UNDERSTANDING THE DEMOCRATIC TRANSITION IN SOUTH AFRICA

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ABSTRACT

South Africa's transition from apartheid to democracy stands as one of the past century's most important political events. The transition has been successful to this point because the new constitution adopted a form of federal governance that has been able to provide protection for the economic elite from maximal redistributive taxation. Appropriately structured, federal governance creates a "hostage game" in which the majority central government controls the tax rate but elite run province(s) control the provision of important redistributive services to a significant fraction of lower income households. At least to today, the political economy of South Africa has found a stable equilibrium with less than maximal redistributive taxation. Moreover, the move to a democratic federalist system has improved the economic welfare of both the white minority and the black majority. Whether the federal structure can continue to check maximal taxation depends crucially upon the rate of time preference of the majority and their demands for redistributive public services. A new, impatient and more radical majority (ANC) party threatens the current equilibrium.

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I. Introduction

South Africa's transition from apartheid to a truly multi-racial democracy stands as one of the significant political events of the last century. The transition was peacefully negotiated, the democratic bargain is still holding, and despite still high rates of unemployment, the average South African resident, both black and white, is economically better off today than they were under the last years of apartheid.[1] Though peaceful, the constitutional negotiations were far from harmonious. It took over four years from the date of Nelson Mandela's release from Robben Island on February 11, 1990 until April, 1994 before even an outline of a democratic constitution was accepted by the three relevant parties to the negotiations, the National Party (NP) representing the once ruling whites, the African National Congress (ANC) representing the majority of blacks and Asian South Africans, and Inkatha Freedom Party (Inkatha) representing the rural blacks of the historic Zulu nation.

This initial agreement, known as the Interim Constitution, outlined the broad parameters of the new democracy. First, it detailed the rules for the election of a National Assembly from which would be chosen the President of the new republic, rules crucial to assure the increasingly impatient black majority they would have an equal voice in a truly democratic new South Africa. Second, it created nine provincial governments each with a separately elected legislature and premier (or governor), governments whose boundaries were

[1] Real incomes per capita have grown by 2% peer annum for all percentiles of the income distribution from 1993 to 2007. (RSA, President's Office, *Development Indicators, 2008*, p. 23). The national rate of poverty has declined from 31 percent to 23 percent over this same period (p. 26). Rates of adult disability and infant mortality are both down (p. 38). Housing quality has improved significantly (pp. 31-34). Class sizes are smaller, school enrollment is up, and the national rate of literacy has increased (p. 49). The two adverse developments since the end of apartheid are the significant increase in the incidence of HIV and a resulting fall in life expectancy (p. 42) and the increase in the national crime rate (pp. 60-61). Overall, crime rates have fallen since 2004, however, and today's rate of just over 5,000 crimes per 100,000 residents is comparable to the rates in most large U.S. cities.

explicitly negotiated to assure the white (NP) and black (Inkatha) political minorities control over public resources and policies in at least one province each. These initial negotiations established the new republic as a federal democracy, but beyond that the Interim Constitution was strikingly silent. It took another two years of full time negotiations before a final constitution was presented to the National Assembly, on October 11, 1996, for its unanimous approval.

The final constitution established three important principles for the governance of the new federal democracy. First, it accepted the geographical boundaries of the nine provinces, and thus their anticipated political control, as specified by the original Interim Constitution. Second, provinces were given responsibility for the provision of K-12 education, health services, and housing, and for the administration of transfers to the poor and elderly. Third, the national government was required to share national tax revenues with the provinces to finance assigned provincial services.

In prior work (Inman and Rubinfeld (forthcoming)) we explained how the South African Constitution and its institutions of federalism can provide self-enforcing protections for the economic interests of the largely white economic elite that had ruled during the apartheid era. We showed how federal governance, appropriately specified, creates a "hostage" game between a majority controlled central government and elite-run provinces (e.g.,Western Cape) that provide important redistributive services to majority residents. When specified against the actual performance of the South African public economy, we observe that the fiscal allocations from 1996 to the beginning of the current regime of Jacob Zuma were sustainable as a long-run policy equilibrium with less than fully redistributive taxation.

In this paper we begin, in Section II, with a brief overview of the transition to democracy and a description of the South African political economy, in many ways a prototypical transition economy with a poor majority ruled by a once dominant but now threatened economic elite. We then seek to answer three questions. First, in Section III and building off our earlier analysis, we show how federal governance can be structured to provide sufficient protection for the economic elite such that they will find the transition to a

peaceful majority rule democracy preferable to the current threatened (and therefore costly) autocratic regime. When our model is calibrated to the South African economy at the time of the transition, the proposed federal institutions do provide a stable, majority rule democracy with less than fully exploitative taxation of the elite. Second, in Section IV, we estimate the long-run economic gains of the transition to the poor majority and the once ruling elite based upon the actual performance of the South African public sector. Compared to the alternative of remaining in apartheid, we conclude both parties have enjoyed significant, at least in the aggregate, economic benefits from the transition.

Third, in a concluding Section V we use our analysis to explore the future of South Africa's federal bargain as protection for elite economic interests. Going forward South Africa may provide a direct test of Weingast's (1997) theory of the democratic transition based upon self-enforcing constitutions.

II. Federalism and the Transition to Democracy

A. ***Background***: At the time of the initial constitutional negotiations, Robert Mugabe's Zimbabwe provided a strong reminder to the leadership of both the NP and the ANC of the risks of simple majority rule in an economy marked by wide disparities in incomes and assets. Even with fair elections, the temptation for the poor majority, or their elected representatives, to expropriate assets of those with substantial wealth might prove irresistible. It was clear to both the ANC and the NP leadership that a peaceful transition would require a credible commitment to protect elite incomes.[2] To this end, the NP and the ANC compromised on an interim constitution establishing a federal democracy with simple majority rule in a National Assembly, a President elected by the Assembly, and nine provincial governments with boundaries drawn to ensure NP control of at least one, ideally two, provinces.[3] Left unspecified was the hard matter of policy assignment

[2] Waldmeir (1997), p. 157 quotes Nelson Mandela in his initial address on reconciliation as saying: "(T)he ANC is very much concerned to address the question of the concerns of whites. . . They insist on structural guarantees to ensure that . . . majority rule does not result in the domination of whites by blacks. We understand that fear. The whites are our fellow South Africans. We want them to feel safe."

[3] Waldmeir (1997), Chapters 10-13 provides an valuable overview of the transition negotiations. Differences over the structure of the federal contract are summarized on pp. 193-197; 241-244. For a summary of how the number and boundaries of the new provinces were decided, see Muthien and Khosa (1998). These boundaries negotiated for

between the national and provincial tiers of government. That difficult task was delegated by an Interim Constitution to a panel of experts to be appointed by the new President and to be known as the Financial and Fiscal Commission (FFC). The Commission was equally balanced in its representation between the ANC and the NP, and each member of the Commission was an expert in at least one area of government policy-making: finance, administration, or accounting.

The constitution could have been either a *unitary* centralized democracy with a single, majority-elected central government setting all policies, or a *federal* decentralized democracy where policy responsibilities were shared between the national government and constitutionally-created provinces.[4] South Africa opted for the federal system, with constitutionally specified provincial borders described by the share of majority residents originally living within the elite-controlled provinces.

The FFC accepted the provincial boundaries and their likely voting outcomes as proposed in the Interim Constitution (final Constitution, Chapter 6, Section 103). On the crucial matter of who should decide taxation and redistribution policies, the FFC gave control over all important taxes, in particular income and profits taxation and the VAT, to the central government (final Constitution, Chapter 13, Section 214), but then assigned control for the provision of redistributive services of K-12 education, health care, and housing and the payment of poor and elderly transfers to the provinces (final Constitution, Schedule 4).[5] Finally, redistributive services were to be funded by a constitutionally required sharing with the provinces of national tax revenues (final Constitution, Section 227). These recommendations were unanimously approved within

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the Interim Constitution were accepted directly as part of the final constitution (final Constitution, Chapter 6, Section 103).

[4] A third alternative of having separate provincial governments each with significant own taxing and spending responsibilities was proposed by the NP and the Inkatha Freedom Party, but quickly rejected by the ANC; see Waldmeir (1997) pp. 241-244.

[5] The final constitution does allow provinces to have their own taxation administered as a surcharge on the national income tax, but such powers must be first approved by legislation from the National Assembly (final Constitution, Chapter 13, Section 228). To date such provincial taxing powers have not been approved by the National Assembly.

the FFC and incorporated directly into the unanimously approved final constitution.

The end result was to create an annual redistribution policy game in which a majority ANC controlled central government and elite controlled province(s) each sets one redistributive policy instrument of importance to the other, taxes controlled by the ANC and redistributive spending by the elite. Under well defined conditions – low-cost elite providers of redistributive services and a sufficiently restrained and patient majority – this annual policy game when played repeatedly can check the redistributive incentives of the national poor majority.

B. ***Conditions for a Peaceful Transition***: We model the political economy of South Africa as involving an initial event in which the form of government is chosen, followed by an annual policy game in which specific public service and taxation decisions are made. Provincial *borders* are specified by the share (μ) of majority residents residing within an elite controlled province(s); federalism occurs when $\mu > 0$.[6] Provincial *service assignments* are characterized in part by a parameter λ, which reflects the relative value that a typical majority resident places on the redistributive services q assigned by the constitution to be provided by the provinces. Assigned services such as education, health care, or public housing might be important to a majority resident, in which case λ has a high value, or they can be relatively unimportant (e.g., street lighting, parks and recreation), in which case λ has a low value.

Given annual public-sector policy decisions, the value of any democratic constitution will be the discounted present value of all future utilities that follow from the choice of the constitutional parameters μ and λ, specified for poor majority residents (M) as:

$$V_M(\mu, \lambda) = \sum \delta^t \cdot \omega_t(\mu, \lambda), \tag{1}$$

and:

$$V_E(\mu, \lambda) = \sum \delta^t \cdot y_t(\mu, \lambda), \tag{2}$$

for elite residents (E), where ω is the economic utility of the typical majority adult resident, *y* is the economic

[6] Unitary governance occurs when this share is zero.

utility of the typical member of the white elite, and δ is the discount factor bounded as $0 < \delta \leq 1$.[7] The value of δ depends upon an individual's rate of time preferences and may differ for the majority's and the elite. For the transition to be politically viable, it is necessary that a federal or centralized unitary democracy be preferred to the autocratic alternative in which the apartheid system is maintained.

A federal constitution specifying provincial borders (μ) and service assignments (λ) will be *sufficient* for the peaceful transition to democracy if both the majority and the elite prefer the federal democracy to autocracy, and then, among the democratic constitutions federal governance is preferred to unitary governance. The federal constitution becomes *necessary and sufficient* for the transition when both parties prefer a federal democracy, but the elite prefers autocracy to a unitary democracy.

Whether a peaceful democratic transition occurs depends crucially on exactly how constitutional rules determine annual policy outcomes. In our previous work (forthcoming), we evaluated these policy outcomes. In this paper, we estimate $V_M(\bullet)$ and $V_E(\bullet)$ and evaluate South Africa's federal constitution's ability to facilitate the democratic transition.

C. *South Africa's Political Economy*: In the annual redistribution game the central government chooses an aggregate redistributive tax per elite resident (τ), with the proceeds of this tax allocated to the nine provincial governments as a redistributive grant per lower income resident (g). The central government also sets national standards for provincial spending on redistributive service inputs (q), which are provided at a cost per resident s(q). Redistributive inputs might include teachers, nurses, doctors, and social workers, but perhaps also public housing, water facilities, lighting for streets, or paved roads. The redistributive grants will be sufficient to fund the required levels of these redistributive inputs, but to also leave a residual basic redistributive grants (r), defined as: $r = g - s(q)$. The basic grants are "free" resources allocated by the

[7] These specifications of lifetime utilities depend only upon elite and majority economic prospects under the alternative political regimes. We do not give explicit considerations here to the additional important values of expanded rights for the majority – the "rights" dividend – nor the potential gain for the elite of not having to police a repressive regime – the "peace" dividend. Both are important and are considered explicitly in Section IV when we implement the model to evaluate the transition to democracy in South Africa.

provinces to other services or to transfers to lower income households at the discretion of provincial leadership. We first describe the budgetary constraints and cost considerations that limit the available alternatives. This allows us to determine the annual utility that each group will achieve in pursuing its strategic alternatives.

The Government Budget Constraint: The redistributive tax rate per elite resident τ defines the revenues available for transfers to the provinces for redistributive spending: $g = g(\tau)$. As the redistributive tax rate increases, the taxpaying minority is free to leave the country or to adopt tax avoidance strategies. Popular stories aside, emigration from South Africa has not proven to be significant quantitatively. Tax avoidance is the primary means by which the elite reduces its tax payments.

There is a revenue hill for redistributive taxation. Revenues initially increase as τ rises, reach a maximum at τ_U, and then decline. Majority dominated unitary governments always select the maximum rate, $\tau = \tau_U$. Given the revenue potential of national redistributive taxation, a key issue is whether democratic federalism will allow an equilibrium redistributive tax rate, denoted τ_F, that is less than τ_U.

Service input standards for constitutionally assigned redistributive services may be set in response to: (i) a constitutional requirement to provide a "fair" or "adequate" service level to all citizens successfully enforced by a constitutional court, *or* (ii) presidential preferences enforced by agenda powers, *or* (iii) majority citizen preferences enforced by majority-rule, median voter politics. After satisfying the required service standard, provinces are free to allocate the remainder of their redistributive grant to services of their own choosing. All fiscal policies are decided subject to an aggregate redistributive budget constraint which requires that spending on redistributive services and unconstrained transfers be financed by centrally raised and administered redistributive taxation: $g(\tau) = s(q) + r$.

The Cost of Providing Redistributive Services: The primary service inputs used by the provinces to provide redistributive services in South Africa are teachers (for education), doctors and nurses (for health care), and social workers and public administrators (for income transfers). We specify three classes of public

employees: minority elite providers with a_e years of training, trained majority providers with a_m years of training, and untrained majority providers with a_u years of training, where $a_e > a_m > a_u$. Better trained public employees are more productive. All public employees are assumed to be paid a common civil service wage, *S*, which is only imperfectly related to their individual productivity.[8] Therefore, more productive workers will be less expensive when providing any required service input bundle. The cost per majority resident of providing public services is specified as s(q), with $s_e(q) < s_m(q) < s_u(q)$, using highly trained minority, majority trained, and majority untrained providers, respectively.[9] It is this "inherited" productive advantage of elite public employees working in the elite province that will prove crucial to the elite's ability to check redistributive taxation. The majority needs the elite and therefore has an incentive to retain their participation in the provision of redistributive public services.

We assume that if the unitary regime is chosen, a fraction of the well-trained elite teachers, nurses, doctors and civil servants will reduce their effort, or more likely, exit the public sector for comparable employment in the private economy. If so, then the elite's cost advantage provided by the elite province protects the attractiveness to the majority of the federal form of governance; it is only within federal governance that elite has an ability to hurt the majority if they adopt too high a redistributive tax rate.

Redistributive Fiscal Effort: We assume that the central government can successfully monitor the inputs allocated by the provinces to redistributive services. As a result, once the standard for public service provision has been set by the central government, the provinces comply. But once this standard is met, the central government can no longer monitor the allocation of redistributive revenues. If so, then the "free" or

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[8] Having wages fully independent of employee productivity is not essential to our arguments and analysis, but an imperfect matching of wages to productivity is important. As a consequence of the decision to not discriminate by race, South Africa has a common wage structure for positions in the civil service, without careful regard for background or training.

[9] We assume that public services are provided by a common linear technology proportional to the training-adjusted level of public employees: $q = a(X/M)$, where (X/M) is public employees (X) per majority resident (M) and *a* is employee productivity measured by years of training. As an example, if there is one employee for every 25 majority adult residents and that employee has 14 years of training, then $q = 14(1/25) = .56$. The cost of provision is $s(q) = S(X/M)$, so that $s_e(q) = S(q/a_e) < s_m(q) = S(q/a_m) < s_u(q) = S(q/a_u)$ as $a_e > a_m > a_u$.

unconstrained basic grant revenues can be "captured" by the elite in the elite province for services consumed by the elite residents. For example, basic grant revenues meant for lower income services might be allocated to shared facilities – center city roads, school science labs, or provincial data systems – or simply expropriated for elite neighborhood facilities. The share of basic grants so captured ($0 \leq \varphi \leq 1$) measures a *lack of* redistributive effort by the province. In the public finance literature, φ is often called the "flypaper effect" of targeted grants. Here we call φ provincial "capture." The majority prefers that $\varphi = 0$. In majority run provinces, capture for elite services will be zero. However, in elite-controlled provinces there is shirking as the elite seeks to push φ as high as possible.

We assume there is a lower value of fiscal effort φ_L that the elite province can allocate to its elite residents without detection or penalty by the majority, but there is an upper limit φ_H as well. The upper limit defines maximum shirking and is set by the threat of majority residents in the elite province to leave the province and relocate to a majority- run province where there is no shirking. Given a cost of exit**,** the upper limit is set to equalize the welfare of a typical poor resident in the elite province with shirking to that in a majority run province without shirking. If the majority does leave, then the elite province will receive no redistributive transfers from the central government, have no redistributive responsibilities, but then no ability to influence the central government setting the national redistributive tax rate. Thus the elite will not exceed this upper limit.[10]

Finally, choosing a level of capture above the lower bound**,** φ_L is not costless for the elite. When the rate of capture exceeds its lower bound and services to lower income residents are noticeably reduced, poor residents within the elite province impose a "protest" penalty of ρ Rand on each elite resident. In equilibrium,

[10] The lower bound for capture (φ_L) is amount of capture than can occur before the majority notices that redistributive funding is less than their expectations. The upper bound for capture (φ_H) is defined by amount of capture possible before the majority exits the elite province for neighboring majority provinces. The more attractive is the elite province for economic opportunities, the higher will be φ_H.

the costs of such protests discourage redistributive "shirking" via high capture.[11]

Resident Economic Welfare: We evaluate welfare first under a federalist system and then under unitary governance. The economic welfare of elite residents will equal their pre-tax income, *Y*, minus redistributive tax payments (τ) plus any resources "captured back" through reduced fiscal effort ($\varphi \bullet r$) in the elite provinces:

$$\begin{aligned} y(\tau, \varphi_L) &= Y - \tau + \varphi_L \bullet r_e(\tau; q), \\ y(\tau, \varphi_H) &= Y - \tau + \varphi_H \bullet r_e(\tau; q) - \rho, \end{aligned} \tag{3F}$$

under federalism with low capture and with high capture less a protest penalty, respectively.

Under unitary governance,

$$y(U) = Y - \tau_U, \tag{3U}$$

The economic welfare of a typical majority resident will be the sum of private sector income, *W*, the utility value of redistributive services, denoted $\lambda\upsilon(q)$, and any "free" redistributive revenues not captured by the provincial government, $(1 - \varphi) \bullet r$. For a majority resident living in an elite province with capture:

$$\omega_e(\tau, \varphi) = W + \lambda\upsilon(q) + (1 - \varphi) \bullet r_e(\tau; q),$$

while for the majority resident living in a majority province:

$$\omega_m(\tau, \varphi) = W + \lambda\upsilon(q) + r_m(\tau; q).$$

Since the provision of redistributive public services in the elite province is more efficient, $r_e(\tau; q) > r_m(\tau; q)$. In equilibrium, this advantage must be sufficient to just compensate poor residents of the elite province for elite capture. In a federal equilibrium, a fraction (μ) of the majority residents will live in elite run province(s) and $(1 - \mu)$ of the residents will live in majority run provinces. We assume the majority

[11] On the potential for a protest penalty over the lack of redistributive services, see New York Times, September 7, 2009, p. A-4, "Renewing a Tradition of Protest, South Africa's Poor Demand Basic Services." That these protests might become violent, see "Violence Mars Start of ANC Hearing," *Financial Times*, August 31, 2011. In the application of our model to South Africa, we specify the bounds for $\varphi_L \leq \varphi \leq \varphi_H$ using the work of Reinikka and Svensson (2004); see Appendix.

leadership wishes the maximize the welfare of the average majority resident defined as:

$$\omega(\tau, \varphi) = \mu \bullet \omega_e(\tau, \varphi) + (1 - \mu) \bullet \omega_m(\tau, \varphi), \tag{4F}$$

under federalism, and:

$$\omega(U) = W + \lambda \upsilon(q) + r(\tau_U; q). \tag{4U}$$

under and unitary governance.

For both the poor majority and rich minority in the new democracy, welfare depends upon the governance regime and, for the federal regime, the choice of the redistributive tax rate by the majority controlled central government and the choice of capture by the minority controlled province. Under majority rule unitary governance, the elite cannot prevent the choice of τ_U. Under democratic federalism they can, *if* their constitutional control of redistributive spending allows for a successful punishment of maximal redistributive taxation. The punishment strategy is for the elite province to adopt φ_H whenever the central government selects τ_U.

D. ***Feasible and Sustainable Democratic Federalism***: When the elite's threat to adopt high capture is credible threat, then democratic federalism becomes a *feasible* constitution. Democratic federalism becomes a *sustainable* constitution when both the majority and the elite prefer provincial to unitary provision of redistributive services and a redistributive tax rate less than the maximal tax rate as a long-run equilibrium to the annual policy game.

Feasible Democratic Federalism: For democratic federalism to be feasible, the elite needs high capture to be a credible elite punishment in those instances when the majority leadership selects maximal redistributive taxation, τ_U. For this to be true, two constraints on the design of the federal constitution must be met. First, the majority must care enough about the elite provinces' provision of redistributive services that it will not strategically by-pass provincial government, and thus remove the elite's ability to use its high capture threat. We call this constraint the *Assignment Constraint*. The Assignment Constraint ensures that the majority cares enough about assigned provincial services – λ high enough – and the elite is sufficiently

effective in the provision of those services – $s_e(q)$ sufficiently lower than $s_m(q)$ and $s_u(q)$ – that the majority will not "de-fund" provincial governments and choose to provide all services through a *de facto* unitary government. This sets a lower bound to the importance and the quantity of assigned services. There is an upper bound as well. If the level of required assigned service inputs is set too high, then the amount of unconstrained basic grants available for capture is reduced and the economic penalty imposed by elite high capture is marginalized. Together, the Assignment Constraint is specified as a value of *q* bounded as $q^{min} < q \leq q^{max}$ such that if *q* falls outside the bounds, elite punishment is no longer credible If the Assignment Constraint does not hold, then when the elite province adopts high capture, the majority controlled central government simply moves to de facto unitary governance, supplies redistributive services centrally, and denies the elite any access to high capture of free redistributive transfers.

The *Border Constraint* sets a lower and upper bound on the number of majority residents who live in the elite province (μ). If too few majority residents are in the province, then the elite's threat to adopt high capture is ineffective as the "pain" of high capture impacts only a few majority residents and can be compensated for by adopting the maximal tax rate. But if there are too many majority residents in the elite province then the majority can out vote the elite in setting provincial policies and again high capture ceases to be a credible elite punishment. The Border Constraint is specified as $\mu^{min} < \mu \leq \mu^{max}$.

When both the Assignment and Border Constraints are met, high capture becomes a credible elite punishment and the annual fiscal policy game becomes a "hostage" game.[11] The majority controls the central government's tax rate and holds the elite's income hostage, while the elite controls redistributive services to an important share of the majority and holds the welfare of the average poor majority resident "hostage."

Sustainable Democratic Federalism: A central feature of this annual hostage game is the temptation for the majority to defect from the cooperative federal allocation and adopt maximal redistributive taxation. To discourage defection, the cooperating elite province must be able to impose a sufficiently large penalty

[11] Schelling (1960, pp.135-136) first proposed the use of "hostages" as a means for enforcing incomplete contracts; see also Williamson (1983).

on a majority central government. One possible penalty is for the elite province to adopt the "grim trigger strategy" and play low capture as long as the majority central government has adopted a less than fully exploitative tax rate, but if the central government selects τ_U, then the elite province (credibly) adopts high capture forever.[12] For this game, the grim trigger strategy is the toughest penalty the elite can impose on the majority. If this penalty cannot discourage maximal taxation, then for this game, nothing will.[13] In Inman and Rubinfeld (forthcoming), we provide the conditions under which this repeated hostage game results in a less than fully redistributive fiscal equilibrium, and under these conditions democratic federalism is sustainable as a long-run policy equilibrium. Our central Proposition states:

> *Sustainable Democratic Federalism.* If the underlying political economy satisfies the requirements of the Border and Assignment Constraints, there exists a grim trigger policy equilibrium for sufficiently patient majority and elite residents in which democratic federalism ($\tau_F < \tau_U$ and $\varphi = \varphi_L$) is sustainable as a long-run constitutional equilibrium.

As in all policy games of this form, a crucial parameter for a sustainable long-run equilibrium is the discount factor δ for each player. The Proposition specifies constraints on δ required for the cooperative choices in democratic federalism to be an equilibrium to this policy game. Patient players have low rates of time preference, values of δ very close to 1, and a willingness to forgo the short-run gains of defection for the long-run benefits of cooperation. Impatient players have high rates of time preference, low values of δ, and a propensity to prefer defection. For democratic federalism to be sustainable, it must be true that the level of redistribution chosen each year under federalism is less than maximal redistribution – that is, $\tau_F < \tau_U$, or equivalently, that $g(\tau_F) < g(\tau_U)$.

Unfortunately there is no guarantee that the rates of time preference of the actual participants in our federalism policy game will meet the constraints. Indeed, as the parties become more impatient the minimal transfers the majority will accept exceed the maximal transfers the elite will allow: $g^{min}(\delta_m) > g^{max}(\delta_e)$. Impatient players want more now and if they are not compensated sufficiently over the long-run they will

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[12] See, for example, Gibbons (1992), pp. 88-99.

[13] See Gibbons (1992), pp. 100-102.

defect to their "grabbing" strategies – here τ_U and φ_H. For democratic federalism to be sustainable, both the rich minority and the poor majority must be relatively patient players of government's annual redistribution game. If sufficiently patient, then $g^{max}(\delta_e) \geq g^{min}(\delta_m)$ and democratic federalism is sustainable.

E. ***Summary***: South Africa turned to federal governance as a solution to one of transition politics' central challenges: How can the new poor majority credibly promise not to exploit the now vulnerable rich minority? We have outlined the conditions where a federal constitution can provide such protections. From the Assignment Constraint, the elite must be a low cost provider of redistributive services important to the majority and those services must be assigned to provincial governments. From the Border Constraint, the elite must politically control at least one important province and, given the central government's level of assigned services, have an incentive to punish the majority by capturing intended redistributive transfers when the central government's redistributive tax rate gets too high. Finally, both the rich minority and the poor majority must be sufficiently patient that the long-run economic benefits of the cooperative, federal outcome are preferred. Under these conditions, democratic federalism does offer the promise of elite protection. Whether this promise has been realized in South Africa is our next question.

III. Is South Africa a Federal Democracy?

A. ***Redistributive Fiscal Policies (and Politics) in Democratic South Africa***: Table 1 details the time path of redistributive fiscal policies in democratic South Africa, beginning with the first budget under the full control of the new ANC government led by President Mandela. Mandela's administrations then set the budgets through FY 1999/2000, followed by the budgets set by his chosen successor, President Thabo Mbeki. Mbeki was first elected in May, 1999, and then re-elected in May, 2005. Beginning in late 2006, however, the rank and file within the ANC began pushing for substantially more redistributive spending, particularly for education, health care, and public housing. Rank and file resistance culminated in Mbeki's ouster as the leader of the ANC at the party's December, 2007 convention, replaced by Jacob Zuma. Mbeki resigned the presidency in May, 2008, replaced by an interim President, Kgalema Motlanthe. The budget for FY

2008/2009 was a negotiated budget between Mbeki and the Zuma-led "new" ANC. Zuma was elected to a full term as President in May, 2009. The budget for FY 2009/2010 reflects the preferences of the Zuma presidency. Three important conclusions are evident from the results in Table 1.

First, redistributive spending and the level of redistributive services provided to lower income households has been significantly higher under democracy than under apartheid, initially a 400% increase and growing. In the first democratic budget specified after the election of President Mandela and the new parliament (FY 1995/96) the average level of redistributive spending for education, health care, housing, and lower income transfers was 2189 Rand/capita (Table 1, Col. 1; ≃ $350/person). The level of redistributive service inputs provided to the poor majority is measured here by public employee training years per majority adult. This first post-apartheid budget provided for redistributive service inputs of $q_e = .56$ for lower income residents of the Western Cape (Table 1, Col. 4) and $q_m = .44$ for the majority residents in the average majority run province.[14] In contrast, for an average year during post-Soweto apartheid regime (1977-1993), spending for comparable redistributive services is estimated to be about 525 Rand/capita, supporting a level of redistributive inputs per majority adult of only $q = .17$.[15]

Second, the path of redistributive spending mirrors closely the wider politics of South Africa. President Mandela's redistributive budgets adhered closely to those recommended by the Financial and fiscal Commission. The Commission had been established by the Interim Constitution to specify the constitutional

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[14] See footnote 9. We specify the redistributive service input bundle by $q = a\cdot(X/M)$, where X/M is public employees (X) per adult majority resident (M) and where a is the measure of employee productivity equal to $a_e = 17$ years of education for the average elite public employees, $a_m = 14$ years of education for the average "trained" majority employee, and $a_u = 7$ years of education for the average "untrained" majority employee. For example, in FY 1995/96 in the elite province, $q_e = 17\cdot(1/32) = .56$ while in the average majority province $q_m = 14\cdot(1/32) = .44$. The number of employees per majority resident (X/M = 1/32) was set by Financial and Fiscal Commission as a national standard, but the quality of the employees – measured by years of schooling – was much higher in the elite province – that is, $a_e > a_m$. Over time this difference in employee quality has been offset by an increase in the number of employees hired in the majority provinces so that the levels of q between the elite and majority provinces have been equalized.

[15] This estimate of redistributive spending is for education, health care, and income transfers to lower income families. Excluded from this estimate are payments to the leaders of the homelands, particularly to Chief Buthelezi of the kwaZulu homeland. We have estimated homeland payments to average about 1,500 Rand/capita over the years 1977-1993, the post-Soweto years. Source: Development Bank of South Africa, *Annual Report*, Various Years. See also fn. 32 where we provide an estimate of q = .16 for the last ten years of the apartheid regime.

groundrules for fiscal policy, particularly for the financing and provision of redistributive services by the provinces. As part of his effort to gain the confidence of the original white elite, Mandela's appointments to the Commission gave equal (50:50) representation to members of the ANC and NP. The FFC and its responsibilities were confirmed by the final Constitution. Mandela's budgets followed closely the recommendations of this bi-partisan Commission. The aggregate level of redistributive spending remained constant during his presidency (Table 1, Col. 1). What did change was the allocation of the total redistributive budget away from the elite Western Cape towards the majority provinces (Table 1, Cols. 2, 6), and in particular, for funds given to the provinces for spending on redistributive service inputs (Table 1, Cols. 3, 7). This reallocation has allowed the majority provinces to hire more teachers, nurses, doctors, and social workers as an offset to the higher quality of those employees in the Western Cape. The result has been an equalization of effective (training adjusted) public employees per majority resident by the end of Mandela's term (Table 1, Cols. 4, 8), an allocation that holds to this day.

Mandela's chosen successor, Thabo Mbeki, followed the Mandela budgets almost exactly for the first five years of his presidency. Beginning in FY 2005/2006, however, growing pressure from the rank and file within the ANC pushed Mbeki to increase resources for redistributive spending, from aggregate allocations of 2231 Rand/capita in FY 2004/2005 to 2735 Rand/capita in 2007/2008. The majority of the funds were targeted at redistributive service inputs. The average level of q within the majority provinces rose from .57 (.60 in the Western Cape) to .72, an increase of 26 percent over those three intervening budgets. Even this increase, it appears, was not enough to placate demands for more redistribution. Mbeki was replaced as head of the ANC at their December, 2007 convention and resigned the presidency in September, 2008. Jacob Zuma became the new head of the ANC, Motlanthe the interim president after Mbeki's resignation, and Zuma the newly elected president in May, 2009. In the two years since Mbeki's ouster, redistributive budgets and services have increased another 18 percent. The last budget (FY 2009/2010) for which full data are available allocates an average of 3213 Rand/capita to redistributive spending and requires a level of redistributive

services per majority adult of q = .85.

Third, despite the significant increase in the level of required spending for redistributive service inputs, the aggregate level of grants has been sufficient to leave significant funds as"free" or unconstrained provincial revenues; see Table 1, Cols. 5 and 9.[16] In more recent years, the basic unconstrained grant has averaged about 500 Rand/capita in the elite province, equal to about $435 million dollars a year for discretionary provincial spending. While these funds are ostensibly meant for poverty spending for majority residents, they can be "captured" for elite services in the elite province. The treatment of elite capture of these basic grants is what potentially deters the majority from adopting maximal taxation. Basic grants are fiscally significant. Whether they are large enough that their capture deters maximal taxation, and thus preserves democratic federalism as an equilibrium transition outcome, is our next question.

B. Is Elite Punishment Credible and Democratic Federalism Feasible? Under South Africa's democratic constitution, majority voting will determine both cental government and provincial fiscal policies. During constitutional negotiations, the majority ANC insisted that the level of redistributive taxation be set by the central government. In return, the elite NP demanded that provinces be assigned the central role for providing redistributive public services. If assigned redistributive services are "important enough" to the welfare of the majority (λ large enough) and if at least one demographically important province is controlled by the elite (μ large enough), then the elite will have a credible punishment and an ability to influence the redistributive fiscal choices of the central government (and in particular the tax rate τ). Since the first election in 1994, the elite controlled province has been the Western Cape. Redistributive public services assigned to the provinces include K-12 education, health care including public health, housing, and the payment of

[16] The initial level of the basic grant given to the Western Cape was very large in the first post-apartheid budgets of FY1995/96 to FY1997/98. The reason was a large supplemental grant to the high quality medical complex in the Western Cape to ease the transition away from full to only partial government support. See Financial and Fiscal Commission, *The Allocation of Financial Resources Between the National and Provincial Governments, Recommendations for Fiscal Year, 1996/97.* September 9, 1995.

income transfers to qualified households.[17] Establishing that these Western Cape borders and constitutional service assignments are sufficient to meet our Border and Assignment Constraints is the first step towards confirming the long-run viability of democratic federalism in the South Africa.

The shaded area in Figure 1 (*Feasible Democratic Federalism*) shows those combinations of elite provincial borders, measured as the equilibrium share of the majority (μ) living within the province, and the centrally mandated level of assigned redistributive services (q), that satisfy the Border and Assignment Constraints at the time of the democratic transition. The Border Constraints set an upper and lower bound on the share of poor majority residents who live in elite controlled provinces. The upper bound ensures that the elite population will still be a political majority in their province, even if the elite leave the country with maximal redistributive taxation. The lower bound, shown by the curve $\mu^{min}(q)$, ensures that when the majority does choose τ_U, the elite has an incentive to adopt the maximal φ_H punishment. This requires $y(\tau_U, \varphi_H) > y(\tau_U, \varphi_L)$, as specified by Equation (3F). For this to be true, there must be enough majority residents residing in the elite province so that rewards from the high capture of unconstrained transfers, $\varphi_H \cdot r_e(\tau_U, q)$, compensate for the expected protest penalty (ρ) imposed by the majority on each elite resident. Since $r_e(\tau_U, q) = g(\tau_U) - s(q)$, unconstrained transfers per majority resident decline as mandated q increases. To ensure captured revenues can overcome ρ, the number of majority residents in the elite province must be increased. Provincial borders may need to be redrawn. The Border Constraint requires $\mu^{max} \geq \mu > \mu^{min}(q)$. Figure 1 shows our estimate of $\mu^{max} = .192$ and the location of $\mu^{min}(q)$ for the South African political economy.[18]

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[17] See final Constitution, Section 4. Strictly speaking, the assignment is "concurrent" meaning that the central government retains the right to provide these services directly if it wishes. Our analysis of the equilibrium fiscal allocations explicitly allows for the possibility of a central government "take-over" of redistributive service provision, a regime we call *de facto* central governance. What deters the majority central government from adopting this strategy in equilibrium is the efficiency advantages of using the elite run province to provide services to an important fraction of poor, majority residents.

[18] The maximum size of the province depends upon our specification of $N(\tau_U)$. The simplest specification for elite tax avoidance is $N(\tau) = N_0 - \beta \bullet \tau$, where N_0 is the initial minority elite population of 9.6 million and β (> 0) measures the degree of tax avoidance as τ rises. We calibrate $\beta = .00015$ to imply a plausible peak to the national revenue hill from elite resident taxation based on the estimates by Gruber and Saez (2002). Setting $\beta = .00015$ sets the revenue maximizing tax rate per elite resident for redistributive services at 32,000 Rand/elite resident, or approximately 37 percent of average middle income residents' incomes (= 37,000R/86,000R) paying taxes. This specification implies

The Assignment Constraint requires the majority to prefer federal over de facto unitary governance even if the elite adopts the high capture strategy – that is, $\omega(\tau_U, \varphi_H) > \omega(U)$ from Equations (4F) and (4U). The benefit to the majority of federalism is the ability to use low cost, elite provinces for the provision of redistributive services. The cost to the majority of federalism is the risk of capture. The Assignment Constraint is designed to ensure the majority prefers federalism. As the number of majority residents in the elite province (μ) increases, capture by the elite is more and more damaging to the majority. Thus as μ rises, unitary governance becomes more attractive. To restore a preference for federalism, the cost advantage of having provinces must be increased. This is done by making required redistributive services more and more important to the majority. In Figure 1, this is shown by the curve $q^{min}(\mu)$, where $q > q^{min}(\mu)$.[19]

The level of centrally required redistributive services cannot be too large, however. The upper bound, $q^{max}(\mu)$, is the value of q at which the benefits of high capture to the elite just fail to compensate for the penalty ρ of using high capture. Then, the elite province cannot credibly threaten to choose φ_H and democratic federalism can no longer be sustained as an equilibrium outcome. This occurs along the curve, $\mu^{min}(q)$, where for any value of μ there is a corresponding value of q^{max}. The Assignment Constraint requires that the majority chosen level of assigned services fall within the bounds, $q^{max}(\mu) \geq q > q^{min}(\mu)$. [20]

Together, the Border and Assignment Constraints define the set of federal constitutions within which

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$N(\tau_U)$ = 4.8 million elite residents. The total number of adult (voting age) majority residents at the time of the transition was 25 million; see Appendix. Thus μ^{max} = 4.8M/25M = .192.

The specification for $\mu^{min}(q)$ requires that $\varphi_H \cdot r_e(\tau_U, q) > \rho$, or that $\varphi_H \cdot [g(\tau_U) - s_e(q)] \bullet [\mu \bullet M/N(\tau_U)] > \rho$. The Appendix to the paper provides the calibration for the South African economy needed specify $\mu^{min}(q)$ from this constraint. The only parameters not drawn directly from the South African economy are estimates of φ_H and ρ. Estimates of high capture come from the work of Reinikka and Svensson (2004) on bureaucratic capture of school funding in Uganda. Estimates of ρ are from the work of Collins and Margo (2007) for the costs of urban riots on U.S. city economies.

[19] Strictly speaking the constraint is defined not by q itself, but by the underlying preferences of the majority for q, specified here by the function $\lambda \cdot v(q)$. For our calibration of the South African economy, we specify majority preferences for redistributive services by $\lambda \cdot \ln(q)$, with the requirement that $\lambda \geq 3960$. See Inman and Rubinfeld (forthcoming) and a full Data Appendix, both available upon request.

[20] As for the specification of $q^{min}(\mu)$, the precise specification of q^{max} is in terms of majority preferences for redistributive services, here given as $\lambda \cdot \ln(q)$, with the requirement that $6100 \geq \lambda$. See Inman and Rubinfeld (forthcoming) and our full Data Appendix for details.

democratic federalism is a feasible long-run equilibrium of the annual policy game setting the redistributive tax rate, redistributive services, and provincial capture. The set of feasible constitutions for our specification of the South African political economy at the time of transition (see the Appendix) is shown as the shaded area in Figure 1. We need to know whether the *actual* South African constitution falls within this set.

At the time of initial (Interim) constitution, the NP had hoped to win political control of two provinces, the rural Northern Cape and urban Western Cape. Provincial borders were explicitly set with this outcome in mind; see Muthien and Khosa (1998). The NP, however, misjudged voter turnout by alienated conservative white farmers and farm workers in the Northern Cape. As a consequence the ANC won control of the province in the first elections of 1994 and has continued its majority position ever since. In contrast, the NP and now the middle-class, centrist Democratic Alliance (DA) and its political allies have held majority control over the Western Cape from those first elections.[21] Today the Western Cape is the elite controlled province with $\mu = .184$ of the majority adult (voting age) population residing in the province; see Figure 1.[22] Given the choice of the Western Cape as the elite controlled province, and the fact that for this province $\mu = .184$, feasible values of mandated redistributive services are bounded as $q^{max}(\mu) = .86 \geq q > .58 = q^{min}(\mu)$. Table 1 shows the redistributive spending chosen by each of the political regimes.[23] For the first three years of the Mandela presidency, redistributive services provided in the Western Cape ($q_e \simeq .56$ to .49) were greater than those provided in the majority provinces ($q_m \simeq .44$ to .43), reflecting a negotiated commitment to the

[21] The ANC has never won more than 45 percent of the vote in the Western Cape. Coalitions of the various elite opposition parties have won at least 51 percent of the vote; see www.elections.org.za. In the election of 2009, the Democratic Alliance won 48 percent of the Western Cape and the "break-away" moderate party from the ANC called the Congress of the People won 9 percent. The ANC won only 32 percent of the Western Cape vote.

[22] We define the actual value of $\mu = (M_e/M)$, where M_e is the majority adult population in the elite run province and M is the total majority adult population. The actual voting outcomes over the past 14 years favors the non-ANC (elite) coalition by a small majority. Therefore $N(\tau_F)/[M_e + N(\tau_F)] \geq .51$ must hold for the actual adult populations of the Western Cape, where $N(\tau_F)$ is the elite adult population in the Western Cape. The average elite adult population over this period in the Western Cape was $N(\tau_F)$ was a bit larger than 4.8 Million. If so, then to meet the narrow majority voting outcomes observed in the actual voting data, $M_e = 4.6$ Million must hold: 4.8M/[4.6M + 4.8M] = .51. Finally, the total majority adult population in South Africa at the time of the transition was M = 25 million. Thus we specify $\mu = (M_e/M) = 4.6M/25M = .184$.

[23] The average cost of providing q in the two sets of provinces are specified in the Appendix.

white bureaucracy and its concentration in the urban Western Cape as part of the original transition agreement. These disparities were removed by a significant re-allocation of redistributive spending away from the Western Cape to the majority provinces in the last two years of the Mandela presidency; see Table 1. The average level of q provided in all the provinces rose from .46 in FY1995/96 to .54 by the last Mandela budget. The average level of q chosen by Mandela was just outside the lower bound of what is needed for feasible democratic federalism. While the majority might have been tempted to defect to unitary governance, Mandela's absolute control over ANC politics and his commitment to the federal compact was sufficient to block that option and sustain federal governance.[24]

Matters became much less certain under the leadership of Mandela's successor, Thabo Mbeki. Mbeki's early budgets set the levels of redistributive services very near the Mandela recommendations ($q \simeq .57$ to .60) and just within the feasible set for democratic federalism – until FY 2005/06. Both in terms of aggregate redistributive spending (g_F) and the chosen levels of q, these early budgets clearly favored the elite. Just enough redistribution was being provided to hold the majority's potential demand for unitary governance in check. Beginning in 2006, ANC politics shifted, and with it, the redistributive budget. Led by the leadership of the Congress of South African Trade Unions (COSATU) and the ANC Youth League, the ANC rank file began to push for significantly more redistributive services. Mbeki responded by increasing the funded level of q significantly in his last three budgets, by 30 percent from $q = .61$ to $q = .79$ in the majority

[24] During the Mandela presidency, the level of redistributive services was recommended by a constitutionally created independent commission (Chapter 13, 220-222) known as Financial and Fiscal Commission (FFC), forwarded to the legislature without change by President Mandela, and then approved without amendment by the ANC controlled legislature. For example, the 1998 budget proposals by the Finance Department to the legislature commented that "it's (FFC's) recommendations for the division of resources between the three spheres of government (that) form the basis of the current allocations" (1998 Budget Review, Department of Finance, as quoted in *Financial and Fiscal Commission: A Ten Year Review*). The FFC membership was appointed by Mandela and was equally divided between ANC and National Party representatives. Commission decisions were typically made by unanimous agreements between the representatives of the two parties. The FFC's recommended level of redistributive services was 1 teacher per 38 school-aged children, 3.5 preventive health care clinic visits a year for each majority adult and child, and 4500 (real 2000) Rand for each income eligible child, elderly, and disabled majority resident for social insurance transfers. Together, these targets required redistributive grants sufficient to pay for .038 public employees per majority resident or, for an average level of training of 14 years per employee, q = .53 public employee training-years per majority resident. See FFC, *The Allocation of Financial Resources Between the National and Provincial Governments, FY 1996/97*, September 8, 1995.

provinces. Aggregate redistributive spending (g_F) increased proportionally. But this was not enough to prevent Mbeki's defeat as head of the ANC in December, 2007 and his subsequent resignation as President in September, 2008.

The upward trend for redistributive services has continued since Mbeki's resignation and the rise to power of Jacob Zuma as the leader of the ANC. Our most recent estimate for FY 2009/2010 places q = .85 and very close to the maximum value consistent with feasible democratic federalism. If mandated redistributive services gets much larger, the elite will not be able to credibly threaten the use of high capture as its punishment for a majority's decision to set $\tau = \tau_U$. If so, then democratic federalism with $\tau_F < \tau_U$ and $\varphi = \varphi_L$ will no longer be feasible as an equilibrium to the annual policy game. By our estimates, South Africa's redistributive politics is close to this tipping point.

C. Is Democratic Federalism Sustainable? For democratic federalism to be sustainable the elite minority must be able to credibly check the poor majority's preferred option of maximum redistribution. This is possible if the Assignment and Border Constraints are met and if the majority values future welfare enough that the losses from the elite's use of a high capture punishment forever (the "grim trigger" strategy) is greater than the one time gains that come from adopting maximal taxation when the elite cooperates with low capture. When this is so, there is a range of redistributive transfers such that $g(\tau_U) > g^{max}(\tau_F; \delta_e) \geq g(\tau_F) \geq g^{min}(\tau_F; \delta_m)$. A sufficiently patient majority gives the threat of high capture the clout it needs to check redistributive taxation.

Table 2 provides the estimates of $g^{max}(\tau_F; \delta_e)$ for the elite and $g^{min}(\tau_F; \delta_m)$ for the majority for our specification of the South African political economy. We provide two estimates of the minimally acceptable grant for the majority, first, using a discount factor consistent with the real rate of interest for the South African economy since the fall apartheid (r = .08, δ_m = .93) and second, using a discount factor consistent with estimates by Karlan and Zinman (2008) for the rate of time preference for credit constrained, lower income South African households (r = 2.00; δ_m = .33). The maximally acceptable grant for the elite assumes

a discount factor consistent with the real rate of interest (r = .08, δ_e = .93). For these discount factors, the requirement for sustainable democratic federalism has held for all presidential regimes to date; see Table 2, Cols. (2) and (3).[25]

Four conclusions emerge from the analysis in Table 2. First as modeled here, democratic federalism is sustainable for majority redistributive preferences and discount factors, even a very low discount factor, as revealed by the presidencies of Mandela, Mbeki, and Zuma. Second, the bargaining range for sustainable redistribution measured as $[g^{max}(\delta_e) - g^{min}(\delta_m)]$ has been shrinking and actual levels of both $g^{max}(\delta_e)$ and $g^{min}(\delta_m)$ have been rising over time. As the majority has chosen higher levels of required redistributive services over time, the amount of unconstrained redistributive transfers available to the elite province for high capture declines. This reduces the penalty that can be imposed by elite high capture and shifts the balance of bargaining power towards the majority. The net effect is to raise both $g^{max}(\delta_e)$ and $g^{min}(\delta_m)$. As $g^{max}(\delta_e)$ has an upper limit of $g(\tau_U)$, the bargaining range gets squeezed as well.

Third, it is particularly evident from a comparison of our estimate of $g^{min}(\delta_m)$ to the actual transfers paid by the Mandela and "early" Mbeki administrations, that an "anti-majoritarian" decision had been made to moderate the redistributive payments of the central government, perhaps as a signal to the elite that they need not fear majority rule. Actual transfers paid were only 75 percent of the majority's "required" minimal transfers. But fourth, these early anti-majoritarian budgets have now yielded to growing majority pressure within the ANC for higher transfers. The last Mbeki and first Zuma budgets are only a few Rand below the $g^{min}(\delta_m)$ requirement, and they meet the constraint in the majority provinces in FY 2010; see Table 1, Col. (6). Whether the federal compromise for sustainable federalism will continue under the new leadership of Jacob Zuma is the open question. We will evaluate this question in Section V.

But first we ask: Was democratic federalism as specified here economically beneficial *ex ante* to both the majority and the elite, and thus sufficient to facilitate a peaceful transition to democracy?

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[25] And note that for any value of q, $g^{min}(\delta_m)$ is larger the more impatient becomes the majority as measured by the lower value of δ_m.

IV. Federalism and the Economic Value of the Democratic Transition

For there to be a peaceful transition from autocracy to democracy, the once ruling elite and the new democratic majority must prefer democracy to autocracy and agree on the preferred form of the democratic constitution. Our focus is on the economic value of these constitutions as measured by the discounted present value of future economic welfare for the majority and the elite under autocratic and democratic governance: $V_M(\bullet, \lambda)$ and $V_E(\bullet, \lambda)$ respectively. We compute the welfare gain for the majority and for the elite of moving from autocracy to democracy for both a unitary democracy ($\mu = 0$) and for a federal democracy ($\mu > 0$). Under unitary governance this equals $\Delta V_M(U) = V_M(\mu = 0; \lambda) - V_M(A; \lambda)$ for majority residents and $\Delta V_E(U) = V_E(\mu = 0; \lambda) - V_E(A; \lambda)$ for elite residents. Under federal governance, $\Delta V_M(F) = V_M(\mu > 0; \lambda) - V_M(A; \lambda)$ and $\Delta V_E(F) = V_E(\mu > 0; \lambda) - V_E(A; \lambda)$ apply. A peaceful transition is possible when $\Delta V_M(U) > 0$ and $\Delta V_E(U) > 0$ or $\Delta V_M(F) > 0$ and $\Delta V_E(F) > 0$ hold.

To estimate $V_M(\mu, \lambda)$ and $V_M(A; \lambda)$ for majority residents and $V_E(\mu, \lambda)$ and $V_E(A; \lambda)$ for elite residents for each of three political regimes we must first specify the future paths of majority and elite incomes, and then specify the level of elite taxation and the level of redistributive services. For majority residents we will assume a common specification in all political regimes for utility from redistributive services: $\lambda\upsilon(q) = 4123 \cdot \ln(q)$.[26] When computing the present value of the future stream of annual welfare to the date of the transition (1994) we also assume a common 70 year horizon for citizen welfare (to 2064) and a common discount factor of $\delta = .93$.[27]

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[26] Our estimate of the preference parameter, λ, follows from the specification of majority demand for redistributive services under the assumption the majority selects its preferred level of services setting marginal benefits equal to marginal costs. For the last Zuma budget for FY 2009/10, the preferred level of services is $q^* = .85$; see Table 1. The marginal cost of each unit of q is 4,850 Rand/Majority Resident; see Appendix. Marginal benefits are specified here as $\lambda \cdot v'(q) = \lambda/q$. Equating marginal benefits to marginal costs for $q^* = .85$ implies a value of $\lambda = 4123$: $\lambda \cdot v'(q) = \lambda/.85 = 4{,}850 \Rightarrow \lambda = 4123$.

[27] The results will show that the majority unambiguously benefits from income growth and elite transfers in every year of the democracy, so the majority's preference for democracy is unaffected by the discount rate. Using a majority discount factor of $\delta = .33$ (as implied by the work of Karlan and Zinman, 2008) rather than $\delta = .93$ will reduce the size of aggregate benefits, but leaves unaffected the majority's preference for democracy.

We project the future paths of majority and elite incomes conditional upon their incomes in the first year (1994) of the transition, when W_0 equals 9,700 Rand per adult majority resident and Y_0 equals 86,000 Rand per adult elite resident. Incomes for both the elite and majority residents are then allowed to grow according to an estimated common annual growth rate, predicted under the continuation of apartheid and under the new democracy. We assume the predicted rates of growth rates are identical for unitary and federal democracies.[28] Growth rates are computed based upon the performance of the South African economy over the same period, 1950-2008; see Table 3. A simple regression comparing the average annual rate of real income growth pre- and post-democracy is shown in Table 3, Col. (1). The variable DEMOCRACY equals 1 for all years after the transition (1994 onward). The average rate of income growth under apartheid (1950-1993) is 1.24 percent per annum, while that under democracy (DEMOCRACY = 1) is 2.65 percent per annum.

The sample average apartheid growth rate of 1.243 percent does not accurately reflect growth in the last years of the repressive regime, however. These years were marked by the presence of international sanctions on trade and by the extension of rights to organize and to strike to black, majority-controlled unions called the Congress of South African Trade Unions or COSATU. Under the assumption that sanctions and majority controlled unions would continue if apartheid were to continue, then the effects of these institutions on growth will need to be considered. We do so by adding indicator variables to our core regression for trade sanctions (SANCTIONS = 1 for 1976-1993, 0 otherwise) and for government's recognition of majority controlled unions during apartheid (COSATU•APARTHEID = 1 for 1985-1993, 0 otherwise) and then democracy (COSATU•DEMOCRACY = 1 for 1994 onward, 0 otherwise); see Table 3, Col. (2).[29] During the apartheid years, sanctions had a negative but imprecisely estimated effect on growth, reducing the annual

[28] On the effects of fiscal decentralization for economic growth, see Davoodi and Zou (1998) and Rodriguez and Ezcurra (2011). In both studies there is statistically significant but quantitatively very small negative effect of expenditure decentralization – the relevant measure here – on country economic growth.

[29] For the history of trade sanctions against South Africa, see Hufbauer, Schott, and Elliot (1990).

rate by 9/10's of a percent. Majority unions and their threat of industrial action had a larger and statistically significantly negative effect, reducing the annual rate of growth by about 1.88 percent. Together SANCTIONS and COSATU reduced the expected annual rate of growth in the last eight year's of the apartheid regime to a *negative* 8/10's of a percent.[30] Once democracy occurred, these negative effects disappeared. Sanctions did not apply after 1994, and the estimated effect COSATU on growth under democracy is no longer significantly different from zero. The resulting average rate of growth over the past fourteen years of democracy has been a positive 2.65 percent per annum.[31] In projecting future incomes we will assume an average annual rate of growth of -.8% if apartheid were to continue and 2.65% under the new democracy.

In addition to future incomes, the poor majority benefits from the provision of redistributive public goods and income transfers paid for by taxes on the elite residents. This is true under both apartheid and democracy. Under apartheid, we assume the majority would continue to receive the real value of redistributive services provided by apartheid government's transfer to homeland governments under the last ten years of apartheid rule. These transfers averaged 1,052 Rand/majority adult resident and imply a level of redistributive service inputs per majority resident of $q_A = .16$.[32] Under apartheid, there are no additional income transfers.

Under a federal democracy, the elite is taxed at the equilibrium tax rate of τ_F to pay for both redistributive services and a lump-sum income transfer. We assume the actual budgets from FY 1995/96 to

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[30] The average rate of growth during the last years of apartheid is estimated as the estimated constant effect of 2.042 less the offsets from SANCTIONS (=1) and COSATU•APARTHEID (=1): -.766 = 2.042 - .928 - 1.880.

[31] The average rate of growth during the first years of democracy is estimated as the estimated constant effect of 2.042 plus the overall effect of DEMOCRACY (=1) less the small negative effect of COSATU•DEMOCRACY (=1): 2.649 = 2.042 + .823 - .216.

[32] During the last 10 years of apartheid, homeland budgets averaged 26.3 Billion (2000) Rand per year or about 1052 Rand for each of the 25 million majority adult residents; Development Bank of South Africa, *Annual Report*, Various Years. We assume these services were provided by trained and untrained majority providers at a cost of 6714 Rand per unit of q; see Appendix. Thus q = .16 = 1052R/6714R. This is probably a generous estimate, given that a significant share of homeland payments were thought to go to the personal use of the homelands' tribal leaders.

FY 2009/10 reported in Table 1 represent the results of the actual policy game conditional on the shifting politics within the ANC. We also assume the equilibrium revealed in the 2010 budget where $q_F = .85$ holds for all future years. This is the preferred level of redistributive services under democratic federalism for majority preferences specified by $\lambda = 4123$.[33] Transfer revenues not allocated to redistributive services become available as lump-sum income transfers to the majority. Assuming the FY 2009/2010 budget represents the long-run equilibrium budget for democratic federalism, 1,254 Rand per majority adult resident will be available as a lump-sum income transfer.[34] Not all of these funds will be available, however. Under democratic federalism, the elite province can capture back some if these revenues. The equilibrium rate of capture is $\varphi_L = .15$ in this province.

Under unitary democracy, the majority taxes the elite at the maximal tax rate and allocates all the proceeds to the majority's preferred level of redistributive services and then, after providing services, allocates the remainder to the majority as a lump-sum income transfer. The maximal redistributive tax rate is 32,000 Rand per elite resident which provides a maximal redistributive budget of 6,145 Rand per adult majority resident.[35] For majority preferences specified by $\lambda = 4123$, we compute the preferred level of q under unitary governance as $q_U = .62$; less redistributive services are demanded in unitary governance because the government can no longer utilize the efficiency advantage of a low cost elite province.[36] Providing q_U

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[33] See fn. 26.

[34] Total transfer revenues is 3,213 Rand per capita; see Table 1. Also from Table 1, the average level of spending for redistributive services, averaged over the elite and majority provinces, is 2,536 Rand per capita. This leaves 677 Rand per capita available for pure income transfers. The ratio of majority adult citizens to total population at the time of the transition was 25 Million/46 Million = .54. Thus the funds available for income transfers per majority adult resident will be 1,254 (= 677/.54).

[35] The maximal redistribu8tive tax rate on each elite resident is specified by peak of the redistributive revenue hill: Revenue = $\tau \cdot N(\tau)$, where $N(\tau) = N_0 - \beta \cdot \tau$. For $N_0 = 9.6$ Million elite residents before redistributive taxation and $\beta = .00015$, then Revenue is maximized where $dRevenue/d\tau = 0$, or when $\tau_U = 32{,}000$ Rand per elite resident. The average elite resident had an income of 86.000 Rand at the start of the transition. See the Appendix. Ignoring growth, the implied maximal redistributive tax rate on income would be 37 percent (= 32,000/86,000).

[36] Costs of q under unitary governance will a weighted average of the costs using majority trained and untrained public employees, $s_m(q)$ and $s_u(q)$ respectively; see Appendix. Under unitary governance, we assume the share of majority employees who are trained is .825; see Full Data Appendix available upon request. Thus costs of q will equal

= .62 costs 4,123 Rand per majority resident under unitary governance. This then leaves 2,022 Rand per majority resident as a pure income transfer. Since there are no provinces, there is no elite capture of this transfer.

Elite welfare in these three regimes depends upon annual elite incomes – and thus growth rates – and elite taxation. We estimate the elite tax rate for the apartheid regime as the annual cost per elite resident of homeland payments made for redistributive services. The average annual budget for homeland payments for the decade before the transition was $26.3 Billion (2000) Rand, or 2,740 Rand per elite resident.[37] Under democracy, taxation of the elite population must be sufficient to support the larger equilibrium level of redistributive services as well as the lump-sum transfer paid to majority residents. Under democratic federalism, the elite can capture back $\varphi_L = .15$ of that transfer in their elite province. Equilibrium elite taxation net of capture will equal 29,600 Rand per elite resident annually under democratic federalism.[38] Finally, under unitary governance elite taxation will be the maximal redistributive tax: $\tau_U = 32{,}000$ Rand per elite resident. A comparison of the two tax rates shows that democratic federalism lowers elite redistributive taxation by 2,400 Rand per year from the maximal rate, or by about 7.5 percent. Compared to apartheid, redistributive elite taxation is more than 10 fold larger under either democratic regime. For the elite, the question becomes: Does improved economic growth compensate for these higher taxes?

6713 Rand per majority resident. From $\lambda \cdot v'(q) = 4123/q = 6713$, we compute $q_U = 62$.

[37] During the last 10 years of apartheid, homeland budgets averaged 26.3 Billion (2000) Rand per year or about 1052 Rand for each of the 25 million majority adult residents; Development Bank of South Africa, *Annual Report*, Various Years. At the time of the transition, there were 9.6 Million upper income residents. Thus the annual cost of these transfers was 2,740 Rand per elite resident.

[38] From Table 1, total transfers per capita are 3,213 Rand in FY 2009/10, the first year of a full equilibrium for democratic federalism. This total per capita is equivalent to 5,950 Rand per majority adult resident. The ratio of majority adult residents to elite adult residents in equilibrium is 25Million to 5Million, implying a total transfer burden on the elite of 29,750 Rand per elite resident. However, elite residents can capture back a share of transfer payments paid to the elite province and not allocated for redistributive services, an amount equal to g_F in the Western Cape minus $s_e(q)$ in the Western Cape: 2710 - 2168 = 542 Rand per capita; see Table 1, Col. 5. This is equivalent to 1,004 Rand per majority adult residents in the Western Cape. The elite can capture back $\varphi_L = .15$ of those unconstrained transfers or 150 Rand per majority adult. Finally, elite adults are a political majority in the Western Cape, but only slightly. Thus we assume 150 Rand per elite resident is available as capture. The net of capture taxes paid by the elite will be 29,750 - 150 = 29,600 Rand in equilibrium.

Table 4 compares economic welfare under apartheid and unitary governance and under apartheid and federal governance for both the majority and the elite. By a strict economic accounting, both the majority and the elite benefit in the long-run from the transition and therefore both will prefer democracy. The majority gains unambiguously. Democracy provides a growth dividend and redistributive transfers are also higher. The economic gains occurs immediately at transition; there are no years of negative returns and the internal rate of return is infinite. The aggregate present value of the transition's economic benefits for a typical majority resident is 154,329 Rand under unitary governance and 161,393 Rand under democratic federalism, the difference representing the efficiency advantages of democratic federalism in the provision of redistributive services.

The present value of lifetime economic benefits are also positive for the elite, though the first four years show a negative net benefit as the improvement in private incomes from the growth dividend is not yet sufficient to overcome the increased tax costs of greater redistribution; see Table 4, Col. 1. Beginning in FY 2000/01, elite after-tax incomes under democracy relative to the apartheid turn positive. Interestingly, if the ANC majority controlled (Zuma) budgets been adopted from the first year of democracy, it would have taken ten years for the elite's growth dividend to overtake increased redistributive taxation. Mandela's early, far more modest redistributive budgets were perhaps a considered effort to share more quickly transition's growth benefits with the elite, and thereby win their commitment to the new democracy. In any case, the elite benefits are significant. The discounted present value of net, after-tax income gains from the transition are 395,909 Rand under unitary democracy and 412,922 Rand under federal democracy; see Table 4, Col. 2. The results show a significant internal rate of return from the democratic transition, close to 30 percent; Table 4, Col. 3. As an economic calculation alone, only the most impatient elite residents should have resisted democracy.

Omitted from these calculations but certainly important to the motivations for the transition are the unmeasured benefits of human rights and liberties for the majority and the benefits of peace and security for

the elite. The "rights dividend" is a direct add-on to the economic returns for the majority and increases the attractiveness of the transition. The "peace dividend" for the elite is not so obvious. While the annual expenditures required to contain the guerrilla war ceased with the transition, spending for police services since then have risen dramatically. We estimate that from 1977 to 1993 the apartheid regime spent 33.7 Billion (2000) Rand annually on military, police, and prison services.[39] Since the end of apartheid, police and prison expenditures alone have averaged 39.1 Billion (2000) Rand per year.[40] Including these added expenditures as a tax burden on the elite in the apartheid and democratic regime reduces the economic attractiveness of the transition for the elite by about 20 percent; see Table 4, Col. 2. In the end, however, all but the most short-sighted elite still gain and prefer the transition; see Table 4, Col. 3.

The results in Table 4 indicate that either unitary governance or federal governance would have been sufficient, on economic grounds, to allow the transition to democracy. Both $\Delta V(U)$ and $\Delta V(F)$ are positive for the majority, and so too for the elite. Between the two forms of democratic governance, federalism is preferred because of its use of the efficient elite province for the provision of redistributive services. But the estimated effect here is not large. In the end, it appears the real value of federalism is its creation of an elite run province capable of checking the majority's temptation for maximal redistribution. But for our calibration of the South African political economy, even that benefit is no more than a 7 to 8 percent reduction from full redistribution. Perhaps the real value of democratic federalism, as shown by our analysis here, was to provide the institutions that could make credible the majority's transition promise not to adopt maximal taxation, or in the words of President Mandela's to offer "a democratic government . . . that (has)

[39] Source: South African Department of Information, Perskor, South Africa, Various Years.

[40] Source: South African Budget, Department of Finance, Various Years. It would be useful to include a comparison of the economic costs of crimes committed in the calculus as well, but reliable crime rates for the apartheid era are not available. Interestingly, a comparison of reported violent crime rates in democratic South Africa to those of American cities, show South Africa to be safer than Baltimore, New Orleans, Newark, Miami, Oakland, Philadelphia, Cleveland, St. Petersburg. Washington, DC, and Boston, all cities with violent crime rates greater than South Africa's current rate of 1200 violent crimes per 100,000 residents. South African crime rates peaked in 2004 and have been declining for the past seven years.

an inbuilt mechanism which makes it impossible for one group to suppress the other." (Speech by President Mandela, Stellenbosch University, May, 1991).

V. Summary and Conclusions

Any peaceful transition from autocracy to democracy must offer to the current ruling elite credible safeguards for their lives and property sufficient to make the new democratic regime more attractive than continuing autocratic rule. Previous research has suggested three alternative institutions for such protections: 1) continued elite control of the military (Acemoglu and Robinson , 2001); 2) veto control over policies through an elite "upper" legislative chamber (Lijphart, 1984), or 3) a gradual extension of the franchise to the majority to match the growth of a propertied middle class (Lizzeri and Persico, 2004). Neither of these options is likely to be agreed to by a suppressed majority today.

South Africa's transition to democracy has suggested a fourth option: democratic federalism. Under appropriate conditions, federal institutions create a hostage game in fiscal policy in which the majority controls taxation while the elite controls, through governance of at least one important province, the low-cost technology for the provision of valued redistributive services and transfers to the majority. When the Border and Assignment Constraints are met, democratic federalism is said to be *feasible*. Whether democratic federalism is *sustainable* as a long-run equilibrium to the hostage game depends upon the discount rates of the majority and the elite. If both are sufficiently patient, then there exists a long-run equilibrium in which redistributive taxation is below its maximal rate and redistributive services and transfers are provided, in the elite controlled province(s), by the low-cost technology. When feasible and sustainable, democratic federalism provides a credible signal for the protection of elite property. We then applied our analysis to the South African political economy at the time of the transition and found for our specification that all conditions are currently being met and the transition has proven to be welfare improving for both the majority and for all but the most impatient elite.

The future is less certain. While the current ANC leadership under President Zuma has been

responsive to the demands from the ANC rank and file for increased redistributive services, rising by more than forty percent since the last of the Mandela-Mbeki budgets, significant pressure for even greater redistributive spending remains.[41] Were the ANC leadership to significantly increase required redistributive services there is the risk that our Assignment Constraint will be violated and elite high capture will no longer be a credible threat to maximal taxation. Zuma and his ANC successors have three possible responses. First, continue to control ANC policy by isolating the ANC factions pushing for increased redistributive spending and elevate to importance representatives from the emerging black middle class. Second, relax the Assignment Constraint's value of $q^{max}(\mu)$ by lowering the protest penalty (ρ) through increased police presence (a central government function) in the elite province, thereby raising the incentive for the elite to adopt high capture. Or third, give in to the demands for increased redistributive services, violate the Assignment Constraint, and expose the current regime of democratic federalism to the possibility of maximal taxation and de facto unitary governance.[42] To date, President Zuma has adopted the first strategy.[43]

Finally, and more generally, the future path for democratic fedealism in South Africa may well provide a direct test of Weingast's (1997) theory of the democratic transition and importance of self-enforcing constitutions. Weingast's analysis stresses the importance of, first an unsustainable autocratic status quo because of civil war or outside threats, and second the necessity for a new democratic agreement to be self-enforcing. Our analysis of South Africa's transition has highlighted the importance of both points. Weingast's third requirement, that self-enforcing compacts require preferences immune to opportunism, is

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[41] See "Violence Mars Start of ANC Hearing," *Financial Times*, August 31, 2011.

[42] Including perhaps the nationalization of the mining industry and expropriation of white-owned land; see "Nationalization in South Africa: A Debate That Will Persist," *The Economist*, December 3, 2011. An outcome anticipated as early as 2007 by Saki Macazoma, a leading member of the older ANC leadership, in his comments on original emergence of President Zuma:

> Look at the prominent people around him. If some of the things they say come to pass then we will be facing a calamity such as "We need free education." How are you going to pay for it without nationalizing the mines? *Financial Times*, December, 17, 2007.

[43] See Charlene Hunter Gault, "Letter from South Africa," *New Yorker* (July 5, 2010).

now being tested by the pressure for increased redistribution by the more radical wing of the ANC. Our specification of the South African political economy and the central role of majority demands for redistributive services, q, makes a concrete prediction as to the future of the original democratic agreement between the majority and the elite. If the demand for redistributive services moves outside the set of feasible self-enforcing federal constitutions, then our analysis predicts the original democratic compact may collapse with maximal taxation of elite economic interests as a final outcome.

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TABLE 1: REDISTRIBUTIVE FISCAL POLICIES: Real (2000) Rand per Capita

FISCAL YEAR	President	g_F National Average (1)	g_F Western Cape (2)	$s_e(q)$ Western Cape (3)	q_e Western Cape (4)	r_e Western Cape (5)	g_F Majority Provinces (6)	$s_m(q)$ Majority Provinces (7)	q_m Majority Provinces (8)	r_m Majority Provinces (9)
1995/96	Mandela	2189	2923	1371	.56	1552	2119	1356	.44	763
1996/97	Mandela	2030	2587	1334	.52	1253	1978	1345	.44	633
1997/98*	Mandela	2000	2424	1250	.49	1174	1959	1332	.43	627
1998/99	Mandela	2154	2206	1398	.55	808	2149	1709	.55	440
1999/00	Mandela	2108	2097	1368	.54	729	2110	1674	.54	436
2000/01	Mbeki	2242	2185	1455	.57	730	2247	1778	.58	469
2001/02	Mbeki	2302	2196	1494	.59	702	2313	1826	.59	487
2002/03**	Mbeki	1903	1720	1342	.53	378	1923	1500	.49	423
2003/04	Mbeki	2151	1896	1479	.58	417	2180	1700	.55	480
2004/05	Mbeki	2231	1941	1514	.60	427	2264	1766	.57	498
2005/06	Mbeki	2327	2011	1609	.63	402	2363	1890	.61	473
2006/07	Mbeki	2559	2186	1750	.69	436	2603	2082	.68	521
2007/08	Mbeki	2735	2293	1835	.72	458	2787	2230	.72	557
2008/09	Mbeki†	3005	2522	2018	.79	504	3063	2450	.79	613
2009/10	Zuma	3213	2710	2168	.85	542	3273	2619	.85	654

SOURCES: FY: 1995/96 to 1997/98: Financial and Fiscal Commission, *The Allocation of Financial Resources Between the National and Provincial Governments: FY 1997/98*, Tables 2, 3, 6b. FY 1998/99 to 2009/10: Minister of Finance, *Division of Revenue Bill, Various Years*, Part 4: Provincial Allocations.

NOTES TO TABLE 1

COLUMN DEFINITIONS: For the purposes of this analysis, all allocations to KwaZula-Natal are included as part of the allocations to "Other Provinces." Central Government Revenues = Total revenues per capita raised by central government taxation; g_F = Total intergovernmental transfers per capita paid to the province(s), averaged over all provinces (National Average), for the Western Cape, and for all other provinces excluding the Western Cape (Ave. Other Provinces); s(q) = Assigned service grants per capita to fund 5-17 education, primary health care services for (lower income) citizens qualifying for medical assistance, and social security grants for the elderly, disabled, and children, for the Western Cape ($s_e(q)$) and the average for all other provinces ($s_m(q)$); q_e and q_m are estimates of the redistributive service bundle provided in the elite (Western Cape) province and all other majority-run provinces computed as $q_e = s_e(q)/S_e = s_e(q)/2541R$ and $q_m = s_m(q)/S_m = s_m(q)/3086R$ respectively (S_e and S_m are computed from estimates in Table 3 adjusted to reflect costs per resident, not majority adult); and r = "free" redistributive revenues per capita to fund all other provincial services and is defined as $r = g_F - s(q)$ and includes funding for "basic government services," government administration, and provincial economic development initiatives.

*Data for FY 1997/98 is based upon projected grants provided in the FFC, *The Allocation of Financial Resources Between the National and Provincial Governments: FY 1997/98*, Table 6b.

** Beginning with the FY 2002/03 Budget, the Department Finance adjusted the accounting procedures for funding of the provincial activity. There is therefore an unavoidable break in the data sequence. All financial data from FY 2002/03 onward is recorded on a consistent basis.

† The last Mbeki budget was negotiated with, and implemented by, the new ANC majority under the de facto leadership of Jacob Zuma, but with the presidency held by an Interim President, Kgalema Motlanthe. Motlanthe served until May, 2009.

TABLE 2: SUSTAINABLE REDISTRIBUTION IN SOUTH AFRICA:1996-2010
(Transfers per Capita; Real 2000 Rand)

PRESIDENTIAL REGIME (δ_e; δ_m)	q (1)	$g^{max}(\tau_F; \delta_e)$ (2)	$g^{min}(\tau_F; \delta_m)$ (3)	$g_{\bullet}(\tau_F)$ (4)	$g_e(\tau_F)$ (5)	$g_m(\tau_F)$ (6)
Mandela, 1996 (.93; .93)	.51	3299	3088	2189	2923	2119
Mandela, 1996 (.93; .33)	.51	3299	3227	2189	2923	2119
Mandela, 2000 (.93; .93)	.54	3301	3108	2108	2097	2110
Mandela, 2000 (.93; .33)	.54	3301	3233	2108	2097	2110
Mbeki, 2002 (.93; .93)	.59	3301	3108	2302	2196	2313
Mbeki,2002 (.93; .33)	.59	3301	3233	2302	2196	2313
Mbeki,2009 (.93; .93)	.74	3304	3155	3005	2522	3063
Mbeki,2009 (.93; .33)	.74	3304	3251	3005	2522	3063
Zuma, 2010 (.93; .93)	.81	3305	3175	3213	2710	3273
Zuma, 2010 (.93; .33)	.81	3305	3258	3213	2710	3273

NOTES TO TABLE 2

Column 1: q = Public Employee Training Years per Majority Adult for redistributive public services, defined to include K-12 education, primary health care services, and spending for children, disability, and elderly income transfers adjusted to "employees" after division by the average employee salary. See Table 1, population weighted average of cols. (4) and (8).

Col. 2: $g^{max}(\delta_e)$ = Predicted maximum redistributive transfer per capita the upper income residents will pay for support of redistributive services (q) and unconstrained provincial transfers (r) while remaining committed to democratic federalism and the cooperative strategy of low shirking, low capture (φ_L).

Col. 3: $g^{min}(\delta_m)$ = Predicted levels of the minimal redistributive transfer per capita the poor majority residents will accept for support of redistributive services (q) and unconstrained provincial transfers (r) while remaining committed to democratic federalism and the cooperative strategy of a less than maximum redistributive tax rate, $\tau_F < \tau_U$.

Col. 4: $g_{\bullet}(\tau_F)$ = Average redistributive transfer per capita paid to all provinces. See Table 1, population weighted average of cols. (2) and (6).

Col. 5: $g_e(\tau_F)$ = Average redistributive transfer per capita paid to the elite province, Western Cape. See Table 1, Col. (2).

Col. 6: $g_m(\tau_F)$ = Average redistributive transfer per capita paid to all majority controlled provinces, including KwaZulu-Natal. See Table 1, Col. (6).

TABLE 3: SOUTH AFRICAN ECONOMIC GROWTH: 1950-2008[†]

INDEPENDENT VARIABLES	GROWTH RATE (1) Mean = 1.56 S.D. = 2.13	GROWTH RATE (2) Mean = 1.56 S.D. = 2.13
Constant	1.243 (.308)*	2.042 (.374)*
DEMOCRACY	1.405 (.651)*	.823 (1.480)
COSATU•APARTHEID	-	-1.880 (.835)*
COSATU•DEMOCRACY	-	-.216 (1.435)
SANCTIONS	-	-.928 (.713)
R^2(Adj)	.060	.235

[†] Dependent variable is South Africa's annual real rate of growth of GDP per capita. Independent variables include: DEM (= 1 for the years 1994-2008; 0 otherwise), COSATU•APARTHEID (= 1 for the years 1985-1993; 0 otherwise) COSATU•DEMOCRACY (= 1 for the years 1994-2008; 0 otherwise), and SANCTIONS (= 1 for the years 1976-1993; 0 otherwise).

Source: GROWTH RATE, IS from the Penn World Tables, 7.0 and correspond to the PWT variable GRGDPCH. DEMOCRACY, COSATU, and SANCTIONS are defined in the text.

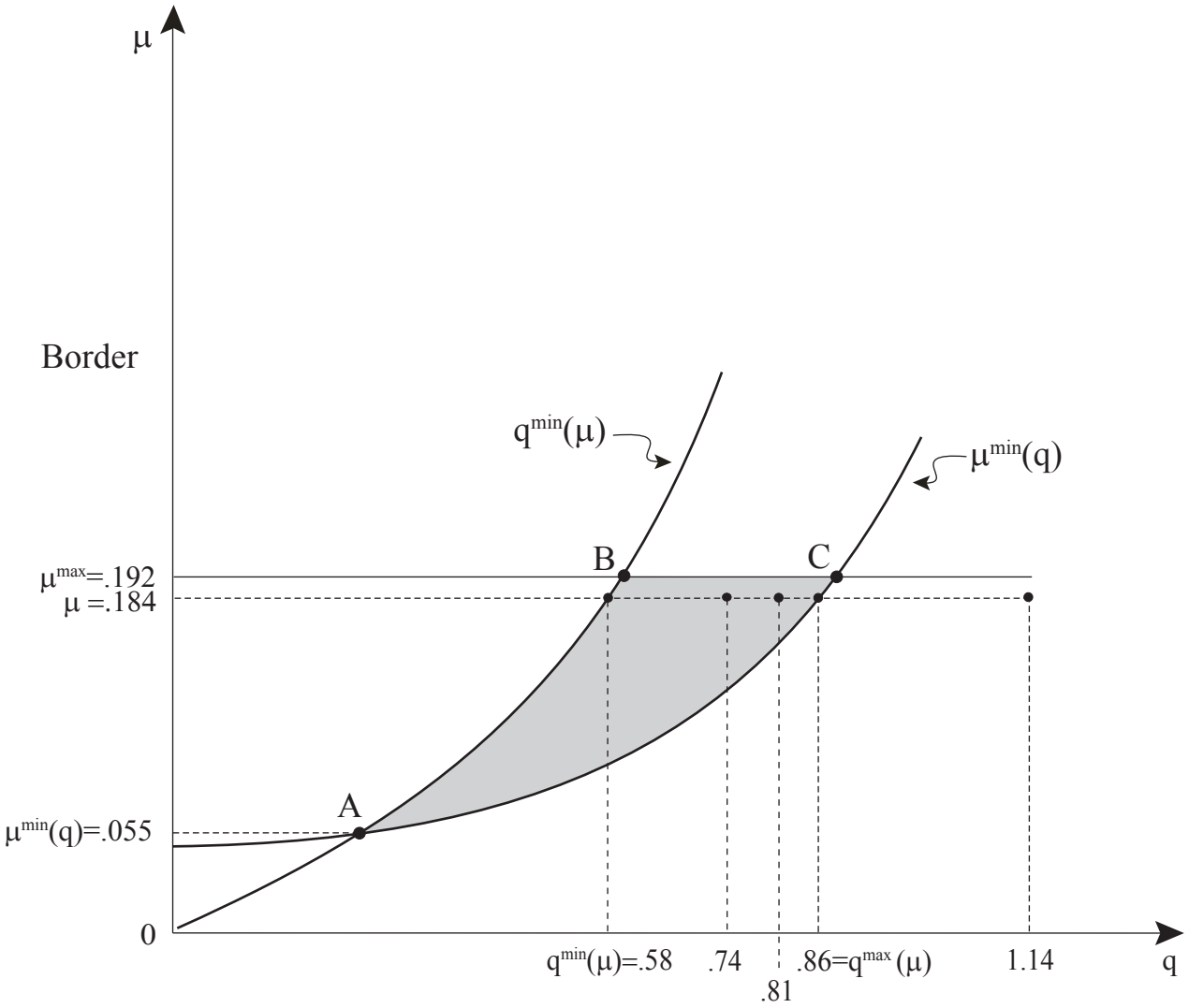
* Significant at the 5% level; standard errors within parentheses.

TABLE 4: NET ECONOMIC GAINS FROM THE DEMOCRATIC TRANSITION†

	YEARS UNTIL $\Delta V_t \geq 0$ (1)	ΔV: 70 YEAR HORIZON (2)	DEMOCRACY'S INTERNAL RATE OF RETURN (3)
MAJORITY			
Unitary	0	$\Delta V_M(U)$ = 154,329 Rand	∞
Federal	0	$\Delta V_M(F)$ = 161,393 Rand	∞
ELITE			
Unitary	4 Years	$\Delta V_E(U)$ = 395,909 Rand	.27
Federal Democracy	4 Years	$\Delta V_E(F)$ = 412,922 Rand	.28
ELITE: PEACE "DIVIDEND"			
Unitary	6 Years	$\Delta V_E(U)$ = 333,602 Rand	.18
Federal Democracy	6 Years	$\Delta V_E(F)$ = 350,615 Rand	.19

†*COLUMN DEFINITIONS*: *Years until* $\Delta V_t \geq 0$ are the number of years until the net present value gains in after-tax incomes in moving from apartheid to each form of democracy just exceeds zero. ΔV *for a 70 year horizon* is the net present value gains in after-tax income in moving from apartheid to each form of democracy. *Democracy's Internal Rate of Return* is the discount rate where net present value of after-tax incomes under democracy are just equal to the net present value of after-tax incomes under apartheid for the 70 year. Since majority welfare is larger under the first year of democracy onward, the internal rate of return is infinite.

Figure 1: Feasible Democratic Federalism



Assignment

Coordinates for Points:

A: μ = .055; q = .25
B: μ = .192; q = .61
C: μ = .192; q = .99

APPENDIX

South Africa's Political Economy at Transition

South Africa's political economy at the time of the transition defines the environment in which the decisions were made to specify the new federal constitution – in particularly, assignment (λ) and border constraints (μ) – and then given these constitutional constraints, to choose redistributive fiscal policy: the tax rate (τ), the mandated level of redistributive services (q), and rate of elite recapture (ϕ). Both the constitutional decision and the annual decisions on fiscal policy are made conditional upon the political economy's underlying demographic, income, technological, and budgetary constraints at the time of the transition. Also specified are our estimates of majority citizen preferences for redistributive goods, the discount factors and associated rates of time preference for elite and majority residents, the bounds on the rates of elite capture, and the penalty associated with high elite capture. A full data appendix detailing all sources and methods used to estimate the underlying model's parameters is available upon request.

Demographics:

M = Majority adult (voting age) population at the time of the transition = 25 Million.
N_0 = Initial elite adult (voting age) population at the time of the transition = 9.6 Million.

Income:

W_0 = Average income per majority resident at time of transition = 9,700 (Real 2000) Rand.
Y_0 = Average Income per elite resident at the time of the transition = 86,000 (Real 2000) Rand.

Technology of Public Service Provision:

$q = a \cdot (X/M)$ = Quality adjusted (a) public employees (X) per majority resident (M).
a_e = Years of training of elite public employees = 17 years of schooling.
a_m = Years of training of majority public employees = 14 years of schooling.
a_u = Years of training of "untrained" public employees = 7 years of schooling

Costs of Public Service Provision:

S = Uniform salary paid to all public employees = 80,000 (Real 2000) Rand/Employee.
$s(q) = S \cdot (X/M) = S \cdot (q/a)$ = Cost per unit of q provided by workers of quality a.

$s_e(q) = S \cdot (q/a_e) = (80{,}000/17) \cdot q = 4{,}706 \cdot q$ (Real 2000) Rand /Majority Adult.
$s_m(q) = S \cdot (q/a_m) = (80{,}000/14) \cdot q = 5{,}714 \cdot q$ (Real 2000) Rand /Majority Adult.
$s_u(q) = S \cdot (q/a_u) = (80{,}000/14) \cdot q = 11{,}428 \cdot q$ (Real 2000) Rand /Majority Adult.

Budget Constraint and Tax Revenues:

$g(\tau)$ = Redistributive Grant per Majority Resident = $[\tau \cdot N(\tau) - Z]/M$.
τ = Redistributive Tax Rate per Elite Resident (N).
$N(\tau)$ = Elite Residents Paying the Redistributive Tax = $N_0 - \beta \cdot \tau$, where $\beta = .00015$.
Z = (Exogenous) payments to KwaZulu-Natal Province = 600 Million (Real 2000) Rand.

Citizen Preferences:

$\lambda \cdot v(q)$ = Majority Adult preferences for redistributive goods = $\lambda \cdot \ln(q)$, where $6100 \geq \lambda \geq 3960$.

δ_e = Discount factor for the elite residents = .93 (r = .08).
δ_m = Discount factor for the majority residents = .93 (r = .08) $\geq \delta_m \geq$ .33 (r = 2.00).

Elite Capture:

φ_L = Low elite rate of capture of free provincial revenues = .15.
φ_H = High elite rate of capture of free provincial revenues = .85.
$r_e(\tau; q)$ = "Free" provincial revenues per majority resident for elite capture = $[g_e(\tau) - s_e(q)]$.

ρ = Penalty per elite resident for adopting high capture = 1720 (Real 2000) Rand.