The Development of Property Rights on Frontiers:
Endowments, Norms and Politics

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Abstract
How do property rights evolve when unoccupied areas attract economic use? Who are the first claimants on the frontier and how do they establish their property rights? When do governments provide de jure property rights? We present a conceptual framework that addresses these questions and apply it to the frontiers of Australia, Brazil and the U.S. Our framework stresses the crucial role of politics as frontiers develop, by identifying situations where the competition for land by those with de facto rights and those with de jure rights leads to violence or potential conflicts.

INTRODUCTION
Frontiers are areas not previously used or occupied by non-indigenous inhabitants that are subsequently put to economic use by new settlers. The use of the frontier is influenced by incremental or large changes in demographics, technology, preferences, and other internal and external factors that change relative prices and bring about new opportunities on land for immigrants. By their nature, frontiers are places where property rights emerge and evolve, which make them ideal for the study of institutions and institutional change. This has been reflected in the large volume of published work in the past decades on the impact of colonial institutions on current economic performance. These analyses find that the type of property rights that emerged initially on the frontiers crucially determined how property rights evolved overtime. Another argument in this literature is that the initial institutions had surprisingly long-lasting effects on the performance of the countries. We propose an alternative approach to understanding the process of frontier settlement of emerging and evolving property rights that contrasts with two prominent theories in the literature: the externality analysis of Harold Demsetz and the factor endowment analyses of Stanley Engerman and Kenneth Sokoloff, and Daron Acemoglu, Simon Johnson and James Robinson. Each of these approaches, ours included, starts with a neoclassical explanation that the costs and benefits presented by opportunities at the frontier shape the property rights that initially emerge. Our explanation differs by emphasizing the subsequent roles played by norms and politics in the process of

changes in property rights over time, and how these changes in property rights influence economic, social and political development.

The classic Demsetz hypothesis expects property rights to emerge not only whenever “it becomes economic for those affected by externalities to internalize benefits and costs”, but also maintains that there will be a continual process of adjustments in property rights “to accommodate to the externalities associated with important changes in technology or market values.” 2 This view postulates that economic interests will push for property rights to change whenever they are no longer well-suited to the changing economic environment. In this zero transaction costs world property rights will never deviate far from an efficient allocation.

Engerman and Sokoloff, followed by Acemoglu, Johnson and Robinson and many others also view the economic opportunities presented by the frontier in the form of initial factor endowments of land, labor, climate and disease as the fundamental determinants of the initially established property rights.3 Yet contrary to Demsetz, the later scholars argue that the initial property rights arrangements do not tend to change easily, even when they become the source of blatant losses and inefficiencies from the perspective of society as a whole. In those places where the best economic response to the initial factor endowments involved labor exploitation and high economies of scale, as in most of South and Central America and in the Caribbean, the emerging property rights reflected those characteristics of exploitation and inequality. In places where the initial factor endowments favored small-scale farming, as in the Northern United States, or Canada, the initial property rights exhibited characteristics of greater equality and participation. Because these early property rights and other institutions are key determinants of who has voice in the policymaking process, they are very strong forces that lead the nature of the wealth and power distribution to persist over time. This persistence works through the choices of immigration, education, and land policies as well as the franchise, and patterns of

banking and capital formation, *inter alia*, so that colonies which started with unequal and exclusionary arrangements would continue to have those same characteristics whereas those that started with greater equality and inclusion saw those same characteristics persist and pervade their future societies.

An interesting implication of this pattern of development is that those colonies which presented less attractive economic opportunities in the beginning ended up growing substantially faster over the centuries because the equality and openness of its property rights institutions are seen as being more conducive to entrepreneurship, innovation and wealth accumulation. In this ‘reversal of fortune’ the initially more productive and economically attractive colonies were impeded from following that same successful developmental path by the exclusionary nature of their institutions and property rights. This phenomenon would not happen in a Demstez world as the ill-performing property rights would be transacted away.

Although the initial conditions view has had a tremendous influence on the literature, it has also come under severe criticism. John Coatsworth states that “the Engerman and Sokoloff thesis, while plausible, is almost certainly wrong.” Jeffrey Williamson (2009) challenges the basic facts presented by the persistence literature:

Some have argued that high inequality appeared very early in the post-conquest Americas, and that this fact supported rent-seeking and anti-growth institutions which help explain the disappointing growth performance we observe there even today. This paper argues to the contrary. Compared with the rest of the world, inequality was not high in pre-conquest 1491, nor was it high in the postconquest decades following 1492. Indeed, it was not even high in the mid-19th century just prior Latin America’s belle époque. It only became high thereafter. Historical persistence in Latin American inequality is a myth.

Similarly, Douglass North, William Summerhill and Barry Weingast criticize this approach: “no deus ex machina translates endowments into political outcomes.” This is similar to the conclusion of Jeffrey Nugent and James Robinson’s analysis of the historical evolution of coffee production in different Latin American countries:

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4 Acemoglu, Johnson and Robinson, “Institutions.”
5 Coatsworth, “Structures,” p. 139
6 Williamson, “History,” p. 1
7 North, Summerhill, and Weingast, “Order,” p. 4
The differential processes of economic development over the last century cannot be understood just by an examination of the physical endowments of the countries and the technologies available, since these were all very similar. In our view political economy factors were decisive. At least for the economies we consider, endowments were not fate.8

The common thread in all critiques is that, although initial factor endowments are crucial determinants of the property rights that emerge, and although those initial institutions do tend to be highly inertial, this does not preclude other forces from dramatically altering the path of development along the way. This paper analyzes the settlement process on three frontiers, Australia, Brazil and the U.S., to highlight the forces and the channels through which property rights change from the initial endowments perspective. Both social norms and politics shaped the process of property rights formation in all three countries.

Australia, the U.S., and Brazil are all physically large and each had different patterns of land settlement on their frontiers, which allows us to examine the way in which the extant specified property rights in each case affected settlement and in particular the potential for, and emergence of subsequent land conflict. In accordance with the Demsetz, and Engerman and Sokoloff approaches, it is expected that first possessors on a frontier establish and enforce efficient de facto property rights.9 However, contrary to Demsetz and Engerman and Sokoloff our first contribution is to show that conflict and rent dissipation arises when the actor (individual, group or government) who specifies the property rights to the land does not coincide with the actor who enforces the property rights.

At early stages land is abundant, property rights are irrelevant, and no conflicts ensue. At some point, though, as additional but homogeneous claimants arrive at the frontier, social norms tend to arise that mediate and coordinate the allocation and use of the claimants’ land. Typically previous land allocation and uses get raised to social norms in a smooth process as competition is still relatively low at this stage and homogeneous claimants in terms of wealth and culture can circumvent the free rider problem relatively easily. As the returns to the land

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8 Nugent and Robinson, “Are Endowments” p. 34

increase even further, the increased competition for land will result in dissipation or conflict unless some the claimants establish a commons arrangement to more formally restrict entry and monitor use amongst claimants. Again, if the claimants are relatively homogenous, commons arrangements work well in allocating resources and arbitrating disputes.\textsuperscript{10} Generally one of the earlier settlers with the most land, and hence the most to lose will organize the commons.\textsuperscript{11} If the rents from land increase sufficiently and, especially if the potential or actual new entrants are heterogeneous in terms of wealth, occupation (for example, agriculturalists versus pastoralists) or culture, the members of the commons with \textit{de facto} rights tend to seek legalization of their claims to reduce the rent dissipation involved in staving off other claimants.

The process where the \textit{de facto} property rights get transformed into \textit{de jure} rights is inherently political. If the possessors dominate the legalization that raises practice to the level of law, this will tend to be a smooth process. However, there is the possibility that the state, especially in a democracy, chooses to specify property rights in a different manner than that preferred by the possessors. Whether the state backs the legalization of the commons to the holders or to new or potential entrants depends on the extent of the franchise and the salience of the issue to voters. When the state enforces a drastic redistribution in property rights, there is potential for violence as the new rules get implemented. Given the state’s advantage in the use of force, this phase will tend to be temporary. But, when the state is unwilling to back the new specification with the necessary enforcement, the potential for violence and dissipation will be high. Different claimants, those on the land with \textit{de facto} rights and those not on the land but who hold \textit{de jure} rights, feel entitled to the land and sense that it may be worthwhile to pursue those rights, if necessary by force. The three case studies here show this outcome is likely, as in each of the frontier expansion processes in Australia, U.S. and Brazil instances arose where the

\textsuperscript{10} Ostrom, \textit{Governing the commons}.

\textsuperscript{11} Though commons arrangements are recognized to function relatively well, Ostrom was one of the pioneers to document their emergence and persistence. We provide evidence in our case studies but the notion that the largest stakeholder will best circumvent the free-rider problem is well known in cartel theory. The best example is the role played by Saudi Arabia in OPEC.
state opted to specify property rights to groups other than the possessors, leading to conflict and wasteful rent dissipation.

PROPERTY RIGHTS AND LAND SETTLEMENT

When a frontier is first occupied, who arrives first is predominantly determined by the emergence of previously unavailable economic opportunities that have been brought about by either incremental changes or shocks that alter relative prices. The opportunities are closely related to the factor endowments encountered by the pioneers, which determine and constrain the activities they choose to undertake. Where those opportunities are only marginally profitable and do not require any special input, the first possessors tend to be individuals with low opportunity costs and low levels of wealth and education. On the other hand, where potentially more profitable opportunities required capital and experience, the initial settlers were likely to be wealthy individuals. In those cases higher profits more than compensated for the higher opportunity cost of the wealthier settlers. Pastoralism in Australia, cattle ranching in the U.S.; and coffee plantations in Brazil illustrate this situation.

In the initial phase of frontier settlement there is an abundance of free land and relatively low rents so that conflicts are rare. But if transportation costs fall or relative prices increase, rents increase and attract competing claimants. First possessors might react to greater competition and potential rent dissipation by creating informal institutions that arbitrate disputes, mediate conflicts, and coordinate efforts to block outsiders. The ability to create and sustain commons arrangements depends a great deal on the homogeneity of the claimants. When successful, these arrangements lead to greater rents, which attract even more competition, so a point may be reached where informal arrangements give way to more explicit commons arrangements with members of the commons developing better monitoring and enforcement capabilities.

If potential new entrants are sufficiently heterogeneous and their interests are politically salient, sustaining a commons arrangement to block entry is difficult. Instead, the incumbent de facto rights holders may find they can reduce rent dissipation by seeking to sway politicians with bribes or campaign contributions to legalize their claims. The de facto claimants petition
the state to provide *de jure* rights, while the potential claimants lobby the state to intervene on their behalf on equity grounds. When early entrants are economically, politically and physically more powerful than the subsequent challengers, the process from *de facto* to *de jure* rights is smooth. The dominance by early entrants and smooth transition is a key factor highlighted in the Engerman and Sokoloff approach. In this approach there may be some violence and rent dissipation, but there are built-in reasons to expect these to be temporary and self-correcting.

The presence of conflict in many settlement processes indicates that many cases are not as simple as the Engerman and Sokoloff approach suggests. We present a more nuanced approach that explicitly allows for competing claims when the party specifying the property rights is different from the party enforcing the rights. This most commonly occurred when the state gave outsiders *de jure* rights to lands held by earlier settlers who had established *de facto* rights.

Table 1 illustrates the different paths taken as settlement of the frontier occurs and the expected impact on the probability of conflict when specification along the horizontal axis is separated from enforcement along the vertical axis. Here the term ‘possessor’ refers to either the individual acting alone or as part of a small group of users that have overcome the collective action problem in order to organize a coordinated approach to specification and/or enforcement. Coordination is possible because there are explicit economic or political incentives for a group to cooperate or norms exist, that is the group has shared beliefs about normative obligations that regularize their patterns of interaction. Individual and group specification and enforcement are defined as *de facto*, while actions by the state are treated as *de jure*. Both the Demsetz and the Engerman and Sokoloff approaches imply a progression along the main diagonal from the possessor both specifying and enforcing rights to the state taking both roles. Such a progression would lead to little violence. In the Demsetz case any violence and dissipation would merely be the trigger for efficient reallocations of property rights. In the Engerman and Sokoloff case there

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12 Engerman and Sokoloff, “Factor Endowments, Institutions”; “Factor Endowments, Inequality.”

13 Crawford and Ostrom, “Grammar.”
would be little conflict because the result would be one of two extremes, equality and land
abundance, that eliminates tensions, or dominance by an elite that overwhelms any attempts at
violent overthrow of the regime.

[Table 1 here]

In each combination of specification and enforcement depicted in the 4 cells of Table 1
it is possible to identify the likelihood of conflict and violence. In the 1\textsuperscript{st} and 4\textsuperscript{th} cells little
conflict or violence arises because the parties responsible for specification and enforcement are
aligned. Conflict and violence are more likely to occur when the party specifying the rights is
not the same as the party undertaking enforcement. Cells 2 and 3 depict these possible
combinations. In cell 2a, the state provides \textit{de jure} rights that merely elevate the \textit{de facto}
situation to the level of the law and conflict is not expected. But in many cases the state
specifies property rights yet fails to enforce the claims (cell 2b). The failure to enforce may arise
due to political power of the \textit{de facto} land claimants or the high costs of enforcing the claims
when the frontier is more distant from the settled area or there are higher marginal costs of
transportation.

By its nature a democratic state caters to a wide variety of interests. Many may prefer
different arrangements regarding the expansion of the frontier than that the \textit{de facto} rights that
had already evolved. Distant urban voters, for example, may have an idyllic view of a frontier
peopled by small family farms and may pressure the national government to favor the
distribution of frontier lands to smallholders as opposed to the larger operations already
established. Whenever the political configuration is such that the state chooses to recognize the
rights of claimants other than those already on the land, but is unable to provide the
corresponding enforcement, the probability of conflict increases significantly (cell 3). Here
again each side has a claim to the land - one \textit{de jure} and the other \textit{de facto} - and conflict is
typically the means to determine whose right trumps the other’s right. Such a situation is more
likely to arise when the frontier is initially occupied by large land holders and extensions of the
franchise or later uses without economies of scale lead to political pressure to break up the large
land holdings.
Yet even in the cases of cells 2b and 3b, where new claimants acquire land rights but the government does not specify (3b) or enforce property rights (2b), conflict will not materialize if there is a large imbalance in violence capacity between possessors and new entrants. If, for example, those who are granted *de jure* rights are few or disorganized, conflict may be preempted. But, when both sides are more evenly matched, the possibility of violence is greater as each side perceives good odds in the case of conflict. Even if the *de jure* right holders are not wealthy compared to the *de facto* claimants, they may be so numerous and/or organized that conflict nevertheless ensues.

In all three of our case studies the settlement process and development of property rights reached situations depicted in cell 2 and this led to considerable conflict and rent dissipation. The implication from our framework and case studies is that the combination of specification and enforcement in cell 2 is not only a conceptual possibility, but is rather quite probable. Another situation where the state may chose to specify property rights to parties other than those on the land arises when the state decides to sell the land in order to raise revenue as analyzed by Alan Dye and Sumner La Croix.\(^{14}\) Dye and La Croix also note that the threat of violence from indigenous peoples, who oppose the settlement process, may lead the state not to enforce the *de jure* rights.\(^{15}\)

In the next three sections we analyze the emergence and evolution of property rights on the 19th century frontiers in Australia, the U.S. and Brazil. Despite the variety of circumstances, a distinct pattern emerges that contributes to our understanding of the forces that shape the progression of property rights on frontiers. Despite the idiosyncrasies of each country’s experience, all three cases passed through four basic stages as their frontiers evolved. In the first stage there is little scarcity and large producers with capital claimed the land. This is cell (1) in Table 1 and conflict was typically low given the abundance of land. The second stage occurs as rents increase and a combination of first possessor, group and government specification and

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\(^{14}\) Dye and La Croix, “Political Economy.”

\(^{15}\) Dye and La Croix, “Political Economy.”
enforcement arises. The commonality to what may be quite different experiences is that the rights of the first possessor are recognized and conflicts are not prevalent. The third stage arises when government decides to grant *de jure* rights to parties other than those on the land but fails to provide adequate enforcement (cell 2b). This took place in all of our cases, always associated with electoral concerns of the central government, suggesting an important mechanism through which politics can change a path that is at first overwhelmingly determined by economic factors. At this point the potential for violence was high as there was no institutionalized way to arbitrate the competing claims. Nevertheless, in some cases actual conflicts remained subdued as one side had an overwhelming violence potential. The fourth stage is reached when, possibly after much waste and dissipation, the government effectively specifies and enforces the *de jure* property rights, reverting to a state of low probability of conflict (cell 4).

**SETTLEMENT OF THE AUSTRALIAN FRONTIER**

Settlement of the Australian frontier began in the late 1820s. As a penal colony, the British Colonial Office (BCO) in London determined economic and political policy, including land policies. The colonial governor oversaw the implementation of BCO directives. In 1827, the BCO attempted to concentrate settlement within an area known as the Nineteen Counties – the legal limits of settlement. However, several factors caused the spread of population beyond these boundaries to the frontier. Population increases resulted in land scarcity within the settlement limits. Land prices within the Nineteen Counties were high, set at a minimum price of £1/acre. Growing demand and rising prices for Australian wool in Britain increased the

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16 In 1788, the British Crown declared the Australian continent ‘terra nullius’ that is, a land belonging to no one. This implicitly denied the existence of ownership rights by first inhabitants thereby dispossessing Australian Aboriginals under the British territorial claim. It followed that all land in Australia, unless expressly granted to individuals as free hold, was owned by the Crown.

17 Roberts, *Squatting age*.

18 Burroughs, *Britain and Australia*. 
value accruing from land settlement outside the boundaries. Moreover, inadequate police numbers made the boundaries unenforceable.

Land occupation outside the Nineteen Counties was illegal and these settlers became known as squatters. Pastoral squatters arrived at the frontier first because they received a net benefit earlier than smaller agriculturalists. Beyond the Nineteen Counties, land was abundant and squatters occupied where they pleased. Australia’s arid climate and economies of scale in wool production resulted in large land claims on the frontier, averaging between 24,000 and 34,000 acres. In line with the framework possessor specification and enforcement (Table 1, cell 1) accompanied large land holdings. Possessor specification was vague with property boundaries typically defined by natural features including rivers and marked trees. Possessor enforcement included squatters’ using employees stationed on each parcel to defend claims. Combined, a lack of de jure rights and imprecise boundaries increased the potential for conflict between white settlers as settlement increased but there is little evidence of actual conflict.

Politics, economics, and norms contributed to the creation of possessor enforcement by district squatters (cell 1). The realities of illegal occupation encouraged squatters to protect each other’s claims because any conflict between them, violent or otherwise, brought the possibility of all claimants being dispossessed by colonial administrators. Governor Bourke’s proclamation

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19 Imlah, “Terms of trade”; Bultin, “Prices.”
20 Roberts, The squatting age.
21 There is substantive evidence of sporadic conflict between Europeans and Aboriginals at the frontier (for example: Butlin, “Close encounters”; Lester and Dussart, “Trajectories of protection”; Millis, Waterloo Creek; Reece, Aborigines and colonists; Shaw, “British policy”, A history) however; the analysis here is concerned with identifying the potential for violence and actual violence occurring between white settlers as European property rights to land evolved. In addition the BCO issued a policy in 1838 of Aboriginal Protectorates that aimed to reduce conflicts between indigenous and white settlers. The BCO abolished the protectorate system in 1849 and Shaw (A history, p. 143) states that by 1850 the few natives that had survived the spread of European settlement were “becoming pilfering, starving mendicants, few enough to remove from the whites all fear of Aboriginal violence.”
of August 26, 1835 clearly signaled this possibility to settlers. Economically, the potential rents from occupation were higher than conflict, promoting group enforcement (cell 1).

Norms, defined above as a shared belief between actors of their normative obligations, underpinned the more explicit incentives for squatters to cooperate and invest some of their resources in group enforcement. Niel Black, Henry Roberts, and John Weaver suggest that, at least during the early 1830s, prior to choosing a run, newcomers would negotiate with any neighbors as to property boundaries. Where conflict over boundaries did occur, arbitration by other district squatters could be used to determine the rights of claimants.

Economic factors also underpinned group specification and enforcement to delineate other key aspects of a squatter’s rights, for example rules of abandonment for each district and, the maximum number of sheep for any one shepherd and for travelling stock. Initially, maximum flock size for one shepherd and travelling stock was 520 sheep. There were two reasons for this size limitation. Localities in which sheep first grazed in New South Wales (NSW) were scrubby, creating the potential for large losses due to the inability of one shepherd to manage a flock larger than 520. If flocks numbered over 520, it was believed that pastures over which the flock travelled would be wasted and stronger sheep would consume the bulk of the grass. Given that flock relocation often took place via the use of common stock routes, on which sheep still needed to graze, normative obligations dictating flock size reduced the likelihood of overusing common pastures for relocation. Limiting flock size also reduced the

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22 Black, Station records; Port Phillip Association, Papers.

23 Black, Station records; Roberts, History, The squatting age; Weaver, “Beyond the fatal shore.”

24 Adeney, Awards and Correspondence; Black, Station records.

25 Archives of New South Wales [hereafter ANSW], 4/3660, Colonial Secretary, (April 28, 1844); Weaver, “Beyond the fatal shore”; Curr, Recollections.

26 Curr, Recollections, p. 21.

27 Curr, Recollections.
trampling of grass on land of claimants, decreasing the costs associated with sheep having to travel for food.²⁸

By the late 1830s, the continuing pastoral boom and increasing land values led squatters to appeal to colonial administrators and the British government for more secure de jure property rights.²⁹ Expansion of settlement beyond the boundaries led to the creation of two explicit incentives for the BCO to supply de jure rights. NSW had become a critical supplier of wool to British manufacturers, increasing the political and economic importance of Australian land policy for the British parliament.³⁰ Further, any failure to regulate occupation led to possible claims of adverse possession via the courts.³¹ In the absence of representative government and competing claimants it is expected that government will specify and enforce existing de facto rights, and this is what the BCO did, introducing annual squatting licenses in 1836 rather than selling land outright (Table 1, cell 3).³² Licenses required squatters to pay £10 annually to occupy as much land as they pleased. Licenses supported de facto possessor specification because squatters themselves outlined the location of claims. Government agents, Crown Lands Commissioners, recorded claim boundaries and undertook enforcement.

Commissioners had authority to refuse license renewal, determine boundary disputes, and claims of trespass. Border police enforced decisions of Commissioners should squatters fail to comply. Clause 10 of the legislation appointing Commissioners to each district, instructed them to act “according to the established usages and customs of the Colony” (emphasis added).³³ In this way, the specification and enforcement of de jure rights supported existing de facto rights that had evolved from the economic incentives that encouraged initial frontier

²⁸ Roberts, The squatting age.

²⁹ Burroughs, Australia and Britain, discusses in some detail the nature of lobbying activities in Britain by squatters during this period, pages 315-319.

³⁰ Burroughs, Australia and Britain; Dingle, Victorians Settling.

³¹ Alston, Harris, and Mueller, “De facto and de jure.”

³² Act 7 Wm. IV. No. 4.

³³ 2 Vic., No. 19, 1838.
settlement. Over the next decade squatters continued to petition the colonial governor for
greater security of property rights because licenses did not alleviate problems of vague
boundaries. Moreover, Crown Lands Commissioners faced information constraints so that
possessor specification was subject to some contention, resulting in appeals to the governor.34

Squatters secured greater *de jure* rights in 1847 with the introduction of leases.35 During
the early years of operation, however, problems plagued the lease system. Vague rules
regarding lease tenure and preemptive rights caused political clashes over the extent of
squatters’ *de jure* rights.36 Imprecise boundaries established under the license system led to
problems in defining the exact area to which a lease applied.37 To issue clear leases required
costly surveys. Both the political debate that ensued and the need for survey led to the delay in
the issuance of leases until 1854. Between 1847 and 1854 squatters’ claims continued to be
held under yearly licenses but with an explicit guarantee that a lease would be issued.38

By 1850 the BCO resolved the extent of *de jure* rights conferred under the lease system.
On frontier lands leases were valid for 14 years with rentals set at a minimum of £10 for 4,000
sheep with an increment of £2 10 shillings for every 1,000 sheep thereafter. For the duration of
the lease, land could only be sold to the occupier. On a lease’s expiration squatters could claim
preemptive rights to one block of 640 acres for every 16,000 acres of leased land at £1/acre.
Leases alleviated the problem of vague boundaries that had persisted under the license system
thereby providing more accurate government specification. Further, leases transformed
occupancy rights into ownership rights for sections of squatters land (Table 1, cell 3).

Paralleling the resolution of the leasehold system for pastoral land, gold was discovered.
Initially, alluvial gold supplies were plentiful and capital investment in mining was low. It was
possible for individuals to migrate to the goldfields, purchase an annual mining license for £10,

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34 ANSW, 4/3660, *Colonial Secretary* (April 18 1842); 4/2680, *Colonial Secretary* (March 25 1845).
36 Burroughs, *Australia and Britain*.
38 Order in Council (March 91847) Chap. 2; Baker, “Origins.”
and mine for a number of years. By the mid-1850s, however, alluvial gold supplies became scarce and the industrial sectors were unable to absorb the surplus labor, resulting in mounting unemployment. Once gold was nearly exhausted, the opportunity costs of former miners of moving to the pastoral frontier fell, and many ex-miners wanted to turn to agriculture for a living. The now expanded population began to pressure the government for land reform.

During the same period political changes meant that NSW was divided into three separate colonies: NSW, Victoria (1850), and Queensland (1859), each with responsible government, which had the right to legislate over its own affairs, including land policy. Each of the three colonies also had parliaments elected by the population. These political changes were critical in determining the supply of *de jure* rights to land because they diluted the political power of squatters by extending the franchise to ex-gold miners and other potential claimants. The increasing political power of new claimants led to pressures on the government to establish *de jure* rights that redistributed land away from incumbents. In Australia, the pressure stemmed from fear of social unrest and the potential for violent uprising that had already occurred on the gold fields as well as high unemployment. These realities led even the squatter-dominated upper houses to pass reform legislation increasing the potential for conflict on pastoral lands.

Victoria and NSW introduced land reform, referred to as ‘selection’ in 1860 and 1861 respectively. Both states’ legislation was almost identical and permitted any individual to select a maximum of 320 acres anywhere in a colony except that held under leasehold. The legislation imposed several conditions on selectors: payment of a 25% deposit; one year of residence on selected land; and improvements to the value of £1/acre. Once leases on squatting land expired, the government introduced a selection process that sanctioned competition for the holdings of squatters. Squatters, who typically leased 24,000 to 34,000 acres, could use preemption to

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39 Violent clashes between miners and the military referred to as the Eureka Stockade took place on Victoria’s largest gold field in 1854. Weston Bate, argues this event was a critical turning point in colonial politics generating a shock-wave that helped carry constitutional reforms that may otherwise have “floundered on the rocks of upper house opposition” (*Gold Rushes*, p. 46). Social unrest over demands for land reform had led to riots in Victoria during August, 1860 but not so in NSW.
secure 640 acres out of every 16,000 acres held under lease against selection. If preemption was exercised strategically, a practice referred to as ‘peacocking,’ squatters could monopolize access to water for a large proportion of their land, rendering it impossible for selectors to claim any of the squatter’s property. If preemption was exercised strategically, a practice referred to as ‘peacocking,’ squatters could monopolize access to water for a large proportion of their land, rendering it impossible for selectors to claim any of the squatter’s property.40 However, selection meant government specification and enforcement now favored the reallocation of land to smallholders. In this case the probability of conflict was high but little actual conflict ensued. However, the shift in de jure property rights led to high levels of rent dissipation as squatters redirected productive resources into evading redistribution.

Little actual violent conflict occurred after the Parliaments introduced selection because budget constraints prevented the governments from effectively enforcing the selectors’ newly specified rights (Table 1, cell 2a). Ineffective government enforcement was a function of the very underlying principle of land reform: ‘selection before survey.’ Initially, there were few qualified surveyors, so surveys were delayed.41 As a result, administrators had inaccurate district maps and could not enforce the rights of the new claimants because they could not identify the boundaries between the lands selected by the claimants and the land secured by the incumbent squatters. Augustus Morris and George Ranken note that by the middle of the 1880s on average, only 27% of selectors remained on the land arguing that selection had resulted in “unintelligible chaos, in which the rights and interest of all mainly concerned have been the sport of accident, political interest, and departmental disorder.”42

The lack of government enforcement limited the transfer of de jure rights to new entrants and created the potential for greater conflict over land claims (cell 2b). However, conflict may fail to emerge if there is an imbalance in the violence capacity of competing claimants. In

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40 Roberts, *The squatting age*.

41 Further, although there were increasing numbers of qualified surveyors employed over the period, surveyors could contract to undertake private surveys of particular parcels of land for which they negotiated private payment (Morris and Ranken, *Report of Inquiry*). Private surveys augmented their incomes and created an incentive for surveyors to undertake private jobs before department directed surveys.

Australia, the violence advantage favored the squatters. It was easier to defend than usurp. The squatters were willing to defend each other’s claims against encroachment. Having worked on the land and accumulated large amounts of capital over nearly 25 years of uncontested occupation, the squatters were wealthy and could hire more guns, and they knew the quality of the land better. Even though there were conflicting claims, the new claimants could not rely on government to enforce them and did not resort to violence because the squatters held an overwhelming advantage (cell 2a).

Nevertheless, selection led to considerable rent dissipation as squatters diverted productive resources to maintaining their claims and evading redistribution. The significant wealth of squatters provided them with the resources to engage in multifaceted evasion by exploiting legislative loopholes to defend claims.43 In short, land reform under selection led to government specification but an absence of effective government enforcement. This led to substantial rent dissipation but produced little actual conflict between squatters and selectors, a situation that also transpired on the high plains of the U.S. West. Eventually, the introduction of further land reform to induce cooperative settlement underpinned by irrigation and accompanied by government funding to voluntarily acquire squatting runs, led to a migration of the many early frontier settlers to urban areas.

SETTLEMENT OF THE U.S. FRONTIER

There have been numerous studies on the overall pattern of land settlement in the U.S. Here we want to focus on the settlement of the frontier in the Great Plains, which was occupied by cattlemen after the subjugation of Native Americans.44 We focus on the Great Plains because the land was relatively arid and as such its economic value at the time of settlement did not warrant

43 Alston, Harris, and Mueller, “De facto and de jure”; “Property rights.”
44 There are many general accounts of the open range period, including Briggs, “Development and decline; Dale, Range cattle; Nimmo, Report; Osgood, Day of the cattlemen; Pelzer, Cattlemen’s frontier; Robbins, Landed heritage; and Sandoz, Cattlemen. We relied on these accounts for general overviews. On the specifics of cattlemen’s arrangements and their economic rationale we relied heavily on Anderson and Hill, Wild, wild west and Dennen, “Cattlemen’s Associations.”
paying the Federal government’s fixed price of $1.25/acre. Nevertheless, the region had economic value for ranching, which is a relatively capital intensive activity due to the need to acquire sufficient stock to be profitable. For the first arrivals the land was abundant and ranchers were free to occupy where they pleased. This was ‘possessor’ specification and enforcement (Table 1, cell 1). Cattlemen preceded other groups to the frontier of the Great Plains because they were the first actors to gain a net benefit from utilizing the land for grazing.

The Great Plains naturally consisted of a set of ranges. Over time it was difficult to establish exclusivity to an entire range because entrants had an incentive to come to the range as long as cattle prices increased and/or the railroad network expanded. The increasing number of entrants created an incentive for ranchers to try to limit entry and prevent externalities arising from over grazing of the common range. Further, current occupants would have an incentive to overstock the range as long as the private benefit was positive. These threats to range productivity created clear economic incentives for a move to group specification and enforcement that is, the rise of *de facto* commons arrangements.

Despite these incentives, it is not obvious that cattlemen’s associations would emerge to solve these problems because of the familiar free rider problem. Three additional factors acted to increase the likelihood that commons arrangements would emerge. The number of ranchers on a single range was not large; initially, ranchers were quite homogeneous, sharing norms that facilitated cooperation; and ranchers had to perform a roundup. A “roundup” was a bi-annual activity of collecting the cattle that roamed over the range. Given the aridity of the region, cattle needed to roam relatively large distances to find adequate forage. In principle each rancher could perform his own roundup but this had several problems. Multiple individual roundups increased the potential for cattle stealing; the round-up was labor intensive and there were economies of scale in having one roundup rather than several; and it was stressful on the cattle whose grazing was disturbed when they were herded together. In short, a group roundup made obvious economic sense. As a result of the overwhelming economic incentives to prevent both

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45 Dennen estimated the land was worth $1.00/acre for ranching (“Cattlemen’s Associations”, p. 423)
outsider encroachment and insider overuse, *de facto* rights in the form of commons arrangements arose (cell 1).

The initial issue facing cattlemen’s association was: who was in and who was out. To be a member of an association you had to have a range right. A rancher could gain a range right in several ways. The first rancher in the area acquired rights through “first possession”, a well respected group belief about normative obligations underpinned by Lockean fairness. A rancher could file for a pre-emption claim that meant he had the right to purchase 160 acres at $1.25/acre when the government decided to put the land up for auction at some future date. Land containing water was worth $1.25/acre and many ranchers opted for this avenue. Alternatively, ranchers could homestead some land under the provisions of the Homestead Act (1862), the Timber Acts (1873 and 1878) and Desert Land Act (1879).

After formation, cattlemen’s associations excluded parties that did not have a right to their particular range. They made the exclusion official by posting newspaper announcements that the range was closed.46 The main threat came from attempted entry by other cattlemen with similar interests. While this increased the potential for conflict, actual conflict was low because the association could exclude non-members from the roundup. Given that the costs of an individual roundup were high, there was a disincentive for attempted entry by non-member cattlemen that limited conflict.

The *de facto* rights system worked reasonably well until the 1880s when a sharp rise in cattle prices attracted even more ranchers. The result of the bovine boom was a mixture of group property rights held by many of the original entrants and members of the cattlemen’s associations and government property rights held by many of the larger scale corporations who entered during the run-up of prices in the early 1880s. To protect their “rights” both groups turned to fencing. “Cattlemen were accused of setting up small barbed-wire kingdoms to the

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46 Dennen, “Cattlemen’s Associations.”
great detriment of the sturdy pioneer looking for land." At this stage property rights on the Great Plains were a mixture of group and government specification and group enforcement.

The 1880s was a pivotal decade for the fate of \textit{de facto} and \textit{de jure} property rights on the Great Plains. Ranchers won the short run battle over the \textit{de facto} use of land in the majority of the Great Plains despite some Congressional reports recommending either widespread sale or leasing of the land. Many congressmen viewed the sale or lease of large plots of land with suspicion and allegations of supporting land monopolists. Indeed the notion of such large plots was quite foreign to the majority of Congressmen east of the 100\textsuperscript{th} meridian. Not unexpectedly, ranchers did not endorse either the selling or the leasing of land because they preferred their \textit{de facto} property rights. As a result, for much of the 1880s Congress maintained the status quo, which included \textit{de jure} property rights for homesteaders but without enforcement; \textit{de jure} fraudulently acquired property rights for some ranchers; and \textit{de facto} rights for the majority of ranchers.

The majority of the ranges remained under \textit{de facto} property rights where group enforcement prevailed. The situation increased the likelihood of conflict between ranchers and homesteaders once homesteaders began moving to the Great Plains in the 1870s. In our framework we expect that government may specify but not enforce rights where it lacks the wealth to do so and/or when incumbents have significant political influence. In the U.S. case the power of large-scale ranching corporations in Congress, especially in the Senate, and through the executive branch strongly influenced the General Land Office (GLO). This allowed ranchers to keep the GLO budget constrained so it was unable to enforce homesteader rights (Table1, cell 2a). Moreover, in the heart of cattle country, like the high plains in Wyoming and Montana, cattlemen controlled local legislatures and courts. This lack of enforcement of

\begin{itemize}
  \item \cite{1930:osgood}
  \item For example see Powell, “Report on the Lands of the Arid Region of the United States.”
  \item Libecap and Hansen, “Small farms.”
  \item At first the pace of settlement by homesteaders was small reaching greater numbers when wheat prices rose. On the issue of sheep herders and cattlemen see Alston, Harris and Mueller, “\textit{De facto} and \textit{de jure}.”
\end{itemize}
homesteader rights would have increased the likelihood of conflict, but in the absence of military interference, Cattlemen’s Associations had a large violence advantage and successfully intimidated a number of homesteaders.

As a result, there was little actual conflict. Further, once it became clear that the executive branch would not enforce the *de jure* rights of homesteaders, ranchers opted for possessor enforcement of their claims (Table 1, cell 2a). One of the implications of the framework is that this reduces incentives for migrants to move to the frontier, reducing competition between heterogeneous parties and further limiting the potential for conflict. In the U.S., it is clear that with government specification but no government enforcement, actual conflict was reduced because until 1901 the government did not utilize the cavalry to counteract the overwhelming violence potential of incumbents against newcomers (cell 2a).

Congress amended land laws again in 1891 with the General Revision Act. The Act was quite sweeping because it ended cash sales of land; repealed the pre-emption provisions; repealed the Timber Culture Acts; and placed additional restrictions on claiming land through the Desert Act. These changes prevented ranchers from formalizing their *de facto* claims but did nothing to enforce the *de jure* claims of homesteaders. The GLO, continually budget constrained, did not engage in any anti-fencing activity until the Presidency of Teddy Roosevelt in 1901.

In 1901 Roosevelt sent out the cavalry to enforce the *de jure* rights of homesteaders. His decisive actions and a boom in wheat prices led to a rapid increase in the number of homesteads filed in the Great Plains states (Table 1, cell 4). The increased settlement by homesteaders in the early 20th century prompted the movement of ranching activities onto more

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52 In the U.S. there were some sporadic attempts at government enforcement but the efforts were quite perfunctory. For more details, see Alston, Harris and Mueller, “*De facto* and *de jure*.”

53 We have searched in vain for a definitive explanation for Roosevelt’s actions. Local politicians may have put pressure on Roosevelt because increased population by homesteaders increased their political representation.
arid land in the West where ranchers’ commons arrangements continued until they were replaced with government leases. Federal government enforcement of the de jure homestead claims by the U.S. Cavalry overwhelmed the violence potential of the Cattlemen’s Associations, limiting violence during this active settlement period.

Throughout the open range era around 1870 to 1900, there is only scattered evidence of violent conflict. The commons arrangements of ranchers in cattlemen’s associations, (and individual large corporate claims) gave them such a large advantage in violence potential that homesteading claimants knew they would lose in a violent conflict against ranchers, reducing their incentives to migrate to the frontier. Eventually, when the number of homesteaders increased sufficiently to have their voices and rights upheld by local governments and the federal government finally acted to enforce de jure property rights against de facto rights of ranchers, the ranchers backed down and the homesteaders flooded the plains.

SETTLEMENT OF THE BRAZILIAN FRONTIER

Like the Australian and the American cases, the progression of the Brazilian frontier transitioned through the same four basic stages recognized in section II. First possessors had large holdings that dominated initially. When the central governments granted de jure rights to smaller and more numerous outsiders, the potential for conflict rose. That potential most likely turned into violence when the incumbent owners and the new claimants had similar violence potential. When the incumbents had overwhelming advantages or the government enforced the new rights, violence was less common. In the Brazilian case this process took much longer, dragging on throughout the entire 20th century. It has only begun to draw to a conclusion in recent years.

As Brazil achieved its independence in 1822 its economy was undergoing an extended period of low economic activity due to the depressed prices of its main exports. Over the previous centuries the colony’s economy had been through a sugar cycle (1550-1650) and a gold cycle (1700-1780) both predominantly based on slave labor. The lack of economic activity meant that there was little demand for land. Moreover, from 1822 to 1850, there was no land law in Brazil regarding the access and use of land. As commodity prices began to rise in the
1830s, however, the start of a century-long coffee boom led to increases in the demand for land, first in the region of Rio de Janeiro. The boom gradually expanded the frontier south towards São Paulo and eventually westward in the São Paulo interior.

Slave owners arrived on the frontier first. In 1800 there were approximately one million slaves in Brazil, mostly underutilized given the stagnant economy. There were very few small landowners because the Brazilian economy up to that point had offered practically no opportunities for smallholders who could not afford slaves. Few immigrants were willing to go to Brazil while slavery and large plantations dominated. In this period, possessor specification and enforcement determined frontier property rights (Table 1, cell 1).

As the value of land rose after 1830, two related issues emerged for the coffee producers. In the absence of any de jure rule for allocating land, massive levels of squatting by large land claimants had been standard practice, covering huge expanses of land that were not effectively occupied or used. As coffee prices rose and raised the returns from land still beyond the frontier, conflicts erupted among competing claimants. Warren Dean states that during this period “...the landowners hired gunmen who killed not only recalcitrant backwoods ‘intruders’, but also other landowners.”54 Similarly Lígia Osório Silva notes that “… litigation and disputes over boundaries were the order of the day, being responsible for a great part of the fights among families and crimes in the interior.”55 The costs and rent dissipation generated by such conflicts gave rise to a demand for de jure rights.

Meanwhile, British pressure led to anticipation that the importation of slaves would cease in the near future and complete abolition would eventually follow. This led large coffee planters, who had been relying on slave labor, to seek to induce European immigration. From the coffee planters perspective, immigration incentives went hand in glove with establishing a

54 Dean, “Latifundia and Land Policy,” p. 611
55 Osório Silva, Terras Devolutas, p.133
land law that would assure that the immigrant labor would effectively be directed towards the plantations rather than moving to the frontier to squat on land of their own.56

In 1850 a new land law (Lei de Terras Nº 601) recognized all extant landholdings, legitimizing all of the pre-independence imperial land grants as well as all of the squatting to that time, thus the large plantation owners with large slave holdings received de jure property rights. Even though the incumbents were the primary enforcers of their new de jure rights, the only competition for land came from similar slave-owning coffee planters who recognized the incumbents’ enforcement of their rights as legitimate (cell 2). This, and the expanding frontier acted to diffuse most potential violence.

Abolition turned out to be a less pressing issue than had been anticipated because the coffee planters managed to postpone abolition until 1888. The law established that after 1850 land could only be acquired by purchase, which ruled out the path through squatting that was the primary way the new immigrant labor force could get access to land. Because the great inflow of immigrants started in the years preceding abolition, during most of the 1850-1888 period the prohibition of squatting in the land law of 1850 was ignored and the coffee planters continued to incorporate frontier land through squatting at a tremendous pace. Clearly this provision of the law was meant for the future laborers and not for the coffee elite.

The sale of land, which was supposed to finance the immigration effort, was insignificant and when pressure for the abolition of slavery increased in the 1880s, the government had to turn instead to the general budget. When Brazil became a republic in 1889 and state governments received significant power and autonomy the power of landowners to influence government policy increased. Most states adopted land legislation that essentially replicated the 1850 Land Law. Although this legislation prohibited further incorporation of land into the private domain through squatting, in practice “… the fundamental characteristic of the legislation approved by the states was the liberality towards the (large) squatters”.57 It was

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56 Dean, “Latifundia and Land Policy”; Osório Silva, Terras Devolutas; Carvalho, Teatro de Sombras.

57 Osório Silva, Terras Devolutas, p. 255
actually convenient for the local oligarchies to have the *de jure* rights in place for selective use to keep others from claiming the land.

By the time slavery was abolished in the 1880s, the importation of immigrant labor had been effectively organized and the transition to free labor came about with few tribulations for the coffee planters. The flow of immigrants in the subsequent decades guaranteed a steady availability of labor at low wages.\(^{58}\) The period after the proclamation of the republic in 1889 up to 1930 became the golden age of coffee, as the planted area continued to expand and prices were kept high by government intervention despite systematic over-production. During this period the landowners faced the biggest threat of entry of immigrant laborers who could potentially squat on marginal land prior to the arrival of the coffee capitalists.

In the Brazilian case the political equilibrium was clearly skewed towards the landowners and the laborers stood very little chance of winning any dispute for land, either through violence or politics. The original landowners’ political power turned their initial *de facto* rights into *de jure* rights. Local oligarchies dominated access to land and power in their regions, usually through the figure of the all-powerful *coronel* who presided with feudal-like rights and reigned through a mixture of paternalism and violence, strengthened by his association to central state politicians to whom he could deliver votes. The key to the power of the *coronels* was the control of the franchise, which was not secret. Universal literate male suffrage existed, which by 1920 gave the franchise to 6% of the male population. Despite the stipulation of literacy *coronels* could deliver the votes of their workers. Workers exchanged their votes as part of the paternalistic package offered by the *coronels*. Many aspects of the rural

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\(^{58}\) Bazanezi, Scott, Bacellar, and Oswaldo, *Atlas*, p. 92; Hall, *Origins*; Halloway, *Immigrantes*. Rivera, Nugent and Saddi, “Abolition”, argues that land laws evolved through the 1850-1920 period in a way that made property rights more secure as a means to encourage immigration. In their econometric test they are surprised to find that the precision of the law has a negative effect on immigration as their story predicted a positive relation. Their result is however perfectly compatible with our analysis where coffee planters use their power, including through the law, to deny access to land for immigrants and other potential smallholder.
paternalistic system are similar to what prevailed in the U.S. on large plantations from the 1890s until the mechanization of cotton in the 1960s.\textsuperscript{59} Laborers typically lived and worked on large plantations and were even given the right to plant for their own use, but they rarely had access to land ownership. Even if one managed to squat on land in marginal frontier areas, it would typically be difficult to retain the land once the coffee frontier arrived and competing claims (often with questionable titles) by the large landowners emerged.\textsuperscript{60} Thus in Brazil the ‘coronels’ effectively preempted the entrants and the coffee planters retained strong \textit{de jure} and even stronger \textit{de facto} rights bolstered by their political dominance.\textsuperscript{61} It is worth remarking here that although there are not significant economies of scale for growing coffee, the pattern of production in Brazil was overwhelmingly on large farms. This is evidence of the greater importance of politics as a determinant of property rights as argued by Nugent and Robinson rather than endowments as in Engerman and Sokoloff.

This process was not devoid of conflict, but given the disproportionate relative power of the coffee growers \textit{vis-à-vis} the small claimants, violence was sporadic and often materialized through legal and political instead of physical means, so that, rather than violence, inequality increased. Because the coffee planters still enforced the \textit{de jure} rights this period is still represented by cell 2a.

After 1930 Brazil initiated in earnest its industrialization drive and a shift of power from rural to urban elites started to take place. The vigorous process of urban modernization was increasingly contrasted with the lingering backwardness of the rural sector. This contradiction gradually gave rise to forces that eventually moved \textit{de jure} rights to land in Brazil to favor actors other than those on the land, setting up the circumstances for conflicts to emerge. This happened as democracy expanded intermittently and the increasing franchise made politicians increasingly sensitive to demands for land reform. Already during the 1937-1945 dictatorship,

\textsuperscript{59} Alston and Ferrie, “Paternalism.”

\textsuperscript{60} Osório Silva, \textit{Terras Devolutas}

the rights of urban workers expanded significantly, setting the stage for similar demands for rural workers in the 1960s. Re-democratization brought about a new Constitution in 1946 that introduced the possibility of expropriation of land in the social interest. These are the first of a series of gradual concessions of de jure rights to landless peasants that would take place over the next decades.

Because these de jure rights were not fully enforced by the government, the situation of competing claims became increasingly combustible (Table 1, cell 3). Already in the 1950s organized groups of landless peasants started to appear in the countryside. During the early 1960s the Land Statute and the Rural Workers Statute extended the rights of rural workers and landless peasants, reflecting an increasing demand for redistribution from the electorate. Even the military dictatorship of 1964-1985 vigorously pursued land reform as a means to modernize the backward agricultural sector marred by low productivity.

With another return to democracy in 1985 the franchise was expanded to unprecedented levels when the government granted illiterates the right to vote. The expanded franchise led to further pressure to strengthen de jure rights for landless peasants through land reform. The 1988 Constitution established that land must fulfill its ‘social function,’ which opened the way for massive waves of invasions of unproductive properties from the 1990s to the present. Officially, the initiative to expropriate unproductive properties should belong to the government, which should subsequently distribute the land to registered peasants. But in the absence of governmental enforcement of the constitutional provisions, organized landless peasants preempted and expedited the process by invading properties to force the government to act.62 This fits squarely the situation depicted in cell 2. De jure rights gave landless peasants a claim on unproductive land but lack of government enforcement allowed landowners with de facto rights to resist, resulting in more than seven thousand land conflicts from 1988 to 2010.63 During this period the government redistributed over 63.2 million hectares of land to landless peasants.

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62 Alston, Libecap and Mueller, “Model”; Titles; “Land Reform.”

63 CPT, Conflitos.
peasants, benefiting over 890 thousand families. The government reacted to invasions by organized landless peasants movements by reallocating rights to them. This strategy was successful because the salience of land reform for the median voter in Brazil forced the central government to systematically cave in to conflicts by expropriating the land in favor of the peasants.64

CONCLUDING REMARKS

The emergence and progression of property rights on a frontier is contextual and there will naturally be substantial variation in the histories of different countries. The approach presented in this paper does not seek to find a set pattern that should apply to every case of an emerging frontier. Instead, the method provides an integrated way to think about the differing roles of endowments, norms, and politics in influencing property rights at different junctures. There is considerable agreement in the literature that factor endowments play a crucial role in determining which actors first move to a frontier and the activities in which they engage. But this outcome does not mean that the final allocations are inevitably predetermined and the approach here shows how norms and political forces can significantly alter the path of property rights.

The first potentially deviating force is the emergence of commons arrangements or clubs among a group of claimants that reduce the cost of exploiting the land and defending against outsiders. A second possible disruption takes place when government steps in to provide de jure property rights. A key aspect of the framework is the explicit recognition that the specification of the property right is often done by a different actor than the enforcement of the property right. This opens the possibility that at some point the possessors on the land may not have their de facto rights recognized. If this change in specification is followed by enforcement by a group or by the government, there may be some conflict and violence as the transition is made but that is likely to be temporary. However, it can also be the case that government opts not to enforce their specification, leading to a situation where competing claims will co-exist.

64 Alston, Libecap and Mueller, “Land Reform.”
one backed by *de facto* and the other by *de jure* rights. Yet even when this is the case, if one side has an overwhelming violence potential, actual conflict is unlikely. But, when each side perceives that it has a reasonable chance of asserting its right by force, conflict is the likely outcome.

Perhaps the most salient finding is that conflict is most likely in a frontier setting when the government specifies property rights to outsiders without enforcement. The political arena, especially one in which the franchise is broad, tends to induce governments to specify property rights to the “outsiders” rather than to the *de facto* initial claimant. In particular, in our three country studies we found that the occurrence of conflicts (or latent conflict) is often linked to the extent of the franchise giving voice to the preferences of the alternate land claimants or to populations far-removed, such as urban voters, which may have strong views on who they would like to see owning the land. Clearly the settlement process on the frontier in other countries may have followed very diverse paths, and we encourage analyses of the development of property rights on frontiers in other countries to better generalize results. At the very least the Australia, U.S. and Brazil cases show how political forces and social norms significantly impact the frontier path initially determined by factor endowments.
References


Archives of New South Wales. 4/2680. Colonial Secretary. Main Series of Letters Received 1826-1982.

Archives of New South Wales. 4/3660. Colonial Secretary. Main Series of Letters Received 1826-1982.


Black, N. *Station Records*. MS 8996. State Library of Victoria, 1830-1923.


Lester, A. and Dussart, F. “Trajectories of protection: protectorates of Aborigines in early


Table 1 – The Impact of Property Rights when Specification and Enforcement Differ

<table>
<thead>
<tr>
<th>Enforcement of Property Rights</th>
<th>Specification of Property Rights</th>
<th>(\text{de facto})</th>
<th>(\text{de jure})</th>
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<td>(\text{de facto})</td>
<td>Individual or Group</td>
<td>Possessor specification</td>
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<td>Possessor enforcement</td>
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<td></td>
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<td>Low conflict</td>
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<td>(\text{de jure})</td>
<td>Government</td>
<td>Government specification</td>
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<td>Possessor enforcement</td>
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<td></td>
<td>a) Low conflict with weak enforcement</td>
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<td></td>
<td>b) High conflict with strong enforcement and no imbalance in violence potential</td>
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<tr>
<td>a) Low conflict when there is an imbalance of violence potential</td>
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<tr>
<td>b) High conflict when there is no imbalance in violence potential</td>
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In (a) \(\text{de facto}\) and \(\text{de jure}\) specification and enforcement favor the claimant on the land. In (b) different claimants hold \(\text{de facto}\) and \(\text{de jure}\) rights. The probability of conflict is further affected by the relative violence capabilities of the claimants.