

The Structure of Power and the Pattern of Public
Spending in a Fiscal Federalism

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Abstract

Focusing on Nigeria, the most populous state in Africa, this article explores the impact of political office-holding in the allocation of infrastructure spending within 1974 and 1995, a period dominated by the military government.

The results document that impact of the structure of power upon the pattern of public-sector spending and help to account for the striking regional disparities that characterize resource allocations in this nation. We hope thereby to contribute to a better understanding of the political economy of policy making in African nations.

1. Introduction

It is frequently argued that the roots of Africa’s economic crisis (lagging growth) lie in politics [Findlay (1991), World Bank (1994)]. Yet the process by which policy is made remains poorly understood. Illuminating these processes and establishing the impact of the policy process upon political outcomes constitutes a high priority for research [Bates and Devarajan (1999)]. According to these authors, some of the possible reasons for the relative absence of such research include the long years of political repression, during which few institutions were open to public scrutiny; long-standing distrust between governments and their universities; and a belief by many that the structures of government fail to constrain or influence the choices of political elites. And there are indeed circumstances in which institutions may not appear to matter—when governments are authoritarian, for instance.

However, even in such a case of an apparent breakdown of political institutions, political competition does not end.¹ Bates and Devarajan postulate that it merely changes form. Competition among the underlying political groups shapes the behavior of governments. Conflicts and struggles over redistribution are more likely to be based upon regions rather than class-based. Ruling parties based in poorly endowed regions seek to use the budget to seize the wealth of the richer regions for redistribution among their constituents.

Focusing on Nigeria, the most populous state in Africa, this article explores the impact of political-office holding in the allocation of infrastructure spending within 1974 and 1995, a period dominated by the military government. The results document the impact of the structure of power upon the pattern of public-sector spending and help to account for the striking regional dispar-

¹Authoritarian regimes occupy contestable political space as well. It is not an accident that most, if not all, of the maiden broadcasts by successive military regimes in Nigeria invariably made references to how the previous regime had “become insensitive to the wishes of the people.” Furthermore, when the dictator is strong, ambitious elites curry favors. When the dictator is weak, political elites conspire to displace the head of state.

ities that characterize resource allocations in this nation. We hope thereby to contribute to a better understanding of the political economy of African nations.

We analyze public capital because it has been suggested that the patterns in infrastructure stocks may be explained better by political economy rather than by economic efficiency, given the large-scale involvement of governments in infrastructure investments [Canning (1998) for instance].

First, we measure the contribution of core infrastructures to private-sector production.² Next we use as inputs, estimates of the production parameters calibrated above, to approximate hypothetically-optimal allocations of infrastructure investments. These optimal allocations are then compared to the actual distributions to generate estimates of economic distortions, called *influence costs*. The extent to which these costs can be attributed to political influence in the arena where public expenditure decisions are made, is our main focus.

Although political considerations and the public good are not always in conflict. However, some public expenditure decisions are made on the basis of political considerations with little regard to furthering the interests of the public. Decisions that are made in violation of economic principles provide an opportunity to measure political influence. This study explores one such opportunity by comparing hypothetically optimal allocations of core infrastructures with observed allocations to generate a measure of costs of political influence.

²Core infrastructures are highways, water, electricity, and telecommunications—components expected to contribute most directly to private-sector output.

1.2 Country profile

Nigeria is a federation comprising currently of thirty six states and a Federal Capital Territory located in Abuja.³ It is the most populous country in Africa with immense physical and human diversity. Its former capital Lagos, is ranked the third largest city in the World (behind Tokyo-Yokohama and Mumbai). The people are divided into about 250 different ethnic groups. Four groups together make up 65 percent of its population—the Fulanis and the Hausas in the North, the Ibos in the Southeast, and the Yorubas in the Southwest. The Edos, Ibibios, Kanuris, Nupes, Tivs, Chamba, Ekoi, and Ijaws are important, even if small groups. Islam is the dominant religion in the North, accounting for about 47 percent of the population. Christianity that is dominant in the South accounts for about 30 percent of the population. The rest of the population hold traditional beliefs.

The economy is the second largest in sub-Saharan Africa, ranking behind South Africa and possessing one percent of the world's proven petroleum reserves. By 1985, oil revenue accounted for over 85 percent of all earnings from foreign exchange. Agriculture employs more than half of the total population, mostly on subsistence level, but contributes only about 25 percent of the national output. Agricultural exports, formerly the country's main export commodities are now of less importance.

At independence in 1960, Nigeria adopted a parliamentary system of government in a federation comprised of three regions—Northern, Western and Eastern. On January 13, 1966, Nigeria suffered its first military coup with several regime changes following thereafter [Table 1]. The latest election returned former military dictator, Lieutenant General Obasanjo as a civilian President to head the new Republic. On a promise of strong moral leadership, General Olusegun Obasanjo was sworn in as the President in May 1999.

Thirteen years of military rule between the First and Second republics

³Our analysis is based on the old 19-state structure, consistent with our data.

led to many changes in the federal structure of Nigeria. Chief among these was the ascendancy of the Federal Government, made possible from the enormous concentration of wealth from petroleum resources particularly in the 1970's. It was during this period that many key elements of accommodation were introduced—quota system for all federal recruitment, representation of the states in national governmental bodies, and proportional allocation of federal resources [Jinadu 1995]).

2.1 Calibrating regional production functions

This section briefly describes the empirical approach for extracting the estimates of the parameters of the regional production functions. The basic quantitative methodology comes from Ratner (1983). Ratner is the first to explicitly add public capital to the production function to test whether the marginal product of public capital is positive (with respect to private-sector production). The model assumes that the business sector production function can be approximated with a Cobb-Douglas flexible functional form:

$$(1) \quad Q_t = Ah_t^\alpha k_t^\beta g_t^\delta e^{rt+v_t},$$

where A is a scale parameter, h_t measures business sector hours, k_t measures the flow of services from K_t , the inflation-adjusted stock of private capital at the end of the previous year. g_t measures the flow of services from G_t , the public capital stock at the end of the previous year. r is the rate of disembodied technical change, t is a time trend, and v_t is the error term. The utilization rate for the flow of private capital services is assumed to be measured by an appropriate index of economic activity c_t , while the utilization rate for the flow of infrastructure services is assumed to be measured by a quality index θ . Therefore, g_t equals θG_t , and k_t is $c_t K_t$.

The variables for core infrastructures are, (1) kilometers of "motorable" roads, (2) percentage population with access to potable water through either

stand pipe or house connection, (3) electric power consumed as (an admittedly unsatisfactory) proxy for power infrastructure, and (4) number of telephone main lines.⁴

The correct indicators for power infrastructure are the capacity to import energy (transmission infrastructure) and the spannage (distribution infrastructure). The relevant data sets comprising specifications and capacities would include total circuit length of high tension transmission lines in kilometers, total injection substation capacity in megavolts amps [MVA], total circuit length of low tension transmission lines in kilometers, total installed distribution capacity in MVA (composed of capacities of distribution transformers and distribution substations). Regrettably, such proper data sets were unavailable.

Some researchers including the World Bank in its *World Development Report 1994* have used installed capacity of electricity generating plants as a proxy for power. However, we prefer power consumed as an indicator of the measurement of the contribution of electricity to productive activities. The reason is that considerable amounts of generated power are lost in the transmission and distribution process (system losses).

We use a model that captures the relationship between regional economic performance and installed infrastructure, while allowing for characteristic differences in the states that constitute the Federation.

2.2 Inferring political influence

In this section, we compare hypothetically optimal allocations of core infrastructures with realized distributions to generate a measure of economic distortions. Then we examine the extent to which these economic distortions can be explained by political factors.

The basic approach that we follow is due to Ferejohn (1974). According to

⁴A telephone main line connects the subscribers equipment to the switched network and has a dedicated port at the Exchange.

Ferejohn: “If a program has geographically divisible components, government officials who are most strategically situated should receive a disproportionate share of its benefits.” To derive the level of political influence of politicians and bureaucrats, we construct a binary variable that maps political positions to states of origin of appointees and to years position held. In selecting the positions to analyze, we tried to reflect institutional prescriptions of authority over public-capital investment decisions.

Thus our choice of political positions shown in Table 4 comprise members of the capital projects committee (who also are committee members in the National Planning exercise), as well as other positions considered relevant. As stated by Ferejohn, “some chairpersons, ministers, and heads of state-owned enterprises are more influential than others simply because the issues they deal with are more important, perhaps to other members of the cohort.”

2.3 Measuring economic distortion

Economic distortion is measured as the gap between “potential” output [GDP-star] and actual output [GDP]. Potential output is that output obtained when the core infrastructures are optimally redeployed.⁵ Optimal redeployment of inputs means that the marginal products of the infrastructures are equalized across regions.

By hypothetically reallocating the existing infrastructure stock, we obtain, in principle, the optimal allocation of types of investment expenditure across regions, given the level of total capital available for distribution. We acknowledge that the total capital stock available for distribution is not exogenous

⁵Although the present focus is on optimality along a single dimension, we acknowledge distortion in the mix of infrastructure bundles. To reallocate these within states would require shadow prices on each individual capital stock. Certainly an interesting extension, but obtaining such prices poses a formidable challenge. In fact, Polenske (1994) thinks that some of the negative marginal products found in many of the empirical studies on infrastructure effects, can be due to the distorted mix of infrastructure bundles.

to the political process. Presumably some powerful states (defined by their representatives) can influence more of a particular infrastructure type in which they are interested. As well, the composition of interest groups influences the content of public spending (in this case, the distribution of allocation between infrastructure types), while the structure of interest groups influences the level. We abstract from these important issues and instead focus on how aggregate stock is divvied up regardless of how the “goodies in the pot” were secured.

To derive the first-best allocation of the stock of infrastructures (i.e., re-dress the distorted mix), we solve an output optimization program under the following simplifying assumption—that the cost of installing a unit of an infrastructure facility is the same across the regions.

At least two possible sources of output gap exist between potential and actual GDP: One is from having more or less infrastructure than is necessary, or a distorted mix. The other is from random variation, usually captured by an error term. Eliminating the random variation allows us to focus on the distortions that arise from the sub-optimal use of infrastructure inputs. Therefore, we redefine each measure of output gap to be the difference between a fitted output and an actual output.

Estimates of the economic distortion are given in Table 2. Figure 2 projects a spatial profile of the distribution of the economic distortions in terms of gains and losses. Arrayed by geopolitical zones beginning with the South-South, the South-East, the South-West, the Central, the North-East, and ending at the North-West, there is a striking pattern that shows the North and some of the South-West zones as gainers under the status quo, with this trend most evident in the North (even with Oyo state as the biggest single gainer).⁶

⁶Geopolitical zoning is part of the contemporary efforts to reflect the “Federal Character,” which on the one hand is an implicit acknowledgment of the lopsided distribution of resources in the past. On the other hand it represents a commitment in principle to remedy the imbalance henceforth. A visible sign of this commitment is the establishment of The Federal Character Commission with a secretariat in Abuja. In Figure 2, the numbers appended to the acronyms for the states denote geopolitical zones: 1=South-South, 2=South-East,

The South-South and South-East are the distinct losers. Moreover, the losses imposed on the losing regions are much more dense than the gains to the winners. These losses are concentrated on fewer number of states and so on a per loser-state basis, are more intense than are the per winner-state gains which are shared among many more states. It is possible that this asymmetry could make the gainers less sensitive to the severity of the burden imposed on the losers until recently when the agitators became more restive. It can be seen clearly that the absolute level of losses suffered by at least one state among the losers far exceeds any gain by any single state.

2.4 Linking economic distortion and political influence

Here, we examine the extent to which economic distortion can be attributed to political influence in the arena in which public capital expenditure decisions are made. The empirical model relates the output gap to economic and political variables, plus their lagged values. Economic variables are included as controls. The model seeks to attribute departures from an efficient distribution of infrastructure capital to these political factors.

Whereas it is possible that the size of a regional GDP or the absolute population in a region might matter in political bargaining, per capita real income could matter more if some infrastructure expenditure is used for income redistribution. This point merits consideration because even a transient political pressure for redistribution can cause deviations from an economically efficient allocation path. However, a search through the fiscal history (planning and budget documents) of the Federation within 1960–95 does not indicate redistributive capital spending of any kind. This is notwithstanding notable incidences of uprising from the oil and mineral producing areas of the Federa-

3=South-West, 4=Central, 5=North-East, 6=North-West.

tion, as well as from other segments of the polity to redress perceived inequities in resource allocation.⁷ In view of this *realpolitik*, we do not control for the effect of income inequality on the allocation of infrastructure expenditure.

Severe shocks to income can also induce pressure on the government to undertake allocations that are less than efficient. The oil boom of the 1970's led to much indiscriminate public spending, a part of which involved dramatic increases in infrastructure expenditure without much debate, analysis or careful planning. Also, the reverse can occur when countries experience severe drop in income. In such a circumstance, feeding people are of more immediate concern so that the first programs to be put on hold are those that are long term. Since the benefits of infrastructure investments are spread over a long term, while the costs (or effects) of immediate cut backs occur with a lag, infrastructure spending cuts are particularly expeditious for politicians attempting to maneuver tight budgetary corners. Therefore, to control for the probable lagged effect of income flow on public-capital formation, we use changes in Federal Government annual revenue.

Finally, we include a dummy variable to reflect the claimed “Northern Oligarchy” or “Arewa” power bloc. Observers of the Nigerian political scene have often said that whereas the Northern coalition invariably has a core, the Southern coalition when it exists often has a core that is empty—the Southerners in most instances are unable to sustain a compromise. The argument is that the existence of this power bloc allows the Northern States to influence a disproportionately large allocation of resources to themselves.

The political variables are Federal appointments by state of origin of the appointee and the number of years the position is occupied. The positions are listed in Table 3. Overall, there are 18 Federal positions analyzed. Furthermore, 8 out of the 18 positions were analyzed for “timing value.” This says that a priori, constituencies (regions) whose representatives hold positions dur-

⁷The matter of re-distributive spending particularly is now receiving priority attention, particularly as it relates to the oil-producing regions.

ing the Second and Third National Development Plan periods (1970–74, and 1975–80) ought to be at an added advantage.⁸ The years 1974 and 1980 represent the end of Plan periods and the beginning of new plans and commitments, sort of the “putty period of the clay;” before investments harden. The R ’s are changes in Federal revenues. These also, are lagged to periods immediately preceding the Second and Third National Plan. The premise is that revenue flows prior to the Plan inception must have conditioned expectations about future sustainable investment magnitudes.

3. Empirical results and inferences

Our findings are tabulated in Table 4, which includes the result of the joint and several tests of the restriction that each political position does not matter either contemporaneously or retrospectively. To matter retrospectively means that current realizations are influenced by past positions, or put differently, that present positions matter for future realizations.

The Head of State, the Minister of Agriculture and Natural Resources, the Minister of Communications, and the Minister of Finance, were all found to be influential at conventional significance levels (i.e., between 5% and 1%). At the 6% significance level, the Governor of Central Bank and the Inspector General of Police (both non-ministerial members) become influential.

It must be emphasized that political pressures can, and do lead to differential improvements in infrastructure quality, mainly through selective maintenance. This correlation was not explicitly modeled. The inability to incorporate this dimension may account for why many of the political positions that would otherwise assume prominence fail to do so. Nonetheless, the overwhelming agglomeration of political power in the North leads to the striking pattern of resource distribution, evidently skewed towards the Northern region

⁸The Second and Third National Plan periods are most relevant to the stock of infrastructures that we analyze.

as shown by Figure 2.

We can account for the overall dominance by the North through noting the following broad historical facts. To understand Northern dominance is to appreciate how control of the military has meant control of the government. Hence the Northern dominance in the military is coextensive with her political dominance. The military has made the primacy of the North in the political affairs of the country possible. The military have been in charge for 29 out of the 39 years of independence.

Nigeria had seven military Heads of State, out of which five were from the North and two from the South. The two Southern Heads ruled for a cumulative period of 4 years while the five Northern Heads account for the remaining 25 years. Moreover, both Southern Heads of State came to power by accident of history: Aguiyi Ironsi on the heels of the failed 1966-coup and Obasanjo upon the assassination of Murtala Muhammed.

The next for consideration are the Ministers of Defense and Chiefs of Army Staff. These positions that arguably are the teeth of the Nigerian military have since independence been dominated by the North. The country has produced 14 Chiefs of Army Staff out of which 12 were Northerners and 2 from the South (with a collective term of 5 years and 2 months). Of all the Ministers of Defense, only once has a Southerner held that portfolio and even then it was a combined portfolio with the Head of State (by Obasanjo). Defense portfolio is so sensitive that it is given to only trusted loyalists, otherwise the incumbent Head of State integrates it into his office. In fact, for all cases except Gowon and Babangida regimes, when the portfolio was held by someone other than the Head of State, there has invariably been either a coup d'état or an attempted coup d'état.

It is often suggested in the political economy literature that to explain the composition of the budget, we must explore the political process by which the budget is chosen—a power that usually lies in the hands of the “agenda setter”: Of all the National Development Plans (and this is where public

capital projects are initiated), only two were initiated by civilian regimes and even those were never fully implemented as the military cut into both eras (1962–68, and 1981–85). The inclusion of the principle of “Federal Character” in the 1979 Constitution amplified the distributive rationale for state creation. It meant a quota system for all Federal recruitment, *representation of states* in national governmental bodies, and *proportional* allocation of Federal resources. Furthermore, both the States and Local Governments creation have been done by military regimes under Northern Heads of State. To pick one key ministry relating to infrastructures, the Ministry of Mines and Power which is the line Ministry controlling the power utility company, we note that of the 20 Ministers since independence in 1960, only 4 were from the South. And directly to the National Electric Power Company, only 2 out of its 7 former Chief Executives were Southerners.

How may we explain Oyo State which dominates the landscape of the gainers? Its gains are exceeded only by the losses of the South-South zone, particularly Rivers State from where incidentally the bulk of Federation revenue is derived.⁹ There are two ways that we can account for the spectacular showing of Oyo State. The first is based on initial conditions which in our empirical model is captured as individual differences (“fixed effects”) and also by allowing these individual differences to influence the marginal productivity of own state’s infrastructure (through an interactive dummy). The other is the quality of governance and internal (regional) politics.

The former Western State (a *de facto* extension of the ancient Oyo Empire) boasts a string of first’s in infrastructure-related factors—the first stadium in Nigeria (Liberty Stadium), the first most populous modern city in Nigeria (Ibadan, also the seat of Western State government), the first University (University of Ibadan), as well as the first teaching hospital, the first broadcasting

⁹The present regime of President Obasanjo has tackled head on, the issue of the Oil Mineral Producing Areas, resulting in the passing of a legislation earlier in the year, to uplift the plight of the people of these areas.

station in Nigeria, and the home of an important road transportation nexus (Ibadan) from Lagos to the Eastern and Northern regions.

A related explanation is that these first's and other resources meant for the South West may have been disproportionately concentrated in the area described by 1985-Oyo State. If so, this pattern may have been part of the catalyst for the separatist movement that carved out from Western State, the present-day Oyo, Oshun, Ekiti, Ondo and Ogun States from what was basically the old Oyo Empire.

Using quality of governance as another factor, the former Western Region was governed by the late Chief Obafemi Awolowo who was very much development-oriented in his approach to governance. In addition to being one of Nigeria's premier nationalists, he was the first leader of the opposition group in the First Republic. The first Premier of Western Region, later jailed for treason, was released and became the Minister of Finance during the period of the Nigerian civil war.¹⁰ Chief Awolowo was several times a presidential candidate, but is most remembered for his foresight and dedication to the cause of economic development in the Western Region. In the history of primary education in Nigeria, he outdistanced everybody with his early introduction of free primary education in the West.

Finally, one cannot lose sight of the fact that the South Westerners (Yorubas) benefitted politically even if marginally, from the vacuum created during the civil war that followed the attempted full secession of the South-East (as Biafra) and the foiled partial secession of the Mid-West from the Federation.

We can account for the inverse effect of the Central Bank Governor by appealing to the politics of budget making, according to which the budget can be viewed as the outcome of bargains between "ministries" (politicians) and bureaucratic groups (agencies). The spending ministries counsel expansion

¹⁰Western Region comprises Oyo, Ondo, Ogun, and Lagos States. The difference between Western Region and Western State is that the latter does not incorporate Lagos.

while the financing group seeks restraint.¹¹

On the other hand the influence of the Inspector General of Police can derive from other members of the cohort attaching importance to the issues under his purview. It is probable that as the era examined was marked by intense corruption, law enforcement officers could acquire clout by leveraging the discretion that attends to their prosecutorial powers. And generally as suggested in Ferejohn (1974), some bureaucrats are “more influential than others simply because the issues they deal with are more important (perhaps to other members of the cohort).”

Here are other ways by which “business gets done:” Influential staffers within line ministries are able to include their projects into the Plan. Invariably approved Plans are for less than budgeted. The case is then made that due to short falls, ministries are forced to select from the menu of projects. So, the selector—the agenda setter—thereby acquires a strong influence.

Another avenue is through Extra-Budgetary and Special Project’s funding. In principle, extra-budgetary allocations augment projects that are already in the Plan but risk abandonment due to short funding. In practice, they come as tied aid, with other pet projects “piggy-backing” on it. Essentially, the overriding goal for the funding become these tacked-on projects so that the receiving Ministry merely provides a formal legitimacy within which the piggy-backed projects (the real objects of interest) get implemented, sometimes serving as a prelude to full membership into a formal expenditure group. Membership of a formal expenditure group assures continuity of funding or at least consideration for it. Roads provide an example of this process. Conversion to

¹¹For an elaboration, see Bates and Deverajan (2000) and Ferejohn and Krebhiel (1987). Ferejohn and Krebhiel (1987) frame budget politics as a multi-stage game. In one, the spending ministries move first, and the financing group reconciles their claims. In another, the financing group moves first, imposing a budget constraint, around which spending ministries then bargain for their shares. For a given set of preferences, the model illustrates the value of timing (first-mover advantage) in terms of the resulting levels and patterns of expenditure.

dual carriageways (dualization), or highway upgrades are in principle, selected on the basis of traffic count. However, special projects and extra-budgetary expenditure can direct that a feeder or rural road be dualized or upgraded. And soon after, that same road now only a short step away, is marked for adoption as a “Trunk A” (that is, a major federal highway).

Lastly in looking to Figure 2, we seek some explanations for the two outlier spikes in the Southern region (specifically the South-South zone, in Cross Rivers cr1 and Rivers State rv1), as well as for another two outliers in the Northern region (specifically Plateau State PL4). These could signal severe measurement errors in the underlying data sets, largely outside our control but nonetheless amplifying Polenske (1994)’s concern regarding “infrastructure lives, depreciation, and the role of maintenance,” all of which are important variables but regrettably are not part of the regular database.

As these spikes occur later in history, it may also be capturing some remediation to the South-South in response to increased restiveness beginning in the late 1980’s. In the mid and late 1990’s, a particularly powerful Finance Minister, as well as several Petroleum Ministers have come from the South-South zones. On the other hand, the spikes in Plateau, although consistent with the trend in the Northern region could be picking up power concentration—Plateau State has produced more military Generals than any other single state in the country. We may also note that even though the two (positive) spikes in the Southern region seem to argue against our thesis, it does not distort the overall pattern of resource distribution.

4. Summary and concluding remarks

Grounded in empirical realities, this study has demonstrated the pervasive influence of distributional politics in the Federation of Nigeria. It validates what Joseph (1987) labeled *prebendal* Nigeria, a term that is meant to capture the “intensive and persistent struggle to control and exploit the offices of the

state.” Here it seems that one group have successfully employed the power of the state to overwhelmingly direct resources to itself.

The ascendancy of the center state followed an early intervention of the military in the history of Nigerian politics. Also contributing were, the vast increase in, and the concentration of oil wealth in the center state, as well as the commitment after the Nigerian civil to a state-directed economic development—reconciliation, rehabilitation, and reconstruction. These laudable objectives were project-based policies and may have provided just the right means and opportunity to disproportionately redirect resources to the North.

We acknowledge that economic decisions cannot always and everywhere be the overriding criteria and it need not be. However, given the pervasiveness of poverty in Nigeria, it seems that such persistent inefficiency in resource allocation is not only troubling for the significant welfare losses that it entails, but more for the danger of generating social conflict over time.

The Government has begun to tackle the disparity. However, it seems that the only lasting way to ameliorate the impact of politics on public capital expenditure is through a careful attention to the composition of interest groups or political parties. A consociational structure of interest groups appears to promote restraint in the competition for benefits in the public domain. But in the current wave of decentralization, it is not clear how this competing claim will be reconciled unless the delivery of infrastructure services is transferred to the private sector. Unless infrastructure privatization is pursued vigorously, inefficiencies will persist. It will persist because of the *logic of collective action*, for whereas the benefits of regional allocation are concentrated, the losses are distributed nationwide even though in the aggregate, there is a net loss.

We close by noting that the geopolitical zones in Figure 2 actually correspond to distinct ethnic groups. Viewed thus, it becomes clearer how the resource imbalances can generate the inter-ethnic rivalries and the tendency for threats of secession, that have been plaguing the social stability of the country. Perhaps if more Nigerians understood the collective danger (in the

logic of collective action), there may be less pressure exerted by constituents on office holders and top bureaucrats to “take home some ham from public coffers.” In fact, it should not be too far fetched to suggest that the tendency to pressure favorite sons (and occasionally daughters) in political positions to “do something at home” have had corruptible influence on such individuals who consequently may have acted contrary to their best judgements.¹²

¹²I am indebted to Adu-Asare of AfricaNewscast.com for this insight.

Table 1: Nigeria: Chronology of Regime Changes

<i>period</i>	<i>event and notes</i>
Oct 1, 1963	The First Republic led by Sir Balewa
Jan 13, 1966	Coup led by Major Nzeogwu
Jan 16, 1966	Power handed to General Ironsi
Jul 29, 1966	Counter coup with power to General Gowon
Jul 29, 1974	Coup by General Murtala Mohammed
Feb 13, 1976	General Mohammed assassinated in an aborted coup General Obasanjo becomes Head of State
Oct 1, 1979 - Oct 1, 1983	The Second Republic led by Alhaji Shagari
Dec 31, 1983	Coup by General Buhari
Aug 27, 1985	Coup by General Babangida
Aug 26, 1993	General Babangida steps down under pressure Mr. Shonekon appointed interim civilian President
Nov 17, 1993	Mr. Shonekon deposed in a bloodless coup
Jun 8, 1998	General Abacha dies from illness General Abubakar appointed Head of State by the ruling junta
May 29, 1999	General Obasanjo sworn in as elected Head of State

Table 2: Economic Distortion

state	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
an	-0.14	-0.23	-0.39	-0.43	-0.29	-0.40	-0.83	- 0.08	-0.42	-0.52	-0.78
BA	1.43	1.11	1.25	1.26	1.20	1.28	1.43	1.04	1.25	1.23	1.34
bd	-0.53	-0.69	0.18	-0.70	-1.10	-0.74	-1.44	-1.64	0.15	-0.17	- 1.14
BN	1.38	3.67	2.05	2.67	3.06	2.52	4.03	2.27	3.21	2.70	3.78
BO	8.42	-1.64	-0.63	-0.72	-2.06	-1.74	-1.28	-0.58	10.33	-3.58	-1.01
cr	0.83	0.06	-0.05	-0.12	0.16	0.18	-0.34	-0.26	0.06	0.37	-0.21
GG	0.35	2.15	1.79	1.93	2.03	1.94	2.11	1.82	2.14	1.86	2.32
im	-1.91	-5.20	-3.96	-5.35	-6.38	-5.14	-4.28	-6.21	-7.13	-4.85	5.82
KD	-2.82	-0.13	0.24	0.19	0.23	0.20	0.06	0.10	0.20	0.13	-0.06
KN	0.10	0.14	-0.01	-0.06	0.10	-0.06	0.46	-0.17	0.61	0.37	0.51
KW	-0.38	-0.24	-0.71	-0.31	-0.33	-0.34	-0.32	-0.49	0.05	0.50	-0.26
lg	-1.36	-0.94	-1.03	-0.91	-1.83	-0.99	-1.13	-0.94	- 1.27	0.89	-0.78
NG	1.65	1.36	1.63	1.47	1.64	1.43	0.89	1.28	1.69	1.64	1.46
og	-0.10	0.12	-0.67	-0.07	-0.16	-0.08	-0.35	-0.03	- 0.16	-0.04	-0.07
od	-0.55	1.44	0.53	0.51	-0.16	0.57	0.63	0.37	0.53	0.60	0.66
oy	5.75	7.12	10.05	7.95	10.40	7.91	8.00	8.67	8.87	8.83	9.50
PL	-2.85	-0.38	-0.43	-0.63	-0.50	-0.59	-0.81	-0.57	- 0.58	-0.46	-0.63
rv	0.18	-8.78	-8.10	-8.43	-9.62	8.02	-11.83	-9.41	- 8.35	-7.82	-9.35
SO	0.41	1.43	1.12	1.16	1.30	1.05	1.51	0.94	0.87	1.18	1.45
XR	3.70	7.60	5.00	10.00	9.00	10.00	16.00	23.50	46.00	82.25	85.00

Notes: Lower case letters indicate Southern states while upper case letters indicate Northern states—an ≡ Anambra, BA≡Bauchi, bd≡ Bendel, BN ≡ Benue, BO ≡ Borno, cr ≡Cross River, GG ≡Gongola, im ≡ Imo, KD≡ Kaduna, KN ≡ Kano, KW ≡ Kwara, lg ≡Lagos, NG ≡ Niger, og ≡ Ogun, od ≡ Ondo, oy ≡ Oyo, PL≡ Plateau, rv ≡ Rivers, SO ≡ Sokoto, XR ≡ N/\$, parallel market exchange rate series for the respective years expressed in Naira per US dollar. GDP figures used in the analysis are in local currency in billions of naira. The values in the table are the ratios of the logarithm of potential real output to the logarithm of actual real output. They represent a measure of yearly deviation of actual output from what it would be if each chunk of infrastructure had been installed where it would be economically most productive in the country. The distortion can be given a political meaning in terms of winners (+) and losers (-) under the status quo (i.e., before reallocation).

Table 3: Federal Political Appointments Analyzed

Serial	Position (z)
1	Head of State
2	Chief of General Staff
3	Chief of Defense Staff
4	Chief of Army Staff
5	Chief of Air Staff
6	Chief of Naval Staff
7	Secretary to the Federal Government
8	Managing Director/Chief Executive NEPA
9	Governor of Central Bank
10	Inspector General of Police
11	Minister of Agriculture and Natural Resources
12	Minister for Economic Development
13	Minister for Trade and Industry
14	Minister of Communications
15	Minister of Finance
16	Minister of Foreign Affairs
17	Minister of Mines, Power and Steel
18	Minister of Works and Housing

Note: NEPA is National Electric Power Authority

Table 4: Estimates of Political Influence (\hat{z})

Portfolio	Estimate	P-value
Head of State	2.39336	* [.015]
Chief of General Staff	-0.733643	[.276]
Chief of Defense Staff	-0.428241	[.726]
Chief of Army Staff	-0.127574	[.912]
Chief of Air Staff	0.410597	[.621]
Chief of Naval Staff	-0.963629	[.274]
Secretary to the Federal Government	0.231667	[.778]
Managing Director/Chief Executive NEPA	0.736316	[.543]
Governor of Central Bank	-2.89759	[.055]
Inspector General of Police	-1.89519	[.055]
Minister for Economic Development	3.21508	* [.019]
Minister of Agriculture and Natural Resources	-.228541	[.699]
Minister for Trade and Industry	1.30192	[.123]
Minister of Communications	4.84876	** [.001]
Minister of Finance	-2.18711	* [.013]
Minister of Foreign Affairs	-1.22650	[.233]
Minister of Mines, Power and Steel	0.519020	[.728]
Minister of Works and Housing	-0.582282	[.526]

Wald Test for the Hypothesis that the parameters are jointly zero: $\chi_{(42)} = 60.2709$; P-value = 0.03351

Notes: The equation estimated is $y_{it} = \alpha + \sum_{k=1}^N \delta_k z_{ikt} + \sum_{j=1}^M \phi_j \tilde{z}_{ij(t-11)} + \sum_{h=1}^G \gamma_h \tilde{z}_{ih(t-5)} + \rho R_t + \rho_1 R_{t-11} + \rho_2 R_{t-5} + \sigma D_t + e_t$. Standard Errors are computed from heteroscedastic-consistent matrix, and also are robust to autocorrelation (assuming first order serial correlation). * denotes significance at the 5% level; ** at the 1% level.

Table 5: Estimates of the Effect of Being in Position, Year 1974 ($\hat{z}_{(t-11)}$)

Portfolio	Estimate	P-value
Head of State	1.76171	[.162]
Chief of General Staff	-0.848501	[.416]
Managing Director/Chief Executive of NEPA	0.177338	[.885]
Minister for Economic Development	-2.15291	[.108]
Minister of Communications	0.757736	[.397]
Minister of Finance	-1.37711	[.461]
Minister of Mines, Power and Steel	1.35356	[.215]
Minister of Works and Housing	-0.771840	[.330]

Notes: The equation estimated is $y_{it} = \alpha + \sum_{k=1}^N \delta_k z_{ikt} + \sum_{j=1}^M \phi_j \tilde{z}_{ij(t-11)} + \sum_{h=1}^G \gamma_h \tilde{z}_{ih(t-5)} + \rho R_t + \rho_1 R_{t-11} + \rho_2 R_{t-5} + \sigma D_t + e_t$. Standard Errors are computed from heteroscedastic-consistent matrix, and also are robust to autocorrelation (assuming first order serial correlation).

Table 6: Estimates of the Effect of Being in Position, Year 1980 ($\hat{z}_{(t-5)}$)

Portfolio	Estimate	P-value
Head of State	1.63622	[.086]
Chief of General Staff	-0.429436	[.749]
Managing Director/Chief Executive	1.88770	[.108]
Minister for Economic Development	0.768133	[.282]
Minister of Communications	2.73358	** [.007]
Minister of Finance	-0.033656	[.977]
Minister of Mines, Power and Steel	-0.234692	[.744]
Minister of Works and Housing	-0.163350	[.852]

Notes: The equation estimated is $y_{it} = \alpha + \sum_{k=1}^N \delta_k z_{ikt} + \sum_{j=1}^M \phi_j \tilde{z}_{ij(t-11)} + \sum_{h=1}^G \gamma_h \tilde{z}_{ih(t-5)} + \rho R_t + \rho_1 R_{t-11} + \rho_2 R_{t-5} + \sigma D_t + e_t$. Standard Errors are computed from heteroscedastic-consistent matrix, and also are robust to autocorrelation (assuming first order serial correlation). ** denoted significance at the 1% level.

Table 7: Estimates of the Control Variables

Variable	Estimate	P-value
Contemporaneous Revenue	-0.275170E-05	[.593]
Revenue in 1974	-0.112795E-04	[.916]
Revenue in 1980	0.123955E-04	[.762]
AREWA coalition	-1.12583	[.158]

Notes: The equation estimated is $y_{it} = \alpha + \sum_{k=1}^N \delta_k z_{ikt} + \sum_{j=1}^M \phi_j \tilde{z}_{ij(t-11)} + \sum_{h=1}^G \gamma_h \tilde{z}_{ih(t-5)} + \rho R_t + \rho_1 R_{t-11} + \rho_2 R_{t-5} + \sigma D_t + e_t$. Standard Errors are computed from heteroscedastic-consistent matrix, and also are robust to autocorrelation (assuming first order serial correlation).

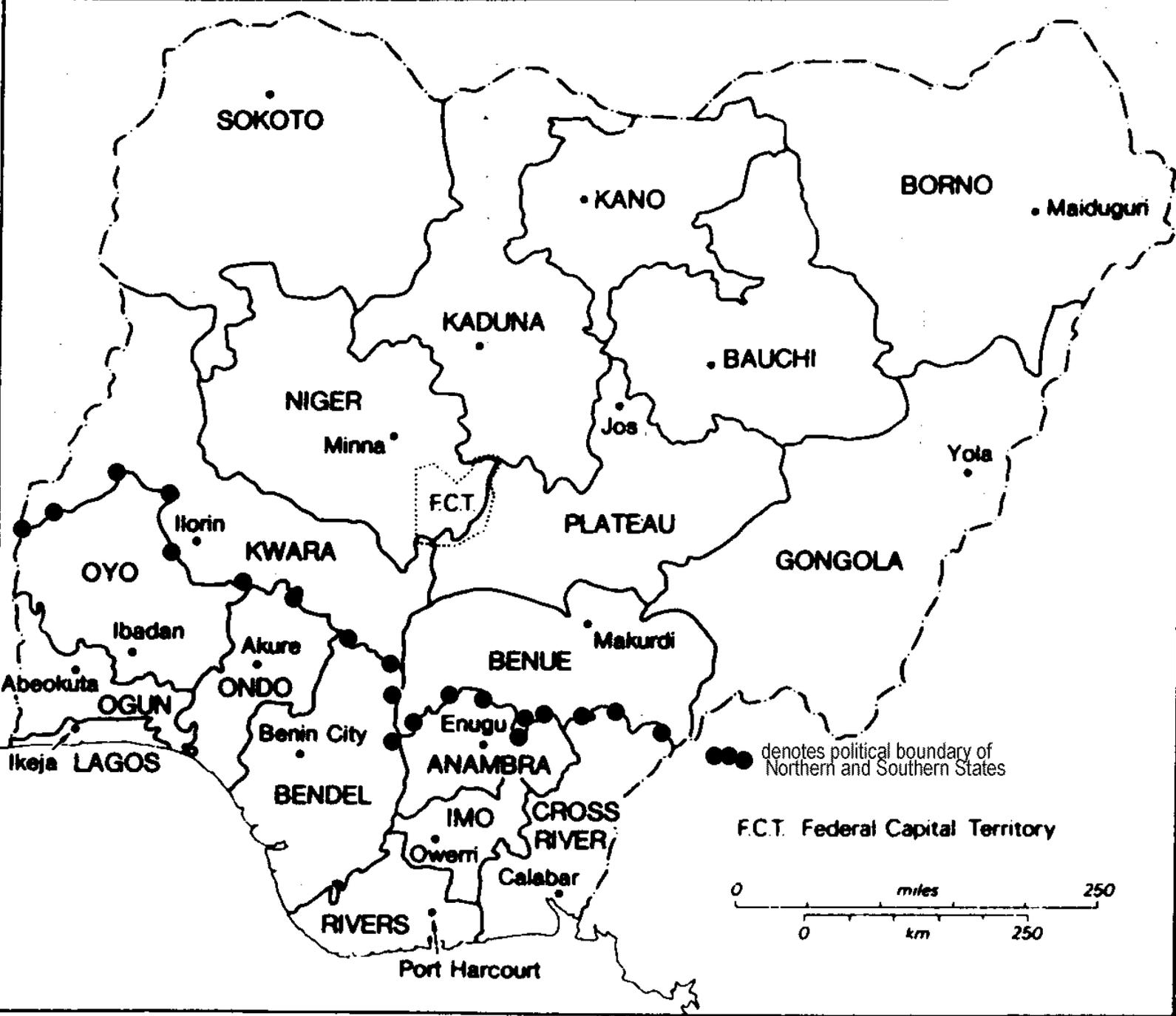
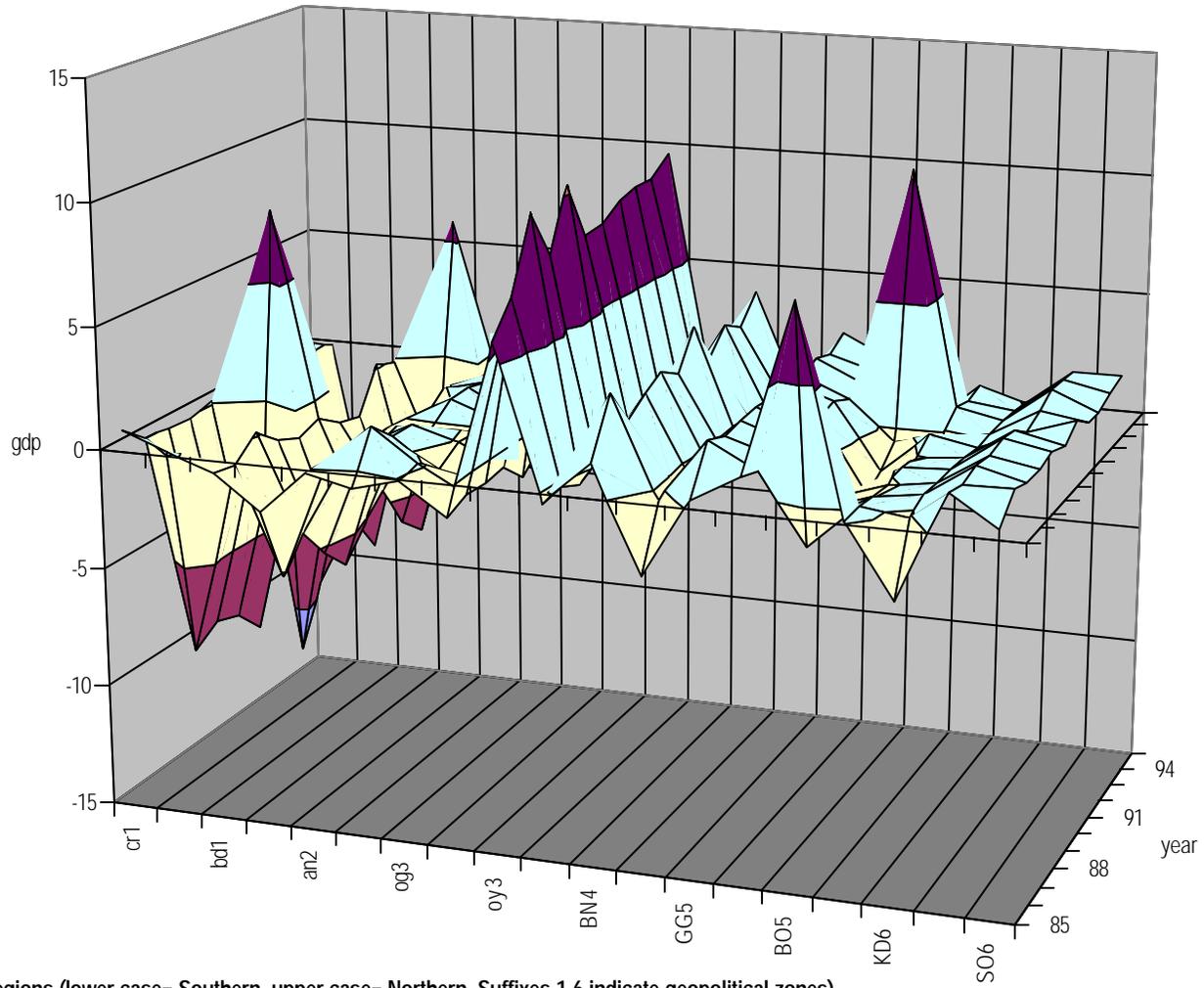


Figure 2: Economic Distortion



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