

Efficient Mercantilism?

Revenue-Maximizing Monopolization Policies as Ramsey Taxation

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Abstract

The economics literature on mercantilism tends to emphasize gold hoarding and external barriers to trade as defining characteristics. Medieval institutions, however, included a host of internal barriers to trade as well as external ones. Moreover, monopoly privileges and high offices were often for sale. In this paper, we analyze how a stable unitary government's regulatory policies may be affected by revenues and other services generated by the efforts of rent seekers. Competition for monopoly privilege can be a significant source of government revenue that augments tax revenues, especially in settings in which collecting "ordinary" tax revenues is problematic. Our analysis provides a possible political-economy explanation for relatively successful authoritarian states that have relatively little corruption, but many internal and external barriers to trade. A revenue-maximizing government encourages greater monopolization than is compatible with economic efficiency, but sells monopoly privileges in a manner that promotes innovation and partially accounts for the deadweight losses associated with monopolized markets.

Key words: Mercantilism, Rent Seeking, Endogenous Rent Seeking, Rent Extraction, Leviathan, Corruption, Anti-Trust, Dictatorship, Regulation, Public Choice, Innovation, Patents, Interest Groups, Encompassing Interest, Welfare Economics, Encompassing Interest, Monopoly.

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“Control of an entire industry had sometimes been established on the basis of a patent for invention in one part of the process. Courtiers who extorted large sums from petitioners as the price of advancing their claims were roundly condemned. But most offensive of all was the granting of monopoly powers in established industries, as a form of patronage, to courtiers whom the crown could not otherwise afford to reward. This was to the detriment of consumers and established manufacturers alike.” Christine Macloed, 1988, *Inventing the Industrial Revolution, The English Patent System 1660–1800*, p. 15.

I. Introduction

One of many puzzles in economic history is the durability of medieval systems of regulation and monopoly privilege. Such long-standing systems of governmental “privilege” are commonplace throughout world history and include many relatively well-run and prosperous national states in the medieval period, such as England, France, China, and Japan, and also many smaller independent city states and principalities. There are also cases of modern societies that prosper in spite of similar formal and informal internal barriers to trade, as in contemporary Singapore and Korea.² For the most part, economists regard policy decisions that monopolize local markets, professions, or access to political office to be serious mistakes, and evidence of errors in the economic theories that guide policymakers in those societies. Most economists believe that mercantilist practices are wealth reducing, rather than enhancing.

Our paper demonstrates that secure rulers may construct a variety of rent-seeking games to enhance their revenues and/or support from privileged groups, may do so in a manner that nearly maximizes national economic income. We do not assume that such rulers are altruistic, but rather demonstrate that their position as residual claimants of national income leads them to approximately maximize income. We also demonstrate that considerable rent-seeking activity may

² Shin (2002), for example, notes that “competitive forces have always been relatively weak in Korea.” Ramirez and Tan (2004) note that the central government plays an important role in economic development in Singapore, which they refer to as “state capitalism.”

be entirely compatible with this result. A “well-managed mercantilism” tends to increase wealth for the nation as a whole, relative to more corrupt or less well-managed states. Wealth in such prosperous rent-seeking states, however, may not be very broadly distributed.

We combine Olson’s (1993) approach to modeling dictatorship with the contemporary rent-seeking literature to demonstrate why this is possible. The literature on rent seeking has carefully examined the extent to which resources tend to be attracted to rent-seeking contests and the extent to which such uses of resources can be regarded as a deadweight loss. The most analyzed cases are those in which the competitive process for allocating monopoly or other privilege resembles a lottery game or an all-pay auction. Successful rent seekers obtain a government-provided privilege of some kind and realize net profits; although, overall, the participants in the contest for privilege earn no profits in the aggregate under the usual Tullock (1967), Krueger (1974), Posner (1975), Hillman and Samet (1987), or Ellingsen (1991) assumptions. Their efforts to secure favor, however, often provide benefits to those who must be influenced to secure the desired rents (Congleton 1980).

Insofar as government-determined rules of the game largely determine the incentives for resources to be devoted to various political allocation contests, governmental policies may be said to be directly responsible for any deadweight losses that result from those procedures. For the most part, the literature assumes that rent-seeking contests are an accidental consequence of other governmental policies or institutions. And, consequently, an implicit theme of most of the rent-seeking literatures is that good governments should attempt to minimize the resources attracted to rent-seeking contests through their policies. This would free scarce resources for other uses that are value adding rather than value reducing. Consistent with this conclusion, theorists often note that societies in which rent-seeking activities are extensive are relatively poor ones (Krueger 1974). The formal analysis of rent-seeking contests implies that governments may reduce rent-seeking expenditures in a variety of ways; for example they may do so by reducing

the number and value of grants, by insulating the process of distributing grants from individual rent-seeking efforts, and by encouraging competitive markets rather than monopolies.³

In spite of this advice, most governments at least occasionally create rent-seeking contests. Moreover, in many cases, such contests are *deliberately created to increase the level of rent seeking* that takes place within a given society. The literature on corruption (Hillman and Katz 1987, Shleifer and Vishny 1993) suggests a possible personal income rationale for such allocative procedures. Government officials may profit from rent-seeking contests. However, this hypothesis about the origin of rent-seeking contests still suggests that rent-seeking contests are accidents rather than government policy, because corruption in most countries is officially illegal. We suggest that top government officials—e.g. governments—may also have an interest in promoting competition for government favors.

A relatively small strand of the rent-seeking literature demonstrates that rent-seeking contests can be designed with particular aims in mind (Glazer and Hassin 1988, Gradstein and Konrad 1999, Moldovanu and Sela 2006), but such models have not integrated their analyses into a governmental fiscal and regulatory context. This paper suggests that a well-managed, secure, “mercantilist” government may devise rent-seeking contests to enhance public revenues and political support among elites. This is a common theme in applied work on rent-seeking, but we demonstrate that the consequences of a well-designed rent-seeking society need not be a grave as previous work suggests. We demonstrate that a government’s interest in net revenues tends to cause it to (i) create rent-seeking contests (ii) in a manner that encourages innovation and accounts for deadweight losses, although it (iii) still reduce national output below maximal levels. Olson’s insight that even a narrowly self-interested government has good reasons to take into account the effects of its policies on its citizens is clearly evident in our analysis.

Our focus is on what is sometimes called “rent extraction” rather than rent seeking, *per se* (Appelbaum and Katz 1987, McChesney 1997). That is, we take the results of the rent-seeking literature as essentially correct, and examine the incentives for governments to contrive rent-

³ Congleton, Konrad, and Hillman (2008) and Tollison and Congleton (1995) provide extensive overviews of the rent-seeking literature. Tullock (1980) and many others have demonstrated that the exact dissipation result is a special case, requiring large numbers of participants, although Hillman and Samet (1987) suggest that complete dissipation is more common than might be thought..

seeking contests for monopoly and similar privileges. Such contests are certain to attract the efforts of rent-seekers, and the contests may be designed so that the state receives revenues (bid, bribes, or other useful services) from rent seekers in exchange for protection, at least in the short run. The rent extraction of interest here is possible only because of the efforts of rent seekers. We also demonstrate that in some cases the original Tullock rectangle understates outlays to secure monopoly privilege and potential rent-seeking losses, and also explore several limitations of the “encompassing interest” model of dictatorship developed by Olson (1993). The latter provides a partial explanation for the negative correlation between government corruption and economic development among authoritarian regimes (Ehrlich and Lui 1999).

Our analysis is not the first to note that a government may have a financial interest in official monopolies. Most of these studies, however, have been case studies of one kind or another. For example, Ekelund and Tollison (1996) use the rent-seeking approach to explain many of the monopoly practices of medieval churches and governments. Anderson and Boettke (1997) use the rent-seeking approach to explore revenue-maximizing aspects of the Soviet economy as a form of mercantilism.⁴ Lott (1990) analyzes the reasons why government-owned monopolies may behave differently from privately owned monopolies.⁵ These analyses suggest that revenue concerns have informed the monopoly policies of many governments through time and that governments are not always predisposed to adopt policies that enhance competition. Our analysis suggests that a government’s interest in revenues may lead it to actively discourage

⁴ See also Hillman, A. L. and A. Schnytzer (1986), who make similar arguments regarding Soviet methods of command and control.

⁵ Analysis of the political prerequisites for effective antitrust policies has a long and broad history in the economics literature. See, for example, Willis (1912) for an early discussion of the political difficulties of passing antitrust legislation. Recent volumes edited by Stigler (1988) and McChesney and Shughart (1995) include several interest group models of contemporary antitrust policies within the United States. See also Laffont and Tirole (1993). These mainstream analyses of the political aspects of monopolization policies neglect the revenue that can be generated by such contests. This doubtlessly is partly a matter of simplifying assumptions that allow researchers to focus attention on the political processes of interest. Neglect of this topic, however, may also reflect the literature’s extensive focus on American politics in which legal and constitutional restrictions significantly reduce opportunities to use monopolization policies as a source of government revenue.

competition in some or most markets, because it is able to profit from the rent-seeking contests thereby created.⁶

Perhaps surprisingly, we demonstrate that the deadweight loss generated by a secure, well-organized, revenue-maximizing government's monopolization policies is much smaller than implied by the analysis of rent-seeking expenditures alone. Indeed, such mercantilist practices can be quite efficient.

II. Leviathan and the Fiscal Foundations for State-Supported Monopoly Power

Modern fiscal instruments are relatively recent inventions. The income tax is less than two centuries old and the value-added tax (VAT) is less than a century old. This is not because "income" and "value added" are new phenomena, but rather because collecting taxes based on income or value added was evidently very difficult in earlier periods. The creation and sale of monopoly power is a much older practice, because it has several administrative advantages over contemporary broadly-based taxes such as income and sales taxes. Revenues from income and sales taxes accumulate gradually through a huge number of transactions, all of which need to be policed. In contrast, sale or rent of a monopoly privilege requires monitoring relatively few transactions. Moreover, a good deal of the monitoring of monopoly privileges will be undertaken by the monopolists themselves, whereas little self-monitoring will be provided by taxpayers,

⁶ Our rent-seeking characterization of contests for government protection differs somewhat from the menu auction approach developed by Grossman and Helpman (1994) and used by many others to analyze the politics of international trade barriers and domestic regulation. In both rent-seeking and menu auction models, competition takes place under the existing formal and informal rules of a game. In both models, players are assumed to make independent decisions. In both models, "bids" influence the outcome of the regulatory game, and in both cases, the payoff functions are consequences of government policies. The menu-auction approach, however, assumes that governments are passive, and that the potential *rent seekers create* contests by making conditional offers (in cash) to the crown (or pivotal voter) for desired policies. Within our analysis, the order of decision making is reversed. The contests (auctions) are created by governments and the margins of policy are used by government to induce participation in newly created contests for monopoly privilege or a similar trade barrier. Moreover, the "auction" of interest here is not a single-payer auction, but an all-pay or lottery auction. In a real world setting, both sorts of contests clearly can occur. Contests may arise either because of the efforts of contest designers, here governments, or of potential contestants who discover new methods for influencing decision makers with control over public policy.

because essentially all affected parties benefit by avoiding taxes. Monopolists have a strong financial interest in protecting their monopoly privileges.⁷

Even without such problems, the sale of monopoly privileges allows a government to more revenues in the short run than possible from income and sales taxes, because rent-seeking efforts are based on future private income streams, rather than current ones. In this respect, the sale of monopoly privileges combines properties of tax and bond finance into a single fiscal instrument. This potentially allows current expenditures to be increased and revenue streams to be smoothed even in settings in which well-developed markets for government securities do not exist. The sale or long-term leasing of monopoly privileges also allows a government that has better information about its likely term of office than outsiders to increase its net receipts beyond levels that would be feasible from taxing national output while in office.⁸

⁷ The cost of enforcing a monopoly privilege and tax collection varies somewhat by industry. In a few cases, tax-paying firms may monitor the tax violations of rival firms, because tax-avoiding firms have a cost advantage. For example, tax-paying importers will complain to the authorities about smugglers. The point here is that this is routinely the case for monopolists but less common among taxpayers. The existence of underground economies suggests that neither form of monitoring is perfect even with today's much better record keeping and policing technologies (Schneider and Enste 2000).

⁸ Many governments run state monopolies directly; however, a government is often better off selling or leasing a monopoly privilege if its sales are credible to potential buyers. Sale or leasing of a monopoly privilege reduces the government's managerial overhead, because it usually requires less time to enforce monopoly franchises than to manage the industry.

All of these advantages imply that the direct and indirect sale or leasing of monopoly protection can be a useful source of revenue for government, particularly in circumstances in which collecting tax revenues is problematic.⁹

A. Leviathan, Rent Seeking, and Monopoly

The first step in our analysis demonstrates that a combination of tax and contests for monopoly rents can be the most effective way of generating revenues, although corner solutions are clearly possible in which a government rely exclusively on tax or rent-seeking revenues. We use the net revenue–maximizing model of government developed by Brennan and Buchanan (1980) and extended by McGuire and Olson (1996) as our engine of analysis. The Buchanan-Olson characterization of leviathan governments assumes that all policies are adopted with the aim of maximizing the net receipts of the government. To this end, leviathan provides government service, G , to increase the polity’s taxable base, Y , and sets tax rates, t , to maximize revenues net of those expenditures, $c(G)$. National income is assumed to fall as effective tax rates increase and to rise as government service levels increase. We extend the Buchanan-Brennan-McGuire-Olson leviathan model to include cases in which governmental revenues are generated by a combination of tax receipts and receipts from groups seeking grants of monopoly power, M .

We do not argue that the revenue-maximizing model of government fully captures incentives and opportunities within every government. Tax revenue is, of course, not the only interest pursued by government policy makers. Nonetheless, net tax receipts are clearly of interest to all governments. For example, authoritarian rulers may literally put their net receipts into foreign bank accounts. Expanding net tax receipts also tends to be of interest for democratic

⁹ Rent-seeking-based sources of income include cash payments to governments, bribes to officials, and other “gifts” and services provided to government. Museums around the world include a huge number of fine pieces of jewelry, art, furniture, and clothing given to the crown by prominent petitioners for government favor. Petitioners for monopoly protection may also offer government (king or queen) a share of an enterprise’s profits or assist in the administration of security by suppressing regime opponents and by publicly defending the status quo. Petitioners may also employ family members of high and low government officials, offer discount prices, and provide money gifts through consulting contracts and speaking fees. (To the extent that the latter are capitalized into salaries, it reduces wage costs for the government and increases the average talent level of government agents.) Many of the ongoing personal activities required for “insider” or “elite” rent seeking tend to increase dependence on (and thus loyalty to) the existing regime, further reducing security costs. Rent seekers may also curry favor by providing campaign resources to parties or incumbents.

policy makers whose constituencies favor expanded services or redistribution, as within the Meltzer and Richard (1981) characterization of the equilibrium size of a majoritarian state. We acknowledge, however, that incentives faced by both democratic and authoritarian regimes also reflect a variety of support and constitutional constraints neglected in pure leviathan models. Our use of the leviathan model is analogous to the approach of the optimal tax literature, which often focuses exclusively on the revenue side of the governmental ledger, or of the contest literature, which often focuses exclusively on interests of the contest designer or participants in order to simplify their analyses.

For the purposes of our analysis, we monetize all rent-seeking activities and use parameter α to characterize the extent to which expenditures by rent seekers generate revenues for the pivotal government decision maker. The larger α is the smaller traditional deadweight losses from rent-seeking tends to be. Both parameters M and α are assumed to belong to the closed unit interval $[0,1]$. The polity's market cannot be more than totally monopolized, nor can the government capture more than the grand total of all the rent-seeking expenditures. For most of our analysis, the institutional and cultural setting that characterizes α is assumed to be exogenous and represents the extent to which revenues may be generated from most efficient rent-seeking contests that are feasible for the government of interest. In a well-run authoritarian regime, α approaches unity and rent-seeking contests resemble all-pay auctions (with complete rent dissipation and capture by the treasury); α approaches zero for completely corrupt regimes and for other contests in which rent-seeking efforts generate nothing of value for the government. The details of the specific rent-seeking contest and the strategies of potential monopolists are neglected in the present analysis, because our focus is on government, rather

than rent-seeker behavior. A broad cross-section of rent-seeking games has the property that total rent-seeker investments are proportional to the rents at stake in Nash equilibrium.¹⁰

The model incorporates the conventional neoclassical assumptions about the effects of monopoly power. Encouraging monopolization beyond some efficiency-enhancing level, M^E , (which could be zero) causes national income to fall as Harberger and Tullock costs accumulate. The setting examined is atemporal in the sense that a one-shot sequential game is played, in which leviathan “moves first” by choosing parameters of the rent-seeking game, which is subsequently played by rent seekers. This is a reasonable characterization of many long term government policies and serves as a plausible approximation of a variety (but not all) short term policy decisions in which the government is the first mover. Leviathan is assumed to have very good information about the interests and resources available to the pool of potential monopolists.

We first consider the case in which a national government can determine the average extent of monopoly power, M , throughout the economy. It may do this, for example, by instructing its civil servants about how aggressively to enforce antitrust rules, while instructing them to collect side payments for “bending the rules” for a limited number of monopolists, which are to be passed on to the treasury or used in agency budgets. Firms and cartels compete

¹⁰ See Congleton, Hillman and Konrad (2008) for an extensive collection of rent-seeking papers. Rent-seeking models are usually based on allocation mechanisms of the form: $\Pi_i^e = p(X_i, \sum_{j \neq i} X_j) M - c(X_i)$, where Π_i^e is the expected profit (net rent) of the i^{th} player, X_i is investment in the rent-seeking contest, $\sum_j X_j$ is the total investment of all other players, M is the value of the prize or monopoly rent to be granted, and $c(X_i)$ is the opportunity cost of the resources devoted by “ i ” to the contest. Differentiating with respect to X_i and setting the result equal to zero, allows best-reply functions for each player to be characterized as $X_i^* = \alpha(M, \sum_{j \neq i} X_j)$ and the Nash equilibrium to be characterized as $X_i^{**} = \alpha(M, \sum_{j \neq i} X_j^{**})$ for all i and j in the game (given the assumed concavity and continuity of the payoff functions). The total resources in the rent-seeking contest at the Nash equilibrium is $r(M) = X_i^{**} + \sum_{j \neq i} X_j^{**}$. Tullock (1980) shows that investments rise with numbers and economies of scale. Hillman and Samet (1987) show that contestants often adopt mixed strategies and collectively invest an amount equal to the value of the prize at stake in an expected value sense. In such cases, α reflects costs associated with the collection of investments by rent seekers. In others, α may reflect exogenous barriers to entry in the contests for monopoly profits among potential rent seekers. In the case of interest here, the prize is the extent of monopoly profits, and α represents both the aggregate efforts of rent seekers and losses from the mode of competition encouraged.

for such favors, as in the usual rent-seeking all-pay auctions for “favored” antitrust enforcement or limited cartel registration.

The government’s decision about how intensively to pursue antitrust policies indirectly affects the extent to which prices may be set above average cost within the economy of interest. Perfect enforcement would eliminate this source of revenue and support. The government’s net revenues from general taxation and rent-seeking efforts, N , can be characterized as:

$$N = y(G, M, t, L, R) t - c(G) + \alpha r(M) \quad (1)$$

where y is the national production function, G is the government service level, M is the average degree of monopolization allowed, L is the exogenous labor stock, R is the exogenous natural resource base, t is the proportional sales or income tax, $c(G)$ is the cost of government services, and $\alpha r(M)$ is the revenue generated from the rent-seeking activities of those seeking to become monopolists. The net revenue function is assumed to be strictly concave.

Differentiating with respect to government service level G , t , and M , allows us to characterize the net revenue–maximizing combination of government services, tax rates, and monopoly policies. (Subscripts denote partial derivatives with respect to the variables subscripted.)

$$tY_G - c_G = 0 \quad (2.1)$$

$$tY_t + Y = 0 \quad (2.2)$$

$$tY_M + \alpha r_M = 0 \quad (2.3)$$

The revenue-maximizing government selects its policies over government services, tax rates, and monopolization policies to satisfy the three first-order conditions simultaneously.

Equation 2.1 implies, as in the McGuire-Olson model, that productive government services will be provided by Leviathan up to the point at which marginal tax revenues equal the marginal cost of those services. It bears noting that leviathan produces *less* government service than required to maximize national income whenever marginal tax rates are less than 100 percent.¹¹ Equation 2.2 implies, as in the Buchanan-Brennan model, that tax rates will be set to

¹¹ The latter reinforces the Brennan-Buchanan argument favoring progressive income taxation under Leviathan, because progressive taxation tends to increase a revenue-maximizing government’s encompassing interest in national income and public services.

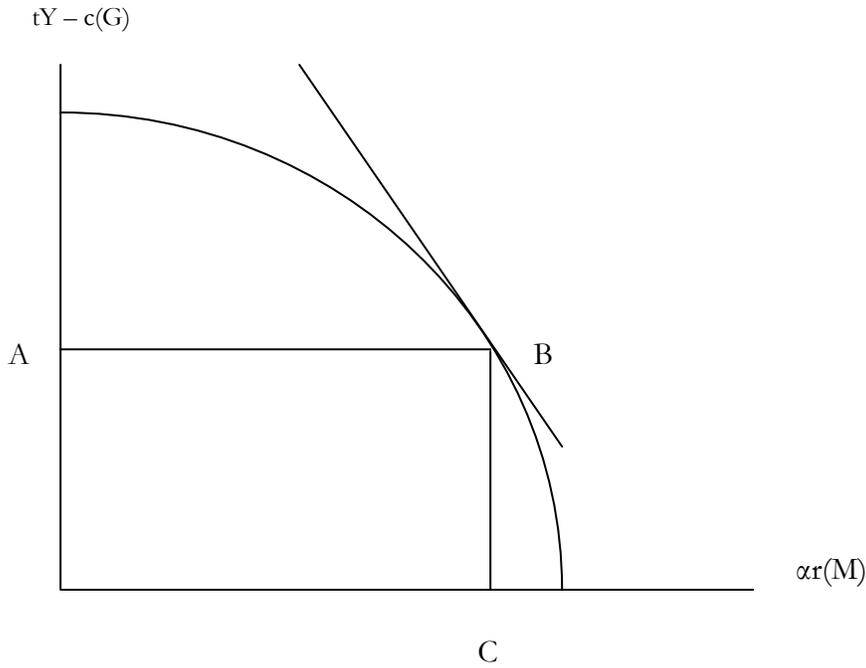
maximize tax receipts. Equation 2.3 is new and implies that *monopolization will be encouraged* up to the point at which the marginal loss of tax receipts from monopoly equal the marginal gains from rent-seeking receipts induced by anti-competition policies.

The marginal increase in revenues generated by increased monopolization, αr_M , varies with the institutional setting, characterized by α , and with the extent to which increased monopolization produces rent-seeking efforts by would-be monopolists, r_M . The marginal cost of inducing rent-seeking revenues varies with effectiveness of the tax system, tY_M , and the rate at which national income is reduced at the margin by the monopoly grants conferred, Y_M .¹² Equation 2.3 implies that the larger the marginal increase in rent-seeking revenues received by those with policy-making authority and the smaller the associated marginal reduction in tax revenues, the greater is the government's interest in monopolization as a source of revenues from rent seekers (given the optimal government service level, G^* , and tax rate, t^*).

Figure 1 illustrates the trade-off between tax receipts and revenues from rent seeking. The vertical axis denotes revenues from taxes. Each point on the curve represents combinations of rent-seeking and tax revenues for a given public service level. The net revenue-maximizing government chooses point B where a 45-degree line is tangent to the revenue possibility frontier. The government raises A from taxation and C from rent seeking for the service level of interest, here G^* .

¹² We interpret t as the effective tax rate, which may differ from both the statutory tax rate and the marginal tax burden. Opportunities to avoid paying taxes vary with the ability of the government to police the tax law and opportunities to legally avoid paying taxes. In some tax systems, tax revenues may initially increase as monopoly profits increase. For example, sales, value added, and profits tax revenues tend to increase as prices increase for goods with inelastic demand curves. In such cases, rent-seeking contests may be expected to affect the choice of tax system as well as the degree of monopolization. We leave consideration of leviathan's preferred tax *system* for future analysis. The income-based tax used in our analysis is widely used in previous leviathan models.

Figure 1. The Revenue Possibility Frontier



In cases in which corner solutions are possible, the Kuhn-Tucker technique must be applied, which yields inequality versions of the first-order conditions 2.1-2.3.¹³ In this case, there are two corner solutions: In the first, no inefficient monopolization takes place. This is the case implicitly analyzed by the contemporary public finance literature. In such cases, government revenues are entirely from tax instruments, because the marginal tax reductions induced by rent-seeking contests are larger than marginal receipts over the entire range of interest, $-tY_M > \alpha r_M$, for all M . Monopoly power is allowed or promoted only insofar as it adds to taxable income, and

¹³ We assume that leviathan's objective function is strictly concave and that its constraint set is convex; consequently, the Arrow-Enthoven sufficiency conditions are satisfied. These imply that the corner solutions to the optimization problem with inequality constraints can be completely characterized using the Kuhn-Tucker first-order conditions. The Kuhn-Tucker first-order conditions imply that, in cases in which the conditions for an internal maximum or tangency condition are not satisfied, $-tY_M \neq \alpha r_M$ for $0 \leq M \leq I$, the maximal values of the objective function lie along the constraints as discussed above. The illustrated trace in the $tY-M$ domain for a given G^{**} has similar geometry.

Leviathan will adopt most of the policies suggested by textbook discussions of optimal patent, trade, and antitrust policies.

At the opposite end of the fiscal spectrum are cases in which the marginal receipts from rent seeking exceed tax losses over the entire range of interest. In the case in which $-tY_M < \alpha r_M$ for all M , there is a second corner solution in which complete monopolization of the economy is adopted. This tends to be the case if the tax revenue reductions induced by monopolization are relatively small, as may be the case when tax instruments are relatively ineffective sources of revenue (possibly because of a shift of activities into the underground economy as in Marcouiller and Young [1995] or Schneider and Enste [2000]). *A net revenue-maximizing state in this case attempts to maximize the size of rent-seeking expenditures given $\alpha > 0$.* Olson (1993) and Anderson and Boettke (1997) suggest that many of the industrial policies of the former Soviet Union can be understood as such a corner solution. Ekelund and Tollison (1997) suggest that the French version of mercantilism also resembled this corner solution.

The intermediate case between these two corner solutions is the main focus of the present analysis. In such cases, governments use a combination of tax and monopolization policies to produce revenues (and other useful services). Note that in those cases, as in the second corner solution, rent-seeking revenues cause government to adopt policies that promote *greater* monopolization than is consistent with maximizing national income, $Y_M < 0$ at M^* . In both cases, a net revenue-maximizing government has a direct financial interest in the industrial organization of its domain that is not entirely benevolent. In the intermediate cases, however, the economy is not completely monopolized.

The implicit function theorem allows the relationships describing the government's preferred vector of government service, tax, and monopoly policies to be characterized as follows:

$$G^* = g(L, R, \alpha) \tag{3.1}$$

$$t^* = t(L, R, \alpha) \tag{3.2}$$

$$M^* = m(L, R, \alpha) \tag{3.3}$$

Proposition 1: *The greater the possibility of obtaining revenues from rent seekers, the more inclined the government is to adopt policies that promote monopolization and other rent-seeking contests as a source of government revenue, even though such policies reduce national income.*

Using the implicit differentiation rule to differentiate equation 3.3 with respect to α yields:

$$dM = \frac{\begin{vmatrix} tY_{GG} - c_{GG} & tY_{tG} + Y_G & 0 \\ tY_{tG} + Y_G & tY_{tt} + 2Y_t & 0 \\ tY_{MG} & tY_{tM} + Y_M & -d\alpha r_M \end{vmatrix}}{\begin{vmatrix} tY_{GG} - c_{GG} & tY_{tG} + Y_G & tY_{MG} \\ Y_G + tY_{Gt} & tY_{tt} + 2Y_t & tY_{tM} + Y_M \\ tY_{GM} & tY_{tM} + Y_M & tY_{MM} + \alpha r_{MM} \end{vmatrix}} = \frac{[(tY_{GG} - c_{GG})(tY_{tt} + 2Y_t) - (tY_{tG} + Y_G)^2] (-d\alpha r_M)}{|H|}$$

which simplifies to the following:

$$\partial M / \partial \alpha = -[(tY_{GG} - c_{GG})(tY_{tt} + 2Y_t) - (tY_{tG} + Y_G)^2] r_M / |H| > 0 \quad (4)$$

$\partial M / \partial \alpha$ is unambiguously greater than zero in the case in which the net-revenue function is strictly concave. The last term in the numerator, r_M , is also positive, under the assumption that greater profits induce greater rent-seeking revenues. The second-order condition of the original optimization problem requires $|H| < 0$ and the bracketed term of (4) to be greater than zero. Consequently, the Leviathan model unambiguously implies that policies oriented toward increasing monopolization expand as the government's ability to profit from induced rent-seeking efforts, α , increases.

These comparative static results can be generalized to settings that are more dynamic by interpreting the outcomes as *steady states*, in which monopoly privileges are leased, rather than sold permanently. Continuous rent-seeking expenditures may be prerequisite to maintaining the state's protection, if neither Leviathan nor rent seekers can creditably commit to long-term transfers of monopoly power. Alternatively, the pattern of rents and revenues characterized in this first model may be interpreted as the present discounted values of long-term relationships between the government and potential rent seekers that are implemented through incentive-compatible contractual mechanisms.¹⁴ In either case, a stable pattern of rent seeking expenditures and

¹⁴ Moldovanu and Sela (2006) demonstrate that a single grand game maximizes efforts generated by rent seekers if the cost function is linear.

industry rents emerges as a series of more or less independent Stackelberg equilibria between Leviathan and potential rent seekers.

If rent-seeking revenues are nontrivial, governments will control entry into existing markets, reduce access to local markets by foreign firms, and make it easier to collect fees from monopolies by enforcing only cartel agreements authorized by the government. Although such policies reduce economic development, they also increase the revenues obtained by the government and its officials.

III. Which Markets to Monopolize? Buchanan and Tullock Meet Olson and Ramsey

We next analyze industry-specific policies. Although broad policies create the political and legal environment for monopolization, the regulations that reduce competition are usually imposed one market at a time. A revenue-maximizing government chooses which industries to sell protection to, as well as the degree to which firms within a particular industry are to be shielded from competition. The policy choice analyzed in this section of the paper has many parallels with the extensive regulation literature, especially that in the spirit of Stigler (1971), Becker (1985), and Laffont and Tirole (1991, and 1993: ch. 13). What is novel in our analysis is that regulations that increase profits for a subset of firms or industries are adopted to induce competition for government favors, rather than to increase industry profits, per se. In such regulatory settings, industry profits do not increase substantially, net of rent-seeking costs, although the winner(s) of the rent-seeking contest do realize above market returns, just as the winner of a lottery contest does. In the aggregate, the monopoly profits produce revenues for the government, rather than profits for the industry.

We again use the extended Buchanan-Olson model as the engine of our analysis. The formal process of handing out protection, the markets to be protected, and the potential rents won by successful rent-seeking economic interest groups are all contest parameters that can be manipulated by net revenue-maximizing governments. Monopolization policies can both induce organizations to form and increase the intensity of competitive effort for monopoly privilege. Protected industries need not initially be highly concentrated or well organized, *because it is in leviathan's interest to promote the formation of effective rent-seeking organizations*. The main results of the rent-seeking literature imply that the industries with the greatest potential for monopoly profits also generate the greatest rent-seeking revenues for governments.

A. Monopolizing Output Markets or Production Technologies?

Proposition 2: *Regulations or monopoly grants that provide protection in output markets are generally more valuable to prospective rent seekers than are protected production processes (patents) for firms in a given industry.*

A monopoly privilege that grants the exclusive right *to sell* a specific product allows a firm to profit from production within its protected sphere, without fear of price competition from close rivals. Grants of patent protection for specific production processes allow firms to realize extraordinary returns through protected positions as low-cost producers. A patented production process yields a Ricardian rent or inframarginal profits to the extent that the patented process is more cost-effective than those not so protected. The rent associated with a patent is smaller than the profit associated with a monopoly in the same output market(s), because the profitability of any production process clearly increases if one is able to manipulate price as well as output.¹⁵

¹⁵ To see this, consider the maximal profit associated with a given degree of monopoly power, M , and production technology, T .

$$\Pi^* = R(Q^*, M) - C(Q^*, T)$$

Totally differentiating and appealing to the envelope theorem yields:

$$D\Pi^* = dM (\partial R / \partial M) - dT (\partial C / \partial T) > 0$$

Maximal profit rises as production technology improves (allowing lower production costs) and as monopoly power increases allowing greater revenues. A low cost producer may eventually secure monopoly positions in initially competitive markets if the new technique exhibits significant economies of scale.

Output monopolies are also more easily enforced than patents are, because the sale of output normally takes place in public, whereas production normally takes place in private.¹⁶ (Indeed, a cost-saving private production technology can be used in either case.) Consequently, a revenue-maximizing government tends to grant monopoly protection only to output markets. It will encourage monopolization of production processes, only to the extent that patents also produce significant monopoly opportunities in output markets.

B. The Allocation of Protection: “Ramsey” Monopolization

Proposition 3: *The revenue-maximizing pattern of monopolization tends to resemble a Ramsey tax system. The markets granted the most protection by Leviathan are those in which the demand for goods and services is least price sensitive.*

Contests for monopoly privilege in the least price-sensitive markets maximize the level of rent seeking induced, because they maximize the profits generated by a given degree of protection, while minimizing the tax revenues lost from reduced output. To demonstrate this, we disaggregate the original model of monopoly power within the economy as a whole and focus on individual markets and revenues. Suppose there are n final goods markets that can potentially be granted a degree of monopoly power. The extent of monopolization generated by government policies in a particular industry is represented as the “monopoly mark up,” m_i .

We assume that in the absence of monopolizing regulation, the markets in question would be conventional competitive markets with constant marginal and average costs, $A_i = a_i(t, G)$. Tax rates and government services affect the average cost of producing output in market j by affecting input prices. Average cost is increased by tax rates, which reduce the effective real

¹⁶ A patent for a production process that can be used to produce products for *several* markets can be more valuable than an output market in any *single* market. Thus, to the extent that the government protects production processes, we would expect that such *broadly applicable* processes would attract the regulatory interests of a revenue-maximizing government before narrower techniques do. (The most valuable patents are those that generate such dramatic cost savings over other available methods that a monopoly results in one or more output markets.) Protecting production methods may have *political and security* advantages, rather than economic ones, because they are less observable than output protections; although, as noted above, this also makes patented production methods more difficult to protect.

return to capital and labor. Average costs are reduced by government services, which, for example, lower transactions and transport costs. Industry i 's output can thus be represented as, $Q_i^* = q_i(P_i, t, G)$ with $P_i = A_i + m_i$. Note that monopolization can increase nominal tax receipts generated by a national sale tax, if it increases revenues in the affected markets. Monopoly profits and total rent-seeking efforts in market i are $m_i Q_i^*$. Net revenue for the government is:

$$R = \sum_i (t P_i Q_i^* + \alpha m_i Q_i^*) - c(G) \quad (5)$$

Differentiating with respect to t , G , and m_i yields the first-order conditions that characterize the government's vector of taxation, services, and monopoly policies.

$$\sum_i (P_i Q_i^* + t(\partial P_i / \partial t) Q_i^* + t P_i (\partial Q_i^* / \partial t) + \alpha m_i (\partial Q_i^* / \partial t)) = 0 \quad (6.1)$$

$$\sum_i (t P_i (\partial Q_i^* / \partial G) + t (\partial P_i / \partial G) Q_i^* + \alpha m_i (\partial Q_i^* / \partial G)) - c_G = 0 \quad (6.2)$$

$$\sum_i (t(Q_i^* + P_i (\partial Q_i^* / \partial P_i)) + \alpha(Q_i^* + m_i (\partial Q_i^* / \partial P_i))) = 0 \quad (6.3)$$

Given t^* and G^* , equation (6.3) is satisfied when m_i is such that:

$$\alpha m_i^* + t^* P_i = -(t^* + \alpha) Q_i^* / (\partial Q_i^* / \partial P_i) \quad \text{for all } i \quad (7.1)$$

or

$$m_i^* / P_i = -[(t + \alpha) / \alpha] Q_i^* / P_i (\partial Q_i^* / \partial P_i) - t^* / \alpha \quad (7.2)$$

Given ideal tax and service policies, equation 7.2 indicates that the revenue-maximizing vector of monopoly markups (as a percentage of the original price) is inversely related to the price elasticity of demand in every market. (Recall that $\eta_i = - (P_i / Q_i^*) (\partial Q_i^* / \partial P_i)$.) The degree of monopoly protection provided resembles a Ramsey tax.

Consider the case in which markets have linear demand functions.¹⁷ If we consider markets with approximately the same output and productions costs, it is clear that monopolization will be greatest where demand is the least price sensitive. (The slope of the

¹⁷ Interior solutions exist for the case of a linear demand. Note, however, that interior solutions are unlikely to exist for market demand functions with constant elasticity. In such cases, contests for profit-maximizing levels of protection are organized and the most-elastic markets remain competitive and receive no protection.

demand curve is not affected by the monopoly markup.) In this case, the fiscal interest of the government indirectly induces it to approximately minimize the deadweight loss of monopolization.¹⁸ In the linear case, the pattern of monopolization and prices generated by a net revenue-maximizing government is very similar to that generated by a system of industry-specific Ramsey taxes. The steady state flow of revenues generated from rent seekers tends to be smaller than under a perfectly enforced Ramsey tax, because dissipation may be less than perfect and there is normally a bit of internal corruption (which implies that α is less than one). The assumption that a general sales or income tax is being used as a source of revenues in addition to rent-seeking revenues causes the target monopoly markups to be a bit lower than those of a revenue-maximizing Ramsey tax.¹⁹

C. Innovation and Patents: Schumpeterian Protectionism

Proposition 4: *Other things being equal, Leviathan is more inclined to limit entry in markets in which innovation is increased by monopolization, than in markets in which it is reduced.*

Schumpeter (1942) suggests that monopolists tend to be more innovative than competitive firms. Monopoly firms invest in cost-reducing R&D activities up to the point where additional expenditure on R&D equals the additional profit generated by decreased costs. Firms in competitive markets in which diffusion of such cost-reducing technologies is rapid may all attempt to free ride on the R&D investments of other firms. In such cases, innovation is less profitable and R&D carried out at less than optimal levels. Consequently, R&D investment by

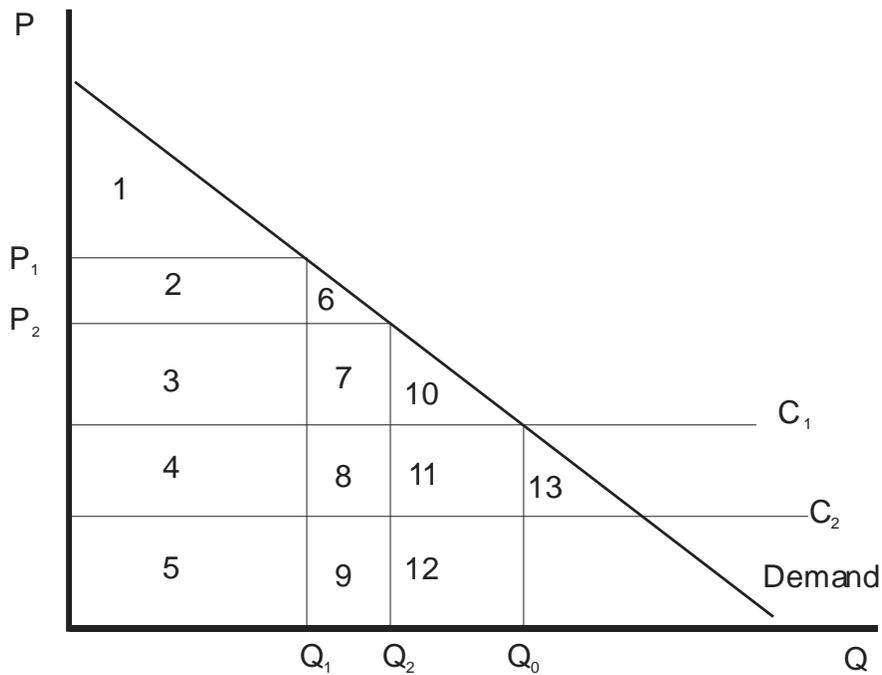
¹⁸ The usual derivation of a Ramsay tax minimizes the deadweight loss to obtain a given level of revenue. Alternatively, one can solve the dual problem in which one maximizes the revenue associated with a given deadweight loss. The case modeled above, is similar to the latter. The loss of ordinary tax revenues causes the government to take account of marginal deadweight losses from monopolization in the range in which trade offs between the two sources of revenue exist.

¹⁹ In the short run, however, the revenues generated by *selling* protection tends to exceed that generated by an otherwise similar Ramsey tax system, because rent seekers will invest up to the *capitalized* value of the monopoly markup to secure a durable safe haven from economic competition.

producers in a competitive market tends to be smaller than that of an otherwise equivalent monopolist. This is one rationalization for patent protection.

We note that monopolization of output markets can achieve similar ends, while generating greater rent-seeking revenues for the government. The geometry of the standard monopoly output and pricing decision can be used to confirm this proposition. The monopoly rent and rent seeking induced by a potential cost-saving innovation are illustrated in figure 2. Monopoly rents include both revenues from higher prices and cost savings from innovation. For purposes of illustration, we initially assume exact dissipation of the monopoly profit.²⁰

Figure 2



Let F denote the R&D expenditure that allows the monopolist's unit cost to be reduced from C_1 to C_2 . This reduction in costs causes the monopoly price to fall from P_1 to P_2 and causes output to increase from Q_1 to Q_2 . The monopoly profit of the firm increases by $(\Delta T - F)$, where ΔT

²⁰ This assumption is widely studied in the rent-seeking literature and of interest for that reason alone. See, for example, Tullock 1967, Krueger 1974, Posner 1975, Hillman and Samet 1987, or Ellingsen 1991. The exact dissipation assumption, of course, also simplifies the geometric analysis.

consists of the areas $(3 + 4 + 7 + 8) - (2 + 3) = 4 + 7 + 8 - 2$, in figure 2. Innovation is profitable for the firm as long as $4 + 7 + 8 - 2 > F$. In such cases, the higher profits associated with innovation imply that more rent-seeking competition takes place than in other wise equivalent cases to become “static” monopolists. Shumpeterian monopolists are more profitable.²¹

Firms will invest more in competition to become monopolists in markets in which innovation is thought to be likely than in similar markets in which prospects for significant innovations are thought to be unlikely. In the complete dissipation case, $\alpha = I$, and the rival firms invest $(T + \Delta T - F)$ to obtain a monopoly position. The total rent-seeking revenues are $(T + \Delta T - F) + F = T + \Delta T$. (Note that $T + \Delta T$ is analogous to the extended Tullock rectangle developed by Lee (2000) for potentially subsidized monopolies.) Consequently, net revenue-maximizing governments are more inclined to construct contests for monopoly privileges in industries in which R&D activities are potentially profitable than in ones in which it is not, because the government expects to benefit from both increased output (and ordinary tax revenue) and additional rent-seeking efforts. These are also the markets that would attract the most attention from potential monopolists, who would help draw such markets to the government’s attention.

In a static monopolized market, social welfare is generally measured as the sum of consumer surplus and profit, less production costs, rent-seeking outlays, and government subsidies. In the complete dissipation case first discussed by Tullock (1967), rent-seeking outlays

²¹ The level of rent-seeking activity tends to increase as anticipated monopoly profits increase. The maximal profit level for a given level of monopoly protection can be represented as $\Pi^* = R(Q^*, M) - C(Q^*, T)$ where T is technological innovation. The envelope theorem implies that $\Pi^*_T = -C_T > 0$. Profits rise with improved production technology, and therefore rent-seeking increases as well. T increases with M for a Schumpeterian monopolist; so the ideal level of monopoly protection increases as well. To see this, note that equation 6.3 becomes:

$$\sum_i \{t_i [Q^*_i + P_i ((\partial Q^*_i / \partial P_i) + (\partial Q^*_i / \partial T_i) (\partial T_i / \partial m_i))] + \alpha [Q^*_i + m_i ((\partial Q^*_i / \partial P_i) + (\partial Q^*_i / \partial T_i) (\partial T_i / \partial m_i))]\} = 0 \quad (6.3')$$

and equation 7.1 becomes:

$$\alpha m^*_i + t^* P_i = -(t^* + \alpha) Q^*_i / [(\partial Q^*_i / \partial P_i) + (\partial Q^*_i / \partial T_i) (\partial T_i / \partial m_i)]. \quad (7.1')$$

The new part of the denominator of 7.1' requires subtracting the product of two positive terms in a Shumpeterian environment. Consequently, the denominator is smaller and the revenue-maximizing monopoly protection is larger than in the otherwise equivalent Harberger case in which $\partial T_i / \partial m_i = 0$.

are the same as profits, and social surplus consists of consumer surplus alone (area 1). In the mercantilist case of interest here, social surplus also includes revenues (or other useful services) that accrue to the government [$1 + \alpha(2 + 3)$]. In the Schumpeterian case of interest here, social surplus includes both the rent-seeking revenues and the increased consumer surplus associated with innovation [$1 + 2 + 6 + \alpha(3 + 4 + 7 + 8)$].

The Schumpeterian cases contrast with those discussed in Congleton (1988) in which rent seeking diverts resources away from productive activities, such as R&D, increasing the net welfare losses from rent-seeking activities. The creation of a Schumpeterian monopoly may improve social welfare relative to the competitive case without R&D expenditures. In this manner, it might be said that Tullockian rent seeking by potential Schumpeterian monopolists before a Buchanan and Brennan Leviathan yields antitrust policies consistent with an Olsonian (1965) encompassing interest.

The encompassing interest of a revenue-maximizing government is, however, incomplete. Such governments tend to set the durability and breadth of monopoly privileges at inefficiently high levels as noted above--that is, at levels that reduce national income and growth at the margin.²² Competition for a monopoly output privilege also differs from that associated with patents insofar as the winner of the Schumpeterian monopoly privilege is conferred on the basis of political success, rather than success in laboratories as the first innovator.²³

D. A Digression on a Mercantilist's Occasional Interest in Subsidizing Monopolies

In a setting in which government officials have discretion over subsidies and may benefit from rent-seeking activities, yet are not concerned with tax burdens associated with subsidization, opportunities to profit from the efforts of rent seekers can yield subsidies that reduce social welfare. This case was previously explored by Lee (2000) and is analogous to cases studied by the

²² Horowitz and Lai (1996) demonstrate that the innovation-maximizing duration of patents tend to exceed the consumer surplus-maximizing duration. See also Segerstrom (1991).

²³ In cases in which taxes are essentially the only source of government finance, it bears noting that sales of Schumpeterian monopoly privileges may still occur, because they promote economic growth (possibly beyond Pareto-efficient levels) and thereby tax revenues. We neglect this case for the present, because the purpose of this paper is to focus on the case in which rent-seeking receipts are a substantial source of net government revenues.

corruption literature, in which the state cannot fully control its own agents. The welfare implications of subsidized monopolies, however, are considerably worse than those associated with creating innovative (Schumpeter) monopolies and generally worse than those of unsubsidized non-innovative (Harberger) monopolies.

The net welfare changes of direct participants in the market of interest are the Schumpeter ones, less the cost of the subsidy, $(4+\delta)$. Adding the increased consumer surplus and profits, then subtracting net rent-seeking losses and the cost of the subsidy yields:

$$(2 + 6) + \alpha(4 + 7 + 8 - 2) - (4 + 8) \tag{8}$$

(This neglects the deadweight loss associated with the tax revenue used to fund the subsidy.)

Social welfare is improved by creating a subsidy for Harberger monopoly if $(2+6) + \alpha(4 + 7 + 8 - 2) > (4 + 8)$. In that case, the increased consumer surplus from the price reduction plus government receipts from rent seeking exceed the cost of the subsidy. A net revenue-maximizing government has a fiscal interest in subsidies whenever $\alpha(4 + 7 + 8 - 2) > 4 + 8$, that is, whenever increased rent-seeking receipts more than offset the cost of the subsidy.

Together these, perhaps surprisingly, imply that a *well-organized* net revenue-maximizing government may occasionally subsidize a Schumpeterian monopolist, and these subsidies may increase *social welfare, when the revenues generated by rent seeking are included*. In the case in which α is small and approaching zero, a substantial price reduction must be induced by the subsidy if social welfare is to increase. However, if the price falls by less than the per-unit subsidy or the cost reduction from successful R, then $4 + 8 > 2 + 6$, and social welfare falls as subsidies are created, unless the government receives significant revenues from the rent-seeking contest.²⁴

²⁴ In the linear case $(4 + 8) = 2(2 + 6)$. However, if the demand curve is sufficiently convex to the origin, it is possible that $3 + 4 < 5 + 6$. Brander and Spencer (1984) have previously analyzed this possibility. To see this, suppose that inverse demand is given by $P(Q)$. Let s denote per-unit subsidy. The profit of the monopoly with government subsidy is

$$\Pi(Q) = P(Q)Q - cQ + sQ,$$

where c denotes constant unit cost. The first-order condition for profit maximization is

$$\Pi_Q = QP_Q + P - c + s = 0.$$

Total differentiation of (7) and arrangement gives

$$dQ^*/ds = -1/(QP_{QQ} + 2P_Q)$$

IV. Limits to Efficient Mercantilism: Corruption, Security, and Economic Calculation

In settings in which rulers are free to shape the institutions through which policies are developed and administered, political and legal institutions as well as regulatory policies may be designed to produce revenues. In such settings, α is an endogenous variable that is partly determined by political decisions, and α will tend to be maximized by a government's standing procedures. Both procedures for establishing policies and for guaranteeing monopoly privileges will be designed to maximize the value of monopoly privileges.

For example, a revenue-maximizing local government may sell monopoly privileges in more or less open contests, rather than grant such privileges to a limited number of favored friends or trusted long-term supporters, in much the same way that a private firm would sell an exclusive franchise or privilege, rather than give it to corporate insiders or family friends. Successful bidders under an open auction-like process are those willing to pay the most for the privilege, which tend to be the most innovative and efficient producers (or at least the most optimistic ones). In addition, a relatively long policy-making process may be established to increase the expected period of protection. Agencies will be created to review and enforce monopoly privileges and discourage entry of firms producing substitutes. More or less independent courts may be established and given authority to review the decisions of regulatory agencies. Such institutions protect "rent getters" from their rivals and also make it more difficult for leviathan to revoke or alter monopoly privileges arbitrarily, which increases their value. The

where the denominator reflects the relative curvature of the inverse demand curve (Brander and Spencer 1984). The effect of government subsidy on price is

$$dP^*/ds = P_Q(Q^*_s) = P_Q / -(QP_{QQ} + 2P_Q) = -1 / (QP_{QQ} / P_Q + 2)$$

or defining $R = QP_{QQ} / P_Q$

$$dP^*/ds = -1 / (R + 2)$$

R can be viewed as the relative curvature of the inverse demand curve, or the elasticity of P' with respect to quantity.

Note that (dP/ds) is less than -1 if R is less than -1 , for example, if the demand curve is very convex to the origin. Here, the monopolist has an incentive to lower the price more than the per-unit subsidy, because the volume of demand increases very rapidly with a reduced price. In this case, $2 + 6 > 4 + 8$. In such cases, government subsidies lower the price by more than the per-unit subsidy. In the case in which the demand curve is not too convex to the origin, however, the price falls less than the per-unit subsidy or reduction in production cost, and as a result $4 + 8 > 2 + 6$. Here, agency costs may allow both too many monopolies and greater subsidies than are efficient.

agencies charged with enforcing official monopolies and barriers to entry may also attempt to eliminate monopolies that emerge through private means. Such “freelance” monopolists divert rent-seeking investments away from official contests and so would be discouraged unless they significantly increase tax revenues.

Government policies, however, cannot entirely determine α . For example, in cases in which members of the state bureaucracy can directly profit from rent-seeking activities, because of the personal nature of the intra-governmental relationships required to obtain privileged positions inside government. In such cases, intra-governmental rent seeking tends to occur, reducing α , and the revenue generated for the treasury declines. Bribery also tends to increase intra-governmental deadweight losses throughout government, as government officials compete to be bribe receivers, appointers of bribe receivers, and so on (Hillman and Katz 1987).

These informal contests are the classic forms of rent seeking and corruption (Murphy et al. 1993). Internal procedures and cultures that allow or promote investments in such “insider” contests tend to be less efficient (Hillman and Katz 1987, Shleifer and Vishny 1993) and would be discouraged in a secure revenue-maximizing state, although a government may not be able to devise procedures for perfectly enforcing the anti-bribery rules. Bribes offered to government officials tend to be illegal in essentially all states, but such laws are never completely effective. Consequently, most rent-seeking contests are less efficient as sources of revenue than Leviathan would have liked. Corruption reduces the extent to which net government revenues can be generated by the creation of rent-seeking games.

In cases in which corruption is widespread and very difficult to root out, senior officials may switch from rent-seeking finance to tax finance and attempt to eliminate the official market for favors. Equation 4 implies that the rulers of governments construct fewer contests for monopoly privilege as α falls. In very corrupt governments, however, rent-seeking contests may continue to be significant sources of revenue, because tax revenues may be subject to similar losses within the tax-collecting agencies.

In addition to corruption, there are other limits on the extent to which a mercantilist system can be well designed. Insecure governments may adopt inefficient patterns of monopolization because of their short time planning horizons and because they can use grants of monopoly power to punish those not loyal to the government.

Moreover, even a secure, perfectly-managed, bureaucracy may not be able to accurately determine the optimal degree of monopoly power to auction off in every market. Information about production costs and demand elasticities is not freely available, as assumed in the models developed above, and the government's pool of managerial talent is a scarce resource. Consequently, errors will be made by even very honest mercantilist bureaucracies. As the complexity of trading networks, the number of markets, and rate of technological change increases, such errors tend to increase, because it becomes more and more difficult to design and manage an ever increasing number of revenue-maximizing monopolization contests properly.

The latter may partially explain the transition away from mercantilist practices by the economically most successful nation-states of the nineteenth and twentieth centuries. For example, England's permanent income tax was introduced in 1842 at about the same time that its Corn Laws were weakened (1842) and subsequently repealed (1846) (Aidt and Jensen 2008, Schonhardt-Bailey 2006). In the eighteenth and nineteenth centuries, long-standing medieval monopolies and trade barriers were gradually replaced by open markets, and revenues from rent extraction were substantially replaced by income and sales taxes throughout the West.

V. Conclusions

At least since Adam Smith, the classical and neoclassical approach to the analysis of monopoly has provided a consumer-welfare rationalization for vigorous antitrust policies in areas in which firms may coordinate their activities to achieve monopoly power. Apart from cases in which social welfare might conceivably be improved through a temporary grant of monopoly power to firms—as with patents and copyrights—most economists argue that governments should adopt policies that promote open markets and curtail, rather than increase, monopoly power.²⁵ If the circumstances under which monopolization increases economic output are rare, it may be said that mainstream normative analysis neither supports nor explains the widespread use of governmental authority to create monopoly franchises and other formal barriers to entry. We

²⁵ Spulber (1989) provides a nice overview and critique of modern normative rationales for regulation of monopolies. De Roover (1951: 498–503) notes that a good deal of normative economic theory opposed monopolization long before Adam Smith's analysis. He also observes that antimonopoly views were often codified in law, but not enforced. As extreme examples of this, he recounts, among many others, Aquinas' criticisms of governments that *used monopolies* to raise revenue for the crown.

do not disagree with the mainstream normative conclusion, but provide an alternative positive explanation for what is widely observed.

The contemporary and historical record suggests that both monopolization and the sale of monopoly protection have long been significant sources of government revenue within a variety of institutional settings. Essentially all modern and ancient governments have used their power to create and sell “safe havens” from economic competition. In Europe and Japan, former state monopolies have been sold off in entirety to secure a higher price. On a smaller scale, in the United States, local governments have sold monopoly privileges to banks, cable TV providers, taxi cab, trash collection, and power companies. Other examples can be taken from history. Hamilton (1948), Ekelund and Tollison (1981), and Macloed (1988) report numerous examples of medieval rulers in England, France, Netherlands, Portugal, and Spain renting or selling monopoly privileges to raise money for government expenditures. In both Macloed’s (1988) analysis of the early evolution of the British patent system and in Krueger’s (1974) analysis of rent-seeking expenditures in contemporary Turkey and India, long-term investments to curry favor at court were often successful for individual rent seekers, but in aggregate cost far more than they were worth.

That governments have long had revenue interests in monopoly profits is also suggested in Aristotle’s discussion of monopoly. After telling the story of the Thalesian philosopher’s success in monopolizing the market for olive presses (and thereby showing that scholars could be wealthy if they wished to be), Aristotle (1969/330 BC: ch. 11) notes that “The way to make money in business is to get, if you can, a monopoly for yourself. Hence we find *governments* also on certain occasions employ this method when they are short of money . . . we sometimes find that *those who direct the affairs of state make this their entire policy*” (italics added).

Such a long-standing difference between economic theory and political practice is not likely to be caused by a failure to communicate sound economic advice to political leaders. We have demonstrated that incentives to create “economic safe havens” exist in settings in which a government profits directly (or indirectly) from competition among firms to be protected. An interest in such rent-seeking revenues—whether by a net revenue–maximizing leviathan or more moderate regimes—tends to induce governments to support monopolization levels that are above those that maximize national income or aggregate consumer surplus.

Such policies, however, are not necessarily as bad as might be expected, because a net revenue–maximizing government has what Olson refers to as an encompassing interest. A well-

informed and secure government's fiscal interests lead it to construct monopolization contests that encourage innovation and take account of deadweight losses from monopolization. The monopoly franchises sold by a secure well-run leviathan government have a Ramsey tax-like pattern in settings in which a good deal of reliable information exists about production costs and demand elasticities.

Related public choice analysis suggests that the practice of enhancing government revenues by constructing monopolies is likely to be more evident in autocratic countries than in Western democracies. Political elites in such countries can prosper by inducing competition for rents that produce useful services (such as increased support or loyalty) for rulers as well as revenues for the treasury. Wintrobe (1998) argues that the purchase of government favors is a common characteristic of dictatorships. Developing countries also tend to have relatively ineffective tax-collection systems. As corroboration of these predictions, indices of market openness suggest that competition-reducing policies are more common in Third World than developed countries, although it is not perfectly correlated with governmental type. Western democracies also have an interest in revenues, but their tax institutions are usually more effective and their majoritarian political institutions encourage politicians to take greater account of consumer interests. This does not imply that rent-seeking contests are never used as revenue sources in democracies, only that they are used relatively less frequently.²⁶

Perhaps the most surprising of our results is that stable relatively well-organized states can rely extensively on monopolization for revenues, yet still be *relatively* prosperous measured in conventional ways—although their markets and citizens will be overmonopolized, overtaxed, and underserved by their governments.²⁷ Auctions for monopoly privileges and other similar contests can be a relatively efficient source of revenue in settings in which “normal” tax instruments are

²⁶ Liberal democracy with its emphasis on majority rule, competitive markets, and equal protection of the law clearly reduces but does not completely eliminate the potential advantage that political agents may receive from monopoly. Consider, for example, Willis' (1912) report that “President Roosevelt passed to the use of the Sherman Law as a means of expressing personal disapprobation, *compelling campaign contributions*, and visiting punishment upon undesirable citizens” (italics added.)

²⁷ Note that in many cases in which government revenues are obtained via rent-seeking contests, the reported tax burden of a government funded partially by rent-seeking receipts tends to understate government revenues and the wedge between buyer and seller valuations induced by government policies.

relatively ineffective or politically difficult to increase and the government is in a good position to profit or receive useful services from those seeking monopoly privileges. The surprising polity, from the perspective of our analysis, is one that consistently discourages all forms of monopolization.

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