an economic theory of institutions, we can understand the policy of allotment as logical attempt by reformers to change cultural norms by exploiting the problems inherent in activities involving collective action. The remainder of this essay is an attempt to develop a theory that gives substance to this *logic of assimilation* and to apply that structure to the ongoing experience of Native peoples on allotted lands. I would like to caution readers at this point that I do not intend to make an empirical test

of whether allotment policy was successful in meeting the objectives of the assimilationist programme. Such attempt would be futile without an appropriate metric for institutional change, and that is beyond the scope of this paper. In lieu of hard evidence—much valued by economists in the positivist tradition who hold prediction as their *raison d'être*—I hope the reader will regard this study as more broadly exploratory. At the end, all I can really claim is to have distilled a massive body of sometimes disparate insights from the field of economics to structure a more detailed understanding of this historical problem, and to provide a slightly clearer picture of the connected economic, institutional and social linkages involved.

Chapter 2

From Individual... to Collective Action

I claim that the fractionation problem on allotted lands was an intermediate outcome—an economic or institutional means—to create the conditions for collective action failures in Native communities. In groups where pro-social norms and traditions of cooperation were assumed to create a high incidence of collectivist behaviour, a change in the structure of the group that promotes free-riding behaviour and unilateral defection from collective activities created endogenous feedbacks on the future evolution of those social norms. To put it simply: Native allotment owners were *set up to fail* in private land ownership so that they would gradually abandon cooperative behaviour and embrace a more individualistic tradition.

To structure this argument with an economic logic, I begin by addressing some core concepts as prerequisites for employing economists' tools in this study¹. Assumptions about rationality are usually required to construct a model based on individual behaviour, and are responsible for making most of what works best in economic theory, work. But these assumptions over rationality lead to some difficulties surrounding cases of collective

¹Some of these ideas, such as "rationality" and "collective action" will seem like well-worn and rehashed concepts for those who have delved very much into economic theory and political philosophy. For others, perhaps, the discussion will be somewhat clarifying, since the underlying assumptions of economic models are not always particularly clear, even for those who study such things. In addition, this chapter is meant to convey some of the inspiration and some of the scepticisms that has flavoured my own experiences with the *culture economic*.

action that economics does not do well to explain. Studying the concepts of *rationality* and *collective action* in relation to each other will provide the building blocks to answer questions like: What are social norms?; Why are they important in regulating cooperative behaviour?; How did allotment policy and its economic means create the conditions for collective action to fail?

In general, we need a framework to interpret the logic of assimilation. Sociologists working in the tradition of Emile Durkheim would likely reference *socialization processes*, wherein exposure to new cultural environments condition individual behaviour and result in a kind of convergence of attitudes and actions. We might call this an “outside-in” approach that assumes individual preferences are determined by factors in the external social environment. According to this logic, assimilation can be readily understood as a study in inter-group dynamics. One group may create conditions making it possible to absorb the other, or two groups may converge in complex ways to evolve a new aggregate social construct. Contrasted with this view is the “inside-out” approach of orthodox economics that begins with a core assumption about rational individual actors making choices according to ordered preference relations in isolation from their peers. In this world, individuals maximize their choices subject to a calculus over exogenously-determined prices. These rational choices then coalesce in the marketplace to generate an outward social order.

2.1 Rationality

Some would no doubt argue that economics is primarily a study in the individual. By reducing the study of economic phenomena to the level of one, orthodox theory explains the market mechanism as the aggregation of attempts to maximize own utility. Within this model, *homo economicus* is epitomized as the selfish optimizer whose tastes and preferences, while very personal and entirely subjective, make sense in being neither wildly erratic nor internally inconsistent with one another. The most impressive results of neo-

classicism over the past century, such as general equilibrium theory, rely fundamentally on the axioms of agent rationality. Alternative theories that violate the principle of rational choices—even those that once enjoyed widespread success, such as Keynes *General Theory* (Keynes, 1936)—are now considered highly suspect in the mainstream (Sugden, 1991).

Fundamental to the idea of *homo economicus* is that individuals have free choice, constrained only by environmental and technological factors, to determine their course of action through a faultless calculus of costs and benefits. Presented with a schedule of market prices, the rational individual chooses to maximize her behaviour according to some subjective measure of utility. When all agents undergo this optimization independent of one another, and given some assumptions about the fluidity of exchange and the availability of information, a miraculous sort of order occurs. The idea of rationality has been extended over time to incorporate uncertainty and the restricted ability of individuals to obtain complete information, such as the now widely used theory of bounded rationality. However, the central premises of the rational actor schematic remain intact, and are increasingly pervasive in both micro and macro models today.

But for a field with elegant theories of coordinated individual actions based on self-interest, economics is exceedingly pessimistic about the ability of rational individuals to cooperate toward collective well-being (Sugden, 2005). Viewed through the lens of rationality, there exists a strong tension in economic thought between the rights and interests of the individual and the welfare and cohesion of the group. For this reason, while economizing individuals compose the heart of the theory, the substance of economic analysis is very often devoted to studying what happens when individuals get together. On the one side is an ideal market, where anonymous individuals exchange goods to satisfy their material demands. All this is guided in an unconscious process by Smith's *Invisible Hand*, and individuals are not required to account for the beliefs or preferences of their co-consumers in the marketplace. By contrast, social life is characterized by frequent, often non-anonymous, interactions between individuals within the bounds of structured social

environment. In this world, individuals form expectations about how their fellow citizens will act, and integrate these expectations into their private calculus to form decisions for action. Underlying these countless interactions are complex structures of ownership, information, and mutual-knowledge, of which *real life* markets are but a single manifestation.

While *laissez faire* markets of the ideal type are perfectly efficient in aligning individual demands so that none of the proverbial pie is wasted, economists note many instances in which “markets fail”. These failures—when no one gets some portion of the pie, or sometimes where no pie is baked at all—are particularly prominent when selfish individuals try to coordinate their productive activities toward some mutually-beneficial end. From a birds-eye view of society, rational self-interest frequently fails to provide a stable foundation for individuals to cooperate in activities where each is not wholly responsible for the costs, nor directly a recipient of the benefits, of her actions. But, even if these outcomes are considered failures with respect to the ideal market, they are nonetheless a foundational property of social life. The ability of selfish individuals to coordinate and cooperate accounts for many of the most pervasive aspects of what we consider society and community.

2.2 Collective Action

I suggest that there are actually two parts to what economists refer to as the problem collective action. One is the rational failure of individuals within a group to prevent universal defection, called “free riding behaviour”, in the absence of some kind of coercive mechanism to enforce the rules of cooperation. The second aspect is the question, given the presence of more than one institutional means to coordinate individual actions toward the public interest, of which one the group will eventually choose². The remainder of this

²Elster (1989) proposes a similar division of cooperation problems into what he calls respectively *collective action* and *bargaining*.

chapter explores the first aspect in the context of individual rationality, while a discussion of institutions is left to the next chapter where I delve into the concept of social norms.

2.2.1 Rational Failures of Collective Action

The dissonance between the one and the many was prominently introduced by Olson (1965) in his work *The Logic of Collective Action*. Olson's central premise was that rational choice on the part of individuals leads to under-provision of a public good, because no single agent will have the incentive to participate. We now call this the "free rider" problem. Olson's insight was motivated by a contemporary debate between Paul Samuelson and Richard Musgrave, who were engaged in a search to define a single criteria by which all goods could be divided into either of two categories: private or public. Samuelson argued for the "jointness of consumption" idea, that classified public goods as being those which consumption by individual agents did not detract from the consumption of others. Musgrave, in turn, advocated for the inability to exclude non-contributors as the determining factor. Olson implicitly sided with Musgrave, defining problems of cooperation generally as occurring in situations where members of a group cannot be excluded from consuming that good (Ostrom, 2003).

Rational choice theorists later recast the free rider problem as a *collective action dilemma*, which manifests as the divergence between the interests of the individual and the interests of the group as a whole (Acheson and Knight, 2000). The collective action dilemma is characterized by the existence of *externalities* when individuals are permitted to offload a portion of the costs of their actions onto others within the group, and do not consider the reciprocal costs imposed upon themselves by others. Likewise, externalities can be positive, as in the case where agents do not consider how their own contributions to a collective activity can bring reciprocal benefits for themselves and for other members of the group.

Several main types of collective action problems have now been identified that expand

on Olson's original typology. One is the under-provision of public goods that motivated Olson's original work. Another class is referred to as *common pool resources*. Common pool resource problems, famously named the "Tragedy of the Commons" by Garrett Hardin (Hardin, 1968), are characterized by the subtractability of the collective good *and* by an inability to exclude members of a group of users (Ostrom, 2000). A popular example is cattle grazing on a common pasture. Intensive grazing use by one individual will deplete the available grassland and reduce the productivity of grazing use by others. Without enforcement mechanisms to ensure that users do not over-graze, the commons tragedy outcome results in resource depletion and, eventually, destruction altogether. Recently, a great deal of empirical scholarship has been focused on documenting the many instances where common pool resources have proven sustainable without top-down regulation from an external authority. Political and economic theorists are now beginning to construct a coherent theoretical framework that accounts for the ability of these communities to manage their own shared resources, with varying degrees of success (Agrawal, 2001).

Elinor Ostrom, a prominent scholar of common pool resources, has proposed that "[i]n contemporary analysis, the problem of achieving exclusion of non-contributors has come instead to characterize all types of collective action problems" (Ostrom, 2003, 239). While Ostrom's logic is generally correct within the bounds of what have traditionally been defined as problems of collective action, a recent body of work has extended those bounds and requires that we modify Ostrom's claim. A class of collective action dilemmas referred to as the "Tragedy of the Anticommons" has been elaborated as a separate but symmetrical problem to the commons tragedy³. In this scenario, users of a resource with multiple exclusion rights over other users can lead to under investment or, in the extreme case, non-utilization of the resource. One illustration of the anticommons problem comes from Soviet-era transition economies, where multiple levels of government have rights to refuse

³For representative works on the tragedy of the anticommons see: Heller (1998) who first introduced the idea of the anticommons; Buchanan and Yoon (2000) who develop a model of the anti-commons as a symmetric case to the traditional commons; Parisi et al. (2004) and Muzner (2005) who develop the anticommons model for broader application in the field of law and economics.

business licences. Heller (1998) shows that these overlapping rights to exclude often result in the underutilization of business capital.

The reader might immediately note similarities between the typical anticommons problem and legal fractionation of allotment property, where multiple owners may have conflicting claims to use of the property and the ability to exclude co-owners ⁴. Within the cotenancy relationships formed by inheritance on allotted lands, individual allottees were legally entitled to prevent co-owners from using the property to farm, build a house or engage in other productive activity. Had allottees been able to coordinate their activities, legal fractionation would not have posed much of an economic problem. Possible reasons why coordination failures occurred are discussed in Chapter 4.

2.2.2 Commons & Anticommons

Since the anticommons idea gives us the opportunity to understand allotment problems in the context of a prisoner's dilemma-type game in latter chapters, a brief foray into a simple commons and anticommons model will be useful. Recently, Buchanan and Yoon (2000) have presented a symmetric model of the anticommons and the simple formulation below follows their work. Consider a setting with two group members who share access rights to a common resource. Let x_i be the level of resource use by agent i . We assume that the activity of agent 1, x_1 , impacts negatively on the productivity of agent 2's activity, x_2 , and vice versa. In other words, the two co-owners share the resource in overlapping uses, but the use of one generates a negative externality on the use of the other.

$V_i(x_i, x_j)$ is the value of resource use for agent i , contingent on the use of both co-owners. Since the value of the common resource for agent i , V_i , decreases with j 's use, we have the externality condition that:

⁴I would like to recognize that use of the anticommons model to explore cotenancy relationships was proposed to me by Dr. Brady Deaton at the University of Guelph, who is currently using the concept in his own research.

$$\frac{\partial V_i(x_i, x_j)}{\partial x_j} < 0 \quad (2.1)$$

For the situation of simultaneous decisions to use, we assume perfect symmetry in the individual agents' decisions: $V_i(x_i, x_j) = V_j(x_j, x_i)$. For uncoordinated choices, each agent will choose a contribution of land that maximizes their value function. The resulting Nash equilibrium is characterized by the first order conditions⁵:

$$\frac{\partial V_1(x_1, x_2)}{\partial x_1} = 0 \quad (2.2)$$

$$\frac{\partial V_2(x_2, x_1)}{\partial x_2} = 0 \quad (2.3)$$

Assuming that V_i is concave in x_i , an equilibrium exists and is expected to take the symmetric form:

$$x_1 = x^c = x_2 \quad (2.4)$$

Comparatively, the social optimum is characterize by:

$$\frac{\partial V_1(x_1, x_2)}{\partial x_1} + \frac{\partial V_2(x_2, x_1)}{\partial x_1} = 0 \quad (2.5)$$

$$\frac{\partial V_2(x_2, x_1)}{\partial x_2} + \frac{\partial V_1(x_1, x_2)}{\partial x_2} = 0 \quad (2.6)$$

Again, assuming the concavity of $V_1 + V_2$, this solution yields a symmetric equilibrium:

$$x_1 = x^s = x_2 \quad (2.7)$$

Now, returning to the negative externality condition from Equation (2.1) it can be shown straightforwardly that $x^c > x^s$, that is, that individual levels of use will exceed socially optimal levels, leading to overuse and inefficient resource dissipation (Buchanan

⁵See Chapter 3 for a discussion of the Nash equilibrium concept.

and Yoon, 2000).

Following Parisi et al. (2004), the anticommons model generates a symmetric result. While the commons tragedy is premised on unrestricted group access rights, the anticommons tragedy refers to the case in which multiple co-owners each have the right to exclude other co-owners, either in total or in part, from using the common resource. This essentially amounts to a “veto” power for each co-owner. In this case, the contribution of each agent i , x_i , imposes a *positive* externality on the other agent by contributing to greater productivity of the project as a whole. The externality condition in Equation (2.1) now becomes:

$$\frac{\partial V_i(x_i, x_j)}{\partial x_j} > 0 \quad (2.8)$$

and by the same logic as before we have the result that $x^s > x^c$. In this symmetric anticommons case, the individually optimal levels of use (their contributions) are below the socially optimal level, resulting in resource underuse or underinvestment.

The commons and anticommons models represent the essential logic behind rational failures of collective action. Where individuals have the opportunity to exploit the contributions of other members in a group, they are assumed to do so, such that the action maximizes their personal gain. Without either government coercion or some other form or social order that penalizes economic actors from free-riding behaviour, collective action problems appear doomed to remain just that—problems without a mutually-beneficial solution. However, it is obvious from empirical experience that groups do frequently solve problems of collective action. These solutions may entail an exogenous enforcement mechanism, for example codified in formal laws, to supply incentives and disincentives that favour cooperation. Alternatively, groups may generate endogenous solutions to sanction anti-social behaviour. Both of these types are discussed in Chapter 3.

2.3 A Note on Rationality and Positivism

Insofar as economics can be considered a positive science, the substance of rational choice theory really has very little influence on the efficacy of the model itself. So long as its predictive powers remain concordant with empirical experience, the model is considered successful in *explaining economic behaviour* (Friedman, 1966b). From this perspective, it makes little difference whether or not individuals actually maximize, only that they behave as if they do.

However, when we use a theory or model grounded in economic logic to explain the underlying processes of a broader socio-economic phenomenon, that model contains a normative component that brings into relief the shortcomings of the rational choice approach. In this case, the assumptions of the predictive model matter for the content of its predictions, because the goal is to explain the mechanisms or processes of decision-making and interaction that generate an economic outcome. Following this argument, one of the challenges to rational choice theory explored by Amartya Sen is that these models require an interpretation of the maximand of individual choice in a very particular way, such that choices are invariably *filtered* through the of concept self-interest:

The non-inclusion of various “reasons of choice” has also exercised a particularly limiting influence in the explanatory reach of RCT. Choices based on social or moral or politically integrative reasons have to be reinterpreted, in this approach, within the format of intelligent pursuit of self-interest (with complex instrumental linkages as and when needed for this accommodation). This has given the explanatory role of RCT an almost forensic quality, focusing on the detection of hidden instrumentality, rather than any acknowledgement of direct ethics. (Sen, 2002, 28)

What we sometimes represent as rational behaviour *may* be much more clearly integrated as a non-rational component in an explanatory model. Similiar to Sen’s criticisms, rational choice theory also struggles to characterize social linkages that carry non-choice based determinants of individual behaviour and may be transmitted to other members of a population as knowledge other than what can be rationally deduced. This is especially

true when trying to quantify an endogenous aspect of individual preferences that evolve in response to the economic outcomes in the marketplace or in group interactions. Rational choice theory provides no basis for a *cumulative effect* of individual choices rooted in some sort of historical or situational tradition. While these restrictions do not present much of a problem when attempting a direct study of market behaviour, they are especially problematic when trying to explain the process of change in the economic institutions themselves which govern individual behaviour. This shortcoming of rational choice theory is particularly restrictive in the study of economic foundations for cultural assimilation since, by its very nature, assimilation involves the process of change in individual preferences and attitudes, even though these are often manifested at the level of the group.

The model of socio-cultural norms developed in latter chapters provides an opportunity to address this issue, although admittedly it does more to circumvent these issues than to deal with them directly. When we adopt an evolutionary view of the strategic interaction of individuals in situations like the prisoner's dilemma, it will be possible to maintain the rational choice framework with its attendant predictive powers and elegant expression in mathematical terms, while loosening some of the more restrictive assumptions that do not permit the larger social processes that we are ultimately attempting to understand.

Chapter 3

Norms as Institutional Equilibria

We have collected three relevant premises from the preceding chapters: one, that assimilationist policy was designed to change the habits and behaviours of cooperation in Native communities and to bring those in line with mainstream society; two, that cooperation is generally difficult to achieve, given the rational self-interest of individuals; and three, that some sort of social order, whether through government sanctions or some other means, is needed to enforce cooperation and avoid collective action failures.

My goal in this chapter is to give some substance to those “other means” of social order, which I refer to interchangeably as social or cultural norms. The concept of norms as the equilibrium outcomes of repeated individual interactions within a social environment has begun to catch hold of a few thinkers in economics over the past two decades. Early models are based on the concept that individual behaviour contains some component that is endogenous to economic systems. That is to say that economic outcomes—traditionally regarded as being *determined* by individual preferences and the actions that result from those preferences—have a reciprocal influence on individual behaviour. To begin, we can think of cultural norms as the shared informal rules that influence individual behaviour in a cohesive social group. Norms are similar to formal rules and laws in some ways, and in other ways they are very different. Like laws, norms act to define the parameters of interaction when a group of individuals get together. A norm may, for example, dictate the acceptable choices that an individual can choose from, and if an individual does not

comply, that norm may prescribe certain punishments by imposing costs. But, very differently from formal laws, cultural norms arise spontaneously from the unconscious actions of a population of individuals and, once established, are self-enforcing.

While the economic analysis of formal law has by now a longish and well-established tradition, a parallel analysis of law's sibling, social norms, is quite new. The role that norms play in structuring the interactions of individuals on the micro-scale, and in the functioning of community groups and the wider society on a meso-scale, is still being explored using a number of prototypical approaches. But, with surprising voracity, the economic analysis of norms is being recognized as a critical component in the broad approach to social theory in the social sciences¹. The next step, from an isolated study of norms, is to integrate the influence of formal laws *and* informal norms on economic behaviour, and to establish in a precise way the reciprocal influences that run between these components of social life. The model expounded here goes some way toward furthering those goals.

The primary reason to study cultural norms, following the introduction you received to allotment history in the first chapter, is to characterize these norms as distinct *economic institutions* with the same clarity now devoted to legal systems and business organizations. Once this is established, I argue that the process of assimilation of Native peoples through the allotment era—and indeed, the policy of assimilation more broadly—was and is at its foundations an attempt to change these normative institutions in a direction that brings them in line with those of the mainstream in American society. Using legislation to motivate institutional change is not a new idea for contemporary institutionalists, and in this tradition I will show that the underlying mechanism of institutional evolution can be distilled to an economic logic that relies centrally on a rational calculus of costs and benefits. Consciously or not, assimilationist legislators were able to harness that logic to shape the process of cultural change.

¹For prominent examples, see Ellickson (1998) and DeSoto (2000).

First we take a cue from some recent criticism in the work on norms to deal with primary ambiguities². What is a norm? The term is a sometimes lively fish that has flopped from one commentator to the next without acquiring a greatly clarified description. Different people use the term “norm” in different ways to mean different things. I distinguish between two umbrella-type concepts of norms that are most useful for understanding how this idea has developed in economic discourse.

3.1 What to Expect: Fundamental Concepts

There are four characteristics of informal normative rules that distinguish them from formal laws. I derive these informally in this chapter, and then more precisely in the model of assimilation in the next chapter. Keep them in mind as we survey contemporary approaches to studying norms in economics.

- *Shared or mutually-known*: cultural norms are shared among a group of individuals, so that a normative rule devised and followed by only a single persona cannot be considered a norm at all. From a practical standpoint, we usually identify a cultural norm with a community of many people but theoretically, at least, a norm can be established and shared between any group of two or more.
- *Repeated behaviour*: if a norm is said to be established in a group, this implies that scenarios governed by the normative rule occur more than once, and probably they occur frequently. This aspect of a cultural norm will turn out to be particularly important later on, when we explore how norms evolve in response to repeated interactions between group members.
- *Unconscious design*: informal norms are not codified in any centralized way and therefore cannot be said to be implemented through any process of conscious design.

²See McAdams and Rasmusen (2006) for an overview of these criticisms.

When we talk about norms, we will refer to them as a type of “spontaneous order” that arises in response to individual choices. The development and sustainability of norms may be shaped by individual action, technologies, and environmental factors, but none of these contribute towards cultural development in a consciously directed way.

- *Self enforcing*: most importantly, one might argue, cultural norms are self-enforcing and self-sustaining in the case where there are no sufficiently large external shocks to the system. They do not require a centralized decision-maker or coercive authority to ensure that a certain portion of the population follows their informal rule. This last is an economist’s way of saying that norms are said to be norms so long as they continue as norms while everything else is normal. The idea of norms as being self-enforcing is intimately tied to the concept of an “equilibrium” and we will get back to this before long.

3.2 Brief History of the New Institutionalism

The New Institutional Economics (NIE) provides a broad framework to connect some of the pieces necessary for a theory of norms and norm change in economic life. The central premise of the NIE approach is that “institutions matter”. Pioneered by Douglas North in his book *Institutions, Institutional Change and Economic Performance*, the concept of institutions as the “rules of the game” brought a powerful metaphor to the study of economic phenomena (North, 1990). In their most basic incarnation, institutions define the limits on the choice sets of individuals. Examples of institutions include formal legal rules and property rights, informal rules such as social norms, conventions and moral codes, and organizational aspects of economic activity such as contracts.

The importance of institutions for economic performance derive their theoretical basis from the work of Coase (1960) on *The Problem of Social Cost*. Coase emphasized the role of

well-defined and articulated institutions in supporting economic development and provided for a re-conceptualization of the role of *externalities*. Externalities—the unintended consequences on individual action on others, for which the producing individual or firm was not required to pay the social cost—had been central in the thinking of previous theorists as requiring direct government action to correct. Coase argued that given a world where the cost of transactions, such as bargaining, was zero, agents would negotiate to an efficient solution in which resources are put to their most productive use. Much like the theory of perfectly competitive markets, Coase’s theory of social cost is more useful in its negative form, wherein transactions costs are realistically assumed positive. This idea draws attention to the inherent frictions underlying market transactions and highlights the role of economic institutions in minimizing those transactions costs. Whereas before Coase, economists had largely taken institutional arrangements as given, his work refocused the unit of analysis on how institutions in society allowed markets to function.

One of the fundamental motivators that later drove North and others to concentrate on institutions was the realization that, even among the contemporary developed capitalist societies, institutions varied widely. Noting this diversity, a subsequent question was how institutions changed over time and why, given the possibilities of several potentially successful institutional structures, some institutions were adopted and persisted in a given society, while others were not. More recently, work in the institutionalist paradigm has employed the tools of game theory and its underlying equilibrium concepts to formulate a more precise theory of institutions and institutional change. This approach to institutional analysis has followed a significant shift away from thinking of institutions as “efficient” structures consciously designed by rational individuals, toward a concept of institutional development that is much more organic (Nelson and Bhaven, 2001). Institutions are increasingly being studied as structures endogenous to a given group or society that represent an evolving product of, and influence on, strategic interactions. Many of the prominent theorists in the NIE tradition have shifted rather dramatically toward this

view³.

In this vein, Aoki (2001) presents the study of institutions as two distinct problems:

[T]he *synchronic problem*, whereby the goal is to understand *the complexity and diversity of overall institutional arrangements across economies as an instance of multiple equilibria of some kind*, and the *diachronic problem*, whereby the goal is to understand *the mechanism of institutional evolution/change in a framework consistent with an equilibrium view of institutions, but allowing for the possibility of the emergence of novelty*. (p.2)

This interpretation shifts the definition of institutions from the “rules of game” to the “way the game is played” (Aoki, 2001). While this might seem like a subtle difference, it draws attention to the idea that in a given context there may be many possible institutional arrangements that represent an equilibrium of some kind. The institutions that actually manifest in societies could therefore be the product of an evolutionary process that depends on initial conditions, as well as on exogenous factors.

However, this perspective on institutions is still relatively new and has not been widely adopted, especially in the study of cultural norms. To illustrate how this shift in thinking changes the predictions of models incorporating norms as institutions, I have found it useful to contrast two approaches that correspond closely with two lines of thinking in game theory. The first perspective is based on the traditional institutionalist view and is characterized by representing norms as the exogenously-given rules of the game. This approach to norms has been popular in the law and economics literature and shares some close similarities to the economic analysis of formal law. The second approach relies on tools developed in evolutionary game theory and characterizes norms as *convention equilibria*. Here, norms evolve as cultural traits that carry some degree of inertia based on the outcomes from past interaction. Over time, the strategies employed in repeat interactions settle down to some kind of stable distribution. Equilibrium norms are thus perceived as being a spontaneous order that evolves according to the success and failure of the possible strategies.

³See, for example, Eggerston (1990).

The most meaningful insight to fall out of this overview will be a comparative perspective on formal legal and informal non-legal sanctions that exist within each approach. The law and economics researchers generally regard law and social norms as sharing the same basic properties as institutions, which can be summarized as *rules of the game exogenously supplied to modify the payoffs of individual decisions in strategic interactions*. Contrasted with this definition, the evolutionary view of norms as a spontaneous order provides the opportunity to make a strong distinction between the structure of formal legal institutions consciously designed by law makers to achieved a specific purpose or purposes, and informal institutions of social norms which are the result of the unconscious decisions of individuals.

3.3 Two Approaches

Theorists⁴ that can be said to be at least loosely affiliated with the field of economics have roughly coalesced around two divergent perspectives on what constitutes a norm⁵. In the law and economics literature, social/cultural norms can most prominently be said to rely on containing normative attitudes, while in the evolutionary literature norms are conceived of as separable from any sort of value-contingent assessment.

3.3.1 Attitudes and Sanctioning Behaviour

The general program of the law and economics scholars has been to study how non-legal shared-rules might serve instead of, in addition to, or in spite of, formal legal rules to regulate economic activity. Norms are widely perceived to be distinct *classes* of rules from

⁴We can focus on theorists because there has as yet been little empirical work done on the role of norms in economic behaviour. An outstanding exception is Robert Ellickson's *Order Without Law* that has likely inspired a generation of legal researchers to pay more attention to theory and reality of the norm (Ellickson, 1991).

⁵This is not to ignore the vast literature on norms in the sociological and anthropological traditions. Work from these fields can in many ways be said to be more highly developed than approaches in law and economics, and recent work in the latter can be said to owe much to the perspectives of the former. However, these contributions are not surveyed extensively here.

formal laws, but are presumed to share many of the same core characteristics. Specifically, this literature has two outstanding facets. Norms are taken as exogenous social forces that can sometimes (and sometimes not) substitute for formal legislation to ensure optimal resource use in an economic environment. Much thought has been devoted to evaluating the efficiency aspects of informal versus formal sanctions, and occasionally to exploring how the two realms might interact to affect outcomes. Non-legal sanctions are thought of as changing the payoff structure of the game-like interaction directly. However, the mechanisms by which norms are generated and sustained are largely assumed away or left as a “black box”. Agents are also assumed to be myopic rational actors who take non-legal, as well as legal, sanctions into account as they work through their calculus of the costs and benefits of a given strategy in the present moment (both for themselves and for the other players).

In the law and economics literature, the concept of a norm generally requires both a behavioural regularity and normative attitudes. This second component highlights the importance of the *beliefs* of the actors, in addition to the actions they actually take. Norms must, under this definition, be non-legal rules that agents believe to be normatively appropriate. Norms can range from strong moral obligations, in which everyone believes that it is wrong for other people to behave a certain way, to weak feelings of approval or disapproval (McAdams and Rasmusen, 2006). This differs substantially from the concept of “convention” employed as social norms in an evolutionary modelling approach and representing an equilibrium. However, there may be some important overlap in these ideas. Conventions (equilibrium behaviour) may often be the source of norms in this sense. What starts out as a convention may be adopted into a normative framework and assigned value judgements after it is already established as a pattern of repeated behaviour. In the strict sense of a norm under this definition is a non-material motivation to adhere to the rule (or to punish those who do not). According to one author, the place to look for norms is therefore “in the utility function” (McAdams and Rasmusen, 2006, p.6).

A major research focus on norms in law and economics literature is to catalogue and explain the role and character of *normative incentives*, which quantify the costs and benefits associated with following or violating a given norm. These incentives can take the form of guilt or pride, esteem or disapproval, and shame, to offer a few examples. Individual agents are assumed to hold preferences over these incentives as they would any other good in neoclassical theory, and to make corresponding choices. An important component of these theories is the role of the third-party enforcer—individuals or sub-groups who act to sanction norm-violating behaviour and/or to reward those who follow social norms. However, this appeal to third parties presents a significant problem, because we must then ask about the incentives of enforcers to enforce the rules (“who polices the police?”), and so on *ad infinitum*.

A second primary objective in this tradition is to explore how social norms affect welfare. The central question here is when norms are “efficient”—i.e., when they should be left intact to support socially-desirable outcomes, and when they should be shaped or replaced by the formal law. Whereas legal economists have traditionally been very sceptical about the ability of community groups, using norms, to be self-regulating, some scholars are now mounting a convincing challenge to this view (Ellickson, 1998)⁶. Posner (1996a)’s model of the legal regulation of groups is a significant contribution to this study, and will be used to structure my thinking later in this chapter.

In general, however, I find the view of norms from law and economics to be very limited for studying cultural change. In particular, the exclusion of the conventional equilibria concept with its attendant explanatory power puts severe restrictions on the usefulness of this approach to explain how institutions evolve. While some authors provide an extensive typology of norms structures that underlay group arrangements, they provide no foundation for studying the dynamic properties of norm creation and development. Another reason to be wary of this view is its focus on the interplay of social norms within

⁶This debate has wide-reaching implications for the state versus private enterprise debate, which has been confined to a strict dichotomy of state power versus individual action.

highly developed societies with strong legal frameworks; it has very little to say about the more fundamental institutions in societies, such as property rights. In this sense, these models pre-supposes rather specific social contexts that limit the scope of analysis. To generate social norms built on feelings such as disapproval, groups must be sufficiently close-knit for those feelings to “matter”. These models also implicitly assume a certain level of cultural and inter-personal homogeneity, where attendant feelings such as shame are assumed to generate the same outcomes.

While the law and economics tradition’s treatment of norms is relatively new, it is based largely on restrictive assumptions from neoclassical theory proper, such as the strong rationality and perfect foresight of individual agents. To develop a way of thinking about assimilation policies and their effects, it was critical to be able to relax some of these assumptions. In sum, while these models have proved useful in the past for the economic analysis of formal law, there is less to recommend them methodologically for the study of norms.

3.3.2 Convention Equilibria

In contrast, we can characterize norms without explicit appeals to emotion or normative attitudes. The equilibrium concept of a cultural norm is based on the notion that norms evolve as a self-sustaining steady-state in repeated strategic interactions where individuals attempt to coordinate their actions to ensure an optimal payoff. A norm in this sense is often referred to as a *convention*, a concept first elaborated by the economist/philosopher Robert Sugden. This explanation of convention equilibria borrows heavily from his work *The Economics of Rights, Cooperation and Welfare* (Sugden, 2005). I will recast some of his ideas to focus on the role of community groups.

3.3.3 Coordination Problems

Suppose that a community is defined as a group of individuals wherein certain economic activities yield the highest payoff to everyone when all individuals coordinate their choices together. We can find many examples of this general type of scenario from the really big, such as public works projects like roads and stadiums, to the really small, such as every-day activities like driving on the right side of the road or helping a neighbour to mend a fence. For simplicity, suppose that each individual is faced with a single choice between two options: stop or go. If both players select go, or if both players select stop, they both receive a positive payoff. For clarity, we assume that “both go” yields the highest payoff, while “both stop” yields the lower one. If the two players face symmetric choices and make their choice simultaneously, we can represent this situation as the simple *coordination game* in Figure 3.1.

Table 3.1: A Simple Coordination Game

	Go	Stop
Go	2	0
Stop	0	1

Notice that the only way for players in this game to gain any benefit at all is act in the identical way as one’s partner. We can say that, if individuals are rational, self-interested optimizers, neither will choose to do the opposite of her partner, once she has formed some expectation about what her partner will do. If I expect my partner to play go, then it is my best interests to play go as well. If I expect that she will stop, I will play the same. Using the language of game theory, we can identify two equilibria in this game, called Nash equilibria, and defined as an outcome which, given the actions of all other players, no player has a rational incentive to deviate from unilaterally. In our example, the outcomes where both players choose *go* and where both players choose *stop* are Nash equilibria (Mailath, 1998).

However, it is impossible to deduce from the game as I have defined it whether or not the players will choose to stop or go. From a social welfare standpoint, mutual cooperation is efficient (it yields the highest overall payoff), but this fact alone does not guarantee any individual will act in a certain way. We can see this more easily if we generalize to a large population. If all individuals in a population are choosing to go, then no single individual has any incentive to play stop and if all individuals are stopped, then no one individual has any incentive to go (Sandholm, 1998). The argument tells us that individuals will choose between two of the four strategies—but which of those two will she choose? In other words, who decides whether or not everyone stops or everyone goes? In order to answer this question, we need to know something about the dynamic process of decision making, and about the initial conditions of the population.

Lets pretend that this game is played repeatedly in a fixed population of people. In any one round (a snapshot in time), there will be a fixed proportion of players playing *go*, with the remainder playing *stop*. Call the probability of playing *go* at this point in time p . If a player decides to play *go*, she has a chance, p , of receiving 2 utility units. Therefore, her expected utility from playing *go* is $2p$, and her expected utility from playing *stop* is $(1 - p)$. It is fairly plain to see that playing *go* will be more successful than playing *stop* only if $2p > (1 - p)$, which is the same as saying that $p > \frac{1}{3}$. It follows that for values of p greater than $\frac{1}{3}$, say $p = \frac{1}{2}$, playing *go* will generate an ever higher expected utility. We can therefore expect that the number of people playing *go* will continue to increase as people shift their strategy to take advantage of the higher payoff, until we reach the point where $p = 1$ and all players are playing the same *go* strategy.

We say that this coordination game has two *basins of attraction*, one for each of the equilibria outcomes (Aoki, 2001). For any game that begins with $p > \frac{1}{3}$ and continues to repeat, eventually the game will gravitate to the *go* equilibrium. Conversely, for a game than begins at $p < \frac{1}{3}$, all players will eventually play the *stop* strategy.

You may have noted that there is a third possibility for an equilibrium outcome in this

game at precisely the case where $p = \frac{1}{3}$. This scenario is called a *mixed strategy equilibrium* because exactly $\frac{1}{3}$ of the population play *go* and $\frac{2}{3}$ play *stop*. However, we should also notice that the players will only ever reach this equilibrium if the game starts at precisely this point, or if the players happen to land there because of some outside “shock” that is not part of the game. Further, any subsequent shock that upsets this delicate balance will cause the system to gravitate toward either of the first two equilibria, all *go* or all *stop*.

To be a little more precise about distinguishing these two types of equilibrium outcomes, we call the all *go* and all *stop* states *evolutionary stable strategies*, and refer to the mixed strategy equilibrium as *unstable*. The concept of evolutionary stability was, as the name suggests, first developed by a biologist, John Maynard Smith, to explain intra-species relationships and conflicts in the natural environment (see Smith (1974) and Smith (1982)). Some behaviours in the natural world, biologists have observed, are not the product of rational decision-making, they are intrinsic responses that are genetically determined. However, because these genetic traits are not random, but are the product of a long process of evolution, they can be modelled as “successful strategies” that are gradually adopted over time, within a game-theoretic framework.

When we use the same game theory ideas to model the evolution of conventions, the process of arriving at a stable equilibrium is a theoretical analogy only, but the mechanism of evolution is one that has proved to be widely useful to explore these types of social phenomena. Using the same logic as Maynard Smith, we can identify an evolutionary stable strategy as a probability vector for which the expected utility of playing that strategy is at least as good as the expected utility from playing any other strategy, when played against itself. And, if it is not uniquely the best strategy response to itself, and evolutionarily stable strategy generates a higher expected utility against any other strategy than that strategy does against itself (Bowles and Gintis, 1997).

Strategies that emerge as evolutionarily stable are all candidates for established conventions. Given more than one possible evolutionarily stable strategy, the population will

evolve toward one of them given the initial conditions of the system and its dynamic properties. The dynamic properties of the system will depend on the payoffs of the strategies—in general, agents will tend to select those strategies that are more successful and, in the coordination game example given above, will ultimately end up at one or the other of the pure strategies (*all go* or *all stop*).

Using this example and some of the introductory terminology, we can begin to characterize more precisely what is meant by a “cultural norm” as an economic institution using the equilibrium representation. A cultural norm is defined as an evolutionarily stable strategy that emerges from the repeated interaction of individuals in response to a set of payoffs. In the evolutionary model, we can imagine that each individual’s strategy is wholly determined by a trait “assigned” at the beginning of a round of play. Benefits of that round are then awarded according to the objective payoff structure of the game itself. Then, before the beginning of the next interaction, individuals re-evaluate their strategies with some probability, based on the benefits they accumulated in the previous round. In this way the more successful strategies gradually acquire more adherents and, in the long run, the number of people adopting this strategy converges to an equilibrium. The successful strategy becomes a cultural norm that is self-sustaining for a given structure of payoffs.

The evolutionary approach has two major benefits. It allows us to loosen the restrictions of strict rationality assumptions and to connect individual actions in the present period with cumulative experience from the past, without having to abandon the notion altogether that agents make rational decisions with limited memory and knowledge. In this model we assume that players respond to the game’s payoff structure in a rational way with some degree of uncertainty about the “best” strategy, while factoring in the inertial effect of that individual’s past actions and the actions of the other players. This set-up also puts much less stress on information requirements for individual players, since agents need to respond only to immediate payoffs, rather than having to comprehend the struc-

ture of the entire game.

Equipped with a general framework for understanding how norms emerge and then evolve within a social group, in the next chapter I adopt a precise model of *pro-social norms*, meaning institutional equilibria that support a level of cooperation between agents in games such as the prisoner's dilemma that normally lead to failures of collective action. This model allows us to abstract from the historical idea, held by assimilationists, that Native communities maintained high levels of cooperative behaviour. More importantly, this model allows us to uncover some of the structural characteristics of tight-knit communities that sustain the development of pro-social norms, and understand how allotment policies and legal fractionation targeted these social supports to erode pro-social norms while maintaining opportunities for failures of collective action.

Chapter 4

The Logic of Assimilation

The assimilationist programme was intended to transform norms of cooperation in Native communities into norms of individualism and independent action. Ideally these new informal economic institutions would force Native peoples to participate in the market economy and, eventually, become fully homogenized with the American mainstream. However, to effect this transformation, reformers needed to upset cultural equilibria in Native communities—that is, to force Native peoples to change the way they played the game. I argue that allotment of reservation land and the ensuing fractionation problems instigated collective action failures between co-owners. These failures, due to the structure of ownership and inheritance, exploited the way that cultural equilibria rely on economic outcomes to make antisocial norms more profitable.

I begin by clearing up a possible confusion from the dual use of the word *cooperation*—two uses that are connected but distinct. At the level of the group or community, I assume that cooperation is used to describe the action of becoming or remaining part of the group itself. That is, I assume that the reason for forming a community or defining oneself as being a community member is to take advantage of cooperative activities that bring a higher personal, as well as social, payoff compared to acting alone. To illustrate, suppose that any individual who can potentially gain membership to a group (eg., someone with Native American lineage) can decide between two options: either to join a community/tribe by sharing in the costs and benefits of coordinated activities, or to live

outside the community as a member of the larger population and undertake all activities individually (i.e., assimilate into modern America). Individuals who join the community then become involved in multiple instances of strategic interaction, governed at least in part by community norms, while individuals who abstain from group membership adopt whatever norms govern interaction in mainstream society.

Once those individuals who decide to join the community have declared their membership, we can imagine several instances in which they will attempt to coordinate their behaviour to take advantage of the higher payoffs from cooperation. However, as we saw in Chapter 2, in situations where the collective good is non-excludable, or where everyone has a right to exclude everyone else, private incentives to “free-ride” will lead to the unilateral defection of all group members. The defection outcome can be avoided if social norms of cooperation are sustained as a self-enforcing social order; if they cannot, then universal defection in a certain proportion of instances of collective action will lead individuals to change their mind about joining the group in the first place.

This represents the core of what I call the *logic of assimilation*. I postulate that *by creating the conditions for collective action failures on allotted lands, reformers promoted a change in the equilibrium distribution of cultural norms*. Assuming that prior to allotment Native communities sustained a higher level of cooperative outcomes in collective action scenarios than in the mainstream of American society, fractionation problems favoured the development of antisocial norms and were therefore conducive to achieving the ultimate goals of assimilationist policy makers. The remainder of this essay is devoted to formulating a theoretical model to help identify the underlying mechanism of how allotment policy effected cultural change.

4.1 Social Framework

The *logic of assimilation* suggested here recalls a recent model of group solidarity proposed by Eric Posner to study the regulation of groups (Posner, 1996b). Posner envisions group solidarity as a representative two-stage game. In the first game, individuals have the choice between joining the group or acting independently. Suppose we represent this decision as a coordination game similar to the one discussed in Chapter 3. Individuals receive positive payoffs by coordinating their choices, either in joining a group or in acting independently.

Table 4.1: Stage One: Group Membership

	Join	Independent
Join	8	0
Independent	0	6

Once a subset of the population has formed the group, the payoff structure faced by each member changes in the second stage. Here, group members will interact in specific group activity that is represented as a prisoner's dilemma game.

Table 4.2: Stage Two: Provision of a Group Good

	Contribute	Defect
Contribute	8	0
Defect	9	1

If a group member can secure the benefits of membership without having to pay the costs of that membership, he can free ride from the contributions of the other members. This is the classic "tragedy of the commons" outcome that, in the absence of social or political forces, results in universal defection. Here I assume, as Posner does, that the highest social outcome can be obtained if both agents join the group and then proceed to cooperate in the cooperative activity. However, if both agents join the group and then

proceed to defect, they will both be worse off than if they had both played independent in the first place. This seems like a plausible assumption when there are some positive costs to joining the group.

What is the connection between the two stages of this game? Suppose that strategies in the first stage of the game (*join the group* or *act independently*) are not selected by rational actors, but rather represent cultural traits that are pre-determined at the beginning of a round of play. Assuming that the game is repeated, we can see that the frequency of these strategies will depend on the relative payoffs of the *both join* and *both independent* moves. Further, the relative payoffs of these strategies will be determined by the ability of group members to cooperate in the collective action venture. In general, securing the cooperative outcome will tend to enlarge the basin of attraction to the *both join* strategy in the first round, whereas the defect outcome in the prisoner's dilemma game will tend to enlarge the basin of attraction to the *both independent* strategy as players reevaluate their strategies in subsequent rounds.

Using this framework, we can see how the general solidarity of a community—the ability to maintain a high frequency of pro-social norms of cooperation—will depend on the ability of members within the community to cooperate in activities where successful coordination is at odds with rational self-interest. In this way, we can say that the existence of the group itself hinges on the ability of the group to “solve” the free-rider problem¹. Or, to put the argument another way, groups who have attained some level of social cohesion can potentially have that cohesion eroded if free-rider incentives are allowed to “take over”.

The model in the next section takes us inside this framework to explore some of the ways that communities allow individuals to solve prisoner's dilemma-type situations. It

¹Critics may argue that this is a rather generous assumption, since I provide no specific evidence to support the idea that such is the case. However, I do not intend to posit that the sole reason for the existence of communities and social life is to solve collective action problems, only that community defined in the way it is here, as the existence of shared pro-social norms, is influenced significantly by the success of its members to avoid free-riding behaviour.

is here that we can identify some of the possible targets for assimilationist policies.

4.2 Linking Community and Pro-social Norms

This model of pro-social norms is taken from work by Samuel Bowles and Harold Gintis, where it is used to study how the market influences preferences endogenously². The model is a variation of those employed in evolutionary game theory and premised on the assumption that agents play strategies adopted as cultural traits and accumulate benefits according to the payoffs of the game and the moves of all players. The frequency of each trait in the next round of the game is determined by the success of that trait in the current round and, potentially, by some propensity to conform to the strategies of other players, called a *conformist bias*.

A *cultural equilibrium* is defined as an evolutionarily stable frequency of traits that is stationary in the population. This equilibrium concept follows the definition of a norm discussed in Chapter 3.

The basic model provides a framework that can be applied to many types of games. By studying some stylized games involving information and reputation effects, propensities for retaliation, and the need for segmentation, we can identify those characteristics endemic to communities—referred to as *structural characteristics*—that support pro-social norms as stable equilibria. I apply Bowles' and Gintis' model in the next chapter to demonstrate the logic of assimilation through the allotment era.

4.2.1 Set-up

Suppose that x and y are two mutually exclusive cultural traits. A trait might represent the propensity to cooperate in group interactions or, conversely, to adopt anti-social behaviour. In the abstract, we think of these traits as a strategy over the length of play. The

²The key articles are Bowles (1998) and Bowles and Gintis (1998).

x trait occurs in the population with frequency p . Each member “inherits” a trait at the beginning of the game and plays the assigned strategy against another member of the population with probability $\mu_{ij} = \mu_{ij}(p; \delta)$, where $i, j = [x, y]$. The δ variable is an exogenous measure of the randomness of individual pairings and $\delta = 0$ represents strictly random pairings that depend only on p , the population frequency.

Accordingly, agents in this set-up are conceived as *cultural models*, with subsequent players (ex., generations) adopting cultural traits with replication propensities r_x and r_y . These replications propensities depend on two factors: the payoffs of expressing a given cultural trait in current round of play, and the bias of individual players to adopt those traits which are most prevalent in the population, called a *conformist bias*.

The payoff to player i when meeting a j -type player is $\pi(i, j)$. Given the probability of i interacting with j , μ_{ij} , expected payoffs are:

$$b_x(p; \delta) = \mu_{xx}\pi(x, x) + \mu_{xy}\pi(x, y) \quad (4.1)$$

$$b_y(p; \delta) = \mu_{yy}\pi(y, y) + \mu_{yx}\pi(y, x) \quad (4.2)$$

The conformist bias is captured by the function $\sigma(p)$. Specifically, for each trait, the conformist bias is $\sigma_x(p - k)$ and $\sigma_y(k - p)$, where $k \in [0, 1]$ is the value of p at which no bias exists. Finally, $\alpha \in [0, 1]$ is a weight assigned to the propensity to conform, $\sigma(p)$, in the process of transmitting a cultural trait.

The authors then specify the replication propensities as follows:

$$r_x = \alpha\sigma(p - k) + (1 - \alpha)[b_x(p; \delta) - b_y(p; \delta)] + 1 \quad (4.3)$$

$$r_y = \alpha\sigma(k - p) + (1 - \alpha)[b_y(p; \delta) - b_x(p; \delta)] + 1 \quad (4.4)$$

The authors define a cultural equilibrium as $dp/dt = 0$, which implies $r_x = r_y$, or:

$$\alpha \frac{\sigma(p - k)}{1 - \alpha} = b_y(p; \delta) - b_x(p; \delta) \quad (4.5)$$

Special Case

I will use a special case to clarify some of the key implications from the Bowles & Gintis model. If we assume that players are paired to interact in a completely random fashion ($\delta = 0$) and that there is no conformation bias ($\sigma = 0$), so that expected payoffs to each strategy are functions of the population frequencies and the objective payoffs only, then:

$$b_x(p) = p\pi(x, x) + (1 - p)\pi(x, y) \quad (4.6)$$

$$b_y(p) = p\pi(y, y) + (1 - p)\pi(y, x) \quad (4.7)$$

Gintis (1997) shows that:

$$r_x = b_x(p) - \bar{b}(p) \quad (4.8)$$

where $\bar{b}(p)$ is the average expected payoff to the x -trait in the population:

$$\bar{b}(p) = pb_x(p) + (1 - p)b_y(p) \quad (4.9)$$

This implies that the population distribution will be unchanging, $dp/dt = 0$, if and only if $r_x = 0$, which obtains in only three cases. We can see by rewriting Equation 4.9:

$$r_x = (1 - p)(b_x(p) - b_y(p)) \quad (4.10)$$

These cases are:

- $b_x(p) = b_y(p) \Rightarrow$ the expected payoffs to the two strategies are equal
- $p = 0 \Rightarrow$ the proportion of agents expressing the x -trait is zero

- $p = 1 \Rightarrow$ the proportion of agents expressing the y -trait is zero

Mixed-Strategy Equilibrium Condition

The last two of these three cases represent pure strategy equilibria, such as *all cooperate* and *all independent*, while the first case refers to a mixed-strategy equilibrium that supports a positive frequency of both strategies in the population. Since, as we saw in the previous chapter, a mixed-strategy equilibria in a simple coordination game will be unstable, we must impose an extra condition on this equilibrium if it is to become an evolutionarily stable strategy. A mixed strategy equilibrium³ with $0 < p^* < 1$ will be stable when a marginal increase in the frequency of players expressing the x -trait increases the replication propensity of the y -trait more than the x -trait (Bowles and Gintis, 1998), or:

$$\frac{dr_x}{dp} < 0 \quad (4.11)$$

4.2.2 Implications

Bowles & Gintis developed their model to study the concept of endogenous preferences in an ideal market. They argued that pro-social norms could be sustained in a community of individuals because of certain structural characteristics that determined the value of exogenous variables in the model. Examples of community effects include a high likelihood of repeated interactions and the low cost of obtaining information about other members. Contrasting with the impact of community structures, the authors observed that properties of ideal markets, such as the ephemerality of market transactions and the impersonality of market exchange, worked in the opposing direction to support antisocial, rather than pro-social, norms.

From their work on market effects, we can identify three classes of structural characteristics that determine or influence the exogenous variables in the model:

³Also referred to as an *interior equilibrium*.

- *Who interacts with whom.* The observation here is that individuals who interact in a non-random way will have different incentives over their actions compared to individuals who interact randomly. When sub-groups are segregated and interact more frequently among themselves compared to the entire group, the success of certain strategies can be expected to change relative to others. These effects enter the model through the δ variable as part of the function $\mu_{ij}(p, \delta)$ (the probability of interacting with a given cultural type).
- *The payoffs of interaction.* Payoffs in a game can be modified by additional variables that enter directly into the payoff function $\pi(i, j)$. These additional factors might include the cost of obtaining information about others, the frequency of interactions between individuals, or the length of time that the game is played (the number of repetitions).
- *The transmission process.* Recall that the replication propensities of a given trait are determined by two factors: the success of that strategy in the current round and the strength of conformism that depends on the current population frequency. The strength of conformism is determined by the variables σ , k , and α .

4.3 Specific Effects

The Bowles & Gintis model articulates some very specific predictions about what characteristics of communities support pro-social norms in strategic interactions. These effects are discussed individually here to provide the intuition behind their inclusion in the model, before I make particular application of each to the allotment era policies. For a more technical discussion of these effects and for their formal mathematical derivation, please see Bowles and Gintis (1998).

Table 4.3: Community Structure and Pro-Social Norms. Source: Adapted from Bowles (1998)

Model	Structural Characteristic	Effect	Var
Reputation	Low-cost information about others' traits	Increased benefit of reputation for pro-sociality	ρ
Retaliation	Frequent or long-lasting interactions	Increased cost of antisocial behaviours	λ
Segmentation	Interactions are non-random	Advantageous pairing for those with pro-social traits	δ
Parochialism	High group entry and exit costs	Enhanced pressures favouring pro-social traits	μ

Reputation

Reputation refers to the observable aspects of individual behaviour that indicate to other group members which type of cultural trait is being played. Suppose it is possible for group members to gather information about others at a cost ρ . Examples of information costs may include the time invested in gathering knowledge about group members, or monetary payments made to engage in information-gathering activities. Further, suppose that an individual can play one of three types in a prisoner's dilemma game: *inspector*, who pays the information cost and then cooperates if her partner is pro-social, a *cooperator*, and defects if her partner is antisocial, a *defector*. *Cooperators* cooperate unconditionally, and *defectors* always defect (free ride).

Since the inspector strategy is considered pro-social, in the sense that it ensures co-operation if others cooperate, and since the cost of information gathering will determine the success of the inspector trait, information costs will tend to influence the equilibrium frequency of pro-social traits in the population.

Table 4.4: A Prisoner's Dilemma Game With Information Costs (Bowles and Gintis, 1998)

	Inspect	Cooperate	Defect
Inspect	$8-\rho$	$8-\rho$	$1-\rho$
Cooperate	8	8	0
Defect	1	9	1

Communities lower information costs in a number of ways. Most prominently, groups members tend to interact with each other more frequently than with outsiders. Group members have more tightly integrated social lives and are therefore more likely to acquire knowledge about other members throughout the game. Communities also support information-sharing networks that are unavailable to outsiders. These networks may be informal, such as gossip between members that quickly disseminates information about players' actions, or more formal, such as community organizations.

An analysis of the prisoner's dilemma game in Table 4.4 yields three predictions:

1. Low cost information makes a trusting equilibrium possible (in which there is a positive frequency of inspectors and trustors in the population).
2. Given the existence of a trusting equilibrium, the frequency of pro-social traits rises as the cost of information falls, and the frequency of defectors rises as the cost of information increases.
3. In a trusting equilibrium, the average payoff to group members rises as the cost of information falls.

Retaliation

If, in a given round of play with other group members, the likelihood of interacting with those same individuals again in the future is sufficiently high, the threat of retaliation can support a high frequency of pro-social traits. In a population, a cultural trait of retaliation

might be defined in this way: “In the first round of a repeated game, cooperate. After that, mimic the behaviour of my opponent in the next round”. This type of strategy is often called Tit-for-Tat⁴. In a repeated prisoner’s dilemma game where players play either Tit-for-Tat or Defect, a high likelihood of repetition, λ , transforms the payoff structure into a coordination game where there are two evolutionarily stable equilibria: universal cooperate and universal defect. In an infinitely repeated game, the threat of retaliation actually eliminates the universal defect equilibrium altogether, and the system always evolves toward an outcome of universal cooperation between group members.

Table 4.5: A Prisoner’s Dilemma Game With Retaliation (Bowles and Gintis, 1998)

	Tit-for-Tat	Defect
Tit-for-Tat	$\frac{8}{\lambda}$	$\frac{(1-\lambda)(1)}{\lambda}$
Defect	$9 + \frac{(1-\lambda)(1)}{\lambda}$	$\frac{1}{\lambda}$

The structure of communities supports the possibility of retaliation by increasing the probability that group members who interact today will continue to interact in the future. It is much more likely, for example, that you will need to undertake a cooperative project sometime in the future with your immediate neighbour than with a complete stranger.

The retaliation model differs importantly from the reputation model in that the likelihood of future interactions essentially determines the “basin of attraction” between polar equilibria—this condition is analogous to the case of the coordination game discussed in Chapter 3. While a mixed strategy equilibria in which there is a positive frequency of both Tit-for-Tatters and Defectors in the population can be shown to exist, it is not necessarily an evolutionarily stable one and therefore is not independently plausible as defining a cultural equilibrium. What this means is that retaliation effects play a “supporting role” in ameliorating prisoner’s dilemma games. If, for example, a community group begins in

⁴The strategy was famously explored by (Axelrod, 1984), who organized a computer simulation tournament where players (mostly academics and computer gamblers) submitted their own strategies as a computer program. The player “types” were then allowed to interact in a repeated computer simulation. The most successful strategy was shown to be Tit-for-Tat in a number of variations on this experiment.

the universal cooperation equilibrium (as a result of some other enforcement mechanism), an increase in the likelihood of interactions terminating after the current round will have no direct effect on the cooperate equilibrium—it merely increases the basin of attraction for the defect equilibrium and is significant only in the case of an outside shock.

Segmentation

Communities are by nature *segmented* from other groups and from the larger population, since they invoke a non-random pairing of individuals who are more likely to share a similar cultural type. When a game is characterized by *cooperate* and *defect* strategies, the non-random pairing of those with like traits in a prisoner's dilemma game rewards cooperators, since when *cooperate* plays *cooperate*, both yield a relatively high payoff. Likewise, segmentation punishes the *defect* strategy because an outcome of *defect–defect* yields a relatively lower payoff. In the context of our model, where the x -trait represents *cooperate* and the y -trait represents *defect*, and where $\delta > 0$:

$$\frac{\partial b_x(p; \delta)}{\partial \delta} > 0 \quad (4.12)$$

$$\frac{\partial b_y(p; \delta)}{\partial \delta} < 0 \quad (4.13)$$

Bowles & Gintis show that under certain conditions, segmentation can support a stable mixed-strategy equilibrium with a positive level of both *cooperators* and *defectors*. Additionally, if this stable equilibrium exists, then an increase in the degree of segmentation—such as increased geographical isolation or regulations on entry into or exit from the community—will increase the equilibrium level of pro-social norms.

Parochialism

The parochialism effect refers to the strength of the *conformation bias* within a given group, and is intended to capture those aspects of cultural transmission that create an “evolu-

tionary friction" toward equilibria of one type or another. We can imagine any number of situations where individuals gain some additional utility from playing strategies that are more like the strategies of the other players. The presence of discriminatory practises within a community might represent one motivator behind the parochialism effect. I include this effect for completeness in exploring the proposed model, but do not elaborate on it in-depth since its significance in the allotment era experience appears to be negligible.

Chapter 5

Reinterpreting Allotment

“One of the obvious facts of human society is that people die and institutions remain” (Friedman, 1966a, p.340).

Legal fractionation on allotted lands diminished the ability of Native peoples to solve collective action problems in their communities, without eliminating the opportunity for collective action altogether. Assuming the predominance of pro-social norms in Native communities prior to the Dawes Act in 1887, reformers required a means to disrupt existing socio-cultural patterns and generate new institutional outcomes characterized by non-cooperation and independent action. To ensure that these new patterns were self-enforcing, Native peoples were locked into collective property arrangements that were doomed to failure and where defection was the only plausible outcome. Endogenous feedback loops from these collective action failures then served to erode pro-social norms of cooperation.

Had allotment proceeded without the complications of legal fractionation, reformers intermediate goals of securing private property for Native individuals would have been achieved; however, their ultimate objective of affecting cultural evolution may have been compromised if communities were able to sustain pro-social equilibria despite the new property regimes. The historical evidence suggests that in the early stages of assimilation policy, before fractionating became a problem, Native peoples displayed a strong resistance to adopting mainstream American norms of private property ownership and

agricultural subsistence in communities where these practises had not previously been supported. Allotment on the Anishinaabeg reservation of *White Earth* under the Nelson Act (a precursor to the 1887 Dawes Act) did not have the intended consequences of quick assimilation into the American lifestyle:

Allotment...did not transform the Anishinaabeg into market farmers as policy makers had hoped. In fact, in the short run, it made very little difference at all. Most Indians continued to pursue familiar strategies for making a living. National policies often fell far short of the rhetorical ideal when implemented at the local level. (Meyer, 1991, 383)

Outright privatization attempts on communal Indian lands proved in many cases that Native communities were not as receptive to assimilation as the reformers had originally hoped. From this perspective, the collective action problems imposed by the legal fractionation may have been the more successful component of allotment policy, at least in meeting assimilationist goals. This is the paradox of allotment: an effective policy to change cultural norms of cooperative behaviour required the continued interaction of individuals in collective action activities. When these activities “failed”, assimilationists may have sacrificed short-term goals of independent property management for Native peoples to secure their longrun objectives of acculturation and social norm change.

5.1 Kinship Systems

Stremlau (2005) has suggested that one of the broadest categories of social norms shared by many Native societies in the United States exist within kinship systems. While specific kinship systems varied widely, they shared sufficient commonalities and occupied places of such significance in Native societies, that we can talk about them with some generality. Strong ties to extended family units and tight social and economic integration with familial relations provided the bedrock of many Native communities:

Native societies often classified families into clans or moieties, but whether a society’s kinship system was elaborate or simple, it provided the social or-

ganization that determined the distribution of goods; regulated the utilization of resources; provided domestic, political, and spiritual leadership; and established standards of behaviour and punishments for deviation (Stremlau, 2005, 5).

Kinship systems were composed of well-established cultural norms and structured some of the core economic and social institutions in Native societies. As a specific case of the general argument proposed in this essay, breaking up these strong kinship systems was a primary aim of assimilationist reformers acting through the Dawes Act and subsequent legislation. To give this chapter some focus, I will concentrate on the impact of the allotment era policies on kinship systems as being representative of changes to the structural character of Native communities in general. The goal is to apply the model developed in Chapters 3 and 4 to understand how allotment policies changed the structure of community interactions to disrupt social equilibrium and promote a change from pro-social to antisocial norms.

Legal fractionation increased the cost of information about co-owners by expanding the user group to an ever larger population with weaker familial ties. As original title owners died and title became fractionated down the line of succession, the degree of relatedness between those with overlapping entitlements—which influences the cost of information-gathering—continued to decrease. Allotment also de-linked land ownership and use from geographic proximity, with owners often inheriting land far away from their place of residence and outside the traditional boundaries of their communities. This made information about co-owners even more difficult to acquire at a reasonable cost.

Fractionation decreased the efficacy of retaliation threats for some similar reasons. As the group of co-owners expanded and familial ties weakened, the probability of direct interaction with other owners decreased, both in activities for the land in question and in other areas of economic life. Allotment also weakened the *mechanisms* of retaliation, especially though formal channels that were severally restricted by the complexity of the allotment legislation and the unfamiliarity of Native peoples with the structure of legal

rights under American common law. With close familial ties to co-owners being gradually eroded, so that informal enforcement mechanisms such as guilt or pride became unavailable, the added barrier to formal legal retaliation motivated further weakening of cooperation. In this sense, the power of band councils was also severely truncated by allotment, making tribal courts and customary laws ineffective. Finally, the cooperation-enhancing effects of community segmentation were all but eliminated during the allotment period. Non-random interactions between extended family members were replaced by increasingly random selection of the group of co-owners.

5.2 Information & Reputation

In close-knit family groups, information is inexpensive and reputations are relatively low-cost to develop. Since family living arrangements—characterized by large communal structures that housed extended families—were commonplace in many Native communities, the frequency of interactions between users of common resources and participants in cooperative activities was very high. Since offspring commonly lived in the family home well into adulthood, information about personal reputations was accumulated over very long periods of time and became highly developed. These strong intra-family ties may also have facilitated inter-family and inter-group cooperation, as family groups at higher levels of social and economic organization took on their own reputations. These aggregate effects would have supported extended networks of communication within communities that dramatically lowered the information-gathering requirements for obtaining accurate indications of individuals' willingness to cooperate.

5.2.1 Size Effects

Legal fractionation vastly expanded the size of the user group on allotted lands. A larger group of co-owners—assuming that the marginal cost of information-gathering is positive

and increasing with group size because of decreased frequency of interaction—reduces the payoff of the inspection strategy in the game in Figure 4.4 and increases the number of defectors in equilibrium.

With no way to re-assemble fractionated rights in the initial stages of allotment because of the 25 year trust patent restrictions on selling allotted land (which were subsequently extended), the size of the user group depended directly on the time it had been allotted. Even after trust patent restrictions were lifted toward the end of the allotment era, fractionation continued to increase because of high legal costs associated with partitioning the land or resolving a fair distribution of proceeds from sale. For partial owners after allotment, drafting legal wills to determine inheritance remained a foreign concept for many Native landowners. Allotted lands therefore remained subject to intestate succession laws and fractionation continued unabated.

In more recent cases, the scale of fractionation has reached a magnitude that is sometimes difficult to conceive:

Tract 1305 is 40 acres and produces \$1,080 in income annually. It is valued at \$8,000. It has 439 owners, one-third of whom receive less than \$0.05 in annual rent and two-thirds of whom receive less than \$1. The largest interest holder receives \$82.85 annually. The common denominator used to compute fractional interests in the property is 3,394,923,840,000. The smallest heir receives \$0.01 every 177 years. If the tract were sold (assuming the 439 owners could agree) for its estimated \$8,000 value, he would be entitled to \$0.000418. The administrative costs of handling this tract are estimated by the Bureau of Indian Affairs at \$17,560 annually¹.

5.2.2 Degree of Relatedness

Apart from the increased number of co-owners and potential co-users, legal fractionation decreased the degree of social integration of group members. We can measure this as a decrease in the degree of relatedness of co-owners, as inheritance involved more complex and more widely distributed patterns of succession. For example, whereas in the initial

¹*Hodel v. Irving*, 481 U.S. 704, 713 (1987)

stages of allotment a tract of land would have been co-owned by two or three direct offspring, as time went on these co-ownership relations expanded to include distant cousins and were complicated by different arrangements of marriage and divorce. The end result was that co-owners quickly became less closely related and therefore the cost of gathering information about their willingness to cooperate in collective ventures increased:

My sister's allotment was 80 acres. She died and my dad, a white man, was willed the land. He died and all his children fell heir. His share was 13440/20160. We had that probated in court—four children share is 960/20160, and cousins one share 270/20160, one share 305/20160, five shares 128/20160, seven shares 35/20160 and these last seven are no relation except that this man was once a brother-in-law and they are the ones that won't sign so that we can have a hundred percent signers. (Aspinall, 1961, p.493)

Inheritance and the dispersion of heirship relations may also have been complicated by the structure of Native family relations and the structure of sexual relations within some communities. Both Native men and women commonly enjoyed sexual autonomy and engaged in serial monogamy, having several sexual partners throughout their lifetime (Stremlau, 2005). In cases where these relationship patterns produced children, kinship relations brought those offspring into the extended family structure of either the mother or the father. However, with the imposition of American succession rules, heirs to a piece of property were forced into legal and economic relationships with "kin" who were defined very differently compared to their own cultural terms. The fact that there was often no coincidence of meaning in "kinship" between American law and Native law and custom contributed to the growing social difference between heirs in fractionated land and an increase in the cost of obtaining information about those co-owners.

5.2.3 Geographical Proximity

Similar to the expansion of co-ownership relations between individuals of lower degrees of relatedness, fractionation caused group members to be distributed across much wider geographic regions. Patterns of succession had no association with geography—i.e., heirs

were not required to have lived on or near the land they inherited. Indeed in many cases heirs often had no knowledge of the land they were intended to inherit or had already inherited. Whereas before allotment close-knit family members often lived in the same household, this disassociation with location decreased the frequency of interaction and increased information costs.

One legal scholar notes that this effect not only made coordination on allotted land almost impossible, it also created barriers to resolving the fractionation problem itself:

When a decision must be made pertaining to an allotment, heirs who have moved off the reservation may have disappeared without a trace. Even within the reservation, communication is difficult. When land value is very low there is little, if any, incentive for an heir to incur any expense involved in establishing his interest or even to reply to letters asking him to join in a plan to use the land, lease it or sell it. (Williams, 1970, p.155)

In a vicious cycle of that exacerbated information-cost effects of fractionation, many legal co-owners found that they were unable to occupy the land they owned in common and either chose or were forced to move outside their original communities into cities, or to other areas of the country.

5.2.4 Unfamiliar Property Rights

Finally, information costs were increased because private property rights under the complicated allotment system were largely unfamiliar to Native peoples. In systems of property ownership and use that are familiar between users, individuals can more easily anticipate how other group members will act because they can rely on previous experience. However, once the underlying structure of rights changes, expectations over how others will react become more uncertain. The very definitions of *strategic types* in an interaction become obscured. The associated uncertainty increases the cost of gathering information about others and decreases the value of reputation accumulated under the previous property regime.

5.3 Retaliation

Many of the same effects from legal fractionation that contributed to higher information costs also contributed to decreasing the threat of retaliation between group members. As user/owner groups increased in the number of members, decreased the closeness of their relatedness and expanded geographically, the possibility of future interactions decreased. Many co-owners became so frustrated with the allotment process and the complexity of heirship relations that they effectively (in practise, if not legally) renounced their ownership rights and chose not to participate in any co-ownership decisions². In a study of fractionation problems conducted in 1961, 55% of Native participants expressed a definitive interest in selling their land, and another 13% signalled a desire to sell at least some of their interests (? , p.156).

The ability to retaliate was also eroded as an cooperative enforcement mechanism since allotment policies affected the available *mechanisms* of retaliation (in addition to the *opportunities* for retaliation). The legal complexity of allotment restrictions and of co-owned property made any legal recourse for defection or non-cooperation extremely difficult. This is represented most starkly in the complexity of the structure of cotenant relationships across different states. The legal rules and case law in American courts formally determine the respective rights of heirs in cotenant arrangements, including rights to use the land for complimentary or competing purposes, rights to exclude other cotenants from use, rights to income or rents generated from productive use and rights to exit the legal relationship and be compensated for the value of the land. These legal rules are especially difficult to describe in any unified sense because they differ between states and change over time. There neither is nor was a formal document or source of information to which cotenants or lawyers could turn that clearly articulated these legal rights. Instead, there is

²Note that there are likely reciprocal relationships between distinct effects. For example, it is possible that the decreased threat of retaliation actually decreased the return from better reputation, meaning that increased information costs would be less effective in disrupting cooperative norms. I have not explored any of these connections in detail here, but they may be an important avenue for future study.

a much more complex collection of jurisprudence and common law statutes that yield no clear answers, even to those who are more generally familiar with American law.

The most comprehensive attempt to clarify the legal nature of cotenant rules is work by (Berger, 1979), who studies scenarios where one cotenant resides on the land and asks about the associated rights and liabilities other cotenants. More specifically, he asks whether the possessing cotenant should:

- be able to live on the property rent-free
- be able to keep the profits earned from its productive use
- be able to keep the rents from leasing the land to third-parties
- be entitled to contribution from nonpossessing cotenants for expenditures and repairs

The starting point for legal analysis is that “[u]nder the common law notion of unity of possession, each cotenant had a right to possess the whole parcel; yet neither could exclude the other from his equal right to possession” (Berger, 1979, p.1016). Prior to the Statute of Anne in 1704, the possessing cotenant was not responsible to other cotenants for the rental value, or for rents collected from third parties. After 1704, cotenants were entitled to their “just share”, but the ambiguity of this provision allowed for different interpretations. Today in most states, a possessing cotenant has no obligation to pay rental value of the property to other cotenants or to account for the profits made from crops raised on the land. However, if the possessor has reduced the value of the property by, for example, natural resource extraction (eg., mining), she must divide the profits equitably.

To further complicate matters, Berger (1979) notes that there are many legal cases that do not fit this general formula. For example, if a possessing cotenant seeks contribution for improvements, repairs or taxes paid for the property, nonpossessing cotenants may seek compensation for the rental value to offset those costs. A second line of case law holds that if the products from farming cotenant land are sold, the nonpossessors are entitled to their share of the proceeds.

While the common law rules of cotenancy determined the rights of co-owners on fractionated lands, the Bureau of Indian Affairs attempted to provide some guidance as a means of enforcing specific rights: "For example, when there are too many co-owners realistically to negotiate a consensual agreement as to a specific proposed use, the Secretary of Interior can unilaterally consent to the change, potentially granting rights-of-way over which the states may later assume jurisdiction"(Shoemaker, 2003, p.756). However, in general, the rules remained complicated: "In leasing, for example, the BIA requires any Indian owner of a fractional interest in a tract to get a lease from all the other co-owners to use or possess the land, allowing only an 'Indian landowner who owns 100% of the trust or restricted interests in a tract [to] take possession without a lease of any other prior authorization from us'(Shoemaker, 2003, p.760).

In sum, the legal realities of fractionation eroded retaliatory enforcement in three ways. First, fractionation decreased the probability of future interactions with cotenants, making defection today more valuable than cooperation tomorrow. Second, the increased size and diversity of co-owner groups eroded the potential for informal retaliation enforcement mechanisms to play a role. Third, legal means of retaliation such as regress to the courts were made extremely complicated by both reliance on American common law and by the complexity and obscurity of the allotment legislation itself. These effects combined made it next to impossible for cotenants to credibly threaten or enact retaliation against non-cooperators.

5.4 Segmentation Effects

Segmentation effects that support cooperative interaction derive from the non-random pairing of individuals. Communities promote segmentation by making it more likely that like-types will interact, thereby increasing the benefits from cooperative strategies and increasing the costs of defection. As legal fractionation on allotted lands increased over

time, two factors decreased segmentation and exposed co-owners to more unlike-types. These effects made defection a more profitable strategy.

The first effect of extended heirship patterns was that individual co-owners found themselves in collective action scenarios with a much broader diversity of group members. Whereas before allotment, “[m]en and women formed their primary relationships with their kin, particularly of their same gender or age, and these relationships typically endured throughout their lives” (Stremlau, 2005, p.266), the typical composition of an heirship group ranged widely in age and background. When, for example, an allottee had no direct heirs down the line of succession, it was not uncommon for partial title interests to pass to young children that may have been nieces, nephews or even distant relations. These generational gaps promoted the pairing of unlike types.

A second effect that undermined segmentation was the growing encouragement from government officials, after the turn of the twentieth century, for individuals to lease the land on which they found it impossible to farm or make other use of. By loosening previous restrictions, federal reformers encouraged the leasing of allotted Native lands to non-Natives:

Reflecting popular sentiment, aggressive administrators insisted that Indians who could or would not use their land efficiently must lease or sell it to non-Indians; leasing would benefit the Indians by providing them with a steady income while they learned to support themselves and by bringing them into contact with whites who could teach them self-reliance. (McDonnell, 1991, p.43)

In this way, Native peoples were forced to interact more frequently with the wider American population. This facilitated assimilation directly, by exposing Native peoples more prominently to “American culture”, but also specifically undermined Native capacity to support cooperation by limiting segmentation and decreasing the success of cooperative strategies .

Chapter 6

Lessons

Since my assimilation logic remains a preliminary step toward connecting insights from economics and political economy to sociological and anthropological concepts of custom and culture, I will not belabour these nascent linkages by applying them too far in contemporary issues. I would, however, like to draw one lesson from this study, as a caution for First Nations communities in the United States and Canada today, who are undergoing a period of rapid change in their legal and practical relationships with their land. Title disputes and evolving resource management regimes tie into larger trends in tribal sovereignty and community self-governance, where land is playing a prominent role. The implications of these land policies for engaging and creating opportunities for economic development will be significant. But, historical experience with allotment shows that First Nations leaders, federal policy makers and public organizations need to be cautious to consider the complex nature of legal rights, informal norms and economic outcomes.

6.1 First Nations Today

After allotment's official end in 1934, the American government began to promote a form of limited self-determination for Native peoples that began to unravel the narrow ethic of assimilation targeted to disassembling their communities (Fleras and Elliott (1992)). We know that the problems of fractionation persisted long after allotment's formal end-point,

but this shift in policy began a long struggle for Native communities and various coalitions of aboriginal groups to *internally* balance cultural cohesion with the realities of economic integration and the need to generate new sources of wealth to sustain livelihoods. In part weighed down by the continuing problems associated with legal fractionation, Native groups are continually forced—by history and by contemporary policy—to confront the difficult choice between deeper material poverty and preservation of their social and cultural connections.

This is not to say the Native communities are unable or unwilling to adapt. Indeed, the very fact that these groups *survived* brutal attempts by successive governments to first exterminate them, and then to assimilate them into the American mainstream speaks to the impressive resilience and adaptability of Aboriginal peoples. However, that Native communities have survived in one form or another to this point does not mean that they will continue to do so if they are not provided with appropriate means and resources to confront contemporary challenges. While the era of official allotment is ostensibly long over, the threat of more insidious means to destroy Native communities remains.

To illustrate this point, I would like to shift momentarily from the history of allotment in the United States to the context of First Nations in Canada today¹. While First Nations in Canada are not weighed by the same yoke of legal fractionation as their counterparts in the United States, communities here reveal a surprising similarity in the range of issues they are facing. Many of these issues are subsumed under the umbrella of self-determination for First Nations groups. Advocates of self-determination have long argued that the federal *Indian Act*, which comprises legislation pertaining to Aboriginal peoples, subjects First Nations to an alien and repressive legal regime that restricts the opportu-

¹I should note here that this jump is largely motivated by the fact that my original research focus for this project was a community case study at the Six Nations of the Grand River Territory to explore patterns of inheritance. With the unfortunate eruption of confrontations over an ongoing land dispute in the summer of 2006, I was unable to continue my research programme as planned. However, since I continue to draw inspiration from studying issues in Canadian First Nations, I make this thinly-veiled attempt to include a small part of my original research as a way to draw on the lessons of the allotment period. I hope that the reader considers the desperate need for more research on economic conditions in First Nations communities as good reason for drawing attention to these issues here.

nities for community development in a culturally sustainable way. As a way to reform governance from the ground up, these advocates have promoted self-determination for First Nations to chart their own course and make decisions on the degree to which they would like to integrate into broader Canadian society (Clow and Sutton, 2001); (Clinton, 1981). The historic Nisga'a Treaty in British Columbia is one of the first examples of a First Nation who has negotiated the right to self-governance free from the provisions of the *Indian Act*.

A central consideration for reservation communities who decide to undertake self-determination is how to develop appropriate land management rules and property rights schemes. Some have opted for dividing reservation land into private tracts using legal provisions in the *Indian Act* that closely mimic property title systems in the Canadian common law (Hawley, 1990). Under this system, private titles called *certificates of possession* are provided to individuals jointly by the band council and the Minister of Indian Affairs in Ottawa. These certificates entitle the owner to all the rights and responsibilities of private property, apart from the right to sell reservation land to individuals who are not members of their own band (Imai et al., 1993). Some communities, such as the Six Nations of the Grand River Territory in Ontario, have divided almost all of the land on their reservation into private tracts, reserving only a small portion of the land under the control of the band council for public spaces and administrative purposes.

Recent research on this system of property rights has come out in strong support of privatized property rights as a way for these communities to integrate more tightly with the Canadian market economy². Their conclusions are backed by a huge literature in economics developed since Coase (1960), predicting that private owners are able to capture resource rents much more efficiently. This theory has subsequently gained force by postulating that private property represents a "natural" progression of rights as resources

²See Alcantara (2005), Flanagan and Alcantara (2004), and Flanagan and Alcantara (2005). These authors have conducted a broad survey of property rights on Canadian First Nations reserves and directed case studies to explore the potential for certificates of possession to help solve the ongoing housing shortages in these communities.

become more valuable³. However, the present essay underscores the need for First Nations communities, as well as federal legislators and public advocates, to consider the connected effects that changes in property rights rules might have on the evolution of informal socio-cultural institutions. Whereas private property may seem appealing from a traditional economics view, its potential to disrupt social norms that may have evolved within communities to support both economic and cultural development need to be carefully considered.

One illustration can be taken as a direct lesson from the allotment experience in the United States. Reservation lands owned through certificates of possession are subject to laws of succession under the *Indian Act* that are remarkably similar to their counterparts in American common law. When individuals do not elect to draft a legal will, land title is passed to eligible heirs according to intestate succession laws that divide the title into undivided interests. Anecdotal evidence from the Department of Indian Affairs and Northern Development relates numerous examples of lands that are quickly being divided into these partial interests, in much the same fashion as legal fractionation during and after allotment. A detailed look at official data from Canadian government agencies reveals that legal fractionation is not yet a significant problem. However, given the pervasive effects of fractionation in Native communities in the United States, First Nations in Canada need to be wary of how legal rules borrowed from mainstream Canadian society will affect not only economic outcomes, but also the evolution of institutions that will have a long-term impact on both the economic success and cultural development within their communities. If all stakeholders in the process of self-determination and self-governance for First Nations communities want to make well-informed choices about how best to balance economic development, social welfare, and institutional change, they would do well to pay attention to the role of social norms.

³The seminal article on this research is Demsetz (1967). Good overviews are Barzel (1997) and Merrill (2002). Other important works are by Alchian and Demsetz (1973), Anderson and Hill (1975), and Geisler (1995).

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