Getting to Coase: Equilibrium and the Institution of Property

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Property is not simply a set of rules that allocates bundles of rights but a set of relations among people with respect to a resource. Most economic analyses of property assume the effectiveness of legal rules – that they provide a constraint on human interaction. But if rules are to provide incentives for economic behaviour there must also be incentives to comply with the rules. For example, Coasean theory assumes rules in complex economic systems that establish property rights as the basis for efficient market bargaining. Yet there is a problem of getting to Coase – how to ensure authoritative allocation of property rights. This article provides a conceptual frame for the challenges of establishing property – the reasons why some economic systems fail to provide authoritative allocation of property rights. The core thesis is that there is no authoritative allocation of property rights where law attempts but fails to displace prior equilibrium mechanisms for property coordination. The article provides insights into the relationship between property and economic performance.

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INTRODUCTION

The behavioural dimensions of institutions remain unsettled in new institutional economics.1 Institutions-as-equilibria narratives describe institutions as the endogenous product of equilibrium behaviour in games of economic interaction.2 Equilibrium describes the self-enforcing state where resource participants adopt settled patterns of behaviour based on “best response” strategies to the anticipated strategies of others.3 Equilibrium behaviour provides the behavioural foundations of an institution when it generates self-reinforcing expectations of compliance with the institution.4 In contrast, institutions-as-constraints theories focus on institutions as exogenous “rules of the game”.5 Institutions emerge through political processes of interest group bargaining rather than the equilibrium coordination of interacting individuals.6 Institutions are not an equilibrium outcome of decentralised interaction, but “man-made” rules that set the preferences and payoffs of participants engaged in interaction.

A focus on institutions as exogenous rules of economic interaction draws attention to the incentive effects of institutions. Institutions provide a basis for understanding differences in the performance of economic systems because institutions such as property set incentives for economic behaviour. But if institutions provide incentives for economic behaviour there must also be incentives to comply with institutions.7 Exogenous accounts of institutions as rules

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2 The canonical reference is Thomas Schelling (1980). The Strategy of Conflict. See also Calvert, Rational Actors, Equilibrium and Social Institutions. 1995. at 60 (“All institutions, however, must have a common property: it must be rational to nearly every individual to almost always adhere to the behavioural descriptions of the institution, given that nearly all other individuals are doing so”). See also Schotter, The Economic Theory of Social Institutions. 1981. at 11 (An institution is “a regularity and social behaviour that has agreed to buy all members of society, specifies behaviour in specific recurrent situations, and is either self-policied or policed by some external authority”).


4 See Krier 2010, at 151 (“Today we speak of a convention as a social practice generally adhered to by the members of a particular social group without any explicit agreement or the external enforcement, thanks to a general expectation that the practice will be followed”). Krier’s emphasis on group-based compliance with the convention is significant as it illustrates the link between conventions and self-organising or self-reproducing groups.

5 The extensive literature on institutions as the “rules of the game” tends to fall into this category: See Anna Grzymala-Busse, The best laid plans: the impact of informal rules on formal institutions in transitional regimes, 45 Studies in Comparative International Development (2010). See Calvert, Rational Actors, Equilibrium and Social Institutions. 1995.

6 See Sened, The political institution of private property. 1997. at 65 (“Such a coalition may form in a legislative body, a ruling government or an individual with dictatorial powers).”

7 See Calvert, Rational Actors, Equilibrium and Social Institutions. 1995., at 58 (“The institutions-as-constraints approach is useful for understanding behaviour under stable institutions, but it falls short as a tool for
require a conceptual frame for behavioural compliance if they are to explain the emergence and maintenance of institutions as constraints on human interaction. Without an understanding of compliance there are assumptions of the effectiveness of rules – most commonly, that there is a well-functioning legal system with a state monopoly on the use of force.\(^8\) In relation to property, for example, assumptions of compliance allow a focus on fine-tuning legal rules to provide incentives for the maximisation of social welfare – a subject that is the focus of most economic analyses of property.\(^9\) Yet expectations of compliance with property determine the nature of incentives to act on the basis of property. Without expectations of compliance with property there is no basis for assumptions that economic behaviour flows from the institution of property.

There is a body of scholarship limiting the institution of property to exogenous rules of resource interaction alone.\(^10\) Property rules establish payoffs and strategic options – the incentive structures for economic interaction.\(^11\) Equilibrium conditions of respect for property are simply a behavioural regularity rather than a component of the institution of property. Yet limiting the institution of property to exogenous rules begs the question: can rules establish incentives for economic behaviour without social patterns of compliance with the rules? Property is not simply a rule that allocates bundles of rights but a set of relations among people with respect to a resource. To provide a comprehensive account of the institution of property, it is necessary to adopt a broad view of property as a product of equilibrium behaviour as well as exogenous rules. In complex economic settings, in particular, equilibrium behaviour is a necessary element of the institution of property because law and third-party enforcement alone cannot solve the problem of coordinating property expectations among large groups of people.\(^12\)

Most equilibrium studies of property focus on small group settings. In large group settings there are equilibrium studies of institutions other than property, but there are few if any studies of property as an equilibrium institution. Yet the enforcement costs of property mean that equilibrium is essential to the institution of property even in large group circumstances of law and the modern nation-state. The high costs of property enforcement are a function of the reach of property – the in rem characteristic of enforcement ‘against the world’. Because of the expressive functions of law, property analysis requires attention not only to the design of law but the expressive functions of law – the capacity to co-opt or alter prior equilibrium conventions of compliance with property. All property systems have equilibrium conventions – such as respect for possession – that pre-date law and the modern nation-state. Even after a process of transition to law, there are neighbourhoods, communities and networks that sustain

\(^8\) Dixit,


\(^10\) Nor do they explain the process by which different parties reach the same equilibrium in multiple games of resource interaction.

\(^11\) See Sened, The political institution of private property. 1997., at 3.see id. at. at 65 (“Such a coalition may form in a legislative body, a ruling government or an individual with dictatorial powers).

\(^12\) Id. at 1854-55.
equilibrium conventions of respect for property. In large group settings, the incentive effects of property are a product of the interaction of law and equilibrium conventions rather than legal rules alone.\textsuperscript{13}

The equilibrium dimensions of property provide insights into the relationship between property rights and economic performance. In general, Coasean analysis considers why property matters for economic performance rather than how complex economic systems establish property as a basis for optimal economic activity. The Coase Theory assumes authoritative allocation of property rights as the basis for efficient market bargaining. Assuming authoritative allocation of property, efficient bargaining leaves entitlements in the hands of parties with maximal incentives to invest in production and reduce the social costs of competition for resources. The assumption allows a focus on exchange costs: sub-optimal economic incentives develop when exchange costs prevent efficient transfer of property entitlements. Yet there is a problem of getting to Coase – how to ensure authoritative allocation of property rights. This article provides a conceptual frame for the challenges of establishing property – the reasons why some economic systems fail to provide authoritative allocation of property rights. The core thesis is that there is no authoritative allocation of property rights where law attempts but fails to displace prior equilibrium mechanisms for property coordination.

Part I describes equilibrium narratives of the institution of property. Equilibrium conditions of property coordination emerge when the participants in a game of resource competition select an asymmetrical feature of the environment – a focal point – to avoid costly conflict over rights to the resource. The focal point provides a basis for equilibrium compliance with property as a result of shared expectations of the likely strategies of other participants. A simple focal basis for property coordination is expectations of respect for possession. Yet possession may not provide a focal basis for property coordination at scales of resource use beyond household residences and plots for intensive cultivation. Other focal points such as custom or leadership may emerge to qualify possession through agreement or coordination within a close-knit group. Where resource values rise and the costs of multi-scale coordination of property exceed the benefits, economic agents may adopt mutual strategies of competing for valuable property rights, which then necessitates acts of enforcement to avoid a Hobbesian "war of all against all".\textsuperscript{14}

Part II considers transitions to law from self-enforcing systems of property ordering. The high costs of property coercion mean that transition to law from self-enforcing systems implicates the expressive capacity of law to induce changes in the equilibrium strategies of economic agents. Expressive transitions to property law take place when resource users accept law or the state as a focal basis for property coordination. However, transitions to property law are not inevitable simply because rising resource values disrupt equilibrium systems of property coordination. In the absence of equilibrium compliance with law, or a state capable or willing

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\textsuperscript{13} JACK KNIGHT, INSTITUTIONS AND SOCIAL CONFLICT (Cambridge University Press. 1992), at 173 ("The "autonomous order" problem is often posed as a pre-state process… Informal rules continue to emerge and change within and around the State’s formal institutions as the unintended consequences of everyday social interactions. These emerging rules can affect the social consequences produced by formal institutions.").

\textsuperscript{14} See Sened, I. (1997). The political institution of private property, Cambridge University Press. at 16 – 17. Sened identifies civil wars in Lebanon, Bosnia and “the African continent” as examples of Pareto-inferior Nash equilibria in a prisoner’s dilemma game of competition for resources. He also applies the description to gang wars in the “urban centres of the USA (in the 1980s and 1990s)". See Sened, the political institution of private property, at 17 – 18.
to engage in coercive enforcement, bright-line legal delineation of entitlements may increase the numbers and stakes of distributional losers, and thereby increase social patterns of non-compliance with the rule. In these circumstances, and to adapt Robert Ellickson’s hypothesis of the design of social norms: the lowest objective sum of costs associated with property may be provided by rules that maintain equilibrium conditions of compliance notwithstanding increases in deadweight losses or the information and exchange costs of property.

Part II concludes with a discussion of land titling cases where property claimants choose not to transition to law, due to the presence of alternative governance arrangements, even though law provides bright-line reductions in information and exchange costs. Part III turns attention to another category of case where law fails to provide authoritative allocation of property rights – when law creates or grants de jure rights to land without the capacity or willingness to engage in coercive enforcement against de facto claimants. Sub-optimal contests over property emerge where de jure and de facto claimants lack a comparative advantage in violence, and transaction costs or distributional consequences prevent Pareto-improving agreement to allocate entitlements. Public choice analysis provides the standard explanation for laws that deny de jure recognition to possessors or users of land without the capacity for de jure enforcement. State actors have incentives to allocate de jure rights to persons other than local de facto claimants where they accrue private benefits from allocation without incurring private costs of enforcement. Yet public choice alone does not describe the institution of property in cases of failure by law to displace equilibrium systems of property coordination. Part III provides case-studies of de facto systems of property coordination, and their interaction with the state, in areas of tropical forests, urban informal settlements and agricultural land subject to large agri-business concessions. The case-studies illustrate the core argument that interactions among law and equilibrium behaviour provide constituent elements of the institution of property.

II. Equilibrium and Property without Law

A. Contracting for Property

The Coase Theorem holds that the initial allocation of property entitlements (or legal liabilities) does not affect efficiency as costless bargaining creates optimal use of resources. Costless bargaining leaves a property entitlement in the hands of the party that values it the most. By definition, that party has optimal incentives not only to invest in production but to reduce the social costs of resource competition by monitoring resource use and excluding outsiders. Sub-optimal incentives develop as a result of exchange costs – the costs of identifying, negotiating and enforcing agreements to transfer entitlements. In a world of costless exchange, the role of the state is simply to define the initial allocation of property competition by monitoring resource use and excluding outsiders. Sub-optimal incentives develop as a result of exchange costs – the costs of identifying, negotiating and enforcing agreements to transfer entitlements. In a world of costless exchange, the role of the state is simply to define the initial allocation of property rights and refrain from further intervention in market bargaining. In a world of costly exchange, the state should provide standardised menus of governance options from which market participants can choose, while also working to reduce the transaction costs that may prevent effective choices being made. It is only when transaction costs are so high as to

\[ \text{(Equations and references are omitted for brevity.)} \]
preclude effective bargaining altogether that resource conflicts would best be resolved by more interventionist state mechanisms, such as government regulation, court decisions, or administrative rulings.  

Ronald Coase himself assumed authoritative allocation of entitlements or liabilities by the state. However, it is possible for private ordering to create property rights without the need for state intervention. For example, property may emerge through agreement where all parties are better off as a result of the agreement.  

The agreement is Pareto-improving where all parties experience net losses due to the absence of property. The costs of no property include failures to capture gains from trade, or wasteful ‘races’ to appropriate or control resources. These costs increase as rising resource values increase potential gains from trade and control of resources. Even though there are transaction costs of agreement, and the information costs of defining, demarcating and valuing a property right, the net benefits of property not only provide mutual incentives to create property through agreement, but to respect property rights created by agreement.

The potential for autonomous creation of property by agreement is limited by the distributional consequences of property. While both parties may be better off with the agreement, the party receiving the property right will benefit more than the party that forgoes the right. Distributional losers under an agreement to create property have an alternative option of non-co-operation, in the hope that they receive the property right in future rounds of negotiation, or succeed in appropriating the right through force. Distributional losers may anticipate greater payoffs from hold-outs or appropriation than agreement. Equally, the potential beneficiary of property will choose not to invest in negotiations for property where she expects that the other player will refuse to cooperate because of the potential payoffs of hold-outs or appropriation. In order to reach agreement, therefore, the contract may require side-payments to compensate distributional losses incurred by the party that does not receive the property right. Yet, in the absence of third-party enforcement, or cooperative incentives arising from repeat interactions among participants, a distributional loser may not agree to compensation because there is a problem of ex ante commitment: the property beneficiary cannot credibly commit to the promise of compensation without a mechanism to ensure compliance with the agreement.

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16 This issue of collectively imposed solutions has produced a voluminous literature. For a famous example see Guido Calabresi & A. Douglas Melamed, Property Rules, Liability Rules, and Inalienability: One View of the Cathedral, 85 Harv. L. Rev. 1089 (1972). For a useful overview see Merrill & Smith, supra note 27, at 375-83.

17 See, for example, Ghose 1960, OLIVER E. WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM: FIRMS, MARKETS, RELATIONAL CONTRACTING (Free Press. 1985), 1975.. For a discussion of contracting for property based on a simple hypothetical example see Douglas North 1990, at 37 – 43).

18 Libecap argues that individuals may contract for property in order to avoid the losses of no property, but that, in certain circumstances, transaction costs and distributional effects may prevent property emerging altogether.

Private incentives not to cooperate can create prisoner's dilemma conditions that prevent the formation of property through agreement. The rational pursuit of individual interest produces a Pareto-inferior result of mutual non-cooperation. Under the incentive structures of a prisoners’ dilemma game, the lowest payoff outcome is to choose to cooperate when the other participant(s) choose non-cooperation. The highest payoff is non-cooperation when the other participant(s) choose cooperation. All the participants choose non-cooperation in an effort to gain the highest payoff outcome, but the result is the low payoff outcome of mutual non-cooperation. In these payoff circumstances, property does not emerge because the Nash equilibrium is mutual strategies of competing for a property right. Even in circumstances where contracting for property is Pareto-improving, property does not emerge because of the potential value of property for each party, the distributional losses of no property for the other party, and the strategic option of hold-outs or appropriation for each party. These circumstances create the potential for a Hobbesian "war of all against all".

20 A number of studies on the emergence of institutions from state of nature conditions in terms of prisoners’ dilemmas incentives. See, for example, Santiago Sanchez-Pages & Stephane Straub, *The emergence of institutions*, 10 THE B.E. JOURNAL OF ECONOMIC ANALYSIS & POLICY (2010). at 3 ("In this state of nature, interactions take the form of a simple prisoner's dilemma game).


21 The standard prisoner’s dilemma example describes a situation where there are two prisoners, each of which are offered a reward for confessing, but is both confess they still get convicted for a misdemeanour. All charges are dropped if prisoner A confesses and prisoner B does not. In lateral non-confession leads to 5 years jail. Mutual non-confession needs to one year in jail. And if both confess they get three years. The example describes a situation where the rational pursuit of individual self-interest – i.e. the biggest payoff – leads to a worst result for both. Both parties are worse off if both confess. The best result is that they both cooperate not to confess. Yet the only equilibrium is a mutual strategy of confession. Given the other player’s response – to confess – each player is worse off if they change strategy. That is, if one person change of strategy: not confess: on the other party confesses, then they are worse off than if they confess. Richard H McAdams, *Beyond the Prisoners' Dilemma: Coordination, Game Theory, and Law*, 82 SOUTHERN CALIFORNIA LAW REVIEW (2008). at 216.

22 A Nash equilibrium describes the self-enforcing state where the best response of a resource participant is to continue a strategy in the expectation of no change of strategy by other participants: see John Nash, *Non-cooperative games*, 54 THE ANNALS OF MATHEMATICS (1951). at 286. See Sened, *The political institution of private property*. 1997. at 16 – 17. Sened identifies civil wars in Lebanon, Bosnia and “the African continent” as examples of Pareto-inferior Nash equilibria in a prisoner’s dilemma game of competition for resources. He also applies the description to gang wars in the “urban centres of the USA (in the 1980s and 1990s)”. See also The Limits of Liberty, at JAMES M BUCHANAN, *THE LIMITS OF LIBERTY: BETWEEN ANARCHY AND LEVIATHAN* § 714 (University of Chicago Press. 1975). at 9 ("Escape from the world of perpetual Hobbesian conflict requires an explicit definition of the rights of persons to do things"). Property may still not emerge in a bilateral game of property allocation where one party anticipates a higher pay off from non-cooperation. In this one-sided prisoner's dilemma scenario the potential beneficiary will not engage in costly acts of assertions of property claims because they expect that the other player will refuse to cooperate. Network


Relational contracting provides a potential solution for prisoners’ dilemma obstacles to compliance with property. Repeat interaction among resource users provides incentives to avoid prisoners’ dilemma outcomes where the immediate gains from non-co-operation (plus interest) are less than the reduced gains from cooperation in future rounds of interaction. Repeat interaction helps to provide access to information on cooperative behaviour, and disincentives to non-co-operation through the threat of reprisal rounds of non-co-operation. In the case of contracting for property the parties may honour promises to create property, or promises to compensate the distributional losses of property, where the costs of group or network exclusion are greater than the benefits gained from the violation itself. Property emerges without allocation or enforcement by the state through repeat interaction within a close-knit group.

B. Coordinating Property: Achieving Equilibrium in Games of Chicken

The Hobbesian outcome of mutual conflict over property is subject to the possibility that, even in the absence of agreement, payoff conditions favour strategies of mutual coordination, either because the costs of conflict are greater than the value of the resource, or because repeat interaction provides benefits to co-operation that outweigh the gains of non-co-operation. The standard example is a “Chicken” game, in which the costs of mutual non-co-operation are greater than the value of the resource. Whereas in a prisoners’ dilemma game the lowest payoff outcome is to cooperate when others engage in non-co-operation, in a Chicken game each party anticipates net losses from individual strategies of non-coordination because the lowest possible payoff is to engage in non-co-operation when others also fail to cooperate. Mutual non-co-operation creates a costly war of attrition over rights to resources. In these circumstances, a participant may be better off by deferring (cooperating) given the expectation of insistence (non-coordination) by another participants. The best response to expectations of insistence is deference, and the best response to expectations of deference is insistence. Either result represents an equilibrium outcome of compliance with a property claim because it avoids the net costs of mutual non-coordination.

A two-party game of competition for a resource illustrates the incentive structure that may lead to compliance with property through self-enforcing patterns of coordination without the need for communication or agreement among the participants. Each party has a choice to insist (a "hawk" strategy), or to defer (a "dove" strategy). Each would prefer to receive the property right. Yet both prefer to avoid costly conflict if the costs of conflict are greater than the value of the resource, as the adoption of mutual hawk-hawk strategies diverts resources from production to damaging cycles of attack and defence. Alternatively, the parties may adopt mutual dove-dove strategies that lead to a 50/50 division of the resource. However, in the absence of third-party enforcement, dove-dove strategies are not stable as there is a problem of commitment: either player may gain by reverting to hawk when the other player

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26 See ROBERT SUGDEN, THE ECONOMICS OF RIGHTS, CO-OPERATION AND WELFARE  (Blackwell Oxford. 1986).at 62; Sugden applies the evolutionary analysis of Maynard Smith to the human context. Maynard Smith noted that, where there are net costs to conflict, animals may adopt a strategy based on a rule of thumb: if possessor play hawk; if intruder played dove.

For a discussion see Krier, at 152.
continues to play dove. The hawk player takes over the resource notwithstanding its prior division. If hawk-hawk dissipates the benefits of resource control through fighting, and dove-dove is not a stable strategy, iteration may produce a “tit-for-tat” rule of thumb: play hawk if the other player plays dove, and play dove if the other player plays hawk. Where tit-for-tat strategies emerge the result is a Nash equilibrium as no player is better off by changing strategy given the strategy of the other player(s). Assuming always that the value of the resource is less than the costs of fighting, the equilibrium of hawk-dove or dove-hawk respect for property is self-enforcing because it represents the best rational response to the strategy of the other party.

C. Coordinating Property: Possession as a Focal Point

Where the value of the resource is less than the costs of fighting, the participants in a game of resource competition will look for an asymmetrical feature of the environment – a focal point – to avoid a costly war of attrition. For example, where two cars approach an intersection at the same speed, with the same preference to be first, the intervention of a bystander who waves one car through provides a focal point that allows the parties to avoid a collision. Alternatively, a set of signs at the intersection may indicate which driver has the right of way. In either case, the focal point provides a salient and unambiguous feature of the environment that both parties are likely to choose to avoid the worst possible outcome of mutual insistence on a right of way. The pre-condition is that both parties share similar cognitive or cultural understandings of the focal point in order to establish a shared basis for predictions of behaviour. Cognitive or cultural pre-conditions for focal point selection have the potential to provide an epistemic dimension to self-governing property systems: that is, resource users filter understandings of “property” through mental shortcuts – heuristics – that inform calculations of costs and benefits as well as predictions of behaviour.

A focal point for property coordination may be a mutually understood feature of the environment that does not arise from a ‘man-made’ exogenous rule of interaction. For example, the simple fact of possession may be a focal point in a game of resource competition because it provides a clear and visible sign of a relationship with a resource. All else being equal, possessors are more likely to adopt hawk strategies than prospective dispossessors, because the discounted future benefits of possession provide incentives to avoid loss of possession. The focal point of possession selects the equilibrium: when possessor play hawk and when not a possessor play dove. Because of the endowment effect of possession, the possessor is expected to persevere in the war of attrition, which means that there are no incentives for a non-possessor to persevere in mutually costly conflict over the resource. The equilibrium has self-enforcing characteristics because the best response of each

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27 See id. at 62; Sugden applies the evolutionary analysis of Maynard Smith to the human context. Maynard Smith noted that, where there are net costs to conflict, animals may adopt a strategy based on a rule of thumb: if possessor play hawk; if intruder played dove.

For a discussion see Krier, at 152.

28 The seminal study is Schelling, 1960, at 57.


30 See id. at 155 ("Possession is... usually unambiguous, and thus provides a clear indication of the status of any claimant").

participant is to defer to – or insist upon – possession given the expectation that other participants will adopt the same hawk/dove strategy. In these circumstances, the institution of property is a function of equilibrium coordination rather than small group agreement.

The mining rules of the Californian goldfields between 1848 and 1849 illustrate the adoption of first possession as a focal point for property coordination in the absence of law or third-party enforcement. The 19th-century Californian gold rush involved large numbers of miners entering an area that had recently been annexed by the United States from Mexico. Mexican law did not apply as from February 12 1848, and there was no US federal mining law until 1852. There were no courts, police or jails, and only a small military force. Throughout 1849 American miners developed mining codes that established a relatively low level of dispute despite the competitive nature of the rush for gold itself. Almost all the

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32 See Karen Clay & Gavin Wright, Order without law? Property Rights During the California Gold Rush, 42 EXPLORATIONS IN ECONOMIC HISTORY (2005). at 177 (“The mining districts of the California gold rush have long [been] celebrated as remarkable examples of orderly institution-formation in the absence of formal legal authority”); Andrea McDowell, Real Property, Spontaneous Order, and Norms in the Gold Mines, 29 LAW AND SOCIAL INQUIRY (2004).at 771(“This article seeks to explain the stability of a mining claim system in the early years of the California gold rush, a system developed and administered by the miners themselves in the absence of any formal law or government”);

JOHN D LESHY, THE MINING LAW: A STUDY IN PERPETUAL MOTION (Resources for the Future. 1987). (no generally applicable mining law in California in 1848 and no authority stemming from a higher government); Andrew P Morriss, Hayek & Cowboys: Customary Law in the American West, 1 NEW YORK UNIVERSITY JOURNAL OF LAW AND LIBERTY (2005).(applying Hayek’s legal theory inter alia to mining associations in the American West).

33 Gold was first discovered at Sutter’s Mill in California in January 1848. On February 2 1848, the United States and Mexico signed the treaty of Guadalupe Hidalgo, which ended the so-called Mexican War and ceded California to the United States: see CLAY & WRIGHT.at 159-69; In June 1848 there were around 5000 people working in the gold mines. By December 1849 there were approximately 40,000, and by 1852 100,000, gold miners in California: id. at. at 158; Morriss, supra note 32, at 47-8; Richard O. Zerbe & C. Leigh Anderson, Culture and fairness in the development of institutions in the California gold fields, 61 THE JOURNAL OF ECONOMIC HISTORY (2001).at 114.

34 The Senate deleted Article X, which guaranteed the protection of Mexican land grants, when it ratified the treaty of Guadalupe Hidalgo on March 10 1848. Article V established the border between the US and Mexico: see the Treaty of Guadalupe-Hidalgo [Exchange copy], February 2, 1848; Perfected Treaties, 1778-1945; Record Group 11; General Records of the United States Government, 1778-1992; National Archives. See also CLAY & WRIGHT.at 159-160 (“No federal mining law was in existence at the time gold was discovered... [T]he federal government abandoned all administrative apparatus and enforcement machinery pertaining to minerals on the public domain in 1846”), Congress passed a General Mining Law on 10 May 1872.

35 McDowell, Spontaneous Order, supra, note 4, at 771 (“when gold was discovered on January 24, 1848, the territory had none of the usual legal institutions such as a legislature, courts, police, or jails”); Morriss, Hayek & Cowboys, supra note 32, at 47(“the small military force present was unable to provide law for the massive influx of people”); Andrew P. Morriss Miners, Vigilantes, & Cattlemen: Overcoming Free Rider Problems in the Private Provision of Law, 33 LAND & WATER L. REV. 581 (1998) (“Unfortunately, the military government proved unequal to the task of establishing, let alone enforcing, law and order. It simply did not have the manpower”).

36 See e.g. Andrea McDowell, From Commons to Claims: Property Rights in the California Gold Rush, 14 YALE JOURNAL OF LAW AND HUMANITIES (2004).at 4-5 (“In the first months of 1849 ‘the miners developed and codified rules that... [included] strict limits on claim size, notice and work requirements, and, in many cases, prohibitions against holding more than one claim at a time”); McDowell, Spontaneous Order, supra, note
mining codes included rules of first possession that granted rights to the first person to dig a hole and stake a claim. While initial agreement among miners created the first possession rule, the rule generated compliance because it served as a focal point mechanism to avoid costly conflict over resources. The rule created the institution of property, in the absence of third-party enforcement, as a result of equilibrium conditions of respect for possession.

E. The Dynamic Qualities of Equilibrium: Social Power and Contests over Focal Points

Equilibrium narratives of the institution of property do not deny the potential for contests over the focal basis for property coordination. Where the payoffs are equal the choice of focal point is not affected by the distributional consequences of the choice. For example, motor vehicle drivers may choose either to drive on the left or right of the road – the payoffs of the choice are equal for all drivers. In these games of pure coordination, any salient feature of the environment may become the focal basis for expectations of behaviour. Empirical evidence suggest that each player attempts to select a focal point that she believes the other player is likely to select as the basis for coordinated expectations of behaviour. Trial and error iteration then leads to equilibrium selection of a focal point. The equilibrium is stable because there are no distributional benefits from selection of an alternative focal point.

Where the payoffs are asymmetrical, there are increased incentives for the players to pursue their preferred focal point for coordinated behaviour. Typically, mixed motive games of cooperation will have asymmetrical payoffs where one party benefits from a focal point more than others – even though all parties prefer any focal coordination to mutual non-cooperation. Each party has incentives to assert the focal point that is most advantageous to them. Repeat interaction, and the experience of net private losses from mutual non-cooperation, then creates incentives for convergence on a focal point. The party with more resources, and a greater capacity to withstand losses, may make credible threats of attritional conflict in order to press her own choice of a focal point. The converse applies as well: those who will suffer more from non-cooperation will be more averse to risks of iterated losses, and more likely to select the focal point desired by the stronger party as the basis for equilibrium expectations.

4, at McDowell, Real Property, Spontaneous Order, and Norms in the Gold Mines. 771 (“When diggings looked promising... those who were on the spot held a meeting to pass a more detailed mining code for that particular area...[they] chose a chairman, appointed a committee to draft a code, and a short time later, approved it by majority vote”).

37 McDowell, From Commons to Claims: Property Rights in the California Gold Rush at 27-8 (“The first arrivals... had the first choice of claims, while the others were allowed to make their selections in the order of the date of their arrival”); Zerbe & Anderson. at 133-5 (“First-come, first-served procedures were used by the California miners in establishing the choice of claims”).

38 McDowell, Real Property, Spontaneous Order, and Norms in the Gold Mines. at 796. See also Zerbe & Anderson. 114-143. at 133 (Zerbe and Anderson state that “[f]irst-come, first-served procedures can serve as focal points to avoid conflict because they appear to be fair.”).


40 McAdams, testing the focal point theory of legal compliance, and 90.

41 Nicholas Bardsley, et al., Explaining Focal Points: cognitive hierarchy theory versus team This reasoning, 120 THE ECONOMIC JOURNAL (2010).

42 For a technical account see conflict Knight, Institutions and social conflict. 1992. at 130 – 36. Information about access to resources tends to be salient. Information is not only limited to past rounds of the game. There is
Self-governing systems of property are not necessarily fair or just, as those with social power may select the focal basis for property coordination through the capacity to threaten net losses from conflict over property.

The attainment of equilibria does not preclude exogenous factor changes or endogenous power shifts that disrupt the equilibrium. For example, a sub-group may overcome collective action constraints to agree hawk strategies to change a focal point, notwithstanding the initial costs of hawk-hawk effects, in an effort to create a critical mass of uncertainty as to the basis for equilibrium, and to increase payoffs from a change in the basis for equilibrium. Alternatively, exogenous effects such as in-migration may create further rounds of conflict over the basis for property coordination. New entrants may adopt costly hawk responses to the hawk strategies of existing players to assert their desired focal basis for property coordination in early rounds of play. These dynamic circumstances provide the potential for changes in equilibrium patterns of compliance with claims of property, including periods of disequilibrium where interacting parties experience net losses from non-compliance with claims of property. The potential for periods of disequilibria is significant because it establishes the behavioural conditions for Hobbesian contests over resources, which may dissipate the benefits of property through costly ‘races’ to gain the property right.

D. The Significance of Scale: Equilibrium in a Complex Property System

In simple economic circumstances, an equilibrium convention of respect for possession provides a low-cost mechanism for allocating rights to resources among interacting resource users. This is a key claim of equilibrium narratives of property. Yet complex production systems will have scales of resource use that extend beyond individual possession. These scaled activities include resource exploitation that is optimal over large areas, involving a number of users, as in the case of highly mobile or dispersed resources, or where there are economies of scale in collective property arrangements, as in the case of defence against group attack or encroachment. Alternatively, scaled resource activity may emerge where individual use overlaps with collective use, as in the case of individual ownership of cattle and collective ownership of grass; or where individual use interchanges with collective use on a temporal basis, as where farmers engage in seasonal cultivation of plots that are opened for collective grazing in the fallow season.

no tacit coordination on salient features of the environment. There is no choice of arbitrarily prominent focal point. Instead the choice is of the focal point favoured by the stronger party. Id. at., at 144.

43 Parcelized rights based on possession facilitate contractual responses to the spillover effects of land use by reducing the transaction costs of agreement among small numbers of neighbours. For a discussion see in Robert C Ellickson, Property in land, YALE LAW JOURNAL (1993), at 1330 – 31.

44 Baland & Platteau, supra note 7, at 645-46. In this case, there are also economies of scale in allowing the resource to move over a large area without the parcelization of territory.


45 See Ellickson, YALE LAW JOURNAL, (1993); Deininger, supra note 7, at 29.

46 Fennell, Commons, anti-Commons, semi-Commons, research handbook on the economics of property law, at 38 (“the [tragedy of the commons] dilemma is driven by the presence of two (or more) activities that are being pursued at different scales and under different property arrangements”).

47 For a discussion see Lee Anne Fennell, Scaling Property with Professor Ellickson, 18 WILLIAM & MARY BILL OF RIGHTS JOURNAL (2009). at 175.
Equilibrium conditions of respect for possession at the household level are not scaleable to other forms of resource use where they provide payoff conditions favourable to the (re)-emergence of prisoners’ dilemma outcomes of Hobbesian resource conflict. For example, where resources are newly available to claim, a simple convention of respect for possession may encourage costly races for possession as resource users escalate efforts to obtain possession in order to appropriate control of resources before other users.\textsuperscript{48} Racing for possession may dissipate resources in conflict with other competitors, or through investments in unsuccessful acts of racing. Similarly, in common pool circumstances, a simple rule of possession may cause a “tragedy of the commons” to develop as a result of escalating exploitation of the flow from a resource when each possessor appropriates more in anticipation of increased appropriations by other possessors.\textsuperscript{49} In mixed-use circumstances, a rule of possession alone will also fail to reduce the social costs of attempts by individual possessors to shift the costs of their own use to other users, or to appropriate the benefits of other acts of resource use without bearing the costs of resource investments.

In circumstances of low transaction costs, the parties may agree rules of use, appropriation, abandonment or eligibility that restrict the exclusive entitlements of possession. The agreement is Pareto-improving where it reduces the social costs of resource interactions as well as the private costs of enforcing property. While the prospect of agreement is subject to the familiar problem of credible commitment – either party may renege in the absence of mechanisms for enforcement – repeat interaction will provide incentives to credibly commit to promises where the benefits of cooperation outweigh the benefits of violating the promise. As a general rule, individual users will choose not to resist collective restrictions on resource entitlements, where the net costs of asserting rights of exclusive use, including the potential for losses arising from future withdrawal of cooperation, are greater than the value of losses arising from cooperation with collective agreement to restrict the entitlements of possession.\textsuperscript{50}\textsuperscript{51} These circumstances illustrate the potential for cooperative system to ensure compliance with property, notwithstanding increased complexity of resource use, through agreement to create property rights other than exclusive possession, including secondary rights of appropriation or use.

The transaction costs of agreement will increase as rising resource values increase the marginal benefits of exclusive possession relative to the marginal benefits of cooperation with other users. In the absence of agreement, the institution of property requires a focal basis other than possession at scales of resource use beyond acts of household residence or intensive cultivation. One option is small group leadership,\textsuperscript{52} which may establish a focal basis for property coordination when all members of a group accept the authority of the.

\textsuperscript{48} Lueck 1995: 406-07.


\textsuperscript{50} See MEYER & ROWAN, \textit{Institutionalized organizations: Formal structure as myth and ceremony}; MEYER & SCOTT, Organizational environments: Ritual and rationality.

\textsuperscript{51} See e.g. the work of Daniel Kahneman and Amos Tversky (1979, 1981).

\textsuperscript{52} While definitive evidence is unavailable, the fact that human pre-history involved small families of hunter-gatherers moving in search of food provides a likely source of focal points for property coordination based on natural familial hierarchies of authority.
leader. The decisions of group leaders may act as a basis for expectations of behaviour where they provide timely responses to coordination problems. However, there are limitations to small group leadership as a focal basis for property coordination in circumstances of demographic growth and increased complexity of resource use. Where increased group numbers create time lags in decision-making, or constraints on ready access to information on decisions, there may be no leader’s decision available for group members to solve a resource coordination problem. The shared capacity to predict a leadership decision is also limited where increased complexity of resource use increases the range of potential types of decision, as for example for coordination problems arise from seasonal interactions of household farming and collective acts of grazing.

In order to provide a coordination device that substitutes or supplements the authority of group leaders, it is common for self-organised groups of resource users – particularly those with family or clan origins – to develop shorthand references to ‘custom’ or its local linguistic equivalents. While there are inevitable contests over the content and meaning of custom, the labelling of a practice as custom has a legitimising effect that allows group members to develop strategies based on expectations of respect for custom. Within a self-organised group of resource users the label of custom involves a process of internalisation of appropriate behaviour as well as creation of focal salience. Compliance with an equilibrium convention is seen as the right way to behave because of processes of cultural learning, which create inter-generational expectations of behaviour. Cultural expectations of behaviour provide the basis for heuristics – shortcut calculations of the costs and benefits of individual action – as typically there are prohibitive costs involved in obtaining and processing all the information required for acts of rational choice. There are also cognitive biases that favour identification by individuals with a group, and evidence of pro-social preferences where individuals pursue group cooperation notwithstanding the net private costs of their actions. These psycho-social considerations may embed group custom as a focal point even when other potential focal points, such as law, emerge as more efficient alternatives for the coordination of behaviour.

Overlapping focal points of possession and group custom can maintain equilibrium conditions of compliance with property where they are incentive-compatible. A focal point of possession may form the basis for expectations relating to houses and sites of intensive cultivation. A focal point of group custom may be the basis for expectations relating to forests and grazing lands, the defence of group lands, and the management of resource appropriation within the group. The focal points are incentive-compatible where the benefits from multi-scale focal coordination of property are greater than the costs of complex systems of resource governance. These costs include the transaction costs of agreement, the information costs of monitoring behaviour, and the social costs of strategic acts of burden-

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53 The hunter-gathering example is significant because, in relation to land, hunter-gatherers required relatively large areas that could not be the subject of clear acts of possession, and land remained in the common pool until the development of sedentary agriculture allowed more unambiguous possession of smaller plots.

54 Inter-generational processes of cultural learning also provide cognitive templates for the resolution of coordination problems: see Douglass North, Institutional Change, at.

55 See Hall and Taylor, at 948.

56 See, for example, Camerer 2003; Fehr and Glachter 2000. The instinct of group cooperation may have an evolutionary basis: see Wright 2000.

57 Posner, Law and Social Norms, supra note at 43–44.
shifting or benefit-appropriation by group members engaged in multi-scale resource use. As a general rule, all these costs will rise with (1) increased size, heterogeneity, and wealth inequality in the self-organised group of resource users, and (2) with increased resource values where they increase the social costs of resource competition and overconsumption. In these circumstances, prisoners’ dilemma outcomes of non-compliance with claims of property may re-emerge where, according to the constrained calculations of participants, the net private costs of multi-scale resource governance for group members outweigh the net private costs of acts of non-cooperation.

F. The Equilibrium Requirements of Enforcement: Sanctions in Small Group Settings

By definition a cooperative equilibrium means that all parties engage in cooperative behaviour as the best response strategy to the anticipated strategies of others. In stable circumstances there are no enforcement costs of property as there is no need for coercive enforcement of claims. Yet alterations in pay-offs as a result of exogenous change may lead to acts of enforcement within a self-governing group to maintain the payoffs of a cooperative equilibrium. In a context of in-migration, in particular, the maintenance of respect for property in a self-organised group may require therefore a capacity for collective enforcement notwithstanding the prior attainment of equilibrium. Where in-migration and population growth increase the value of resources relative to the costs of conflict, there will be a point at which payoff conditions favour conflict – unless the threat of collective rule enforcement maintains the anticipated costs of conflict at a level higher than the value of a desired resource. To return to the Californian goldfields example: collective attempts to maintain equilibrium, in the face of dynamic changes to payoff conditions, explain acts of violent enforcement in the early days of gold mining, even if their incidence was surprisingly low given the absence of legal order.

In the absence of third-party enforcement, enforcement of property rights within an interacting group of resource users must also take on costs-minimising equilibrium characteristics. There are private costs to participation in coercive acts of property enforcement. Incentives to free-ride on the enforcement efforts of others may lead to no enforcement at all. There are net costs where a failure to engage in enforcement leads to reprisal rounds of non-cooperation in future interactions with group members. Conversely, those engaged in enforcement may recoup their investment in enforcement through the benefits of mutual cooperation in future interactions. Enforcement thus requires equilibrium conditions where the best response to anticipated enforcement by others is to participate in collective acts of enforcement. Alternatively, assuming low transaction costs, resource enforcement

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60 See Thráinn Eggertsson, Open Access Versus Common Property, in Property Rights: Cooperation, Conflict, and Law 73, 74 (Terry L. Anderson & Fred S. McChesney eds., 2003), at 79; Libecap, supra note, at 146-56.
61 Even in equilibrium the threat of enforcement may respond to the hawk strategies of new entrants in early rounds of play.
63 Even where there is an agreed delegation of enforcement authority to a second party (or parties), with a fee to compensate the costs of enforcement, sub-sets of group members may withdraw from the group where the second party enforcer appropriates rents through the exercise of enforcement authority. For a discussion see
participants may agree to engage in second party enforcement. Yet who will enforce the agreement to enforce? Agreements to enforce are subject to the problem of credible ex ante commitment. Even where there is an agreed delegation of enforcement authority to a second party (or parties), with a fee to compensate the costs of enforcement, sub-sets of group members may withdraw from the group where the second party enforcer appropriates rents through the exercise of enforcement authority. In these circumstances, there are net increases in enforcement costs due to the absence of equilibrium conditions for enforcement.

G. Equilibrium Disruption and Exit from Self-Organised Systems

As a general rule, equilibrium conditions of respect for property are self-enforcing where the costs of violence are greater than the value of the resource, and resource participants adopt either hawk/dove or dove/hawk strategies in respect of their claims to a resource. However, self-governing property systems are subject to dynamic conditions where stable property equilibria – such as respect for possession or custom – may experience disruptions from factor changes, including increases in the value of resources. Rising resource values have the potential to disrupt coordinated conditions of respect for property because they provide incentives for possessors to claim rights of transfer, alienation or unqualified exclusion to the detriment of holders of secondary rights of use, appropriation or inter-generational entitlement, or potential holders of rights as a result of abandonment or community reallocation. Those who stand to gain from asserting enhanced rights of exclusion or alienation may calculate that their benefits outweigh the costs of conflict with other members of the group. Other members of the group may calculate that the private net costs of participating in enforcement of group rules are greater than the private costs of lost entitlements and reduced capacity for collective action within the group. Increasing violations of group norms can also be met by falling rates of intra-group enforcement, due to diminishing returns from participation in enforcement, leading potentially to a rapid loss of equilibrium in a small self-governing property group.

The incentive-compatible limits of self-enforcing property systems are likely to tighten in response to reductions in the density of information as a result of demographic growth and


65 There will be different preferences for when, how and what to punish, which may require a group mechanism to communicate the fact of violation in order to provide a focal signal for enforcement. See Gillian K. Hadfield & Barry R. Weingast, Law without the State, 1 JOURNAL OF LAW AND COURTS (2013). at 9 (“because each potential punisher has an idiosyncratic logic for assessing wrongful dots, none are able to determine unilaterally when to punish in response to possible rule violations. The punishers need a coordination device that tells and went to punish. Second, because punishment is individually costly, punishers need an incentive to punish”).

66 See ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION (Cambridge University Press. 1990). (discussing the revolving method of allocating fishing sites in Alanya, Turkey). For a further discussion of temporal scales in resource governance see …

67 There are diminishing returns to participation in enforcement of collective norms where the marginal utility of cooperative signalling from participation falls with each act of enforcement.
increased sale or lease of land to outsiders.\textsuperscript{68} Self-governing systems require information flows to induce cooperation through the threat of withdrawal of cooperation. Other members of a group must be aware of a transgression such as non-compliance with property in order to refuse to cooperate. Conversely, a potential transgressor will take into account the likelihood of information about the transgression being transmitted to other members of the group or network. By definition, therefore, there is a localising affect as the costs of information increase with distance. The incentive not to cooperate, where there are benefits from non-cooperation, increases with the costs of information within the group. As new members join a group there will be marginal increases in the costs of information where new members lack the information connections of long-term members. Increased dealings with outsiders also lead to marginal increases in the costs of processing information on reputation for cooperation or honesty. Increases in group size increase the information constraints on monitoring and enforcement of individual activity within a group.

The potential for recourse to law provides the option of exit from a self-governing group of resource users. Group members may calculate that the risks of reprisals from other group members are less than the net benefits of defection. The option of exit alters the payoffs of cooperation because it reduces the power of group sanctions, including threats of withdrawal of cooperation in future rounds of interaction. The costs of exit fall as more and more group members choose law. As group members migrate to law there is greater access to information on law and its potential benefits for other group members. The marginal costs of providing law fall as more and more people choose law. Escalating processes of migration, and provision of legal services such as adjudication and enforcement, can lead to wholesale transition from a self-governing system to a law-based system without the need for third-party coercion.\textsuperscript{69} Case-studies of cost-minimising transitions to law include the Amazon frontier in Brazil, where settlers sought title documents from the Brazilian state as their self-organised mechanisms of property allocation degraded under pressure from increased numbers and heterogeneity of settlers.\textsuperscript{70} Similarly, Californian gold miners resorted to the Courts, and then the procedures established by the US Mining Act 1871, to resolve increasing numbers of conflicts as the number and heterogeneity of miners increased, and technological changes allowed more capital-intensive mining utilising wage labour.\textsuperscript{71}

\section{Equilibrium and Transitions to Property law}

The dissipation of economic benefits in competition for resources increases the enforcement costs of property and provides incentives for resource claimants to delegate property enforcement authority to a third party mechanisms that has economies of scale in the use of force.\textsuperscript{72,74} Where states developed powers of taxation, they acquired a competitive

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\begin{itemize}
\item[\textsuperscript{68}] For a discussion see Dixit 2004 Dixit, CHICAGO JOURNAL OF INTERNATIONAL LAW., (2004). at 73–4.
\item[\textsuperscript{69}] A number of studies model the process of transition from relation-based to law-based systems of trading: see, for example, Kranton 1906, Bowles and Gintis 2000, Calvert, Rational Actors, Equilibrium and Social Institutions. 1995.; Fafchamps 2002.
\item[\textsuperscript{70}] Alston, Libecap and Schneider 1996: 33-4; Alston, Libecap and Mueller 1999: 98-152.
\item[\textsuperscript{71}] Zerbe and Anderson 2001: McDowell 2004: 793.
\item[\textsuperscript{72}] Umbeck, ECONOMIC INQUIRY, (1981). at 136, footnote 26 (“the closest I come to identifying the state would be an institution that is created by specific contractual stipulations for the purpose of enforcing existing agreements between individuals. The state is formed out of the original contrary to act as a ‘third party’ in all disputes arising over the enforcement of individual rights”. Very similar to Hobbes and Russo. The
\end{itemize}
advantage in enforcing property rights based on the capacity to cross-subsidise the use of force. However, transitions to law do not render irrelevant equilibrium conventions first generated in small group settings. Even in circumstances of transition to law, equilibrium conditions of compliance with property continue to matter because of the high costs of coercion. The costs of coercion highlight the need to analyse expressive transitions to law – where law attempts to select or create a new focal point for property coordination. Whether law or the state can provide a new focal basis for property coordination depends on a complex range of variables, including the coercive capacity of the state, perceptions of the legitimacy of the state, the design and distributional effects of law, and the nature of non-state mechanisms for property coordination.

A. The Limits on Coercive Enforcement of Property

Property law generates compliance if all potential infringers expect the state to use its comparative advantage in violence to punish infringement, and the net benefits of infringement are less than the anticipated costs of punishment. However, no state has the capacity to punish all those who infringe on property rights. Just as a private owner is unlikely to delineate and enforce all aspects of a property claim, so too is a state unlikely to rely on coercion alone even where it has a comparative advantage in the use of violence. The costs of coercion include the direct costs of enforcement, the opportunity costs of enforcement, and the loss of legitimacy for a government that engages in widespread coercive acts of coercion. Subject to economies of scale, the costs of coercive property enforcement increase relative to the size of property claims and the numbers of potential violators of de jure rights. The costs of coercion also increase where violators of de jure rights have the “home ground” violence advantage of possession, and incentives to defend the discounted future benefits of possession.

The capacity and willingness of the state to engage in acts of violent coercion influences the emergence of property as an authoritative institutional basis for market bargaining. For all de jure systems of property there is a third party enforcement frontier where the marginal benefits of state enforcement of de jure property claims outweighs the costs. This enforcement frontier is distinct from the Demsetzian frontier where individuals assert rights

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75 See Krier 2010, add 149 (the features of small groups that facilitate cooperation allowed delegation to supra-group structures themselves "created by a group decision". Krier concludes that this process of delegation is likely means by which "individuals moved out of the state of nature and into increasingly centralised levels of organisation, eventuating, after many millennia, in modern government").

76 See Krier 2010, at 159.

77 See Haddock, at 186 ("If a potential encroachers recognises the superior might of the servants state, no violation will occur, and police and military violence will remain a potential rather than an actuality").

78 See Haddock, at 188 ("No government attempts to define rights comprehensively. Some of the rights that are government does define lie beyond its enforcement capability, or are too difficult for claimants to bring to its intention").
to property once its benefits outweigh its costs. The third party enforcement frontier is the point where the marginal benefits of scale economies in coercion, and the increased rents or tax revenues from the property enforcement, fall below the marginal costs of coercion. Enforcement decision-makers must compare the private costs of enforcement relative to its benefits, which may include satisfaction of job requirements or accrual of esteem or reputations for competence. The police, in particular, must take into account the potential private costs of acts of violent resistance by property violators, which are likely to increase where the violator remains in possession. While it is possible for the Demsetzian and state enforcement frontiers of property to align, as a general rule the likelihood of divergence will increase relative to limitations on the willingness or capacity of state actors to enforce Demsetzian claims. Hence there is the possibility of state failure to enforce de jure property rights granted to members of self-organised systems who exercise options of exit and resort to law.

Alternatively, the state may provide legal recognition to claimants other than Demsetzian petitioners as a result of the rent-seeking or constituency incentives of state actors. Where the state is unable or unwilling to enforce the de jure claim, there is the potential for conflict between de jure and de facto claimants unless one party has a comparative advantage in the private capacity for violence, or low transaction costs allow agreements to transfer rights to the higher valued user. Absent these circumstances, the capacity for state enforcement will reach an equilibrium point where, all else being equal, the marginal costs of state enforcement of de jure claims equals the marginal value of residual land left in the hands of de facto claimants. The initial encroachment of de jure claims on low value land may not justify acts of resistance or defence by de facto claimants. However, marginal increases in encroachment will increase the marginal value of land left under the control of de facto claimants. All else being equal, marginal increases in the value of land subject to encroachment will induce marginal increases in the diversion of resources by de facto claimants from production to defence. Intermittent violence may develop as a result of strategic attempts by de facto property claimants to make credible threats of a capacity for attritional conflict over rights to resources. Acts of violent resistance may increase the costs of coercion to the point where there are no net benefits to coercive state or private enforcement of de jure claims.

B. Altering Equilibrium: the Expressive Capacity of Law

An alternative to state coercion is expressive transition to law. Under certain conditions the public expression of law alone may ensure transition to focal points selected or created by law from decentralised systems of property ordering without the need for state coercion. Law may have reputational and informational advantages that facilitate altered expectations of behaviour. As a result of legal intervention, past experience of compliance with a focal point may not be a guide to future behaviour. The presence of an alternative focal point – selected or created by law – creates a fear of negative payoffs: what if other players switch to the new strategy? For example, a player with hawk strategy may find other players adopting hawk strategies because of anticipated payoffs under a new law. Conversely, a player with a dove strategy may contemplate adoption of a hawk strategy to anticipate dove strategies by other players. Once a critical mass of players switch strategies, doubts as to the validity of

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79 For a detailed description with reference to violence between the Paiute Indians and ranchers in the Owens Valley See Haddock, at 174 – 5.
80 Richard H McAdams, A focal point theory of expressive law, 86 VIRGINIA LAW REVIEW (2000).
past experience become self-reinforcing. Individual participants have incentives to transition to the new focal point when they anticipate that losses created by a failure to change strategy are greater than the distributional losses of the change of strategy.

Assumptions of transition to law as a result of disruptions to cooperative equilibria require that the costs of disruption exceed the losses caused by the law itself. Transitions to property law are not inevitable simply because rising resource values, population growth and increased trade with outsiders disrupt self-governing equilibrium arrangements. A new property law rarely operates on a tabula rasa. A law that selects or creates a new focal point is more likely to cause distributional losses where there are existing focal points for property coordination. For distributional losers under the law, the costs of no law may not exceed the lost value of entitlements because there is an alternative institution that supports the entitlement. For example, distributional considerations may lead individuals with claims to property within a self-governing group - who would otherwise lose under a state-administered legal rule - to assert the continuing relevance of possession or custom as a basis for property legitimation. Small group custom, in particular, retains adherents as the costs of legal transition not only include proprietary losses but also the potential loss of authority or status within the customary group. This is a common occurrence in cases where law privileges individual rights of exclusion over other proprietary or personal interests such as access, use or re-allocation in cases of community need. There is also the ‘stickiness’ of small group affiliation – the preference for focal points of community custom even where law provides a more effective option to reduce the costs of property coordination. In either circumstance, there is the potential for non-compliance with de jure property where the stakes are high enough for group members to act collectively and resist the assertion of de jure rights by individual group members.

Under new laws to create property the key payoff consideration for resistance by those denied property claims, in the absence of state coercion, is the marginal relationship between the gains from acts of non-compliance with de jure property, together with the costs of no law, relative to the value of lost entitlements and the costs of asserting property claims through extra-legal mechanisms. Distributional losers under a new property law may accept implementation or enforcement of the law without expectations of coercion where the net benefits of law are greater than the value of lost entitlements. The net benefits from law may include its capacity to reduce the social costs of resource interactions, the discounted value of promises of compensation for the loss of entitlements, and the potential benefits of future acquisitions of de jure forms of property. The opportunities for gains from de jure property may support transitions to law where the best response of distributional losers is to seek de jure rights through formalised land markets or in future rounds of citizen-state interaction. The law creates a new focal point for property coordination because its systemic benefits have the characteristics of a public good: that is, they are accepted as Pareto-improving for all. Whether law is Pareto-improving will turn in part on the design of law – the extent to which law has minoritarian or majoritarian characteristics.

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82 Calculations of the losses of transition to law also include the discounted future benefits of reputation for cooperative behaviour.

83 A public system of property provides information on the identification, demarcation and valuation of rights to resources. The standardisation of property rights reduces the costs of contracting for gains from trade. The presence of courts, police and associated agencies reduce the enforcement costs of property.
An alternative to law as a focal point for property coordination is a broader equilibrium framework of constitutional order. Citizens adopt equilibrium strategies of compliance with law as no citizen is better off through defection from constitutional order. Almendares and Landa cite the example of Bush v Gore. While there were powerful distributional losers from the majority decision of the Supreme Court, there was general compliance with the orders of the court because of the equilibrium basis of US constitutional order. The idea of law as a component of constitutional order serves as a focal point for coordination of citizens’ behaviour, particularly where law contributes to perceptions of the underlying legitimacy of constitutional order. The behaviour of the state, the circumstances of its creation, the quality and accessibility of its services, and the presence of authority or group identity structures outside the state – all these factors affect the capacity of law to select or create new focal points for property coordination. A weak or illegitimate state cannot impose or implement property law at the local level without interacting with relatively influential systems of non-state property ordering. Individuals that construct identity with reference to notions of ‘citizen’ and the ‘state’ are more likely to adopt law as a focal basis for property coordination than individuals that identify with sub-state tribal or ethnic groupings.

C. Property and the Legal Recognition of Private Ordering

A state may reduce or remove the need for expressive transitions to law by recognising de facto property claims generated by sub-state systems of private ordering. The recognition of private order provides an equilibrium basis for authoritative allocation of property rights as it allows resource participants to continue to base expectations of behaviour on equilibrium arrangements that emerged before the act of legal recognition. The essence of legal recognition is forbearance: the law provides space for customised legal relationships shaped by interacting parties to a private law relationship. For example, the law may support enforcement of social norms or conventions of the self-organised group, or constitutionally-legitimated decisions of group representatives. The law may also formalise rules and information flows within a group to strengthen the capacity for cooperative action. The result is welfare-maximising where the private ordering outcome accurately reflects the cost/benefit calculations of rational informed actors. Well-known examples include the adoption of the merchant’s law of mediaeval Europe, the ‘fast-fish/loose-fish’ rule whale hunting custom in common-law jurisdictions, and the mining custom of pedis possessio in US Courts.

Much of the literature on legal recognition of private ordering concerns personal rights in contract or tort, or small group audiences such as fox-hunters or miners, rather than large audience cases of property rights to land or goods and services. Property law is different because of the potential reach of property – its enforceability ‘against the world’. The audience for property includes potential transactors, enforcers and violators. Each must process information on permitted uses of the resource, the boundaries of the entitlement and

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84 See Almendares and Landa 2007, at 528 (“In coordinating on a particular set of legal and political institutions whose constitutionally sanctioned operation defines ‘the rule of law classical card, citizens are, in effect, coordinating on regarding as legitimate the government's decisions that are reached in the course of its operation”).
85 Examples include the recognition of rules of first possession generated by self-organised groups of miners by the US Mining Act 1872.
86 See Milgrom, North and Weingast 1990.
87 Other examples of legal co-option are set out in Cooter 1994, at 216.
the identity of the proprietary interests-holder(s). Once property rights extend beyond a close-knit group, information costs provide a challenge for authoritative allocation of property rights through the legal recognition of private ordering. Accordingly, Henry Smith suggests an information costs trade-off for the recognition of private ordering by property law. Law may allocate property rights by adopting norms or social conventions generated by private ordering without significant increases in information costs when the audience is limited, or there are low informational demands on the prospective audience. However, in the case of property rights that have a large audience and high informational demands, either the process of communicating property information is made more costly for remote third parties, or law must strip the private ordering norm or convention of its informational complexity through a process of modification and standardization.

Economic analysis generally exhibits a baseline preference for simple bright-line rules as bright-line rules reduce the costs of exchange. In relation to property, the hard-edged character of a rule of freehold ownership facilitates valuation of entitlements, markets for credit and where necessary collection of consents from secondary rights-holders. Equally, bright-line rules and entitlements may reduce the costs of determining what is being exchanged – the institution or entitlement costs rather than the costs of exchange. For example, Thomas Merrill and Henry Smith highlight the information benefits of bright-line property rules and entitlements. The ex ante identification of permitted and proscribed behavior through standardised packages of entitlements reduces the costs of identifying, delineating and understanding the entitlement subject to exchange. Fuzzy or interpretively complex rules are justified where the efficiency benefit of the rule outweigh the increased costs of information, taking into account the size and nature of the audience.

D. Bright-Line Rules and Equilibrium Compliance with Law

A preference for bright-line legal rules of property requires a pre-existing degree of equilibrium compliance with law because coercive enforcement of law is unlikely to provide the high degree of cooperation implicit in an orderly property system. In the absence of equilibrium compliance with law, or a state capable or willing to engage in coercive enforcement, simple bright-line delineation of entitlements may increase the numbers and stakes of distributional losers – such as holders of secondary rights of access, use or re-allocation in the case of community need – and thereby increase incentives not to comply with the rule. While a potential violator may find it easier to calculate the costs and benefits of infringement, because of the crystalline characteristics of the rule, she may still decide not to comply with the rule because of its distributional consequences and expectation that the state is not able or willing to punish infringement. The outcome is sub-optimal where rights-
holders and their potential exchange partners under the rule lack the stability of expectations required for optimal valuation of the resource or investment in the resource. In these circumstances, the enforcement costs of property are as significant as information or exchange costs for optimal allocation of resources.

A bright-line rule may increase the value of an entitlement, and thereby increase private incentives to engage in enforcement. Even in the absence of state enforcement, a property-holder may (1) expend more resources on defence, (2) transfer the resource to someone more capable of a successful defence, (3) hire someone with sufficient talent for violence to defend the resource, or (4) divide the resource into smaller, more defensible parcels. Yet increasing the value of a resource as a result of hard-edged entitlements may also increase the benefits of encroachment by other property claimants. The benefits of increased expenditure on enforcement may be matched by the costs of excluding more motivated encroachers. In the absence of expectations of third-party enforcement, the increased value generated by a bright-line rule only produces net increases in the security of property rights when the marginal costs of enforcement do not rise in proportion to marginal increases in the benefits of encroachment. In these circumstances, a bright-line rule has sub-optimal effects on property security as the benefits of encroachment increase at a faster rate than the private benefits of enforcement.

The relative costs of property differ under governance regimes of law or private ordering. Typically, self-enforcing small group property regimes have greater information costs for non-group members due to the complexities of identifying individual holders of proprietary bundles of rights. There are also deadweight losses where there are restrictions on alienation to non-group members. However, they have low enforcement costs because of their reliance on equilibrium strategies of compliance with property. Conversely, there are high enforcement costs for a legal regime where there are no equilibrium conventions of compliance with law. The optimal regime allows property claimants to ‘mix and match’ strategies of recourse to law and equilibrium convention to reduce the enforcement costs of property, while also reducing other costs of property such as information and deadweight losses. Where law is incentive-compatible with private ordering – that is, individuals may choose optimal combinations as governance regimes – private ordering provides a welfare-maximising complement to law. Where law is not incentive-compatible with private ordering, there is the possibility of sub-optimal results where law attempts but fails to displace prior equilibrium systems of property coordination.

The proposition that enforcement costs matter for rule design is not necessarily inconsistent with a baseline preference for bright-line property rules and entitlements. Equilibrium analysis highlights the possibility that rule design should take into account the capacity of rules not only to reduce exchange and information costs but to reduce the enforcement costs of property. For example, in relation to the legal recognition of private ordering, the trade-offs of legal design may include the capacity of private order to reduce the enforcement costs of property through maintenance of equilibrium patterns of compliance with property. Where there are no disputes over the focal basis of property coordination the trade-offs of rule

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94 Smith, supra note 41, at 478.
95 Most Demsetzian studies assume that the costs of establishing property rights are disassociated from changes in the benefits: that is, that they remain linear notwithstanding increases in resource values: see the discussions in Douglas W. Allen, The Rhino's Horn: Incomplete Property Rights and the Optimal Value of an Asset, 31(2) J. LEGAL STUD. 339, at 340 (2002); Yoram Barzel, Economic Analysis of Property Rights, at 94, 348 (1997).
design primarily involve gains from trade or productive investment. But where there are disputes over the focal basis of property coordination, the trade-offs of rule design include reductions in the enforcement costs of property. To adapt Robert Ellickson’s well-known hypothesis of the design of wealth-maximising norms: where there are risks of high enforcement costs due to limits on state coercion, or failures to engage in expressive transition to law, the lowest objective sum of costs associated with property may be provided by rules that maintain equilibrium conditions of compliance with property notwithstanding the potential for deadweight losses, the information costs of ascertaining entitlements, and the exchange costs of transferring entitlements.

E. Land Titling and Incomplete Transitions to Law

Laws that fail to take into account the enforcement costs of property may attempt but fail to displace prior equilibrium systems for property coordination. Land titling cases provide one category of example: where property claimants decline to transition to law even where law provides the potential for bright-line reductions in information and exchange costs. Land titling is based on the deceptively simple Coasean proposition that de jure freehold titles are the best means to allocate property rights and allow wealth-maximising market bargaining. The fact of state recognition helps to provide assurance that investors will capture returns from investment. The prospect of state enforcement diverts resources from asserting or defending property claims to investing in productive use of land. The potential for impersonal exchange deepens the market for gains from trade and realisation of investment. The potential to grant security interests to lenders, or to deposit title documents as security with lenders, increases the capacity to borrow money for investment in land. Virtuous cycles develop as increased land values provide further incentives for investment and gains from trade.

There are quantitative studies that find investment and productivity benefits from systematic programs to provide documented freehold or long-term leasehold titles. For example, a meta-analysis of quantitative studies of land titling found an average increase of around 15% in consumption or income, and around 40% in the monetary value of land. However, the meta-analysis also found a puzzling disparity of results for Latin America and Southeast Asia compared to sub-Saharan Africa. The authors hypothesise the possibility of an “Africa effect” – that the strength of customary land systems in Africa reduced or eliminated the potential for de jure allocation of property rights to increase incentives for investment and production. The hypothesis is consistent with other studies that find more improvements in production and investment for urban and newly settled areas than rural areas with existing mechanisms for customary land management. It also helps to explain the small number of studies that found a negative effect of land titling on investment in land.

Even where land titles reduce the information and exchange costs of property, and increase incentives for investment or production, there is evidence that large numbers of title-holders choose not to transition to law-based systems of land administration where they calculate that alternative governance mechanisms reduce the total costs of property more effectively than law. In this case, the decision not to transition occurs at the point of registering transfers after titling rather than at the stage of titling itself. For example, a study of the Philippines found

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96 These results are set out at 44.
97 See e.g. Lanjouw and Levy, 1998 (hypothesising the titling has most impact in areas without informal rules. Their case-study concerns a newly settled area in…). Moor’s study of Zimbabwe filing a positive correlation between tenure formalisation and investment concerned a resettlement area.
98 For example, in Madagascar.
that only 15% of title holders register transfers of land with the central government. A study of urban land in Ghana found that 40% register land transfers with the national land agency. In Vietnam the figures for urban areas is 20%. In the city of Bandung, Indonesia it is 20%. In the province of Aceh, Indonesia, only 14% of new female titleholders, and 24% of male titleholders, stated an intention to register subsequent transactions with the national land agency. In each case, the title-holders had alternative community or local government mechanisms to support the legitimacy of the transfer. For example, in Aceh approximately 78% of women, and 63% of men, intended to record transfers with their village head. In Vietnam the figures for urban areas is 20%. In the city of Bandung, Indonesia it is 20%. In the province of Aceh, Indonesia, only 14% of new female titleholders, and 24% of male titleholders, stated an intention to register subsequent transactions with the national land agency. In each case, the title-holders had alternative community or local government mechanisms to support the legitimacy of the transfer. For example, in Aceh approximately 78% of women, and 63% of men, intended to record transfers with their village head. [Other figures to be added].

Cambodia provides another example. The 2001 Land Law sets out the brightest of bright-line rules – the ‘Torrens’ system principle that title arises from registration rather than transfer. Transfers of title are enforceable inter partes but have no proprietary effect on third parties in the absence of registration. Yet in Cambodia there is evidence that as few as 15% of titleholders transfer land according to legal requirements to register the transfer. Most continue to use community or local government systems of land administration. The legal result of the Torrens rule is that a majority of purchasers or inheritors of land will have no de jure rights even where the land was subject to titling because there was no registration of transfer at a point on the historical chain of title. The Torrens rule attempts but fails to replace sub-state systems of land administration. Moreover, the law creates vulnerability to state takings as it allows the state to claim that those without registered titles lack de jure rights to their land.

A final illustration comes from Kenya. [To be added].

III. Path Dependence and Public Choice

There is another category of case where law fails to provide authoritative allocation of property rights – when law creates or grants de jure rights to land without the capacity or willingness to engage in enforcement against large numbers of competing possessory or customary claimants. The cases involve denial of de facto claims rather than failure to transition to law. The minoritarian nature of the law not only provides incentives to resist state enforcement of law, it reduces the expressive capacity of law by increasing the scope and extent of distributional losses from compliance with de jure property. Even where de jure rights are enforced, the law is sub-optimal where de jure property-holders do not control the bulk of economic production: that is, where the surplus generated by de jure rights-holders is less than the potential surplus generated if property rules maximised incentives for investment and gains from trade through de jure recognition of other categories of property claimant. In addition, where the law is not enforced, sub-optimality emerges as de jure property-holders divert resources to defence and choose not to invest in production due to concerns over loss of resource access or control.

Public choice provides a standard explanation for the design of laws that deny recognition to large numbers of possessory or customary claimants of land. Unless there are countervailing political pressures, individuals that hold political power will choose legal rules to maximise

99 GHANA, HOUSING PROFILE, at 80
100 World Bank Gender Impacts of Land Titling, at 42.
their own rents, rather than the welfare of the society as a whole. Because state actors may accrue private benefits from the allocation of de jure property rights, without incurring private costs of enforcement, there are incentives to allocate de jure rights to persons other than local de facto claimants. Yet there may not be state enforcement of the de jure right where the enforcement agents of the state calculate that the private costs of enforcement are not worth benefits such as satisfaction of job requirements or political commands, or accrual of esteem or reputations for competence. Sub-optimal competition then arises between de jure and de facto claimants where neither party has a comparative advantage in violence, and transaction costs or distributional consequences prevent Pareto-improving agreement to allocate entitlements.

Liberal democratic order may offset political incentives to create minoritarian forms of property. In a multi-party democratic system there are incentives for political parties to propose platforms that maximise chances of voters across interest groups. Voter preferences filter through mechanisms such as media monitoring, electoral surveys, public demonstrations, lobbying and campaign contributions. Political entrepreneurs propose institutional solutions to attract votes, and their success creates both a demonstration effect and a surplus for distribution to voters. There are political benefits to property that may overcome the transaction costs of political agreement. Moreover, while a legislator or regulator may prefer one group, where the marginal gains in votes are offset by any loss in votes from another adversely affected interest group, the incentives for majority vote increase the likelihood of promises to make compensating side-payments to the adversely affected group. In these circumstances, the density of democratic interaction creates formal equilibrium institutions where the best response of legislators is to design rules that reflect the expectations of most citizens.

Even in formal liberal democratic settings, political actors may calculate that the payoffs of property allocation to smaller groups outweigh the potential loss of votes from larger groups. Individuals have incentives to act collectively if they can “buy” property from political actors. They must weigh the long-term private benefits of property, taking into account their discount rate, against the private costs of participating in collective acts of lobbying for property. The calculation includes the possibility of losses and costs should political actors failed to provide property, or other actors refused to comply with the allocation of property. All else being equal, smaller groups are more likely to act collectively because of high per

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101 Daron Acemoglu, et al., *Institutions as a fundamental cause of long-run growth*, 1 HANDBOOK OF ECONOMIC GROWTH (2005)., at 427 (“Economic institutions that enforce property rights or protect against state predation may not be in the interest of a ruler who wants to appropriate assets in the future. By establishing property rights, this rule would be reducing his own future rents, so he may well prefer economic institutions other than enforced private property”). Broad-based security of property rights may emerge where constraints on elite political power arise from balance of power situations, or separation of powers environments: these “are more likely to engender an environment protecting the property rights of a broad cross-section of society”. Alternatively, where political power is spread across a broad group that has "most access to the most important economic incentives" reforms that benefit political elite may also benefit the majority of the population. These incentives are in addition to vote-maximising: iod., at 438.

102 Mueller, at 344.

103 Sened

104 Banner argues that costs of transition may be reduced where the benefits accrued to an oligarchic class with control over a radical political structures (“A powerful oligarchy can thus overcome the problem of administrative costs simply by not being particularly rigorous in evaluation and assignment of the property rights of the majority”). Id. at.363.
capita stakes, and the capacity to monitor and prevent free-riding by group members. While multi-party democracy creates countervailing incentives for majoritarian property, including the recognition of de facto proprietary claims, the costs of majoritarian decision-making processes may still favour minoritarian property as large groups of disconnected actors require time and access to information in order to determine their vote. In the absence of overriding incentives for majoritarian law, the costs of collective action may still favour the emergence of a property law regime that withholds recognition from large numbers of possessors or users of land.

A. Minoritarian Law and European Colonisation

There is a line of public choice scholarship that describes institutions as products of intentional design by coalitions of actors able to impose their will on others. For example, Acemoglu, Johnson and Robinson develop a general theory of institutions involving two types of political power: de jure political power stemming from political institutions (i.e. the form of government), and de facto political power through acts of collective action (e.g. protests, rebellion). De facto political power is transient unless it translates into de jure power as it requires conditions amenable to collective action. De jure political power is durable as it determines the allocation of economic resources and the process for determining future forms of de jure power. Therefore, they argue that the key determinant of institutional design is de jure political power. In relation to property, political power-holders have incentives to retain discretionary powers of appropriation of land to ensure the future flow of rents. Path dependence emerges as political power-holders accrue wealth and increasing returns from investment in institutional arrangements, which then strengthens their capacity to block attempts at institutional change through de facto political action.

The initial determinants of political power are endowments – broadly defined to include factors such as the supply of labour, the quality of soils, the type of climate and the extent of disease. The principal example is the so-called ‘reversal of fortune’: a comparison of the different economic performance of the societies of Latin America and the Caribbean with the northern American mainland. The endowments of Latin America and the Caribbean favoured distributions of political power based on large-scale plantations and exploitation of enslaved or indentured labour. There was a cheap supply of labour as a result of high

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105 Olson 1965, 24; Wyman, above n, 148. Id. at. At 369. High per capita stakes not only provide incentives to cooperate, but also to expand resources on demands for new institutions such as property. Examples of successful small group lobbying efforts include farming groups in a number of developed countries (notwithstanding their relatively small numbers), and trade unions of obtaining protection for labour-intensive industries, notwithstanding the relatively small numbers of workers relative to consumers. For an overview see Mueller 352.

106 Mueller at 347.

107 Id., at 448.

108 Id.

109 Stanley Engerman and Kenneth Sokoloff (1997, 2002) also highlight changes in the economic fortunes of European colonies. At the time of initial colonisation the Caribbean and Latin America appeared to have greater economic prospects than North America. Acemoglu Johnson and Robinson, at 407 – 08. It goes without saying that, as a general rule, indigenous groups in so-called Neo-Europes did not participate in the benefits of economic development.
population densities or access to the slave trade. Both the climate and the quality of soil suited crops such as sugar, coffee and tobacco with scale economies in plantation production. Without de facto political responses (e.g. revolutions), the political elite had incentives to design institutions that facilitated state expropriation of land and restricted opportunities for smallholder landownership due to their economic dependence on abundant cheap labour and ready access to land. In contrast, the northern American mainland colonies had a scarcity of labour due to low levels of population density, and climates and soils which favoured smallholder farming or cattle ranching. The constituency demands of smallholders, and the relative absence of a powerful landed elite, facilitated extension of the democratic franchise, which produced economic institutions that reflected vote-maximising incentives to favour homesteader ownership and restrict state takings of land.

The key features of European land law – that the state had sovereign ownership or control over land within its jurisdiction, and that proprietary interests in land derived from state grant or recognition – furthered European interests in trade, revenue and the territorialisation of state power. This much is consistent with Acemoglu, Johnson and Robinson’s accounts of the political design of institutions such as property. Yet in most European colonial jurisdictions the reality was that the enforcement of claims of state ownership or control over land was piecemeal, typically relating to high-value land, and not at all consistent with the sweeping terms of its formulation. European land laws sought to territorialise state power by reference to lines on a map that could be asserted against other colonial powers. However, the notional maps of European property law often bore little resemblance to historical or actual facts of control on the ground. While some states, such as the so-called Neo-Europes, developed the capacity to enforce de jure rights to land, usually through military conquest and dispossession of indigenous groups, most colonial states lacked the financial, administrative or military capacity to extend enforcement authority over all parts of their territory. In circumstances where most landholders lacked the opportunity or incentives to transition to colonial law, the institution of property was constituted more by local acts of property coordination than the elite structures of European law.

The prevalence of tropical diseases also militated against large-scale European settlement. Diseases were not a significant barrier to European settlement.

For the common law the ultimate or radical title of the Crown allowed legal authority to the sovereign to grant estates or interests in land, and to declare other land part of the Royal demesne. Under English principles of land tenure, colonial subjects could only acquire ownership of an estate or interest in land “of the Crown”, and could not own land within a sovereign territory in the civil law sense of dominion. At the time of sovereign acquisition, “native” rights to land were not estates or interests held of the Crown. According to one line of authority, “native” rights to land could not amount to more than a permissive occupancy, or a personal right of usufruct, terminable at the will of the Crown and alienable to the Crown only. C (Caroline can you set out the cases listed by Brennan CJ in paragraph 50 of his Mabo judgement). The corollary was that pre-existing rights must be recognised by the Crown in order to establish their validity.

St. Catherine's Milling (1888) 14 App Cas, at p 54;

Tee-Hit-Ton Indians v. United States (1955) 348 US, at pp 297, 281

Calder (1973) SCR, at pp 352-353; (1973) 34 DLR (3d), at pp 173-174

Amodu Tijani, (1921) 2 AC, at p 403:

Vajesingji Joravarsingji v. Secretary of State for India (1924) LR 51 Ind Ap 357, at p 360; Secretary of State for India v. Sardar Rustam Khan (1941) AC, at p 371.

There were many different forms of resistance to sovereign assertions of colonial state title to land. Collective acts such as wars of resistance are well-documented. However, there were also individual acts of resistance that James Scott catalogues as the “everyday weapons of the weak” – the behavioural responses of poor landholders to minoritarian colonial and postcolonial states.
de facto property systems. While de facto systems continue to provide mechanisms for property coordination, there are sub-optimal incentives for economic activity as there is no authoritative allocation of property either for de jure or de facto claimants.

B. De Facto Property and State Title to Land

Legal doctrines of state ownership or control of land underpin contemporary examples of large-scale de jure denial of proprietary claims based on possession or customary use of land. Most inhabitants of informal urban settlements – now estimated at almost a billion people – reside on land classified either as state land, or land that was formally state-owned and is now subject of a state grant. Hundreds of millions occupy or use land classified as state forest land that may be subject to state grants of logging concessions without processes of compulsory acquisition or payment of compensation. Large numbers of people now live in agricultural areas that have been subject to large-scale state grants without due process or compensation of agribusiness concessions to commercial interests. All these cases involve failures to allocate property authoritatively because of unresolved conflict between de facto and de jure claimants of land. Yet, as case-studies of the institution of property, they involve much more than political denial of de jure rights through minoritarian law, because there is evidence of thriving de facto systems of property coordination based on multi-scale focal points such as possession, custom, local authority, or even co-opted symbols of semi-official state recognition. The following discussion provides examples relating to forest land, informal urban settlements, and agricultural land subject to large agri-business concessions.

1. Forest Tenure Systems

Much of the world’s tropical forests falls within legal classifications of state ownership or private domain. The Rights and Resources Institute estimates that.... [To be added]. An illustration is provided by Indonesia where the 1967 Basic Forestry Law classified almost 70% of the archipelago as state forest land. The estimates of the numbers of people living in state forest areas range from 35 to 90 million. Yet, while there is considerable conflict between de facto claimants and either forestry officials or de jure concession-holders, there are also thriving systems of property coordination in most occupied areas of state forest land. Moreover, there is widespread use of semi-official documentation as focal mechanisms for property legitimation. Again to use an example from Indonesia: where land transactions occur in designated forest areas, local officials – either the sub-district or district head or even a local district officer from the forestry Department – often stamp and verify the letters of land sale upon payment of a fee notwithstanding that the sale has no legal basis. Local officials also issue letters of occupation or acknowledgement, which are even used as a basis for collection of land tax by district governments. While the 1997 Law on Land Regulation prohibits local officials from issuing letters of acknowledgement, and requires them to stamp letters of sale with a notice prohibiting its use in further land transactions, local officials in

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116 In Cambodia alone, almost the state claims approximately 80% of all land as the private domain of the state, and over 50% of all arable land has been granted to agribusiness interests through economic land concessions. While there is no publicly available official figure on the extent of state land in Cambodia, the estimate of 80% is widely stated: see Center on Housing Rights and Evictions (COHRE), "Request for Inspection by World Bank Inspection Panel" (letter), September 4 2009. Available online at http://go.worldbank.org/IUTVJ7CXG0 (accessed 15 May 2014).

117 They may even have paid an informal forest tax (pajak kehutanan) to local forestry officials (pers. comm. Sandra Moniaga).
some districts continue to issue land documentation despite the absence of jurisdiction or even de jure property recognition.

2. Informal Urban Settlements

Almost a billion people live in urban informal settlements. Yet many if not most have not been subject to state attempts at eviction. In 2003, NSSO estimated that 39% of informal settlement dwellers had been in occupation for more than 20 years. For long-term dwellers the incentives to act on the basis of property are not formed solely by the illegal status of their property rights. Numerous studies illustrate the presence of focal points for property coordination among informal urban settlements. These focal points include possession: for example, there are many examples of ‘first possessors’ selling or leasing land in informal settlements to in-migrants. The focal points can include authority or leadership structures such as ‘slum lords’ or criminal gangs. In this case, decisions of informal leaders act as a shared basis for property coordination where they provide timely responses to coordination problems and a critical mass of participants accept the authority of the leader. As with cases of forest tenure, focal symbols can also include documents evidencing semi-official state recognition. For example, in India the documentary basis for land markets in informal settlements includes identity cards, tax receipts, electricity bills, ration cards or letters from state officials. In Indonesia, the documentary basis for informal land markets includes receipt of a house number, enrolments to vote, utility bills and land tax receipts even dating back to colonial times.

There are studies of informal settlements that identify perceptions of tenure security, rather than the fact of de jure recognition alone, as the basis for investments in housing and land.

3. Agri-Business Concessions

C. The Path of Property: Formal and Informal Institutions

CONCLUSION

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118 The hunter-gathering example is significant because, in relation to land, hunter-gatherers required relatively large areas that could not be the subject of clear acts of possession, and land remained in the common pool until the development of sedentary agriculture allowed more unambiguous possession of smaller plots.
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