

# THE COEVOLUTION OF PROPERTY, GOVERNANCE, AND INEQUALITY:

## A CONSTITUTIONAL PERSPECTIVE

by James A. Roumasset

The evolution of property rights in the economic literature is alternatively viewed as inexorable tragedy or "best of all possible worlds." In his classic article, Garrett Hardin (1968) has been characterized as asserting that without coercive action -- either "enclosing" private property or providing central government direction -- land and other resources will be much abused. Demsetz (1967), on the other hand, presents the more sanguine possibility that private property will indeed arise, spontaneously or otherwise, when the benefits outweigh the costs. Both Hardin and Demsetz fail to articulate the possibility that small groups may agree to an efficient management regime, without either central government or the institution of private property. Moreover, the disagreement between these two positions helps to underscore the ambiguity regarding the source of institutional change.

In this paper, I attempt to outline a fundamental theory of the evolution of property rights in land. Unlike Demsetz and Hardin, common property resources are not prejudged as being inefficient. Different property rights regimes are assumed to be appropriate for different environmental conditions. In addition, the intention is to describe how an evolution of property rights could have proceeded as a spontaneous order.

In section II below, a theory of efficient coevolution is described, whereby the constitutional order that minimizes total transaction costs depends on the meta production function, contractual technology, barriers to exchange, and factor endowments. In section III, the theory is applied to the coevolution of property rights, markets, inequality and the constitutional order. Concluding remarks are offered in section IV.

## 2. Spontaneous Order and the Coevolution of Economic Institutions

Rent-seeking is the engine of institutional change. This paper abstracts from rent-seeking and focuses solely on efficiency as a determinant of institutions. In particular, efficient institutions are those that minimize transaction costs. This perspective begs two questions about research motivation. First, given the pervasiveness of rent-seeking and other elements of political economy, what could one possibly learn by abstracting from these factors? In addition, efficiency is a characteristic of an economic system, not a driving force of change. By what mechanism, then, can efficient institutions come to dominate inefficient ones?

The answer to these questions is provided by the concept of spontaneous order (Hayek, 1973, 1989). An early application of the concept of spontaneous order was by John Locke in his *Second Treatise*, in which he develops his famous theory of the evolution of property. If one grants Locke's premise that we are endowed with the inalienable rights of life and liberty, then property is an implied right by virtue of improved land being created by mixing labor with unimproved land in an environment such as the American frontier, where land was not scarce. This proposition establishes not that private property in land did in fact arise in the manner Locke describes, but rather that such rights could have and may have arisen in this manner. The proposition thus stands in contrast to the declarations of Prodhoun and Karl Marx that all property is necessarily theft and that property income is a measure of the exploitation of labor.

It may be reasonably presumed that property has in fact arisen in response to both efficiency-driven spontaneous evolution and to the opportunistic forces of rent-seeking. In the case of the English enclosures, rent-seeking was clearly involved, but the nature of the departure from the efficiency scenario is ambiguous. The English enclosures in the 18th and 19th centuries conferred rights on landlords that were two to three times as high as those which they were able to obtain under manoralism (Allen, 1982). Private property formation has lagged behind the efficient switch from common to private property due in part to the inertia imparted by peasant resistance to the change. In other instances, however, especially in the earlier enclosures, landlords were occasionally successful in overcoming political resistance and

privatizing land even before it was efficient to do so. Since it is sometimes difficult to determine the nature and direction of the departure from efficiency, this provides another reason for using efficiency as the basis for a positive theory of institutional change.

A further illustration is provided by the case of 19th century Hawaii, when a fortuitous combination of circumstances led to revenue-seeking by the public sector which avoided the usual lag in the innovation of private property (La Croix and Roumasset, 1990). In this case, the political economy forces appeared to be efficiency enhancing, thus countering the conventional presumption that rent-seeking is always destructive.

From a game-theoretic perspective, the evolution of a spontaneous order can be characterized as an application of the Folk Theorem (Aumann, 1981). Even in a non-cooperative setting, when players choose the efficient solution as their focal point, and punish defectors for deviations from the efficient solution, then cooperation can be sustained (see also Axelrod, 1981). The difficulty is that the threats of punishment may not be credible, since carrying out the threats would punish the enforcer as well as the victim. Thus it is natural to assume that the focal point is codified by moral scriptures and sanctions and later even by law (Jankowski, 1990).

Leaving rent-seeking aside, then, we now turn to the relationship between efficiency and transaction costs. In Williamson's version of the New Institutional Economics, institutions are said to evolve so as to economize on transaction costs. The illumination afforded by this proposition is limited by the ambiguities in "economize" and "transaction costs." These ambiguities can be removed by defining transaction costs such that efficient institutions are those that not only economize on but minimize transaction costs.

Defining transaction costs as agency costs is a promising candidate. Agency costs are the sum of "monitoring and bonding costs," i.e. expenditures by the principal and agent that reduce the discrepancy between contractual proscription and actual performance (shirking), and the residual shirking costs that remain (Jensen and Meckling, 1976). More generally, agency costs can be defined as the difference between first-best and second-best maximum profits, i.e.

potential profits without and with moral hazard and adverse selection (Roumasset, 1988). In either case, minimizing agency costs is not sufficient for the achievement of socially efficient institutions. The reason is that agency costs do not include the foregone gains from incomplete specialization that are external to the firm (e.g. Locay, 1990; Krugman, 1991).

In order to facilitate an understanding of how profit-seeking leads to efficient institutions, transaction costs can be defined as agency costs plus the residual foregone gains from incomplete specialization. In this way, minimizing transaction costs is equivalent to maximizing economic efficiency. Even though static profit-maximization by existing firms is not sufficient to minimize transaction costs, profit-seeking by existing and potential firms does serve this function. New firms can profit from incomplete specialization by investing in physical capital (e.g. trucks and telephones) and governance structures that exploit the differences in shadow prices across agents in different economic environments.

### 2.1 *"Lucas critique" visits institutional change*

Another preliminary issue that needs attention is the proposition that the constitutional environment should be held constant for purposes of studying contractual arrangements (e.g. Davis and North, 1971). The problem with this approach is that the very determinants of contractual arrangements (population density, basic knowledge, etc.) may also determine the constitutional environment. A metaconstitutional perspective is needed whereby technology, production relations, property rights and governance structures are seen as coevolutionary.

### 2.2 *Towards a metaconstitutional framework*

Consider, for example, the evolution of property rights in land. For each broad category of property rights, e.g. communal property, there is a set of alternative internal constitutional orders specifying rights, responsibilities, decision-making mechanisms and governance structures. For each economic environment -- characterized by preferences, technological possibilities and individual factor endowments, there is an optimal internal and

external constitutional order for each type of property. It is then a simple matter of comparing across property types, for a given environment, to find the optimal constellation of property and governance. The optimal coevolutionary path may then be defined with respect to exogenous changes in the economic environment (e.g. population growth) or recursively, with all variables endogenous. Departures from the optimal path can be studied through an analysis of rent-seeking or, more generally, from a non-cooperative setting that allows departures from an efficient spontaneous order.

### **3. Stages of Agricultural Development and the Evolution of Markets**

In the coevolutionary perspective, we abandon the prospect that private property and markets are always more efficient or less efficient than central government planning. The optimal property/governance configuration depends on the economic environment. Moreover, the coevolutionary perspective is concerned with contrasts in economic environments over time, not e.g. over space. In particular, the concern in this section will be to build on the foundations of John Locke, Adam Smith and Hayek regarding the evolution of property rights, economic organization and governance over time. For simplicity, we consider population growth and capital accumulation as the primary sources of change.

Four stages of economic organization are distinguished. In the first stage, constant endowment of land is redundant in the sense that its marginal product is zero. In stage two, land remains abundant, but has a positive and rising average product due to economies-of-scale deriving from learning-by-doing and agglomeration economies (Adam Smith; Young, (1928); Yang and Borland, (1991)). In the spirit of classical analysis, capital accumulation may be presumed to accumulate at the same rate as labor. Stage three begins when the economies of scale are just offset by diminishing returns to the fixed supply of land, such that the average product of labor reaches a local maximum. This labor-abundant stage of agricultural development may be regarded as neoclassical in nature and comes to an end when the rising capital/labor ratio offsets the Malthusian diminishing returns such that the marginal product of

labor begins to rise once more. Stage four may then be characterized as capital-abundant with a continuing increase in the marginal product of labor.

These four stages are depicted in Figure 1. Note that the threshold between stages two and three is determined by the maximum of the average product of labor, while the division between stages three and four is determined by the minimum of the marginal product of labor. This is because in the classical stage, with increasing returns to scale, marginal product pricing is infeasible. We may assume instead, e.g. for an economy based on family farms, that the wage is equal to, or at least based on, the average product of labor (see e.g. Day, 1971).

Table 1 provides further characterization of the four stages. Assuming a fixed metaproduction function, we can characterize the nature of agricultural technology and induced technological change. During stage 1, pioneer settlers do land clearing and use land intensive methods of cultivation (James and Roumasset, 1984). Property rights are classified as open access and the scope of specialization does not extend beyond the household.

**Table 1 -- Evolution of the Meta-constitution**

stage	Factor endowments	Induced technological change	Meta-constitution	Scope of specialization
1	land-redundant	none	open access	household
2	land-abundant	land-using	communal property	manor/village as market center
3	labor-abundant	labor-using	private/local govt.	town
4	capital-abundant	capital-using	private/central government	city as market and manufacturing center

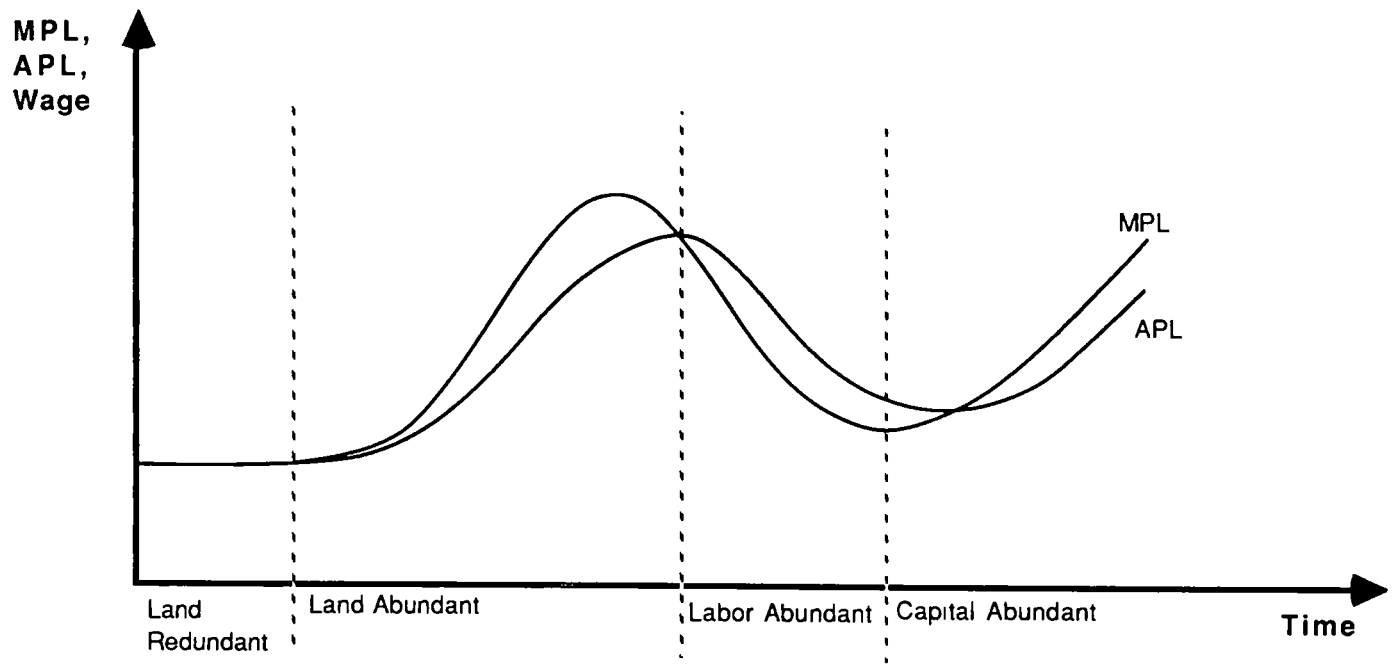


Figure 1: Stages of Agricultural Development

In stage 2, land is still abundant but has a positive marginal product of labor. Smith/Young economies-of-scale improve productivity until these positive forces are offset by Malthusian diminishing returns to the constant endowment of land. Agriculture is organized communally to exploit the economies-of-scale.

In stage 3, marginal product pricing becomes feasible and, assuming a “constitution of liberty” conducive to efficiency, labor-using technological and institutional change take place to facilitate hired labor (Roumasset and Smith, 1981). The scope of governance expands during this phase to accommodate the accelerating specialization of labor. Specialization also stimulates innovation. That, together with low wages and the shift in demand towards manufactured goods, spurs capital accumulation which eventually causes labor productivity and wages to rise.

Stage 3 contradicts the neo-Marxian hypothesis that modernization begets polarization, which is both inefficient and inequitable. In stage 3, the increasing specialization is entirely consistent with efficiency. Both commercialization and technological change are themselves induced by, not the causes of, falling wages. The neo-Marxian explanation is therefore a case of spurious correlation.

Stage 4 is characterized by capital abundance and capital-using technological change. The scope of specialization expands to national boundaries prompting increasing reliance on and the further development of the national justice system. Factor markets develop for credit and capital as well as labor, and the marketing sector expands. Even though the monitoring and bonding costs per standard transaction decline due to economies-of-scale, total expenditures on governance expand as the scope of specialization expands faster than per unit governance costs decline. This explains why both the marketing and government sectors expand faster than both the agriculture and manufacturing sectors.

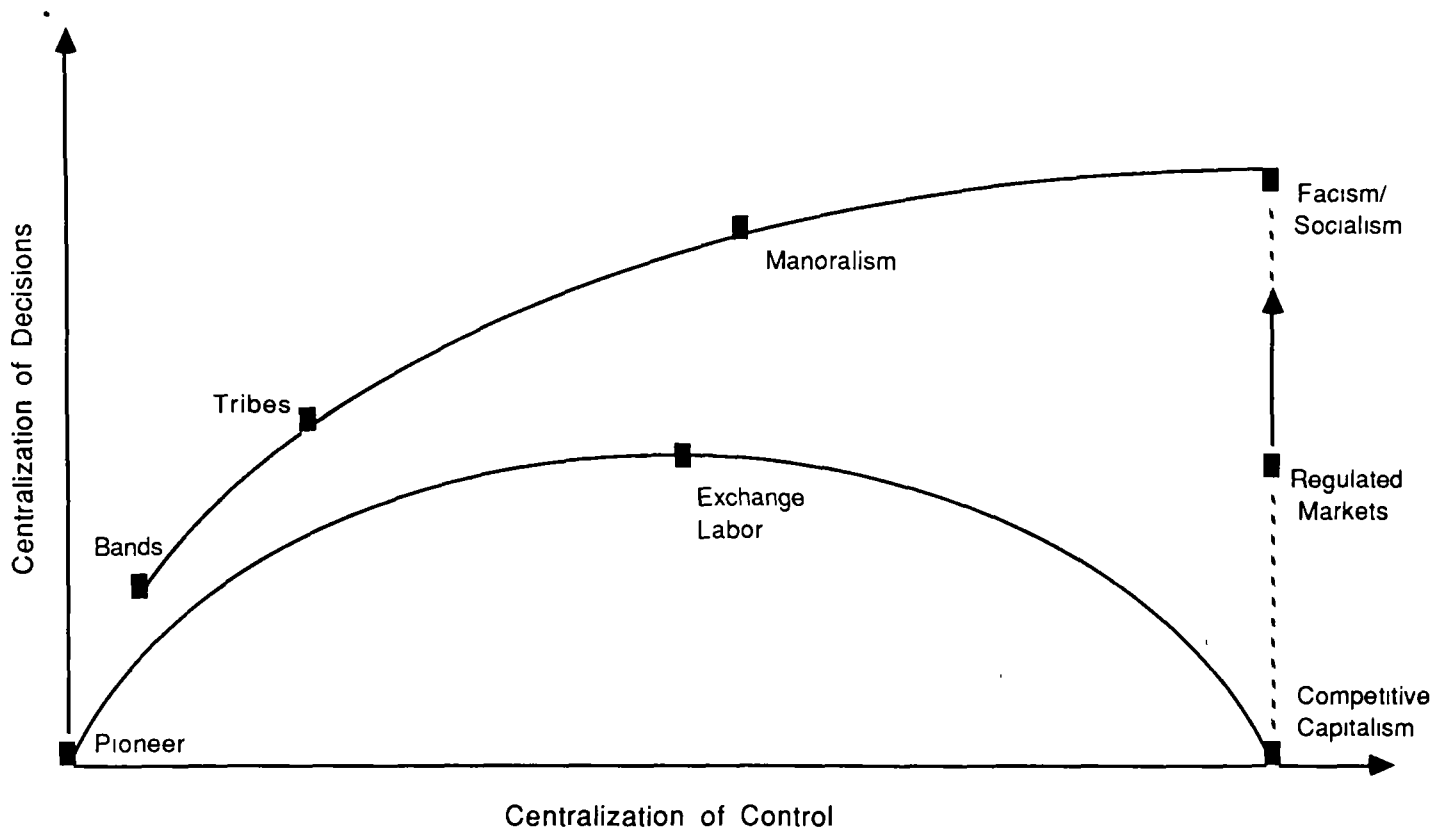
In a highly simplified scenario, privatization and market development will be complete. In a more general setting, vestiges of communal organization will remain due to economies-of-scale and costs of information, negotiation and enforcement.



Figure 2 illustrates some alternative paths of economic evolution. The inverted-U is a continuation of the Lockean hypothetical, but transposed in an Asian setting. Evolution begins in the pioneer stage, when decisionmaking is decentralized to the household level and where there is little or no governance structure for commerce among households. By the middle of this evolutionary path, the scope of control has expanded to the village level. Likewise, many decisions are made communally, primarily through the mechanism of exchange labor, especially in land preparation, planting and harvesting. As specialization leads to the emergence of social distinctions between laborers and *rentiers*, decentralization of decisions increases; but since specialization is increasing in scope, the governance structure of commerce, i.e. the locus of the rule of law, also increases. This perspective contrasts sharply with the notion that government and markets are inversely related. Instead, the increase of central government is necessary to facilitate the expansion of markets. Note, however, that centralization of the control function does not require decisionmaking to be centralized.

The diagram also illustrates the possible evolution of a tribal economy to the corporate village. If this evolutionary path were to continue, this form would end up as socialism. A more feasible evolutionary path, however, is for the corporate village to evolve towards capitalism, later on possibly switching to socialism via a Marxist revolution. A third evolutionary path is from manoralism to fascism (if a third dimension were added, fascism could be distinguished by the ownership of property or the distribution of income). A fourth path could be the interruption of the evolution of markets due to a departure from the constitution of liberty such that rent-seeking leads to regulated markets and towards increasing socialism.

This framework may also be used to explain changes in income inequality in both pioneer and band societies. Both organizational forms have relatively even income distributions. As bands evolve into more hierarchical forms, tribes' and villages with chiefs' income distribution begins to become more skewed, both because of the nature of the hierarchy and because of differences in primitive forms of accumulation, e.g. pigs and wives in Papua New Guinea. As the hierarchical evolution proceeds through manoralism and



**Figure 2: The Coevolution of Property, Markets, and Government**

fascism/socialism, income distribution may become progressively worse; as power becomes increasingly centralized, so too does the power of rent-seeking, and those rents are likely to be highly concentrated.

In the case of frontier agrarian societies, an egalitarian evolution is possible from largely autonomous units to simple village economies that exploit economies-of-scale in operations such as land preparation, transplanting and harvesting through the use of exchange labor. As such societies enter into the involitional stage of declining marginal products of labor, specialization arises and income distribution worsens according to the Ricardian principles of the rising land values relative to labor. The early phase of the capital using stage is likely to continue worsening income distribution. However, as capital becomes more abundant, its price falls relative to that of labor, and income distribution ultimately improves. This may help to explain Kuznet's "inverted-U" pattern of income distribution, which applies primarily to stages 3 and 4.

The framework also helps to illuminate the difficulty of liberalizing socialist economies. It is quite possible that no feasible evolutionary path exists from socialism directly to capitalism. It may be necessary, for example, to devolve to more localized communal management before a constitutional reform is feasible which will put the economy back on an evolutionary path to capitalism.

#### **4. Concluding remarks**

The metaconstitutional perspective sketched above provides a framework for integrating the theory of induced innovation with a theory of government. The framework affords a number of observations about agricultural development. Classical and neoclassical models need not be viewed as alternatives. Each is appropriate for a different stage of development. Similarly, government is not an alternative to the market. The institutions of commercial governance must expand in size and scope to facilitate specialization and market deepening. Alternative evolutionary paths of development may be similar in early stages but

diverge sharply with the accumulation of capital. Both constitutional reform and political revolution may be understood as the switching from one path to another.

The neo-Marxian view that polarization is the consequence of modernization, conceived of as population growth, technological change, and commercialization, is a result of spurious correlation. Population growth and the decline of natural barriers to trade induce both technological change and commercialization. Moreover, such a coevolution is consistent with, but does not require, falling wages. Marxism need not have a monopoly on the coevolution of government and production relations. The metaconstitutional perspective provides an alternative approach.

In particular, the metaconstitutional approach provides an alternative explanation of the proposition that capitalism, without a constitution of liberty, contains the seeds of its own destruction. The centralization of control that emerges as a spontaneous order to facilitate commerce carries with it the potential for rent-seeking and undermining of competition. To the extent that these dangers are well-understood, checks and balances can be built into the governance structure that reinforces the spontaneous order. That is, centralization of control does not require monopolization of control. Separation of enforcement and the administration of justice can help limit the abuse of power and the exercise of control inappropriately spilling over into decision-making. Constitutional restraints, especially the preservation of individual liberties, are also needed to limit the scope of central control.

The efficient scope of collective decision-making also expands with specialization. The legal infrastructure of exchange should be complemented by a physical infrastructure, including transportation and communication facilities. As the scope of commerce expands, the requisite infrastructure of exchange expands exponentially. The ethics and *mores* needed to shore up the governance structure of the *spontaneous order* becomes increasingly complex as the commercial network expands across people with different culture and traditions. Public education is increasingly needed to impart these standardized customs of governance as well as the standards and operating systems of the legal and physical infrastructure of exchange. The role

of collective contracting in the provision of infrastructure, governance, and public education thus increases faster than per capita income, providing thereby a legitimate basis for Wagner's law (at least in the early stages of development). The efficient scope of collective choice, however, remains largely circumscribed by the principles laid down by Adam Smith -- limiting governmental activity to defense, order, the administration of justice, standards, and public works and institutions.

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