THE NATURAL ECONOMIC ADVANTAGE OF DICTATORSHIP OVER DEMOCRACY
A "GRESHAM'S LAW" OF GOVERNANCE

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ABSTRACT

We show that when democratic and autocratic governments peacefully compete for governance over the same jurisdiction the autocratic has a natural advantage. The autocratic government, which unambiguously reduces welfare for everyone except the autocrat, will drive the competing democratic government to *voluntarily* shut down in the interests of its own electorate. For instance, if an autocratic government allows the creation of democratic local governments, with the authority to tax and spend at will, these democratic local governments will remain inert and ineffective. A "Gresham's Law of Political Economy."

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Introduction:

The tenure of every government of whatever character is maintained by the effectiveness of its monopoly of force, together with acquiescence of its population. Just where the balance between these factors reaches equilibrium must depend among other things on the economic benefit a regime affords to its citizens and this latter in turn we expect will depend on the nature of the regime.[1] More specifically for example, is it democratic or dictatorial? Here the economic advantages of democracy are widely recognized (Olson, 1991, 1993). Thus, if different regimes compete for dominion over the same population, *aside from any asymmetry in force of arms,* one might expect the democratic regime to have an advantage. It provides more for its people.

As a practical inference from this expectation consider that in some developing countries ethnic majorities acting autocratically for their own selfish ends are alleged to use the power of the state to extract revenues from internal minority populations. In response some policy makers have proposed devolving democratic power to a local level where sub-national minorities predominate, hoping thereby to reduce predation and improve local welfare (Jalal, 1995). Our results suggest that this hope is misplaced. We show that if a purely extractive central government were to allow local governments freedom to tax and spend at will, and the local government was perfectly democratic, there would be no improvement in welfare. In fact any democratic local government would choose to remain inert and withdraw from economic functions.

More generally, our analysis also has potential implications for the political evolution of societies. Paradoxically although democracy seems patently the better system, history surely demonstrates that it is slow to take root, long to evolve, and often displaced. Why is this? This paper suggests part of an answer, based on the incentive distorting effects that an established *or*

incipient autocratic government has on the economic behavior of a democratic government. As we will demonstrate when two types of government --- democratic and autocratic --- peacefully compete for governance over the same population/economy the autocratic has a natural advantage. The autocratic government, which unambiguously reduces welfare for everyone except the autocrat, will drive the competing democratic government to *voluntarily* shut down in the interests of its own electorate. Following such economic shutdown it seems likely that the democratic regime will lose first the power of patronage, and next political support, and finally disappear from the political landscape. A "Gresham's Law of Political Economy!"

Selfish Autocracy and Utopian Democracy:
Two Polar Extremes

To establish this conclusion we build on the analysis McGuire-Olson (1992, 1996) --- hereafter "M-O". On the largest tapestry of political economy they argue every government performs two economic functions. One of these is redistributive: the transfer of income/wealth from those to whom the government is not beholden to those to whom it is, i.e. transfer of benefits to powerful interests. The second is allocative: governments use taxes to invest in their economies. By providing certain public goods --- establishment of the rule of law, maintenance of property rights, provision of common defense, stable currency, elements of infrastructure, etc. --- governments can increase the productivity of their realms dramatically, and this benefits everyone in the society. Thus, public good allocation and group discriminatory redistribution are conflicting resource use options between which any government must choose irrespective of its political make up.

M-O demonstrate then how governments combine political and economic calculation to balance these competing choices and in particular they show that the political logic of these economic decisions will lie on a spectrum between two polar extremes.[2] At one extreme is an idealized, utopian, consensual democracy where there is no redistribution in equilibrium and

taxation only serves public good investment objectives. At the other extreme is monolithic autocracy ruled by a dictator who taxes and spends solely to satisfy his own selfish desires. The model derived in their paper then demonstrates how every realistic society can be analyzed as a mixture --- a weighted sum --- of these two polar cases. Thus, in making the choice between social investment for the entire realm and redistributive taxation from the powerless to the powerful, every society behaves somewhat like a pure democracy and somewhat like a selfish dictatorship.

Informed by this logic McGuire-Olson derive the allocation and distribution rules, which various governments across the spectrum will follow. They prove, for example, that even the most rapacious dictator (providing he controls an enduring government) will tax not only to transfer resources to himself; he will also invest in his economy. Why? Because investment will make the economy prosper and add even further to the dictator's tax take. (Anecdotal evidence in many countries, for example Suharto's Indonesia, confirms that this is more than a mere theoretical insight.) Among these rules they also demonstrate that to act as perfect non-redistributive representatives of their entire constituency governments need not be unanimous or purely utopian consensual. Instead if only a sufficiently widespread, encompassing interest controls a government it will collect no rents, direct no redistribution of income, and instead treat the non-represented powerless residual of citizens as well as it treats itself. In this behavior a "super encompassing interest" will behave in every way just like a utopian unanimous consensus.[3] Thus our utilization in this paper of a pure utopian consensus to stand for democracy gains realism and applicability beyond its narrow specification.

Competing Forms of Governance

Basically the M-O analysis asks about the economic governance of a self contained country under *mutually exclusive alternatives*, utopian consensual democracy or selfish autocratic dictatorship for example, or somewhere between these two. Our purpose in this paper requires that

we ask a different question: whether a single country or region or province of a country can sustain being taxed and governed by two ruling systems at the same time. Taxation and expenditure for the same purposes from multiple governments is not at all uncommon; any federal system partakes of this to a degree unless it follows exactly the "principle of fiscal equivalence" (Olson, 1969). And certainly there is historical precedent for societies being taxed and governed by competing autocrats or oligarchs. This is a competing warlord or roving bandit system and it is easily demonstrable to be less efficient for the warlords than if they consolidate into one autocracy.[4] Moreover multiple oligarchy is also worse for the subjects than simple unified dictatorship (Olson 1991, 1993). Our interest, however, is not in competing "governments" of the same type; rather it is in competing types of government.[5]

For example suppose an enduring, rent maximizing, central dictator permits a homogeneous region of his country to be taxed and public goods to be supplied there by a benign, utopian *satrap*, who is interested only in the welfare of his local subjects. Will the utopian democratic regional government have an incentive to provide public goods in competition with the central autocrat? Or to supplement the central autocrat's allocation? We prove that it will not. In equilibrium the dictatorial level of government will show no change in behavior and the democratic government will remain inert.

Or suppose a country of clustered homogeneous groups is run in an ideal utopian fashion by a central government. Imagine now that this Utopian Center allows one group to be taxed and supplied by a Local Oligarch/Autocrat. We show that the autocrat will drive the democracy to discontinue all taxation and public good supply in that region where local autocracy has taken root. Moreover, the utopian democracy will do this because, given the intervention of local autocratic governance, it *is in the interest of the citizens of the local group which was singled out* that the utopian government effectively shut down.

The Model

To demonstrate these effects we adapt the notation of M-O. In this model all public goods are in effect public factor inputs or intermediate goods that increase the output of private goods in the society.[6] With the notation set out below, we specify total output as a function of the level of provision of public goods.

G_A = Amount of public factor input supplied by an Autocratic government (price, average cost =1).

G_D = Amount of public factor input supplied by a Utopian Democracy (price, average cost = 1).

G = $G_D + G_A$ = Total amount of public factor input supplied assuming G_A and G_D are perfect substitutes

Y = Gross private good production;[7]

$Y - G$ = Net private good production.

Y shows the maximum level of national product that can be generated by the labor and other resources in the society in cooperation with G units of the public factor input. Society's entire output is aggregated into the single good Y, which includes all income of everyone. Y is labeled "gross" because the cost of the resources that must be used to produce G has not been subtracted.

Of course provision of G must be financed. A perfect system of governance would exact the resources necessary to finance G with lump sum taxes and thereby avoid all losses from incentive-distorting taxation, taxing away only the minimum necessary to obtain the resources for producing G. In this case since the public good has no direct consumption value, an ultimate utopian society would maximize product net of expenditure on the public good. With a price of 1, the total cost, C, of providing G is just C (G) = G, and the maximum net product available is given by Y (G) - G. At this socially perfect optimal provision of $G = G^{opt}$ the marginal product of G equals its marginal cost, $Y' = 1$, and the Utopian society consumes $Y^{opt} - G^{opt}$.

But because no society can rely on lump-sum taxation, our analysis must include the deadweight losses from taxation and the productivity of public goods at the same time. We assume that all resources available to government whether for public good provision or for redistribution are

derived from taxation; and keeping to the simplest possible assumptions, we suppose that taxes are applied at constant average rates on gross income. Therefore the society's gross output depends both on public goods, which enhance productivity and output, and distortionary taxes, which reduce both. The following notation captures these ideas in a general fashion:

T_A = Constant average "income tax" rate imposed by an autocrat.

T_D = Constant average "income tax" rate imposed by a consensual democracy.

T = $T_D + T_A$ = aggregate tax rate for producers/consumers in the private sector

Y = $Y[(T_D + T_A), (G_D + G_A)]$. To insure that one government acting alone will always choose a positive expenditure on public goods, we assume that there is a $G > 0$ such that:

$$Y[T(G), G] - G > Y[0, 0] = 0,$$

where $T(G)$ denotes the tax rate required to raise G in revenues.

Y_G^A = $(\partial Y/\partial G_A) = Y_G^D = (\partial Y/\partial G_D) = Y_G = (\partial Y/\partial G) > 0$ reflects the perfect substitutability of G_D and G_A and the positive productivity of public goods.

Y_T^A = $(\partial Y/\partial T_A) = Y_T^D = (\partial Y/\partial T_D) = Y_T = (\partial Y/\partial T) < 0$ reflects the perfect substitutability of T_D and T_A and the deadweight loss from taxation.[8]

Impartially, we assume that the marginal rate of income loss due to deadweight losses from taxation, at any given level of T, is the same across all regimes.[9] Similarly, all of our regimes are limited by the same production function, Y(G, T), and all regimes are assumed to face the same requirement to finance both redistribution (if any) and provision of G by proportional taxes on income.

Individual Regime
Maximizing Behavior

The purpose of the model is now to explore the viability of two competing types of governance, utopian and autocratic. The Utopian government collects $T_D Y(T, G)$ in taxes and spends it all on provision of G_D. For a democracy the only reason for taxing is to provide the public good, so

all its collections are spent for that purpose. The Autocrat collects $T_A Y(T, G)$ in taxes spends *some* of these collections on G_A and retains the remainder for his own purpose. The Autocrat's allocation to G_A is strictly instrumental for increasing his net rent or surplus collections.

First consider the objective of the Autocrat. It is written as:

$$\underset{G_A,\, T_A}{\text{Max}} \quad W_A = T_A Y[(G_A+G_D), (T_A+T_D)] - G_A \tag{1}$$

With Nash behavior assumed, the Autocrat takes T_D and G_D as given parameters. The Autocrat's first order conditions (recalling that $Y_G^A = Y_G^D = Y_G > 0$, and $Y_T^A = Y_T^D = Y_T < 0$) are therefore:

$$T_A Y_T + Y = 0 \quad \text{whence} \quad Y_T = -Y/T_A \tag{2}$$

$$T_A Y_G - 1 = 0 \quad \text{whence} \quad Y_G = 1/T_A \tag{3}$$

Combining (2) and (3) $$Y_T = -YY_G \tag{4}$$

The simultaneous solution to these two equations defines the Autocrat's reaction functions to the democracy's choices:

$$T_A = f_A^T(T_D, G_D) \tag{5a}$$

$$G_A = f_A^G(T_D, G_D) \tag{5b}$$

Now consider the utopian democratic government's objective assuming that it takes T_A and G_A as given parameters.[10] Because taxes are distortionary and because all distribution issues have been settled this consensual democratic government will not tax to redistribute, but rather only to provide public goods. The constrained objective, therefore, is written as:

$$\underset{G_D,T_D}{\text{Max}} \quad W_D = (1 - T_A - T_D)\, Y[(G_A+G_D), (T_A+T_D)] + \ddot{e}\{T_D Y[(G_A+G_D), (T_A+T_D)] - G_D\} \tag{6}$$

The first order conditions (keeping in mind the equivalences $Y_G^A = Y_G^D = Y_G$ and $Y_T^A = Y_T^D = Y_T$) for the Democracy, therefore, are:

T_D: $(1 - T_A - T_D)Y_T + ë[T_D Y_T + Y] - Y = 0$ (7)

G_D: $(1 - T_A - T_D)Y_G + ë[T_D Y_G - 1] = 0$ (8)

ë : $T_D Y - G_D = 0$ (9)

These in turn can be simplified to

$$\{1 - T_A - (1- ë)T_D\}Y_T = (1 - ë)Y \quad (10)$$

$$\{1 - T_A - (1- ë)T_D\}Y_G = ë \quad (11)$$

whence $Y_T = (1-8)/8]Y\ Y_G$ (12)

$$Y = G_D/T_D \quad (13)$$

and these will imply a pair of reaction functions:

$$T_D = f_D{}^T(T_A, G_A) \quad (14a)$$

$$G_D = f_D{}^G(T_A, G_A) \quad (14b)$$

Each of these sets of reaction functions alone will generate a valid interior solution if the competitor is absent or passive supplying zero G and imposing no tax. The outcome would replicate the individual Autocrat, and individual Utopia in the M-O analysis. There it is demonstrated that *ceteris paribus* $T^*_D < T^*_A$ always and that ordinarily $G^*_D > G^*_A$ (where "*" indicates optimal values as chosen by the autocrat or democracy).

Joint Nash-Cournot Behavior

Consider next the possibility that both types of governance coexist as internal Nash equilibria with both the Autocrat and Utopia supplying positive amounts of Public Good and taxing to pay for it. This would be the case, for example, if the central, autocratic ruler of a country granted a province authority to tax itself and provide itself with "supplementary" public goods through its own democratic provincial government --- assumed to be consensual utopian. Would the utopian provincial government ever exercise this power through further taxation and public good supply? Our answer is "No"!

An Established Autocrat Drives Out
Existing Democratic Competitors

To support a simultaneous interior solution all equations (2, 3, 4, 10, 11, 12, 13) must obtain. But noting the equivalences for Y_G and Y_T and inserting (4) into (7-8) gives:

T_D: $(1 - T_A - T_D)(-YY_G) + \ddot{e}[T_D(-YY_G) + Y] - Y = 0$ (15a)

G_D: $(1 - T_A - T_D)Y_G + \ddot{e}[T_D Y_G - 1] = 0$ (15b)

Substituting (15b) into (15a) gives $\partial W_D/\partial T_D = -Y < 0$ when ever the Autocrat maintains his first best Nash optimum. This means that when an autocratic tax-public-good-supply regime is in place a "competing" consensual democracy will back off and do nothing, since it cannot impose a negative tax. It would rather lower tax rates even at the cost of reducing public expenditures[11], but it has no power to do either. Thus the Autocracy-Democracy Nash equilibrium is at a corner, with $T_D = 0$, $G_D = 0$.

An Incipient Democracy Cannot
Displace An Established Autocrat

Now consider the obverse case. Can there be another equilibrium where the local democratic government starts spending and the central autocratic government pulls back? The answer is again "no", not within the required range, G_A, G_D, T_A, T_D $ 0. We know that an autocratic "central" government must tax in equilibrium; so $T_A > 0$ and $dW_A/dT_A = 0$ by Kuhn-Tucker. But is it possible that G_A be equal to zero because G_D, is so great? $G_A = 0$ and $dW_A/dG_A < 0$ would satisfy Kuhn-Tucker conditions, but if $dW_A/dT_A = 0$ and $dW_A/dG_A < 0$ then the first order conditions for the Democratic "local" governments tax and expenditure decision tells us that government prefers negative tax (using the equivalences $Y_G^A = Y_G^D = Y_G$ and $Y_T^A = Y_T^D = Y_T$). We obtain this result from direct differentiation. Along the Democracy's tax-expenditure constraint:

$$V = G_D - T_D Y[(G_A + G_D), (T_A + T_D)] \quad (16)$$

and

$$dG_D/dT_D = -[\partial V/\partial \hat{O}_D]/[\partial V/\partial G_D] = -\frac{[-Y - T_D Y_T^D]}{[1 - T_D Y_G^D]} \tag{17}$$

Therefore

$$\frac{dW_D}{dT_D} = -Y + \frac{(1 - T_D - T_A)[Y_T + YY_G]}{(1 - T_D Y_G)} \tag{18}$$

and because

$$Y_T^A < -YY_G^A \tag{19}$$

therefore

$$\frac{dW_D}{dT_D} < 0 \tag{20}$$

Thus if the autocratic center were to choose not to spend on G, the democratic local government would also choose not to spend. But we know from $Y[T(G), G] - G > Y[T, 0] = 0$ that this is not an equilibrium. QED.

An Incipient Autocracy Will Displace
An Established Democracy

Lastly, can a utopian democracy maintain local sovereignty against an encroaching autocrat? Here again the answer is obviously "No." Beginning at the utopian optimum, the autocrat will always increase taxes to garner rents. Once in the interior the democracy will reduce taxes and public goods with the effect over all that resources are transferred from private good consumption and from public good provision to rents for the autocrat. The process continues until the democracy has shut down.

What is the intuition behind this result? In plain language, the Autocrat's Nash tax rate is too high for the Democracy to be willing to tax further, even though the autocrat provides less public good that the Democracy desires. Consider the autocratic maximum (T^*_A, G^*_A) and first order conditions. The autocratic or "central" government has set tax rates and expenditure levels to maximize net revenues. Raising tax rates beyond T^*_A on the margin has no effect on net revenues TY(.) and raising

government expenditures G^*_A costs just as much as it produces in revenues (average cost of G being assumed of constant unit value). Suppose now for comparison that a utopian democracy had chosen these values of (T^*_A, G^*_A), but of course had not retained any surplus revenues. A democracy which had made this mistake could increase its welfare by reducing T_D, (its tax rate) below T^*_A since this would raise production by reducing deadweight loss and efficiency distortions of taxation. And it could do this without reducing G_D below G^*_A, since at (T^*_A, G^*_A) the marginal revenue loss from reducing tax rates by a small amount is zero. Another way of stating this intuition is that the top of the "Laffer Curve" for the maximization of revenue occurs at a higher tax rate than the one that maximizes post tax consumption (when all taxes are used to fund productive public expenditure on the margin). That is $T^*_A > T^*_D$. [12]

Stackelberg Leader/Follower Behavior

Some might question whether a Nash solution is the appropriate concept for the interaction between governments. To explore a Stackelberg leader/follower interaction alternative suppose the autocrat sets G_A and T_A at some (for him) non-optimal, sub- optimal value. He then lets the democracy choose if it wants to tax more and spend all its tax revenues on more G than the autocrat has already provided. Call this outcome after the democracy has moved 2nd #1.

Now suppose the autocrat selects a different starting value of G_A and T_A and the democracy another value of its incremental G_D and T_D. Call this outcome # 2. Further outcomes #3, #4 etc. are generated in this way. Conventional Stackelberg Leader behavior requires that the autocrat would then pick the best of 1, 2, 3, 4, etc. However, from each of these sub-optimal 1st moves the autocrat himself can do as well as the outcome that the democracy has chosen with its 2nd move. The autocrat can do this just by increasing taxes himself and spending all the extra revenue on G. Since the autocrat can do everything the democracy can do, there is no gain from being a leader in the sense of establishing the outcome of a first move from which the follower makes his 2nd move.[13]

In other words being a Stackelberg leader confers on the autocratic central government the

opportunity to present the democratic local government with a fait accompli. Were some resources accessible only to the democratic government or were it independently endowed somehow the central autocracy might be able to extract some resources from the local democracy by deliberately undersupplying public goods. But we assume the local government can only raise taxes from the same resource base as the central government. Thus undersupplying public goods to make the local government tax and spend does no good, and as our Nash example shows, the central government would choose exactly as in the absence of a local government, while the local government remains inert.

Extensions

How robust are these results? Lets briefly consider two variations. First, suppose productive public goods also had consumptive value as many like education and roads might. In this case might the local government decide to supply positive amounts of the good and thus improve welfare? It is possible to show that in a certain range --- for instance if the local government wanted to maximize gross income rather than net income --- the local government would still remain inert and decentralization would not improve welfare.[14] Second, suppose the local government was more productive at producing certain public goods. Would decentralization then improve welfare? Here we can answer not if the difference in productivities was small as inequality (20) is a strict inequality. If however there were large differences in productivity then decentralization could improve welfare.

Conclusion

One might have thought that when two overlapping governments compete for resources and simultaneously can supply public goods, then the more autocratic one of the two competing governments is, the greater would be the scope for welfare improving governance by a benevolent utopian democracy. But we have shown this not to be true. Considering the extreme case where an autocratic (central) government cares nothing about a local population and sets taxes and expenditure

levels to maximize "its own" net revenue from a sub-economy, even then a decentralization scheme that allows a perfectly consensual democratic local government to both tax and spend cannot improve outcomes unless the central government sacrifices its objective.

Some people have suggested that in ethnically fractionalized societies, where small ethnicities are geographically concentrated, decentralization can improve outcomes. Our paper shows that if the central government is predatory then decentralization, even if it includes the devolution of both tax and expenditure authority, would have no effect on outcomes or welfare. Effective reforms of fractionalized societies that suffer from this form of predation must therefore restrain the central government by improved minority representation in decision-making.

In terms of the political evolution of societies our paper predicts that peaceful transformations of dictatorships --- driven by local democratic governments expanding their functions and leading to the withering away of the dictatorial level of government --- will be rare. It is more likely that dictatorial governments will lead to the withering away of democratic governments. These governments do not actually have to be formally dictatorial: the intuition applies to governments that have been captured by some powerful interest group. If local governments are more subject to elite capture[15] they would drive the more democratic central government into irrelevance if given the power to tax. The policy implications are that contrary to the prescriptions of the theory of fiscal federalism, local governments should not be given the power to tax in societies where elite capture of local politics is likely.

In terms of evaluating governments on democratic performance as is sometimes done by international development agencies, this paper points out that the fiction of democracy is easy to create and unthreatening to the dictator. By our logic, a dictator can buy time by democratizing local politics, and get credit for democratization by international agencies, safe in the knowledge that the democratic local governments will remain small and not threaten the autocratic regime.

Appendix
A Worked Example

Consider the case where tax-deadweight loss effects and public good productivity effects are multiplicative. $Y(G,T) = r(T)Y(G)$. More specifically assume efficiency loss is a linear function of taxation,

$$r = 1 - T_A - T_D \tag{21}$$

and that output is a quadratic function of public good "investment."

$$Y = (G_A + G_D)^{1/2} \tag{22}$$

We will illustrate the argument for this specific case, simply reporting results. Proofs are available on request. For easy terminology, we will assume that the autocrat rules from the central government, and that a utopian democracy would govern in a locality or province

Figure 1 gives a picture of the reaction functions and the Nash equilibrium. The "reaction functions" of the Central Autocrat can be written as:

$$T_A = f_A{}^T(T_D)\,;\; G_A = f_A{}^G(T_D) - G_D$$

and of the Provincial Democracy as:

$$T_D = f_D{}^T[T_A, (G_A + G_D)];\;\; G_D = f_D{}^G[T_A, (G_A + G_D)]$$

The figure shows that for $T_A = 0.38$ the entire supply of G would be provided by the Democratic Province and $G_A = 0$. (For $T_A < 0.38$, $G_A < 0$, so the diagram does not extend to the left of $T_A = 0.38$). For $T_A > 0.41$, $G_D = 0$, and the entire supply of G is provided by G_A. For $T_A > 0.41$, T_D will decline to zero and T_A will increase to .50, which is the Nash corner where the Democracy has been driven out by Gresham's Law of Governance.

Notes

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[1] On the interplay among these factors see, for example, Brennan and Buchanan (1997), Hobbes (1959), Olson, (1982), McGuire (1998), and Wintrobe (1990, 1998).

[2] For recent related developments of this idea of a spectrum between autocracy and democracy see Niskanen (1997) and Congleton (2001).

[3] We will use "consensual," "utopian," "ideal," all interchangeably to refer to democracy. Similarly, "autocracy" and "dictatorship" are employed interchangeably.

[4] Just as oligopoly generates lower aggregate profits than monopoly, competing oligarchies impose external diseconomies on each other, which reduce individual and total taxation.

[5] Readers of this paper have informed us that such competition between less democratic central governance and more democratic provincial bodies now seems to be emerging in China, which thus might become a plausible testing ground for our model. However it is worth noting that the Chinese case is not easily analyzed by a model such as ours. First, it is not clear what the

objective functions of the central and provincial governments are in China (For instance, Blanchard and Shleifer (2000) think the central government is dedicated to prosperity and the local government to revenue collection). Second, a reading of the Chinese experience as "market preserving federalism" (Qian 2001; Montinola, Qian and Weingast, 1995) suggests that issues of dynamic commitment, factor mobility and information rents are important ---all of which are very interesting but beyond the analytical capacity of our model.

[6] In reality, of course, many "public goods" are valued solely as objects of consumption, and have no productivity enhancing quality at all. As these national or local public goods as the case may be have been exhaustively studied they are omitted from our model

[7] As in M-O the total output is a flow and so is the provision of the public good. No regime augments its immediate receipts at the expense of the future by confiscating capital goods; this is excluded either by indefinitely long time horizons or, alternatively, by assuming that there are no capital goods.

[8] This formulation of the deadweight loss from distortionary taxation is more general than M-O. They assume that deadweight losses, a function of tax rates, can be described separately or multiplicatively as f(T), so that net production becomes f(T)Y(G)

[9] Any other assumption would prejudice the analysis for the favored type regime. While we do not elaborate on this formally, we expect that if democratic local governments had a comparative advantage at producing market augmenting local public goods, the central autocrat would tax and

transfer funds to the local government to provide these goods. This is approximately what is observed in some countries –e.g., in Pakistan at times when military dictatorships promote local democracies.

[10] Here, rather than a pure utopian democracy we could have used an M-O "super-encompassing interest," a government which treats all citizens equally even though it is answerable to only a fraction F of them, where this F represents the fraction of the private economy owned by this governing interest. In this case the objective function of the super-encompassing interest is written:

$$\underset{G_D,T_D}{\text{Max}} \quad W_D = (1 - T_A - T_D) FY + T_D Y - G_D$$

Here the first term represents the F-majority's after tax income, the second term its tax collections, the third term its provision of public good. Provided F is sufficiently large, this super-encompassing interest will optimally *choose* to tax and spend just so that $T_D Y = G_D$ as in a utopian democracy. Since the outcome is the same and the presentation simpler we adhere to the pure utopian case (effectively F=1).

[11] Moving towards an unconstrained global optimum starting from the Autocrat's optimum, the utopian democracy should want to reduce T but also to increase G rather than decrease it, financing the increase from the autocrat's surplus rents. But equations 15a and 15b show that when constrained by its own resource constraint and the rent absorption of the autocracy --- that is by the second best condition of coexisting with the autocrat --- the democracy desires to reduce taxes,

even though this means it must reduce G.

[12] M-O illustrate this conclusion in greater detail for the case of independence between deadweight loses from tax and productivity of public goods, where $Y(G, T) = f(T)Y(G)$.

[13] As between the central Autocrat and the local Democracy, the former seems to be the more probably candidate for Stackelberg leadership. However, if the democracy on the other hand tries to be a leader, and it is constrained to spend all tax income on G (so that $T_D Y = G_D$) it will find that the best it can do is to choose zero T_D and zero G_D as its 1st move, and let the autocrat choose its best, which is just the Nash corner. This ignores the possibility that the local democracy might "lead" by destroying resources, putting them out of the reach of a rent-seeking central autocrat.

[14] The relevant equations (15a) and (15b) would be similar except the terms $1-T_A-T_D$ would be replaced by $1-T_A$. The implication $dW/dT_D < 0$ is straightforward.

[15] See Azfar, Kahkonen, and Meagher (2001) for the cases of Uganda and the Philippines.