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THE LOGIC OF AUTHORITARIAN BARGAINS

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Dictatorships do not survive by repression alone. Rather, dictatorial rule is often explained as an "authoritarian bargain" by which citizens relinquish political rights for economic security. The applicability of the authoritarian bargain to decision-making in non-democratic states, however, has not been thoroughly examined. We conceptualize this bargain as a simple game between a representative citizen and an autocrat who faces the threat of insurrection, and where economic transfers and political influence are simultaneously determined. Our model yields implications for empirical patterns that are expected to exist. Tests of a system of equations with panel data comprising 80 non-democratic states between 1975 and 1999 generally confirm the predictions of the authoritarian-bargain thesis, with some variation across different categories of dictatorship.

1. INTRODUCTION

HOW DO authoritarian regimes stay in power? Repression – the classic answer – is not enough, because repression also creates the "dictator's dilemma" by which citizens feign support for the ruler even as they collude to rebel, increasing the degree of insecurity a dictator faces (Tullock, 1987; Wintrobe, 2007). More likely, some form of redistribution to citizens is necessary to secure and maintain their loyalty. Dictatorial regimes are therefore said to rely on an "authoritarian bargain," or an implicit arrangement between ruling elites and citizens whereby citizens relinquish political influence in exchange for public spending.[1]

Much of the rationale explaining the persistence of such bargains has been induced from regional or case studies of policy making in dictatorships and of authoritarian withdrawal. In addition, econometric studies of public spending or of democratization in dictatorial regimes examine the two sides of the "bargain" separately. By contrast, we aim to develop a framework that may be used to test the generality of the claim that political influence

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[1]We refer to dictatorships and "authoritarian regimes" interchangeably. These terms are used for convenience, and are not meant to signify only the most extreme forms of dictatorship. Rather, we are referring to all regimes that are *less-than-fully democratic*, including regimes in which some forms of limited voting and political participation are permitted.

and public spending are substitutes in non-democratic states across these countries and over time.

We proceed in two steps. We first develop a simple model of an authoritarian bargain based on the presumption that non-democratic rulers secure regime support through the allocation of two substitutable "goods" to the public: economic transfers and the ability to influence policy making. The former consists of explicit and implicit transfers, subsidies, protections, and regulations that guarantee profits, employment, or consumption above what would otherwise prevail. The latter consists of partial political liberalization or of expanding citizen participation in governmental decision-making, leading to policy choices that are closer to citizen preferences. The central purpose of the model is not to highlight a single causal mechanism. Rather, it is to identify, based on certain a priori principles, a set of relationships between variables that then form the basis for our empirical specification.

In a second step, we test some implications of this model. Using cross-national, time-series data from 80 non-democratic states between 1975 and 1999 we test a system of equations with welfare expenditures and political rights on the left-hand side and a set of covariates derived from the theoretical model. The results are generally consistent with the predictions of the model and identify certain factors that influence welfare expenditures and political rights in the same direction, as well as those factors that influence them in opposite directions. We also find that this bargain tends to break down in military and highly repressive dictatorships.

2. REGIME SUPPORT IN NON-DEMOCRATIC STATES

Support for regimes is one of the central concepts in modern comparative politics, but rarely investigated in non-democratic states.[2] Comparable conclusions about dictatorships tend to be based on assumptions of authoritarian stability and from evidence of their breakdown. In this regard, one of the better-known perspectives on authoritarian rule reflects the "contract" between dictators and different constituencies whereby the latter acquiesce to constraints on their political participation and liberties in exchange for economic security. Examples of these authoritarian bargains abound. In Mexico the ruling Institutional Revolutionary Party (PRI) for many years provided organized labor with numerous benefits while these labor groups, in turn, supported successive PRI-governments' restrictions on political freedom (Collier, 1992; Murillo, 2000). In South Korea, rulers

[2]This is by no means coincidental; while support has long been considered one of the main dimensions of political performance, some of the conventional "modes" of achieving that legitimacy (building public trust, expanding participation, improving the responsiveness of government, etc.) are more easily measured and observed in democracies (e.g. see Almond and Verba, 1965; Powell, 1982; Putnam et al., 1993).

reached similar implicit and explicit agreements with major domestic investors and large conglomerates (Kang, 2002). In the Middle East, authoritarian bargains have remained resilient particularly in oil-rich states, where welfare spending provided by earnings from oil exports have historically granted rulers considerable autonomy from pressures to liberalize politically (Heydemann, 2002). In non-democratic Sub-Saharan Africa, finally, the provision of private goods by rulers to groups on the basis of ethnic or linguistic solidarity has long been a hallmark of those regimes' survival (Olivier de Sardan, 1999).

The nature of the bargain underpinning authoritarian rule is informed by two separate but related strands of empirical and theoretical work on decision-making in dictatorships. On the one hand, economic theories of dictatorship focus on the ruler's choice of fiscal or redistributive policies and other mechanisms ruling elites use to gain popular support. By contrast, other analyses of dictatorship have examined how rulers use political cooptation and internal political reform to maintain regime stability given exogenous economic conditions. We examine each in turn.

2.1 Redistribution and the Economics of Authoritarianism

Formal analyses of dictatorship have shown that, in addition to repression, autocracies are often sustained through a system of specialized patronage relationships and through a series of strategic transfers to, among others, the heads of armed forces, national and local government bureaucrats, individuals who control the apparatuses of the ruling party, and often segments within the business community. In most cases, these analyses presume that the characteristics of the specific dictatorial regime-type are given, and that the policy choices of dictators are influenced mainly by these regime characteristics.[3]

One of the central insights from models of dictatorial survival is that dictators must provide combinations of public and private goods in order to remain in power. Bueno de Mesquita et al. (2002) note that, in reality, all policies contain aspects of public and private goods, and that even expenditures on programs that purportedly benefit all of society (e.g. national defense) contain transfers to specific groups (e.g. defense contractors). Incumbents have a repertoire of policy instruments by which they can deliver benefits to different constituencies. Trade protection and regulations against entry into markets generate rents to domestic producers; labor regulations and welfare programs can be used to benefit workers; subsidies, transfers, and cheap credits can support specific economic sectors or firms. In this vein various models have examined the use of redistributive policies (Acemoglu

[3]The exception is Razo (2002), who argues that the commitment problem in dictatorships can actually influence, in the end, the character of the political institutions that produce economically high- or low-performing dictatorships.

and Robinson, 2001; Grossman and Kim, 1995, 1996), public employment (Alesina et al., 2001), fiscal decentralization (Jin et al., 2005), or other benefits designed to shore up public support.

2.2 *Political Control and Authoritarian Breakdown*

A second set of analyses emphasizes how economic conditions shape the character of governing ''pacts'' between rulers and citizens, and how these bargains can break down. In particular, poor economic performance diminishes the bargaining power of autocrats, increases the strength of the opposition, destroys the bargains struck between leaders and their supporters, and leaves ruling groups vulnerable to defections.

Consequently, a consensus has emerged that an economic crisis poses a particular political problem: it erodes the ability of regimes to continue to secure public support through the provision of benefits. Recession, inflation, and currency collapse deny governments the resources needed to maintain critical support in the population (Haggard and Kaufman, 1995). Economic crises also introduce a high degree of uncertainty in governmental behavior, limit the availability of information to the public, blur political identities, and create a basis for a series of unexpected, unpredictable events (O'Donnell et al., 1986).

Governments lacking resources to resolve these crises find themselves faced with disloyalty, organized violence, and a rapid loss of legitimacy. Political openings, in these situations, are believed to develop through negotiation, bargaining, and alliances between democrats and incumbents, moderates and extremists (Di Palma, 1990; Gleditsch and Choung, 2004). Under these conditions, restricted elections – elections in which party activities, candidate recruitment, or voter registration are limited – can serve as an effective means of granting limited voice to opposition groups. Indeed, dictators have managed to remain in power for long periods of time by holding ''staged'' elections (McFaul, 2002).

2.3 *Political Rights and Economic Transfers: Is There a Tradeoff?*

These analyses raise two related questions. First, do dictatorships facing internal rebellion attempt to maintain legitimacy through a greater provision of economic benefits? Second, do dictatorships under economic stress tend to liberalize politically? On the first question, the evidence suggests that the stability of authoritarian regimes is bolstered through the redistribution of wealth, particularly when that wealth derives from natural resources or ''country-specific'' capital (Boix, 2003; Ross, 2001). Oil-rich regimes, for example, tend to survive even when controlling for repression (Smith, 2004). Governments in oil-rich nations, consequently, can secure citizen support through generous welfare provision and thereby contain public demands for political liberalization. On the second question, evidence on regime

transitions seems to confirm that recessions have preceded regime transitions (in both democratic and non-democratic directions) from the 1950s to the 1980s (Gasiorowski, 1995). Moreover, recent cross-national survey research confirms that individual support for ''revolutionary'' action falls both with faster growth and with political liberalization – indeed, political liberalization is actually more legitimacy-affirming than economic growth (MacCulloch and Pezzini, 2002).

Taken together, these findings suggest an important question that, thus far, has been little examined theoretically or empirically, namely, whether political liberalism and economic transfers are substitutes in autocracies. If economic benefits and political liberalism are jointly determined, then standard econometric approaches regressing measures of democracy on economic reform (or vice versa) suffer from simultaneity bias. It is not obvious, moreover, what this simultaneity – something at the heart of the authoritarian bargain as conventionally envisioned – implies for autocratic behavior. On the one hand, welfare spending and political rights may be strictly substitutable: non-democratic governments forced into bouts of fiscal retrenchment may secure short-term political support through partial political liberalization – by extending certain basic rights and protections from arbitrary force and expropriation to citizens (O'Donnell and Schmitter, 1986). Or an authoritarian ruler intent on political repression – and faced with a credible opposition – may be forced to expand the provision of economic benefits to the population. But there may be certain circumstances when increased pressures force rulers to expand both welfare provision and political inclusion at the same time. For these reasons, a model that explicitly takes into account the joint nature of the decision is needed.

3. FORMALIZING THE AUTHORITARIAN BARGAIN

We present here a simple theoretical framework to guide our thinking about the authoritarian bargain, the purpose of which is to identify empirical patterns that would derive from our conception of decision making in authoritarian regimes. In a simple game between an authoritarian ruler and citizens, political power entails control of some economic rents as well as the power to choose policy. Although autocrats would prefer to keep all available rents and set policies according to their own preferences, they will share rents and/or accommodate policies toward citizens' preferences in order to limit popular discontent, or to contain the threat of a coup or uprising. For this model, we assume that all citizens have identical policy preferences, but it is straightforward to extend this framework to a population with different preferences (Gandhi and Przeworski, 2006). The framework is thus suggesting a standard static maximization problem in the face of a participation constraint.

The utility of the ruler can be formalized as

$$u_d(R-S)+v_d\left(x|x_d^*\right), \tag{1}$$

where R is available rents, S economic transfers to the citizens, x the (single-dimensional) policy variable, and x_d^* the dictator's ideal policy. Both functions are assumed to be concave and twice differentiable, and we assume that $u(0)=0$ and that $v_d\left(x=x_d^*\middle|x_d^*\right)=1$.

A citizen's utility depends, similarly, on the amount of economic compensation and the type of policy. If the bundle offered by the dictator is accepted, then the representative citizen's utility will be

$$u_c\left(\frac{S}{N}\right)+v_c\left(x|x_c^*\right), \tag{2}$$

where N is the size of the group and x_c^* the citizen's optimal policy. It is assumed (without loss of generality) that $x_c^*>x_d^*$, and that $v_c\left(x=x_c^*\middle|x_c^*\right)=1$.

The alternative to accepting the authoritarian bargain is to overthrow the dictator. If the dictator is successfully overthrown, then citizens capture all rents and set their preferred policy. If unsuccessful, then the dictator sets $S=0$ and $x=x_d^*$. The anti-dictatorial uprising is successful with probability p, yielding the following expected utility from overthrow:

$$p\left[u_c\left(\frac{R}{N}\right)+1\right]+(1-p)\left[v_c\left(x=x_d^*\middle|x_c^*\right)\right]. \tag{3}$$

We focus on the equilibrium in which the dictator successfully appeases citizens, staving off an uprising, because this represents a successful bargain. Following equations (1)–(3), this equilibrium is the solution to the following standard optimization problem:

$$\underset{S,x}{\text{Max}}\, u_d(R-S)+v_d\left(x|x_d^*\right),$$

s.t.

$$u_c\left(\frac{S}{N}\right)+v_c\left(x|x_c^*\right)\geq p\left[u_c\left(\frac{R}{N}\right)+1\right]+(1-p)\left[v_c\left(x=x_d^*\middle|x_c^*\right)\right].$$

Our model suggests that, in dictatorships, economic transfers and political accommodation are simultaneously decided as functions of the exogenous variables. Rather than estimating one as a function of the other, we need to estimate a system with measures of transfers and policy accommodation as outcomes. Note also that the fact that economic transfers and policy accommodation are substitutes in the citizen's utility function does not necessarily imply that we should expect to observe an unconditional negative correlation between the two. As explained below, an increase (decrease) in one may very well go hand in hand with an increase (decrease)

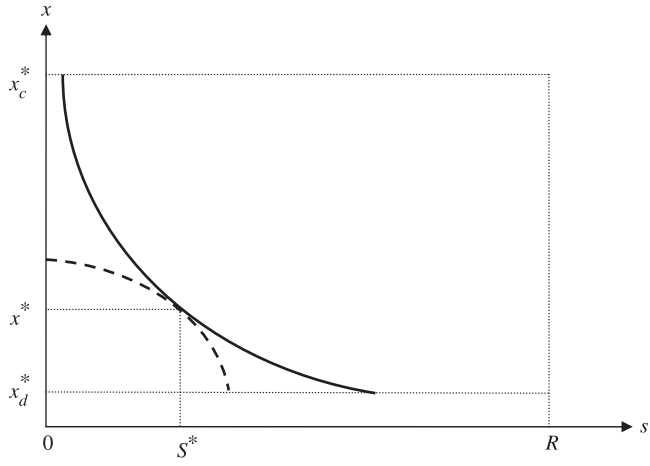

Figure 1. Equilibrium authoritarian bargain.

in the other, depending on which exogenous variables are responsible for the change.[4]

In Figure 1 we illustrate the hypotheses from our model (derived through a differentiation of the equilibrium conditions). The bold curve is a representative citizen's indifference curve at the level of utility represented by a binding participation constraint, i.e. combinations of S and x that leave a citizen indifferent between accepting and rejecting dictatorial rule. The dashed curve represents the dictator's indifference curve. The equilibrium is represented as the tangency between the two indifference curves, because the dictator's utility is increasing as S is decreasing and as $x \rightarrow x_d^*$.

An increase in R has two separate but related effects. First, an increase in rents will raise the gains from a successful insurrection, shifting the citizen's indifference curve to the right, and pushing up both transfers and policy accommodation. Second, greater rents will flatten the dictator's indifference curve, boosting transfers, but reducing the degree of policy accommodation. The marginal cost to the dictator of supplying an extra dollar in transfers falls as rents are increasing due to the falling marginal utility of rents (or, underlying all this, consumption) for the dictator. Hence, the relative price (in terms of utility) of providing transfers falls, prompting the dictator to provide more of the cheaper (and less of the more expensive) "good."

[4]This is analogous to "substitution" and "income" effects in a standard consumption optimization problem with two goods. A change in the relative price of one of the goods will have both an income and a substitution effect but generally with the second effect dominating, whereas an increase in income will cause an increase in the demand for both goods. The size of rents here represents the relative price of the two goods, whereas anything that affects only the expected utility of an insurrection will have only an income effect.

H1: An increase in rents will lead to an increase in transfers. The effect on policy accommodation can go either way. If the substitution effect dominates, then policy accommodation will decline as rents go up, whereas if the income effect dominates then policy accommodation becomes likelier.

An increase in N will, similarly, have two effects. First, the gain from a successful insurrection will fall (because captured rents have to be shared with a greater number of fellow citizens), shifting the representative citizen's indifference curve to the left, and pushing both transfers and policy accommodation down. Second, an increase in group size will flatten the citizen's indifference curve, further decreasing the size of transfers, but increasing the amount of policy accommodation. The marginal cost to the dictator of providing an extra dollar in transfers is independent of the size of N, but the increase in the utility an extra dollar of transfers brings to a representative citizen is decreasing in N. The dictator, therefore, gets less ''bang'' (i.e. in terms of reducing the risk of an uprising) for every additional dollar of transfers, prompting a shift toward greater policy accommodation.

H2: An increase in group size will lead to a decrease in transfers. Once again the effect on policy accommodation depends on two counteracting forces. If the substitution effect dominates then an increase in group size leads to an increase in political rights, whereas if the income effect dominates political rights should be decreasing.

Finally, an increase in the probability of a successful uprising p will shift the citizen's utility function to the right, causing an increase in both transfers and in the degree of policy accommodation. Fragile dictatorships, in other words, require greater amounts of both goods in order to maintain a constant level of popular support for the regime.

H3: An increase in the probability of a successful uprising will lead to an increase in both transfers and political rights.

This framework necessarily abstracts from other factors that may influence the outcome of the bargain. In particular, there is no conflict between different groups of citizens, and no endogenously set level of repression. Support from critical constituencies or ''selectorates'' (Bueno de Mesquita et al., 2002, 2003) as well as from ''crisis strata'' – social groups that, due to deprivations, would be readily mobilized against existing regimes (Linz, 1978; O'Donnell, 1973) – are always vital for dictatorial survival, and rulers will generally try to target transfers to these groups. But, of course, different groups are important in different autocracies, and different instruments are used to target these groups depending upon who they are, complicating an

empirical investigation of the influence of these groups in a way that is comparable across countries.

In addition, we assume that the probability of a successful insurrection depends on the government's repressive capacity (not to be confused with the actual level of repression). Hence, there is a role for repressive capacity in the model, but it is not an endogenous choice. Recall that, by our definition, dictatorships are simply non-democratic states. They are not repressive by definition. From this perspective, the "pure" authoritarian bargain is where dictators provide public goods to their subjects in order to *avoid* the need for repression. That dictatorships, in reality, provide both welfare and other transfers alongside some degree of repression is more likely to lead us to reject our hypotheses even if they are correct rather than the opposite. Moreover, endogenizing repression raises questions that are beyond the scope of this paper – in particular, the factors that determine whether a ruler prefers to spend a dollar on repression versus a dollar on welfare provision, or the reasons some rulers gravitate towards repression and others towards the non-repressive authoritarian bargain.

4. DATA AND RESULTS

4.1 *Specification and Data*

We aim to trace the movement of authoritarian bargains depicted in Figure 1 over time and across countries, thus we use our model to generate and test the validity of a particular set of constraints. Our estimation consists of the following system of equations:

$$\begin{aligned}\ln(Welfare_{it}) = {} & \alpha_0 + \alpha_1 \ln(Rents_{it}) + \alpha_2 \ln(Labor_{it}) + \alpha_3 \ln(Income_{it}) \\ & + \alpha_4(Capacity_{it}) + \alpha_5 \ln(Instability_{it}) \\ & + \alpha_6 \ln(Political\ Rights_{it-1}) + \alpha_7 t + \mu_t + \varepsilon_{it}, \qquad (4)\end{aligned}$$

$$\begin{aligned}\ln(Political\ Rights_{it}) = {} & \beta_0 + \beta_1 \ln(Rents_{it}) + \beta_2 \ln(Labor_{it}) \\ & + \beta_3 \ln(Income_{it}) + \beta_4(Capacity_{it}) \\ & + \beta_5 \ln(Instability_{it}) + \beta_6 \ln(Welfare_{it-1}) \\ & + \beta_7 t + \upsilon_t + \eta_{it}. \qquad (5)\end{aligned}$$

For the dependent variable in equation (4), *Welfare*, we consider the most widely available measure of state-provided economic benefits, i.e. public spending on social services including health, education, housing, unemployment benefits, pensions, and community amenities. Both the composition and total amount of welfare spending have been used elsewhere as general measures of welfare-state policies (Kaufman and Segura-Ubiergo,

2001). We also consider *Wages* to public-sector employees in subsequent estimations. Both measures are expressed in constant US dollars per capita. We characterize political influence as the expansion of the right of access to, and representation in, policy making to citizens previously excluded from these processes. For *Political Rights* in equation (5) we use the familiar Polity index of democracy and autocracy (Marshall and Jaggers, 2001).[5]

Given the prominence of natural resource wealth in authoritarian bargains, it might seem appropriate to include standard measures of oil and mineral exports per capita as a proxy for *Rents*. In many developing countries, however, greater portions of natural resource extraction and sales are now managed through private corporations. The revenues to government accounts in middle- and lower-income nations from natural resource production dwindled significantly throughout the 1990s – when several of these companies were privatized – even though the total export earnings from natural resource production may have remained constant (or increased). This inability to distinguish between private and public revenues, for our purposes, limits the usefulness of the natural resource exports measure.

Instead, we rely on the broader measure of non-tax revenue (in constant US$ per capita) from the IMF's *Government Finance Statistics* database as a proxy for *Rents*. Non-tax revenue to the consolidated government budget covers receipts from government services as well as fees from permits, licenses, and fines, and income streams from the ownership of state assets. Consequently, non-tax revenue also includes transfers, dividends, and profits from all parastatal companies as well as from all partially state-owned companies, including those companies that manage the export of natural resources.

As a proxy for group size we use the ratio of the labor force (employed and unemployed) to the population, a standard measure of labor supply. We do this for two reasons. First, this measure captures the potential pressure that demographic shifts (resulting in increased rates of entrance into the working-age population) place on governments in rentier states, as well as increasing competition for transfers, public-sector jobs, and social services (World Bank, 2004). Second, the use of this labor supply measure also controls for well-documented effects of working-age population growth on political stability and survival (Cincotta et al., 2003).

To measure the repressive capacity of the regime (*Capacity*), we use data from the Stockholm International Peace Research Institute (SIPRI) on military expenditures, also in constant US$ per capita.[6] To capture the effect

[5]The composite Polity score, based on separate measures of democracy and autocracy, ranges from -10 (most authoritarian) to $+10$ (most democratic). We re-scale the measure as $(10 + \text{democracy} - \text{autocracy})/20$, yielding a score from 0 (undemocratic) to 1 (democratic).

[6]We use military spending rather than some measure of actual repression, given that we aim to proxy repressive capacity – the ability of a state to deter or defeat rebellions, violent attempts at

of threats to the incumbency, we use the maximum annual magnitude score from the index of state failure taken from the *Political Instability Task Force* (formerly the *State Failure Task Force*), which measures characteristics of countries around the world that affect the risk of serious political instability or "state failure," based on revolutions, ethnic wars, genocides, or the combination of these internal conflicts. The State Failure Index is meant to "identify the underlying or structural conditions associated with the occurrence of state failure within the next two years" (State Failure Task Force, 2000).

On the assumption that richer countries can afford greater welfare expenditures, we also include GDP per capita in constant US dollars (*Income*). Our system also includes, in each equation, a lag of the dependent variable from the other equation, to control for the independent, intra-equation effects of democratization on welfare increases and vice versa. Finally, all estimations include regional dummies, time dummies, and a trend (see Appendix A for variable definitions, sources, and summary statistics).[7]

Because the hypotheses relate exclusively to non-democratic regimes, our data are restricted to countries whose composite Polity score is 6 or less. For the full sample of countries (democratic and non-democratic) this is approximately the mean plus one standard deviation. We use this cutoff as our principal interest lies not merely in those regimes in which political life is tightly controlled, but in the vast number of partial or "illiberal" democracies around the world in which periodic, contested elections may be held, but where protections of basic political rights have yet to be consolidated, or where ruling elites remain relatively free of constraints on their exercise of political power. Our sample is further constrained by the limited availability of reliable public expenditure data – from which the welfare spending amounts are taken. Our resulting core data, then, consist of an unbalanced panel of over 800 observations, depending upon the specification, covering 75–80 dictatorships between 1975 and 1999.

As noted above, our model of the authoritarian bargain suggests that economic benefits and political liberalization are jointly determined by a similar set of exogenous variables. Under this assumption, single-equation estimation by ordinary least squares (OLS) is consistent but inefficient because OLS assumes no correlation in the error structure across equations. Instead, we jointly estimate equations (4) and (5) using seemingly unrelated regression (SUR). SUR permits the joint estimation of welfare expenditures and political rights while allowing disturbances from one equation to affect the other, as would be expected where dependent variables are jointly

regime overthrow – rather than active repression. For reasons we explain below, we do not consider repressive capacity an "outcome" of the authoritarian bargain.

[7]Note that all variables are non-negative. For all variables z not bounded by 0 the natural log $\ln(z)$ was used. For variables bounded by 0, $\ln(1+z)$ was used.

determined. We initially maintain that the explanatory variables are exogenous, but in subsequent estimations we relax this assumption.

4.2 Descriptive Analysis

We begin with a brief analysis of the relationship between per capita welfare spending and democracy levels across the sample of democratic and non-democratic states. These results identify features of the data that can be investigated in our multivariate framework. As shown in Figure 2, mean welfare per capita declines as the transformed policy score increases initially, flattens out thereafter, then rises significantly. The gap between mean welfare spending between countries that rank 0.9 and 1.0 on the transformed Polity scale is over $2,000 per capita, indicating the strong relationship between welfare states and full democracy. In addition, the decline in the mean over the range of non-democracies is also accompanied by a similar decline (followed by an increase) in dispersion. The standard deviation of welfare spending falls from over $500 per capita in the least democratic states to between $100 and $200 per capita in the most ''liberal'' of non-democratic states.

Figure 2 suggests, on average, a negative relationship between welfare and democracy over the whole range of non-democratic states, in line with what is expected if the substitution effect dominates. This is not, however, the only outcome consistent with the view that welfare expenditures and political

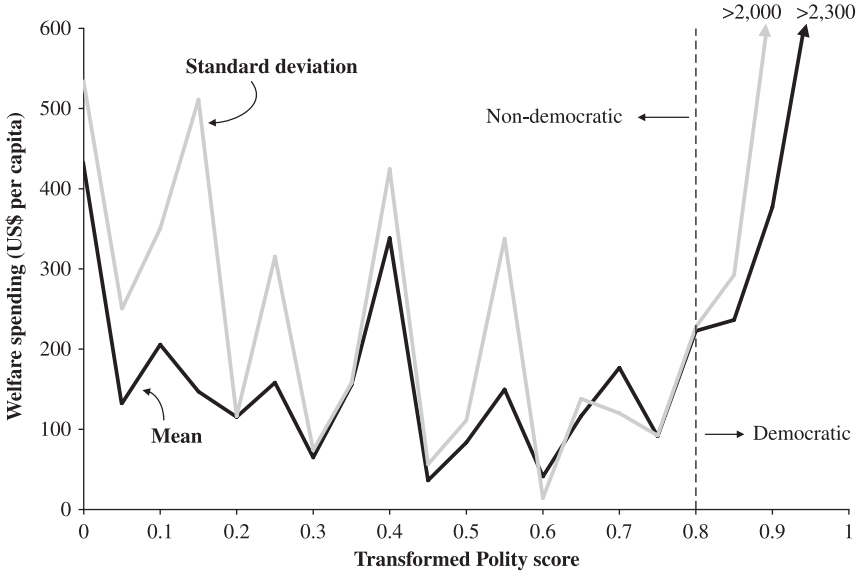

Figure 2. Mean per capita welfare spending by Polity scores.

liberalization are substitutes in citizens' utility functions. Rather, a combination of factors influencing citizen utility and the resources available to the dictators determines the unique combination of public welfare and political rights in each country. This complexity is illustrated in Figure 3, which shows welfare spending and political democracy in six regions. The panels show fitted lines from non-parametric local regressions of welfare on the Polity index in non-democratic states in each region during 1975–1999. While in some regions – especially in the Middle East and North Africa, and to a lesser extent in Latin America and the Caribbean – welfare spending declines as dictatorships liberalize, Sub-Saharan Africa, South Asia, and the former East Bloc countries show a U-shaped relationship whereby welfare spending declines during liberalization, but then begins to climb once some

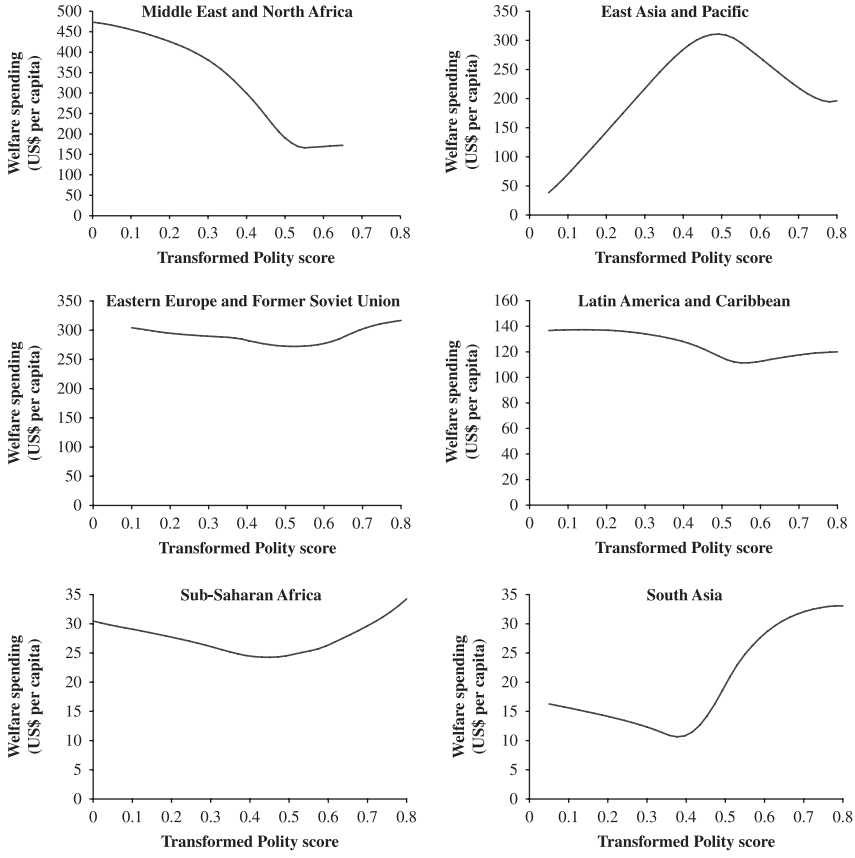

Figure 3. Welfare and democracy in six regions.
Note: Graphs show conditional means from non-parametric local regressions with quartic (biweight) kernels and bandwidths of 0.4.

democratization-threshold is crossed. In East Asia, finally, the opposite is the case – democratization and an expanding welfare state go together, but welfare declines after partial liberalization.

4.3 Basic Results

We turn to multivariate system regressions to analyze the relationship between welfare and political rights in non-democracies more generally. The empirical estimates of our base specification are shown in Table 1. Each column reports one part of a simultaneous estimation of two equations. The first and second columns report results with *Welfare* and *Polity* as dependent variables, respectively.

The constraints affecting the provision of economic benefits and political liberalization have, as suggested by the substitution effect in our model, opposite effects on these sources of regime support. The availability of non-tax revenues expands welfare spending and, in so doing, allows authoritarian states to restrain political liberalization. An increase in the labor supply makes it harder for authoritarian states to sustain current levels of welfare spending per capita and increases the likelihood of political liberalization. The positive relationship between per capita income and welfare expenditures is consistent with the consensus on wealth and the expansion of the welfare state (Lindert, 1994). By contrast, the negative per capita GDP coefficient in the Polity equation does not support "modernization-theory" predictions of greater per capita wealth leading to democratization (at least among less-than-fully democratic regimes). Meanwhile we also find that welfare expenditures and political rights are increasing and decreasing, respectively, in response to an increase in the repressive capacity of the regime, suggesting that autocratic regimes with larger militaries will rely more on economic benefits and less on political openings to secure regime support. Finally, in contrast to our expectation of income effects, regimes facing greater instability are prompted to shrink welfare and expand political rights.

As mentioned above, we choose a generous threshold for dictatorship – the Polity score less than or equal to 6 – to include election-holding non-democratic states in our sample. To test whether our results are affected by this cutoff, we rerun our basic regression using lower Polity scores – less than or equal to zero, and less than or equal to -5. These results are reported in columns 3–6, and show no appreciable differences in coefficient sign, magnitude, or significance. To test whether our results are specific to non-democratic regimes – i.e. whether the bargain is, in fact, an authoritarian one – columns 7 and 8 report the same empirical estimates for country–year observations with a composite Polity score greater than 6. Although the coefficients in the welfare equation are similar to those for non-democracies, the results for the Polity equation are weaker: non-tax revenues

TABLE 1 PUBLIC WELFARE AND POLITICAL RIGHTS IN NON-DEMOCRATIC AND DEMOCRATIC REGIMES, 1975–1999

	Non-democratic regimes (1)–(6)						Democratic regimes (7)–(8)		Non-democratic regimes (9)–(10)	
Dependent variables	(1) Welfare	(2) Polity	(3) Welfare	(4) Polity	(5) Welfare	(6) Polity	(7) Welfare	(8) Polity	(9) Wages	(10) Polity
Non-tax revenue	0.2063***	−0.0125***	0.1995***	−0.0066**	0.2058***	−0.0052***	0.2345***	0.0014	0.1524***	−0.0019
	(0.0144)	(0.0043)	(0.0146)	(0.0029)	(0.0164)	(0.0019)	(0.0173)	(0.0010)	(0.0142)	(0.0052)
Labor participation	−0.4742***	0.2392***	−0.4442**	0.1096***	−0.4927**	0.1427***	−0.4703***	0.0211**	−0.7489***	0.2890***
	(0.1749)	(0.0466)	(0.1904)	(0.0341)	(0.2357)	(0.0233)	(0.1612)	(0.0086)	(0.1533)	(0.0529)
GDP	0.7659***	−0.0631***	0.7389***	−0.0544***	0.6254***	−0.0280***	1.0577***	−0.0090***	0.6629***	0.0085
	(0.0442)	(0.0137)	(0.0468)	(0.0096)	(0.0595)	(0.0065)	(0.0526)	(0.0034)	(0.0359)	(0.0149)
Military spending	0.2302***	−0.0319***	0.2269***	−0.0328***	0.2368***	−0.0095***	0.0962***	−0.0089***	0.0976***	−0.0196**
	(0.0254)	(0.0070)	(0.0274)	(0.0050)	(0.0323)	(0.0034)	(0.0224)	(0.0012)	(0.0219)	(0.0076)
State failure score	−0.0614***	0.0205***	−0.0390*	0.0227***	−0.0671**	0.0129***	−0.2299***	0.0010	−0.0232	0.0228***
	(0.0198)	(0.0053)	(0.0224)	(0.0039)	(0.0341)	(0.0032)	(0.0245)	(0.0014)	(0.0158)	(0.0054)
System lag	1.4566***	0.1109***	1.3481***	0.0525***	1.5088***	0.0302***	1.3010***	0.0139***	0.7195***	0.0839***
	(0.1222)	(0.0088)	(0.1887)	(0.0066)	(0.3276)	(0.0043)	(0.2682)	(0.0018)	(0.1038)	(0.0122)
Trend	−0.0017***	0.0005***	−0.0015***	0.0004***	−0.0022***	0.0002***	−0.0027***	0.0004***	−0.0009***	0.0002***
	(0.0003)	(0.0001)	(0.0003)	(0.0001)	(0.0002)	(0.0000)	(0.0002)	(0.0000)	(0.0002)	(0.0001)
N	828	828	684	684	522	522	771	771	746	746
RMSE	0.5102	0.1368	0.5006	0.0896	0.5131	0.0512	0.4132	0.0219	0.4131	0.1423
R^2	0.8881	0.3952	0.9002	0.3399	0.9004	0.3794	0.9489	0.4903	0.8682	0.3810
$p > \chi^2$	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: Dependent variables in system equations are public welfare spending per capita, the Polity index of democracy and autocracy (models 1–8) or public sector wages per capita, and the Polity index of democracy and autocracy (models 9–10). All dependent variables are in natural logs. Non-tax revenue, GDP, and military spending are US$ per capita (natural log). Labor participation is workforce per capita, also in natural log. System lag is lagged dependent variable of the opposite equation in simultaneous estimation. Sample is restricted to country–year observations for which the Polity index is less than 7 in models (1)–(2) and in (9)–(10), and to observations in which the Polity index is 7 or above in models (7)–(8). Sample is restricted to observations for which the Polity index is less than or equal to 0 for (3) and (4), and less than or equal to −5 for (5) and (6). Estimations are performed using seemingly unrelated regression. All variables are in natural logs. Time and regional dummies are included in all system regressions; these are not reported. Standard errors are in parentheses.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

and instability do not have any significant impact on the level of democracy in the most democratic states.[8]

4.3.1 Public Sector Wages. Our perspective on authoritarian bargains is based on the presumption of a social contract between dictators and all citizens, and thus we do not model relationships between rulers and specific groups or strategic constituencies.[9] To be sure, there is evidence in comparative analyses of dictatorial survival that these specific groups may matter more than citizens at large. But the nature of these relationships varies considerably across different types of dictatorships. We can, however, determine whether the authoritarian bargain functions with respect to a particularly salient group: public sector employees. There is widespread evidence that the public sector has historically constituted an important distributive vehicle in the developing world, with shares of public employment in the total population exceeding that of OECD countries.

In columns 7 and 8 of Table 1, we consider an alternative measure to welfare spending, i.e. public sector wages per capita. All significant coefficients carry similar signs to those in the welfare equation in column 1, but the overall results are weaker. Additionally, the positive correlations between military expenditures and public sector wages may be due to the fact that wages of military personnel in most developing countries are not netted out of public sector wage data (Schiavo-Campo et al., 1997). Hence, the correlation may reflect the impact of the military's budget on the wage bill.

4.3.2 Simultaneity and Endogeneity. Because we hypothesize that political rights and welfare are jointly determined in the authoritarian bargain, our results have been based on the simultaneous estimation of equations (4) and (5) using SUR, allowing shocks influencing the provision of welfare to affect the provision of political rights. The joint estimation of different

[8]Note that raising the Polity score cutoff by one point reduces further the strength of the results. The relative similarity of findings for the welfare equation between democratic and non-democratic states, moreover, does not necessarily mean that they can be interpreted similarly. Consider the role of labor participation and military spending which are both significant and have the same signs in both groups of countries. For the first variable (Table 1, column 4), the positive correlation in the welfare equation reflects the limitations that welfare states in Europe faced in meeting their social obligations during periods of high unemployment, labor migration fiscal restraint in the 1980s and 1990s. Similarly, the negative correlation between military spending and Polity in the advanced democracies has little to do with internal political repression. Instead, it probably reflects a combination of reverse effect (running from greater political participation and accountability to less military spending) or Cold War/NATO military commitments in the 1970s and 1980s when some of these countries were advancing their political institutions.

[9]The model of the "selectorate" – the individuals who hold the power to replace incumbents – suggests that in autocratic regimes where the size of the group whose loyalty is vital to dictatorial survival is small, leaders are more likely to provide private goods at the expense of public goods (Bueno de Mesquita et al., 2002).

dependent variables with a common set of explanatory variables, however, raises questions regarding the validity of the standard errors.

First, it has been suggested that, in many applications, SUR can perform poorly because the contemporaneous variance–covariance matrix is poorly estimated (Beck, 2001). Under these conditions, OLS with error correction for contemporaneous correlation (panel-correct standard errors) is recommended.[10] Although equation-by-equation OLS allows tests of hypotheses within an equation, it does not permit adequate testing of cross-equation restrictions. Nevertheless, to ensure that our results hold in single-equation estimations, we re-estimate equations (4) and (5) using OLS with panel-correct standard errors. These results are in columns 1–2 in Table 2. The signs and significances of the coefficients are identical to results we obtained using SUR, indicating that we do not need to relinquish the efficiency gains of SUR – a more efficient estimator of systems of equations.

Second, our estimations thus far have assumed that the five common explanatory variables – non-tax revenue, labor supply, per capita income, military expenditure, and instability – are exogenous. In columns 3–6 in Table 2, we relax this assumption. There are reasons to suspect some reverse causality in the case of several explanatory variables: greater welfare spending may reduce labor supply and reduce military spending; political liberalization may affect instability or military spending in indeterminate ways. Identifying exogenous, time-varying instruments for each endogenous variable is especially challenging in a system of equations, and where panel (rather than cross-sectional) data are used. Although these identification problems cannot be avoided, we address these endogeneity concerns in two ways.

In columns 3–4 we use three-stage least squares (3SLS) estimation with instrumental variables, where we include lagged values of non-tax revenue, labor supply, GDP per capita, military spending, and instability (lagged once) as well as lagged values of the dependent variables (lagged twice). 3SLS – a systems counterpart to two-stage least squares (2SLS) – is generally recommended over 2SLS where the disturbances of the separate equations are correlated, and is thought to be consistent and asymptotically more efficient (Kennedy, 1998, pp. 166–167). No parameter shifts in direction or significance occur, suggesting that our empirical results from joint estimations that do not explicitly control for endogeneity are valid.

In columns 5–6 we use a heteroskedasticity-consistent, efficient two-step Generalized Method of Moments (GMM) estimator, which we use in single equations for welfare and Polity. The efficiency gains of this estimator relative to the traditional instrumental-variables or 2SLS estimator derive from the use of an optimal weighting matrix, the over-identifying restrictions

[10]Note that the poor estimation of the variance–covariance matrix is more likely to be a problem when the number of equations is quite large relative to the number of time periods.

TABLE 2 SINGLE-EQUATION ESTIMATES AND ESTIMATES ALLOWING FOR ENDOGENEITY (NON-DEMOCRATIC REGIMES, 1975–1999)

	Single-equation, panel-correct std. errors		3SLS		Single-equation, GMM	
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variables	Welfare	Polity	Welfare	Polity	Welfare	Polity
Non-tax revenue	0.2162***	−0.0051*	0.2405***	−0.0219***	0.2390***	−0.0080*
	(0.0124)	(0.0030)	(0.0168)	(0.0054)	(0.0154)	(0.0041)
Labor participation	−0.3321*	0.2042***	−0.4403**	0.2636***	−0.2547	0.2093***
	(0.1828)	(0.0354)	(0.1886)	(0.0523)	(0.2175)	(0.0451)
GDP	0.7809***	−0.0281**	0.8093***	−0.0883***	0.7803***	−0.0308*
	(0.0515)	(0.0141)	(0.0487)	(0.0162)	(0.0513)	(0.0165)
Military spending	0.2250***	−0.0215***	0.1970***	−0.0399***	0.2016***	−0.0271***
	(0.0228)	(0.0057)	(0.0285)	(0.0082)	(0.0304)	(0.0076)
State failure score	−0.0410**	0.0223***	−0.0874***	0.0369***	−0.0609**	0.0330***
	(0.0160)	(0.0056)	(0.0274)	(0.0076)	(0.0297)	(0.0076)
System lag	0.8537***	0.0635***	1.7497***	0.1467***	0.8402***	0.0778***
	(0.1638)	(0.0114)	(0.1344)	(0.0106)	(0.1750)	(0.0110)
Trend	−0.0232***	0.0072***	−0.0021***	0.0005***	−0.0255***	0.0070***
	(0.0050)	(0.0009)	(0.0003)	(0.0001)	(0.0046)	(0.0011)
N	828	828	724	724	793	742
RMSE			0.4983	0.1408	0.5130	0.1380
R^2	0.8890	0.3897	0.8938	0.3726	0.8865	0.3924
$p > \chi^2/F$	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: Dependent variables are public welfare spending per capita and the Polity index of democracy and autocracy. All dependent variables are in natural logs. Non-tax revenue, GDP, and military spending are US$ per capita (natural log). Labor participation is workforce per capita, also in natural log. System lag is lagged dependent variable of the opposite equation in simultaneous estimation. Sample is restricted to country–year observations for which the Polity index is less than 7. Estimations (1) and (2) are performed as single equations using OLS with errors corrected for contemporaneous correlation. Equations (3) and (4) are estimated using three-3SLS regression including lags of all independent variables as instrumental variables. Equations (5) and (6) are performed as single equations using two-step feasible GMM estimation. For GMM estimates, the instrument matrix consists of single lags of all independent variables. GMM estimates are heteroskedasticity-consistent. All variables are in natural logs. Time dummies are included in simultaneous and GMM regressions; these and intercepts are not reported. Robust standard errors are in parentheses.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

of the model, and the relaxation of the i.i.d. assumption (Hayashi, 2000). As with our 3SLS estimations, we detect no changes in the signs, magnitudes, or significances of these results in columns 5 and 6. In further estimations (not reported here), we tested the orthogonality of a subset of the instruments – namely, state failure and military expenditures (lagged once) – to determine whether the exclusion of these variables from the instrument matrix affects our results. They did not, suggesting that the military expenditure and state-failure variables are not strongly endogenous.

4.4 *Testing the Limits of the Authoritarian Bargain*

4.4.1 Regional, Regime, and Ideological Effects. Dictatorships are highly diverse, characterized by different types of relationships between rulers, party cadres, the military, other elites, and citizens. Classic theories of dictatorship distinguished between "totalitarian" systems – ideologically based regimes, which interwove control over the economy, civil society, and the state – and various "authoritarian" regimes, characterized by non-ideological, personalistic, or dynastic rule (see e.g. Friedrich and Brzezinski, 1956; Linz, 2000). Modern dictatorial regimes, moreover, vary along multiple dimensions (Geddes, 2000).

We explore, consequently, whether regional effects, ideological disposition, or regime type influences the hypothesized results, and whether these variables have additional effects beyond those captured by the model. Including country fixed-effects (columns 1–2) in Table 3 does not alter the signs of the main coefficients, although some of the coefficients lose their statistical significance.[11]

The next two sets of estimations examine the effects of single-party rule and nationalism. In separate estimations in columns 3–6 in Table 3 we add variables coded 1 if only a single political party exists (or if all political parties are banned), and if the ruler's or the ruler's party is considered "nationalist" (see Appendix A). The addition of these variables does not alter the basic authoritarian bargain. The effects of both variables are positive in the welfare equation, negative in the Polity equation, suggesting that authoritarian bargains in single-party or nationalist non-democracies tend to involve more politically restrictive governments, but more generous welfare states.

Columns 7 and 8 of Table 3 augment the benchmark specification with a set of dummy variables indicating regime type: prime-ministerial, monarchical, or presidential. The inclusion of these regime effects does not alter our main results, suggesting that the basic character of the authoritarian bargains is not affected by the type of government. The coefficients of the individual effects, however, indicate that monarchical and presidential regimes tend to tolerate less political liberalization, while non-democratic states headed by prime ministers allow more political rights, than other non-democracies with mixed systems or assembly-elected presidents. We also note that welfare spending is greater in presidential regimes. With the exception of the labor supply – which loses significance in the political rights equation – the benchmark results remain intact.

[11]Note that introducing country-specific effects in SUR estimations can reduce the efficiency of the estimator for two reasons. First, with multiple equations, the merits of introducing fixed effects are unclear given the fact that the asymptotic properties of fixed effects are based on single equations. Second, given that some variables in our specifications exhibit relatively little variation over time, the introduction of fixed effects would reduce the significance of other explanators.

Table 3 Estimating Ideological and Chief Executive Effects (Non-Democratic Regimes, 1975–1999)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent variables	Welfare	Polity	Welfare	Polity	Welfare	Polity	Welfare	Polity	Welfare	Polity
Non-tax revenue	0.0930***	−0.0058	0.2266***	−0.0050	0.2033***	−0.0123***	0.2186***	−0.0141***	0.2058***	−0.0125***
	(0.0147)	(0.0048)	(0.0169)	(0.0052)	(0.0144)	(0.0043)	(0.0148)	(0.0039)	(0.0147)	(0.0043)
Labor participation	0.2410	0.3240***	−0.3526*	0.2328***	−0.5629***	0.2622***	−0.2882	0.0957**	−0.4618**	0.2338***
	(0.2945)	(0.0924)	(0.2100)	(0.0558)	(0.1770)	(0.0471)	(0.1775)	(0.0416)	(0.1833)	(0.0477)
GDP	0.7819***	−0.0597***	0.7925***	−0.0192	0.8183***	−0.0808***	0.7423***	−0.0389***	0.7689***	−0.0701***
	(0.0599)	(0.0205)	(0.0557)	(0.0172)	(0.0477)	(0.0147)	(0.0444)	(0.0120)	(0.0461)	(0.0139)
Military spending	0.3799***	−0.0056	0.2699***	−0.0355***	0.2075***	−0.0254***	0.2404***	−0.0334***	0.2221***	−0.0247***
	(0.0245)	(0.0083)	(0.0329)	(0.0091)	(0.0265)	(0.0073)	(0.0254)	(0.0061)	(0.0264)	(0.0072)
State failure score	−0.0362***	0.0159***	−0.0946***	0.0188***	−0.0614***	0.0206***	−0.0584***	0.0147***	−0.0669***	0.0253***
	(0.0137)	(0.0043)	(0.0226)	(0.0060)	(0.0198)	(0.0052)	(0.0198)	(0.0046)	(0.0206)	(0.0053)
System lag	0.5516***	0.0565***	1.2974***	0.1004***	1.4712***	0.1133***	1.7209***	0.0963***	1.5184***	0.1094***
	(0.1036)	(0.0100)	(0.1464)	(0.0103)	(0.1223)	(0.0088)	(0.1449)	(0.0077)	(0.1288)	(0.0088)
Trend	−0.0014***	0.0006***	−0.0022***	0.0002***	−0.0025***	0.0005***	−0.0018***	0.0004***	−0.0017***	0.0004***
	(0.0003)	(0.0001)	(0.0002)	(0.0001)	(0.0002)	(0.0001)	(0.0003)	(0.0001)	(0.0003)	(0.0001)
Single party			0.1396**	−0.1052***						
			(0.0543)	(0.0138)						
Nationalist					0.1486***	−0.0422***				
					(0.0503)	(0.0135)				

Premier							0.0650	0.0384***		
							(0.0465)	(0.0109)		
Monarch							0.0946	−0.1012***		
							(0.0600)	(0.0135)		
President							0.2849***	−0.1380***		
							(0.0592)	(0.0126)		
Rightist									0.0159	0.0199
									(0.0625)	(0.0164)
Leftist									−0.0555	0.0492***
									(0.0530)	(0.0138)
N	828	828	605	605	824	824	825	825	787	787
RMSE	0.2475	0.0783	0.4939	0.1323	0.5090	0.1364	0.5057	0.1184	0.5159	0.1354
R^2	0.9737	0.8019	0.8881	0.4518	0.8885	0.3951	0.8904	0.5436	0.8872	0.3900
$p > \chi^2$	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: Dependent variables in system equations are: public welfare spending per capita, and the Polity index of democracy and autocracy. Both dependent variables are in natural logs. Non-tax revenue, GDP, and military spending are US$ per capita (natural log). Labor participation is workforce per capita, also in natural log. System lag is lagged dependent variable of the opposite equation in simultaneous estimation. Sample is restricted to country–year observations for which the Polity index is less than 7. All estimations are performed using seemingly unrelated regression. Estimations (1) and (2) include country-fixed effects. Non-tax revenue, GDP, and military spending are US$ per capita (natural log). Labor participation is workforce per capita, also in natural log. Time and regional dummies included in all system regressions; these and intercepts are not reported. Standard errors are in parentheses.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

In the final set of estimations, we include dummy variables signifying whether the political party of the chief executive is considered left-wing or right-wing (the omitted category consists of regimes with centrist or broad-based parties, or in which political parties do not exist).[12] We do this on the assumption that ruling party traits may shift the dependent variables in ways not explained by our model of an authoritarian bargain – particularly in the case of social spending, which has been empirically linked to leftist parties (e.g. Huber et al., 2004). By contrast, we find that among less-than-fully democratic states left-wing governments have an additional, positive effect on political liberalization, but no other ideological effects are observed. The inclusion of these ideological dummies does not alter our basic results.

4.4.2 Military Rule, Repression, and Regime Durability. While the intercepts included in Table 3 can only show joint effects on welfare and Polity, there is the additional question of whether different categories of non-democratic regime have slope effects, i.e. whether they condition the effect of any of the key explanatory variables we have included. In Table 4, therefore, we explore whether these slope effects are present by replicating our basic simultaneous regression across different sub-samples of observations. The rows in Table 4 show coefficients of each variable (listed across the top row) for welfare and Polity equations using our SUR setup, and allow us to examine the consistency of these results across different sub-samples.

One possible objection to our focus on the tradeoff between economic benefits and political rights in the authoritarian bargain is that we ignore repression, often considered an additional regime "output" used to solve the problem of dictatorial insecurity (Wintrobe, 1998).[13] We do not consider repression as a policy output in the authoritarian bargain for several reasons. First, evaluating the conditions under which dictators spend a dollar on the apparatus of repression vs. a dollar on public welfare would require that the level of repression be fully endogenized. When do dictatorships choose the carrot and when do they choose the stick? Second, doing so would also require that the specific instrument of repression be defined.

[12]The scorings for party orientation, as well as for single-party rule, and nationalist orientation are taken from the World Bank's *Database of Political Institutions* (Beck et al., 2001). Note that this database also scores a limited number of governments as "centrist." In our sample, only two countries are considered centrist – South Korea (in its last year of less-than-fully-democratic rule, 1996–1997) and Romania (until 1995). We code both of these as neutral.

[13]Note that increased repression in Wintrobe's framework decreases the need for the regime to "invest in loyalty" (corresponding, roughly, to greater welfare spending in our approach). But we interpret the authoritarian bargain as one in which citizens accept limitations on political openness in exchange for economic benefits, and consequently, we choose to endogenize political openness rather than the ability to deter insurrection. The tradeoff between political openness and economic benefits, of course, partly depends on the capacity of the regime to deter insurrection; military expenditures – our (imperfect) proxy for repressive capacity – is thus an explanatory variable in our empirical model.

TABLE 4 STABILITY OF COEFFICIENTS ACROSS REGIME TYPE (NON-DEMOCRATIC REGIMES, 1975–1999)

Regime type	Non-tax revenue	Labor participation	GDP	Military spending	State failure	R^2	N
(1) Military	$0.3325^{0.000}$	$0.2277^{0.434}$	$0.6055^{0.000}$	$0.2376^{0.000}$	$-0.0367^{0.201}$	0.87	292
	$-0.0222^{0.003}$	$0.3088^{0.000}$	$-0.0711^{0.000}$	$-0.0160^{0.090}$	$0.0091^{0.176}$	0.40	
(2) Civilian	$0.1638^{0.000}$	$-0.7402^{0.001}$	$0.7762^{0.000}$	$0.2368^{0.000}$	$-0.0649^{0.013}$	0.90	534
	$-0.0083^{0.113}$	$0.1242^{0.048}$	$-0.0504^{0.010}$	$-0.0295^{0.002}$	$0.0327^{0.000}$	0.46	
(3) Non-oppressive	$0.1896^{0.000}$	$-0.7593^{0.000}$	$0.6906^{0.000}$	$0.2024^{0.000}$	$-0.1583^{0.036}$	0.95	283
	$-0.0092^{0.156}$	$0.3789^{0.000}$	$-0.0697^{0.004}$	$-0.0223^{0.086}$	$0.0571^{0.024}$	0.61	
(4) Oppressive	$0.2739^{0.000}$	$0.0482^{0.878}$	$0.6810^{0.000}$	$0.3263^{0.000}$	$-0.0776^{0.008}$	0.86	333
	$-0.0204^{0.023}$	$0.1238^{0.077}$	$-0.0496^{0.011}$	$-0.0451^{0.000}$	$0.0256^{0.000}$	0.48	
(5) Very oppressive	$0.3692^{0.000}$	$-0.0247^{0.973}$	$0.6979^{0.000}$	$0.1549^{0.116}$	$0.0287^{0.546}$	0.86	100
	$0.0171^{0.212}$	$0.2533^{0.063}$	$-0.0031^{0.920}$	$-0.0590^{0.001}$	$0.0138^{0.112}$	0.70	
(6) Short lived	$0.2241^{0.000}$	$-0.4840^{0.052}$	$0.8639^{0.000}$	$0.2371^{0.000}$	$-0.0557^{0.033}$	0.88	440
	$-0.0132^{0.051}$	$0.1582^{0.014}$	$-0.0405^{0.052}$	$-0.0375^{0.000}$	$0.0146^{0.030}$	0.42	
(7) Long lived	$0.2068^{0.000}$	$-0.2192^{0.394}$	$0.7592^{0.000}$	$0.2153^{0.000}$	$-0.0647^{0.059}$	0.91	388
	$-0.0098^{0.054}$	$0.1712^{0.006}$	$-0.0990^{0.000}$	$-0.0151^{0.107}$	$0.0254^{0.002}$	0.33	

Notes: Dependent variables in system equations are: public welfare spending per capita, and the Polity index of democracy and autocracy. Sample is restricted to country–year observations for which the Polity index is less than 7. Rows show two sets of coefficients for five key variables in simultaneous estimations replicating model (1) in Table 1: the first is the coefficient of the variable of interest in the welfare equation, the second for the Polity equation, with p-values superscripted for both. Model (1) is further restricted to country–years in which the autocrat is a military officer, (2) where the ruler is a civilian. Model (3) is restricted to observations for which the Political Terror Scale (PTS) is 3 or less out of a total of 5, (4) where the PTS greater than 3, and (5) where the PTS is 5. Models (6) and (7) are constrained to countries in which governments have survived 7 years or less, or more than 7 years, respectively. All estimations are performed using seemingly unrelated regression. All variables are in natural logs. Time and regional dummies, a trend, and system lag are included in all system regressions.

Regimes, after all, can spend money on developing repressive capacity – increasing the number of state-security and military personnel, enhancing the ability of the state to conduct internal surveillance and monitoring, and expanding the scale and scope of the repressive apparatus by other means – or they can exile, jail, torture, or kill more citizens. Repressive capacity is not associated with the actual level of repression in non-democratic states. Finally, the effect of repression on dictatorial survival is unclear. Repression may solidify the regime's hold on power by neutralizing regime challengers, or it may make non-democratic regimes more vulnerable by decreasing the citizen's utility under the dictatorial status quo.

Although we do not consider repression as an explicit output, we can nonetheless assess whether the authoritarian bargain holds in regimes more likely to engage in repression. In rows 1 and 2 we segment the sample between those observations for which the chief executive is a serving military officer, and those for which the chief executive is a civilian. Turning to active repression, we use the "Political Terror Scale" (PTS), which measures domestic human rights violations by the state (Gibney and Dalton, 1996). In rows 3 and 4 we segment the sample between those regimes that engage in high levels of repression (defined as having a PTS rating greater than 3 out of a maximum of 5, roughly equal to the mean plus one standard deviation for all observations) and those that do not. In row 5 we restrict the sample to only those countries that score 5 on the PTS. In military and highly-repressive dictatorships, expenditures on military and security services are likely to constitute a de facto form of "welfare" spending, and larger portions of the public wage bill are likely to be directed toward military and security personnel (see e.g. Collier and Hoeffler, 2004). For these reasons the authoritarian bargain may fail to function in these types of regimes.

The results in Table 4, however, show a high degree of regularity in these coefficients across sub-samples. There is some loss of statistical significance among some of the explanators. Higher non-tax revenues do not reduce the likelihood of political opening in civilian dictatorships; labor supply does not reduce welfare expenditures in military regimes or oppressive regimes; greater deterrence capacity does not increase welfare provision in very oppressive regimes, and state failure does not prompt greater political liberalization in military dictatorships or in highly oppressive regimes. Beyond these examples, however, all significant results are identical to those obtained from the benchmark regression in Table 1.

Finally, it may be the case that long-lived dictatorships are less prone to rely on providing welfare and political rights in the same manner as newer dictatorships. Older dictatorships, for example, might rely on stronger appeals to national identity, shared history, culture, or other norms. Rows 6 and 7 divide the sample according to the tenure of the regime based on the number of consecutive years in office held by the chief executive (we split the

sample into observations at or below, and above, the median of seven years). Once again, although there are some changes in the significance of some of the estimates (although no changes in signs), the effects of the explanatory variables appear consistent across regime durability.

5. CONCLUSION

Analyses of political legitimacy in post-WWII autocracies are generally based on a presumed "authoritarian bargain," by which citizens exchange rights of political inclusion for economic security. Analyses of these bargains imply a link between redistributive policies and political control, as well as tradeoffs between the two in explaining autocratic decision-making. And they have been invoked by comparativists in explaining the stability or breakdown of various types of non-democratic states, from military and "bureaucratic-authoritarian" dictatorships in Latin America to state-socialist regimes in Eastern Europe to oil-funded monarchies in the Middle East. Whether the authoritarian bargain is a valid means of understanding the nature of state–society relations in authoritarian regimes more broadly, however, has not been systematically tested.

We advance a stylized view of the game between rulers and citizens in non-democratic states. We formalized a model of the authoritarian bargain whereby leaders in non-democratic regimes select the least-cost bundle of economic benefits and political openness necessary to sustain their rulership and to secure public support. We found that these bargains are generally sustained by the availability of rents allowing dictators to maintain generous welfare and public-employment programs, while retaining tight controls over political life. Our results lend strong, if preliminary, support to the argument that political rights and welfare expenditures in non-democratic states are simultaneously determined by a common set of explanatory factors. These results were robust to various sensitivity checks, to the inclusion of additional controls, and to adjustments for the potential endogeneity of our explanatory variables. Our joint estimation, moreover, allows us to explain how decisions regarding political liberalization and public expenditures are related across a diverse set of non-democratic regimes.

These findings can encompass a number of different explanations of authoritarian survival, breakdown, and transition that have often been examined piecemeal. It is widely expected that windfalls from oil revenues, for example, will allow greater spending on economic welfare and thus strengthen the grip of non-democratic, oil-rich states. Meanwhile the negative relationship between oil wealth and democracy has usually been examined in a separate vein. Both findings can be readily accommodated by our framework. Similarly, one of the cornerstones of the comparative study of regime transitions is that recessions or financial crises that provoke fiscal

crises can potentially deprive autocrats of needed resources to sustain generous welfare programs. Likewise, episodes of authoritarian withdrawal in good economic times seem to be rarer. Again, both findings are explained by our authoritarian-bargaining framework in which partial democratization is the flip-side of a waning welfare state.

Our approach also explains why, in contrast to democratic states, welfare spending and political liberalization are negatively related in authoritarian states. Additionally, our results indicate that partial political liberalization may actually forestall transitions to genuine democracy. Partial liberalization – of the kind seen in Russia in the mid-1990s or recently observed in Egypt and in the Kyrgyz Republic – can co-opt opposition groups during periods of economic downturns, but is often reversed as revenues have recovered. Finally, our framework and our empirical findings can shed some light on current debates on democratic prospects in the Middle East and North Africa, where approximately 60% of the populations are under the age of 25. A burgeoning labor supply is generally expected to strain public service provision severely. But our findings suggest that a rapidly increasing labor force may also prompt greater political inclusion in regimes as compensation for the reduction in public spending.

We mention two limitations to our model, each of which can highlight directions for further investigation of decision-making in dictatorships. First, as mentioned earlier, dictators in our framework do not choose the level of repression. Rather, they have a fixed amount of repressive capacity at their disposal. But, of course, one of the enduring questions involving modern dictatorships is what makes them more or less repressive. Determining the opportunity cost of spending fiscal resources on repression rather than on public welfare or employment may be a complicated task, but can potentially identify sources of variation in dictatorial regime type. Second, in our model incumbent autocrats do not, obviously, choose the probability of insurrection they face. But different regimes do, in fact, choose to tolerate different degrees of ambient risk, and this choice can influence whether a country follows a relatively peaceful transition toward democracy or one characterized by violence. Understanding the effects of different discrete choices within an expanded authoritarian bargain can potentially illuminate these diverse paths to democracy.

APPENDIX A

Tables A.1–A.3.

TABLE A.1 VARIABLE DEFINITIONS AND DATA SOURCES

Variable[a]	Definition	Source
Public welfare spending[b]	Public expenditure on health, education (primary, secondary, and tertiary levels), and welfare (compensation to the unemployed, payments to the sick, disabled, and elderly, and allowances for family, maternity, and children)	World Bank, *World Development Indicators*
Public sector wages[b]	Cash payments to employees before deduction of withholding taxes and employee contributions to social security and pension funds	IMF, *Government Financial Statistics*
Polity	Index of political rights based on democracy D and autocracy A scores, rescaled as $(10 + D - A)/20$	Marshall and Jaggers (2001)
Non-tax revenue[b]	Includes requited non-repayable receipts for public purposes, such as fines, administrative fees, or entrepreneurial income from government ownership of property and voluntary, unrequited non-repayable receipts	IMF, *Government Financial Statistics*
Labor participation	Persons who meet ILO definition of "economically active population," i.e. all people who supply labor for the production of goods and services, including both employed and the unemployed	ILO, *Key Indicators of the Labour Market*
GDP	Gross domestic product, World Bank Atlas method	World Bank, *World Development Indicators*
Military spending[b,c]	Current and capital expenditures on the armed forces based on NATO definition, i.e. including peacekeeping forces, defense ministries and other government agencies engaged in defense projects, paramilitary forces (if trained and equipped for military operations), and military space activities	Stockholm International Peace Research Institute (SIPRI) yearbooks
State failure score	Maximum yearly magnitude score of "state failure," defined to include four categories of events: revolutionary wars (episodes of sustained violent conflict between governments and politically organized challengers),	State Failure Task Force (2000)

TABLE A.1 *Continued*

Variable[a]	Definition	Source
	ethnic wars (episodes in which national, ethnic, religious, or other communal minorities challenge governments), adverse regime changes (including dissolution of states or the secession of a substantial area of a state by extrajudicial means; or complete or near-total collapse of state authority), and genocide (sustained policies by states or their agents, or, in civil wars, by contending authorities, that result in the deaths of a substantial portion of members of communal or political groups)	
Leftist	Coded 1 if ruling executive's party is defined as communist, socialist, social democratic, or left-wing, 0 otherwise	Beck et al. (2001)
Rightist	Coded 1 if ruling executive's party is defined as conservative, Christian democratic, or right-wing, 0 otherwise	Beck et al. (2001)
Monarch	Coded 1 if chief executive is a hereditary monarch, 0 otherwise	Banks (2001)
Premier	Coded 1 if the chief executive is an elected or unelected prime minister, 0 otherwise	Beck et al. (2001)
Single party	Coded 1 if the party Herfindahl index (based on the sum of the squared seat shares of all parties represented in the legislature) equals 1, 0 otherwise. Also coded 1 if parties are banned	Beck et al. (2001)
Nationalist[d]	Coded 1 if a primary component of the ruling party's platform is the creation or defense of a national or ethnic identity, 0 otherwise	Beck et al. (2001)

Notes:
[a]Welfare spending, public sector wages, GDP, and military expenditures enter regressions as constant US$ per capita. Workers are divided by total population.
[b]Central government only.
[c]Includes retirement pensions of military personnel and social services for personnel, operation and maintenance, procurement, military research and development, and military aid (in the military expenditures of the donor country). Excluded are civil defense and current expenditures for previous military activities, such as for veterans' benefits, demobilization, conversion, and destruction of weapons.
[d]For example, parties that have fought for independence, either militarily or politically, from a colonial power, that advocate persecution of minorities, or that are considered "xenophobic."

TABLE A.2 COUNTRY–YEAR OBSERVATIONS

Country	Period	Country	Period
Albania	1996–1998	Kyrgyz Rep.	1994–1999
Algeria	1995–1999	Lesotho	1988–1998
Argentina	1980–1982	Madagascar	1989–1991
Azerbaijan	1995–1999	Malawi	1975–1990
Bahrain	1981–1999	Malaysia	1975–1981, 1986–1997
Bangladesh	1975–1989	Mali	1980–1985, 1988
Belarus	1995–1999	Mauritania	1979
Benin	1978–1979	Mexico	1975–1999
Brazil	1981–1984	Morocco	1975–1995, 1998–1999
Bulgaria	1989	Nepal	1975–1985, 1989–1999
Burkina Faso	1988–1993	Nicaragua	1975–1980, 1991–1994
Burundi	1975–1977, 1982–1999	Niger	1980
Cameroon	1977–1981, 1984–1995	Nigeria	1976–1978, 1985–1987
Chad	1975–1976	Oman	1975–1999
Chile	1975–1988	Pakistan	1977–1982, 1999
China	1991–1999	Panama	1975–1988
Congo, Rep.	1982–1983	Paraguay	1975–1987, 1990–1991
Congo. D.R.	1975–1982	Peru	1975–1979
Côte d'Ivoire	1985–1990	Romania	1990–1995
Croatia	1992–1999	Russia	1995, 1999
Dominican Rep.	1975–1989	Rwanda	1975–1980
Ecuador	1975–1978	Senegal	1981–1984, 1997–1999
Egypt	1976–1979, 1981–1997	Sierra Leone	1975–1984
Estonia	1992–1999	Singapore	1975–1999
Ethiopia	1998–1999	South Africa	1985
Fiji	1987–1996	Spain	1975–1977
Georgia	1998–1999	Sri Lanka	1988–1999
Ghana	1975–1982, 1985–1993	Sudan	1975–1977, 1980, 1999
Guatemala	1975–1979	Swaziland	1975–1986, 1988–1991
Guyana	1975–1985	Syria	1975–1981, 1987–1999
Haiti	1982	Tajikistan	1999
Honduras	1975–1976	Thailand	1975–1991
Hungary	1982–1989	Togo	1978–1983
Indonesia	1975–1998	Tunisia	1975–1999
Iran	1975–1986, 1988–1990, 1994–1999	Turkey	1980–1981
Jordan	1975–1979, 1982–1999	UAE	1975–1981, 1986–1998
Kazakhstan	1998–1999	Uruguay	1975–1984
Kenya	1975–1998	Yemen	1991–1999
Korea, Rep.	1975–1997	Zambia	1975–1988
Kuwait	1978–1999	Zimbabwe	1977–1989, 1994–1997

TABLE A.3 SUMMARY STATISTICS OF VARIABLES USED IN REGRESSIONS (NON-DEMOCRATIC REGIMES SAMPLE)

	Mean	Between country std. dev.	Within country std. dev.	Min.	Max.	Countries	*t* (ave.)	Obs.
Public welfare spending per capita	4.32	1.44	0.42	0.57	8.24	80	10.35	828
Public sector wages per capita	5.12	1.13	0.36	1.89	8.05	74	10.08	746
Polity	0.23	0.15	0.09	0.00	0.59	80	10.35	828
Non-tax revenue per capita	2.63	1.94	0.73	−3.32	9.17	80	10.35	828
Labor per capita	−0.91	0.18	0.04	−1.42	−0.51	80	10.35	828
GDP per capita	7.74	0.94	0.35	5.35	10.29	80	10.35	828
Military expenditure per capita	3.50	1.47	0.42	−0.17	8.40	80	10.35	828
State failure score	0.39	0.79	0.67	0	4	80	10.35	828
Single party	0.33	0.46	0.20	0	1	64	9.45	605
Nationalist	0.21	0.36	0.14	0	1	79	10.43	824
Monarch	0.18	0.29	0.11	0	1	80	10.31	825
Premier	0.62	0.46	0.18	0	1	80	10.31	825
President	0.83	0.32	0.17	0	1	80	10.35	828
Rightist	0.14	0.34	0.16	0	1	78	10.09	787
Leftist	0.18	0.38	0.14	0	1	78	10.09	787

Note: All per capita variables are expressed in natural logs.

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