A Theory of Inalienable Property Rights

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Why do democratic societies often impose legal restrictions that render various assets or entitlements inalienable to the individual? The explanation proposed here is that these constraints arise as an institutional response against financial markets that, in a sense, work "too well." That is, I demonstrate how a well-functioning financial market can potentially work against a social policy designed to ensure a basic minimum standard of living for all types of individuals. Inalienable property rights and debt constraints emerge as a natural institutional response to the improvident tendencies of some members of society when a majority of individuals share a common distaste for neighborhood squalor.

I.   Introduction

Several papers have recently explored the properties of complete-market models that feature contractual enforcement constraints. Hart and Moore (1994), Krueger and Perri (1999), Alvarez and Jermann (2000), and Kehoe and Levine (2001), for example, demonstrate how contractual enforcement constraints can lead to endogenous restrictions on the level of debt or insurance that inhibit efficient investment, risk sharing, or consumption smoothing. In this literature, the presence of these constraints is typically motivated by appealing to the apparent inalienability characteristics of certain types of property. Individuals may,

for example, be endowed with a (nondisposable) technological ability to evade future obligations by moving to a different economy (the home sector, the underground economy, or a foreign economy); such a circumstance would render human capital inalienable to the individual. But aside from such technological considerations, it seems difficult to rationalize the presence of these constraints. If anything, one might expect institutions to emerge that help circumvent their adverse effects. In fact, what we tend to observe is precisely the opposite: inalienable property rights are frequently imposed by governments through an assortment of legal restrictions.

To give just a few examples of what I am referring to here, note that people are commonly prohibited from using promised pension income as collateral for a loan. Most other social security entitlements are almost always made legally inalienable. The ability of creditors to garnishee wages for debt repayment is often subject to severe legal restrictions, with some jurisdictions going so far as to prohibit the practice entirely. Indentured servitude (which in some sense might be viewed as an extreme form of wage garnishment) is legally prohibited. Personal bankruptcy laws often include provisions that render some assets exempt from seizure. Even outside of formal bankruptcy proceedings, creditors can anticipate that courts will often impose nonnegotiable limits on the types and level of assets that can be seized from people in default. These are all examples of restrictions that, in the language of Stigler (1968), limit the disposable property rights of individuals. As such, they constitute laws that limit the amount of debt/insurance that individuals are able to secure. What is the rationale for these types of restrictions?

The explanation offered below is that these laws constitute a part of a politico-economic equilibrium designed to implement an efficient allocation of resources distributed in a manner that is preferred by a voting majority.[1] My argument rests on three key assumptions: (1) There is a well-functioning competitive financial market, (2) there are some individuals (in the majority) who are subject to a consumption externality in that their welfare is adversely affected whenever the consumption of any individual falls below some minimum level, and (3) there are some individuals (in the minority) who would willingly use financial markets to embark on consumption trajectories that take them (with some positive probability) below this minimum level.

What follows from these three conditions can be explained simply when the minority individuals are modeled as displaying "impatience." In an unfettered financial market, the impatient will rationally use a

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[1] In an argument similar to the one made here, Avio (1973) argues that interest rate ceilings might be interpreted as a rational and inexpensive way for a society to achieve its welfare objectives for certain types of individuals.

given stream of earnings to finance a near-term period of "high living" in exchange for a future of extreme poverty. To the extent that surrounding individuals are in some way adversely affected by the destitute, this former group of people will be tempted to transfer resources to their impoverished fellow citizens. But with a well-functioning financial market, an impatient person will be able to write a debt contract with creditors that effectively collateralizes the anticipated act of charity. That is, the rational expectation of a future transfer will serve only to send impatient individuals to the bank to borrow more money. So when the transfer would come to rescue such a person from inevitable poverty, he or she would have to turn the money right over to the bank to pay off the loan. Should the "altruistic" (and patient) group at this stage be willing to give up yet more resources that allow the impatient to settle their debts and enjoy a tolerable living standard, this too would have already been anticipated and borrowed against. Thus there can be no Pareto-efficient equilibrium because efficiency requires poverty-eradicating transfers that cannot exist in equilibrium. It turns out that this nonexistence problem is easily rectified by passing a law that prohibits the garnishment of certain types of income or assets (e.g., social security entitlements). In other words, debt constraints exist not because of "imperfections" in the capital market, but because of conscious government intervention designed to hamper a capital market that would otherwise work "too well" (relative to the preferences of a majority).

The emergence of legal restrictions of the type I study here does not depend on the existence of motives for redistribution. Consider, for example, an economy in which people share identical earnings processes. In such an environment, a majority of patient individuals may want to adopt an inalienable "forced-saving" program (mandatory pension plan) that happens to bind only for the impatient. By doing so, the patient (who grow wealthy over time) need not concern themselves with the senescent Lord Byrons of the world, who are made worse off by the "paternalistic" intervention of their fellow citizens.[2]

It is also worth pointing out that my argument does not depend on heterogeneous time preference; that is, other forms of heterogeneity may suffice. Consider, for example, an environment that features idiosyncratic earnings uncertainty and suppose that the minority individuals are risk-neutral or have subjective probabilities attached to some bad outcomes that are "too low"; that is, they discount particular states of the world too heavily relative to the preferences/information of the majority. In either case, this minority is not going to insure itself "properly," and, in the absence of legally inalienable social insurance or non-

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[2] "Let us have wine and women, mirth and laughter; Sermons and soda water, the day after" (Lord Byron, *Don Juan*).

negotiable personal bankruptcy exemptions, the majority can expect to suffer the presence of unlucky and improperly insured individuals.

The argument above is formalized within the context of a simple two-period general equilibrium model that features no uncertainty and no informational asymmetries. The basic argument will in fact hold in much more general environments; all that is required is the three key assumptions made above.

II.   A Simple Model

The goal here is to formalize the argument above in the simplest terms possible. Accordingly, assume that there is a continuum of individuals distributed uniformly on the interval I. Each person $i \in I$ is assumed to have preferences defined over his or her own time-dated consumption (c_{1i}, c_{2i}) as well as over the distribution of consumption across people ("neighbors") at any point in time (c_{tj}), $j \neq i$, $t = 1, 2$. Assume that these preferences can be represented by a utility function of the following form:

$$V_i = \ln(c_{1i}) - \chi(c_{1j} < m_i)\alpha_i + \delta_i[\ln(c_{2i}) - \chi(c_{1j} < m_i)\alpha_i],$$

where $\chi(c_{tj} < m_i) = 1$ if there exists a set of agents Q_t (with positive measure) such that $c_{tj} < m_i$ for $j \in Q_t$ in period t, and $\chi(c_{tj} < m_i) = 0$ otherwise. These preferences nest the usual specification ($\alpha_i = 0$) as a special case.

The preference parameters δ_i and α_i index the degree to which person i "discounts" consumption across time and people. It seems plausible to suppose that individuals may differ in their rate of pure time preference (see, e.g., Rae 1834; Lawrance 1991; Warner and Pleeter 2001). It seems equally plausible to suppose that individuals care about the material living standards of their neighbors and that they differ in the degree to which such sentiments are held.[3] The idea I wish to model here is that people generally have a view in terms of what they regard to be some "minimally acceptable" living standard m_i and that observing any neighbor's consumption fall below this minimum standard makes person i "feel bad" with an intensity indexed by α_i. Passing a destitute neighbor on the street elicits a host of different feelings: some people may simply not care and others may be overcome with nausea.[4] In what

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[3] This type of externality has a long tradition in economics. For example, Jeremy Bentham apparently believed that beggars should have been locked up because of the distress that their appearance and importunings caused passersby (Posner 1995, p. 23). See also the opening paragraph in Smith (1759).

[4] Alternatively, one might suppose that when the material living standards of some people fall low enough, they are prone to steal from or harm neighbors who are materially better off.

follows, I also take the view (I have no direct evidence) that for any given individual, the propensity to discount across people and time is positively correlated.

Individuals have an endowment stream (y_{1i}, y_{2i}). Assume, for simplicity, that there are only two types of individuals, A and B. Normalize the population of type A individuals to unity and let $0 < n < 1$ denote the number of type B individuals (hence, the median voter is a type A individual). Type A individuals have preferences $(\delta_i, \alpha_i, m_i) = (\delta, \alpha, m)$ and earnings profile $(y_{1A}, y_{2A}) = (y, y)$, with $y > m > 0$. Type B individuals have preferences $(\delta_i, \alpha_i, m_i) = (0, 0, 0)$ and earnings profile $(y_{1B}, y_{2B}) = (m, 0)$. Thus type A individuals are affected by the material well-being of their neighbors, and type B individuals fully discount everything beyond their own immediate satisfaction. Also, type A individuals are relatively wealthy.[5] In order to guarantee the potential willingness and ability to confer charity, assume that the configuration of parameters satisfies the following restriction:

$$y \geq \frac{nm}{1 - e^{-\alpha}}. \tag{1}$$

A. Competitive Equilibrium

Individuals are small and behave noncooperatively; consequently, individual acts of charity can never be part of an equilibrium in this environment. Assume that there is a competitive market for risk-free private debt; let $R > 0$ denote the (gross) real rate of interest. Despite the externality in preferences, it should be clear from the special structure considered here that there exists a unique competitive equilibrium allocation $(c_{1A}^e, c_{2A}^e) = (y, y)$, $(c_{1B}^e, c_{2B}^e) = (m, 0)$ and price system $R^e = 1/\delta$. That is, type A individuals consume their "permanent income" in each period, whereas type B individuals consume their entire wealth in the present period. The respective utility payoffs are given by

$$V_A^e = \ln(y) + \delta[\ln(y) - \alpha],$$

$$V_B^e = \ln(m).$$

Notice that while type B individuals have the ability to smooth consumption, they choose not to. In any case, they have insufficient resources to finance a future living standard above m, so type A individuals expect to suffer the displeasure of such an event.

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[5] In a multiperiod model, relatively patient individuals would endogenously generate higher levels of income.

B.   The Star Allocation

If condition (1) holds (assume that this is so), then the competitive equilibrium is not Pareto-optimal (the First Welfare theorem breaks down because of the externality in preferences). Out of the set of Pareto-optimal allocations, there is one that is strictly preferred by type *A* individuals; let us call this the "star" allocation: $(c_{1A}^*, c_{2A}^*) = (y, y - nm)$, $(c_{1B}^*, c_{2B}^*) = (m, m)$.[6] Notice that type *B* individuals are indifferent between the star allocation and the competitive equilibrium allocation. Given (1), the star allocation is feasible and guarantees all individuals at least the minimum living standard *m* per period; individual utility payoffs are given by

$$V_A^* = \ln(y) + \delta \ln(y - nm),$$

$$V_B^* = \ln(m),$$

with $V_A^* > V_A^e$ and $V_B^* = V_B^e$.

Note that there is no simple redistribution of endowments that will allow the star allocation to be implemented as a competitive equilibrium. However, there may exist mechanisms that can implement the star allocation as an equilibrium of some appropriately specified game; this is an issue that will now be explored.

III.   Redistribution Policy

A majority of the population could feasibly be made better off (and the remainder made no worse off) by some coordinated act of charity. One simple mechanism that serves this coordination role is a government with the legal power to tax. Assume that the majority (type *A*) individuals agree to institute a government with such a power (and with preferences identical to their own).

Let *x* denote the future transfer payment accruing to type *B* individuals (since type *B* individuals are able to finance current-period consumption of at least *m,* we need not consider current-period transfers). Without loss, we may abstract from government borrowing (Ricardian equivalence holds in this environment). Government budget balance requires $\tau = nx$, where τ is the tax revenue collected from type *A* individuals. What will concern us next is determining the precise conditions under which such a redistribution policy can be implemented as an equilibrium. By an equilibrium, I mean a situation in which the standard competitive equilibrium restrictions are satisfied together with

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[6] Technically, the impatient do not value second-period output and so may not consume it. But since they are indifferent between consuming and not consuming, let us assume that they do.

the property that the prevailing tax/transfer policy maximizes the well-being of the voting majority (i.e., type A individuals); call this a *politico-economic equilibrium.* I shall also distinguish between a redistributive equilibrium in which the government does or does not have access to a commitment technology.

A. *Politico-economic Equilibrium with Commitment*

Imagine that the government announces a future transfer (with an associated tax) equal to x and assume that the government can commit to this policy. Conditional on this announcement, the desired consumption profile for type A individuals is given by

$$c_{1A} = \left(\frac{1}{1+\delta}\right)\left(y + \frac{y-nx}{R}\right),$$

$$c_{2A} = R\delta\left(\frac{1}{1+\delta}\right)\left(y + \frac{y-nx}{R}\right). \tag{2}$$

Given their high rate of discount, type B individuals will borrow as much as they feasibly can (i.e., the present value of their entitlement) in order to maximize their current consumption: $c_{1B} = (m+x)/R$ (which implies $c_{2B} = 0$). Now, conditional on x, the market-clearing interest rate is given by

$$\hat{R}(x) = \frac{y + \delta nx}{\delta y}. \tag{3}$$

Substituting (3) into (2), we can derive the competitive equilibrium consumption allocation for type A individuals (conditional on a transfer level x):

$$\hat{c}_{1A}(x) = \left(\frac{1}{1+\delta}\right)\left[1 + \delta\left(\frac{y-nx}{y+\delta nx}\right)\right]y,$$

$$\hat{c}_{2A}(x) = y. \tag{4}$$

Notice that type A individuals end up consuming the entire future-period output, independent of the transfer level x. The reason for this is that type A's second-period income consists of net-of-tax income plus the principal and interest repayment on the loans extended to type B individuals.

Clearly, $\hat{c}_{1A}(x) \leq y$ and is strictly decreasing in x. Consequently, type A individuals have a utility payoff $V_A(x) \leq V_A^e$ that is strictly decreasing in x. Notice that the transfer payment accomplishes absolutely nothing in terms of providing a material standard of living for type B individuals

in the future; their transfer income is fully garnisheed by creditors. Effectively, the transfer program redistributes current output from type A individuals to type B individuals, leaving the former worse off and the latter better off. Consequently, we have the following proposition.

PROPOSITION 1. If the government (representing type A preferences) can commit to a transfer policy x, then there is a unique politico-economic equilibrium with transfer level $x^* = 0$; that is, the resulting allocation is identical to the competitive equilibrium allocation.

1. History-Dependent Transfer Policy

Note that it is possible to construct a more sophisticated policy that conditions delivery of the transfer on an observable history of events. In the present context, suppose that the government is in a position to observe the historical consumption choices of type B individuals. Consider the following transfer policy:

$$x = \begin{cases} m & \text{if } c_{1B} \leq m \\ 0 & \text{otherwise.} \end{cases} \tag{5}$$

Under this policy, if the government observes $c_{1B} > m$, then the individual becomes disentitled. If the government can commit to such a policy, then type B individuals lack the backing that would be necessary to secure the loan in the first place; the transfer policy (5) effectively imposes a debt constraint on type B individuals. Consequently, we have the following result.

PROPOSITION 2. If the government can commit to a contingent transfer policy, then there is a unique politico-economic equilibrium with transfer level $x^* = m$; that is, the resulting allocation is identical to the star allocation.

The transfer policy above is interesting because it can apparently achieve the desired "social goal" (type A preferences) of eliminating incidences of extreme poverty without recourse to any special legal restrictions that explicitly prohibit creditors from enforcing their property rights (i.e., seizing assets or income for loan repayment). In reality there are two practical problems that would likely limit the usefulness of history-dependent transfer functions. First of all, in more complicated environments, the government would have to keep track of and verify a great deal of information concerning individual histories. Second, the government might not possess the necessary commitment technology.

B. Politico-economic Equilibrium without Commitment

Suppose that the government cannot commit to policy. Then the appropriate solution concept is one that allows the government to reop-

timize sequentially (on behalf of type A individuals). If the optimal policy remains invariant at each stage of the game, it is called *consistent*. I shall define an equilibrium to be an allocation and price system that satisfies the usual competitive equilibrium restrictions together with consistency of government policy; refer to such a situation as a *consistent politico-economic equilibrium.*

The first thing that I shall demonstrate is that the policy described in proposition 1 is not a part of any consistent politico-economic equilibrium. The reason is as follows. At the beginning of period 1, the government announces a future transfer $x^* = 0$. Assume for the moment that this policy is credible. Financial market activity then results in the competitive equilibrium allocation $(c_{1A}^e, c_{2A}^e, c_{1B}^e, c_{2B}^e) = (y, y, m, 0)$ and interest rate $R^e = 1/\delta$. Now consider the position of type A individuals at the beginning of period 2; their continuation utility payoff from following the proposed equilibrium is $V_A = \ln(y) - \alpha$. The question at this stage is whether the government might be tempted to deviate from the initial proposed equilibrium policy $x^* = 0$. Let x^R denote an arbitrary "renegotiated" transfer payment (deviation); the continuation payoff for type A individuals under any deviation x^R is given here by

$$V_A(x^R) = \begin{cases} \ln(y - nx^R) & \text{if } x^R \geq m \\ \ln(y - nx^R) - \alpha & \text{otherwise.} \end{cases} \tag{6}$$

Given condition (1), optimal government policy at this stage requires $x^R = m > x^* = 0$, which obviously violates the consistency requirement $x^R = x^*$. An analogous argument can be used to show that the history-dependent transfer scheme described in proposition 2 is also not consistent. Thus, while the optimal policies described in propositions 1 and 2 are "Nash," they are not "subgame perfect." But in fact, the problem is much more serious than this because one can demonstrate the following proposition.

PROPOSITION 3. For the parameter restrictions considered here, there does not exist a consistent politico-economic equilibrium.

By way of a proof, consider the following argument. Let Ex denote the transfer expected to prevail in the future period; in equilibrium, consistency will require that $x^R = Ex$. In an unfettered financial market, type B individuals will borrow Ex units of output, using the expected transfer payment as collateral, which leads to a desired consumption profile $c_{1B} = m + R^{-1}Ex$ and $c_{2B} = 0$. This desired consumption profile must be a part of any equilibrium. But if this is true, then clearly no amount of expected charity is going to alleviate type B's future poverty. Consequently, optimal government policy at the beginning of period 1 is to announce $x^* = 0$. But we have already demonstrated that $x^* = 0$ is not a consistent government policy; at the beginning of period 2, type A individuals will want to redesign the tax system so that $x^R =$

$m > 0$. However, in this case, the proper expectation of the future charity flow is m, which is, of course, inconsistent with optimal government policy as of period 1.

To reiterate, conditional on an expected transfer Ex, optimal government policy as of period 2 is to set $x^R = m + Ex$ (the Ex is used to satisfy the claims of creditors, and m is used to alleviate poverty). Consistency requires $x^R = Ex$, which is impossible since $m > 0$.

IV. Inalienable Property Rights

If a government can commit to a policy, then in principle it may be able to implement a cleverly designed (history-dependent) redistribution policy that is preferred by the voting majority. However, if only "simple" policy rules are available (e.g., history-independent), then not even the ability to commit will guarantee the implementability of a desirable redistribution policy. In the absence of commitment, it is not even clear what will transpire; there appears to be no solution to the problem of designing an implementable redistribution policy. The basic problem here is that a well-functioning financial market appears to work against the goals of social policy; there is a sense in which financial markets work *too well*. One solution may therefore entail restricting the operation of the financial market.

Imagine now that the government (representing type A individuals) passes a law that renders the future transfer payment $x^* = m$ inalienable. Legally, potential creditors are now in no position to garnishee this income flow and hence would refuse to buy a debt instrument that is backed by the promise of social security income; type B individuals would be "forced" to consume the consumption profile (m, x^*), instead of their preferred consumption profile $([m + x^*]/R, 0)$. Furthermore, it should be clear that when the economy arrives at the beginning of the future period, the government will have no incentive to alter the legal system; the proposed legal restriction is in this sense "renegotiation-proof."

PROPOSITION 4. If transfer income is legally inalienable, then the transfer policy $x^* = m$ implements the star allocation as a consistent politico-economic equilibrium.

The argument above has been made in the context of a government faced with designing an optimal redistribution policy. But even in the absence of a redistribution motive, the government may wish to pass laws that effectively limit debt accumulation or even "force" saving. For example, suppose that type B individuals are "self-sufficient" in the sense of having enough wealth to finance consumption expenditures of at least m in each period; assume that $(y_{1B}, y_{2B}) = (m + (m/R), 0)$. An appropriate response by the government (appropriate in the sense of

respecting type *A* preferences) would then be to tax the first-period income of type *B* individuals by an amount equal to $\tau = m/R$ (a forced pension contribution), invest the proceeds in an interest-bearing asset, and promise a future pension income $x = m$. Of course, for this program to work, the pension fund must be made legally inalienable. Note that, unlike the redistribution scenario discussed earlier, this forced-saving program does not constitute a Pareto improvement (relative to the competitive equilibrium allocation) since type *B* individuals are made *worse* off; the "paternalistic" intervention is motivated entirely by the selfish motives of type *A* individuals who wish to avoid being exposed to incidences of extreme deprivation.

V.   Concluding Remarks

While the economic environment described above is highly stylized, it arguably corresponds to reality along several key dimensions, in particular, the type of preference heterogeneity described above together with the assumed access to financial markets. It is therefore plausible that many real-world legal restrictions that effectively inalienate some types of property can be understood as an institutional response to the problems highlighted above.[7]

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[7] Others have also examined the circumstances under which one might reasonably expect the provision of in-kind government transfers that are either purposely chosen (in part) for their difficult resale properties or legally prohibited from being resold (see Blackorby and Donaldson 1988; Coate 1995).

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