Timothy Besley und Torsten Persson und Daniel Sturm:

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Department of Economics
University of Munich

Volkswirtschaftliche Fakultät
Ludwig-Maximilians-Universität München

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Political Competition and Economic Performance: Theory and Evidence from the United States*

Timothy Besley
LSE

Torsten Persson
IIES, Stockholm University

Daniel Sturm
University of Munich

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Abstract

We formulate a model to explain why the lack of political competition may stifle economic performance and use the United States as a testing ground for the model's predictions, exploiting the 1965 Voting Rights Act which helped break the near monpoly on political power of the Democrats in southern states. We find statistically robust evidence that changes in political competition have quantitatively important effects on state income growth, state policies, and quality of Governors. By our bottom-line estimate, the increase in political competition triggered by the Voting Rights Act raised long-run per capita income in the average affected state by about 20 percent.

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1 Introduction

One of the most cherished propositions in economics is that, by and large, monopoly is bad and market competition between firms raises the welfare of consumers. Whether competition between political parties has similarly virtuous consequences is far less discussed[1], despite the long-term monopoly on power by a dominant party observed in a number of existing democracies.[2] Moreover, almost no empirical studies speak to the question if political competition matters at all for economic outcomes.[3]

In this paper, we argue that political competition may be crucial for economic performance. Even though aspects of the argument are quite general, our main motivation is the breakup of the Democratic party's near monopoly on power in the Southern U.S. since the Civil War. To illustrate this development, Figure 1 graphs political competition averaged by decade from the 1930s to the 1990s, using a measure (detailed below) that varies between -0.5 and 0 with larger values corresponding to more competition. The graph contrasts the average in the 16 states of the US "South" (as defined by the US Census) against the remainder of the continental United States, the "Non-South". It shows a clear increase in political competition in the South, particularly in the 1960s, but almost no change elsewhere.

The post-war economic transformation of the American South – with living standards converging to those in the rest of the US – is typically viewed as reflecting either economic forces alone, as in the macroeconomic growth literature (see, e.g., Barro and Sala-i-Martin, 2004, Ch.11), or a change in culture, as in the literature on political and economic history (see e.g., Wright, 1999). Our argument does not rule out these explanations for Southern convergence, but adds the force of political competition.[4] Figure 2 plots the

[1] The Chicago School of political economy makes a strong argument as to the effeciency of political competition (Stigler, 1972, and Wittman, 1989, 1995), but has not studied the detailed institutional underpinnings of this argument. Polo (1998) and Svensson (1998) provide early formal analyses of how lopsided political competition may lead to excessive rent-seeking or inefficient provision of government services.

[2] A large literature in political science discusses the dominant-party systems in countries such as Japan (the LDP), Malaysia (the UMNO), Mexico (the IRP), Paraguay (the Colorado Party), and South Africa (the ANC), focusing on their political effects (see e.g., the contributions in Pempel, 1990)

[3] Besley and Case (2003) discusses some evidence from studies using U.S. data.

[4] Haber (2004) also argues that institutions that create competition are important to understand economic development in the U.S.

log of income per-capita in each of the Southern states relative to the entire US against political competition in the state relative to the entire US, again using averages for each decade from 1930 to 2000. The regression line has a slope of unity, suggesting that each percentage point of (relative) political competition is associated with a percentage point of (relative) income. Our paper will argue that this relation is not a mere coincidence, but the result of a causal mechanism.

To shed light on this mechanism, we use the abolition of voting rights restrictions. Figure 3 shows an "event-study diagram", plotting growth rates within an average state five years before and after the last form of voting restriction was abolished. The picture gives a clear sense of a growth takeoff, with an average growth difference of about 2% before and after the event.

Section 2 develops a model of how political competition can harm economic performance, which is tailored to fit the specific application – it is neither the simplest model nor one of universal applicability. We assume that party attachments are formed on a non-economic issue (race, in the example of the South). These attachments may give one party (the Democrats) a large advantage, blunting the responsiveness to voters over economic issues. This lack of accountability, in turn, allows narrow economic interests antithetical to growth (the so-called Planter class), to capture the political process. Our model weaves these ideas together by showing how lopsided political support and weak political competition may spill over into party selection of low-quality political candidates who are more susceptible to influence by special interests. It has a number of specific empirical predictions linking economic growth, the quality of government and economic policies to the degree of political competition.

In Section 3, we further discuss why the United States provide a good testing ground for these predictions. We briefly describe the economic and political transformation of the South in the post-war period. The description pays particular attention to the 1960s, and the events leading up to the federal Voting Rights Act of 1965 and its 1970 amendment, which eliminated poll taxes, literacy tests and other means of disenfranchising large parts of the black and poor population. We argue that this shock, together with the Civil Rights legislation of about the same time, fundamentally changed the nature of political competition and reduced the electoral advantage enjoyed by Southern Democrats. We further argue that the Voting Rights Act was largely exogenous to the political, policy and economic outcomes of interest. The section also details our data set, which is based on annual observations

from 1929 and onwards in the 48 continental states.

We thus use panel data and instrumental-variable methods to estimate the effect of political competition. Our results are presented in Section 4. Political competition has a statistically significant and quantitatively important positive effect on state income and growth. According to our IV estimates, the stiffer political competition induced by the Voting Rights Act raised long-run income in the average affected state by about 20%. In addition, we find empirical evidence for the mechanisms highlighted by the theoretical model. Thus, higher political competition leads to policies of lower overall state taxes and more business-friendly labor regulation, and to a larger share of manufacturing in state production. We also find that the quality of politicians – as measured by state Governor fixed effects – are increasing in the degree of political competition. Moreover, we find support for auxiliary predictions of the model, such as a non-linearity in the effect of political competition and a neutrality to the party in power. The empirical strategy and the results are robust to a number of legitimate statistical concerns. In particular, the results continue to hold if the effect of political competition is identified essentially from variation within the South (due to different timing and coverage across states in the abolition of voting restrictions).

Section 5 offers concluding comments, and an Appendix collects some proofs of theoretical results.

2 Theory

Our model illustrates how political competition may affect policy and economic growth via the "quality of politicians". While the argument is quite general, our specific purpose is to explain the development in the US states. To that end, we model a state where two parties compete by picking candidates for Gubernatorial elections. We distinguish two groups of citizens – those holding a traditional asset (called land) and those drawing incomes only from the modern sector. Policy is set by the elected Governor and may favor the traditional economy. Owners of the traditional asset protect their quasi-rents by lobbying, but their influence depends on the characteristics of the Governor. Political (non)competition is defined as an electoral advantage of one party arising from a surplus of committed voters, due to the parties' non-pliable stance on non-economic issues, which – in the Southern example

– we can think about as race. Such electoral advantage gives a dominant party less incentive to appeal to swing voters, who are not committed on racial issues and prepared to vote against candidates susceptible to lobbying. The model assumes away all intrinsic differences between the parties except for the asymmetric political support for their stance on non-economic issues. Though this assumption is patently unrealistic, it allows us to focus on the implications of party competition pure and simple.

The timing of the model is as follows. At a first stage, each of the parties picks a candidate for Governor under uncertainty about a popularity shock. Second, this shock is realized as voters cast their ballot. Third, whoever is elected Governor receives transfers from vested interests and selects a policy. At the last stage, all private economic choices are made. The next three subsections deal with these choices in reverse order. Thus, we first describe the economic model, then the political model, and finally the full politico-economic equilibrium.

2.1 The Economic Model

Our model of the economy and policy is based on Persson and Tabellini (2000, Section 14.3). It has two sectors – a traditional sector and a new sector – and two time periods. The key question is how the owners of traditional factors can protect their quasi-rents and the impact of such protection on economic growth.

Preferences and Technology Consider a finite population of citizens of size M, where each citizen has an economic type and a political type. Political types are discussed in the next subsection. Economic types denoted by $I \in \{K, L\}$ refer to the ownership of factors. One group, $I = K$ has $(1 - \alpha)M$ members, owns no land and is referred to as "capitalists". The other group, $I = L$ with size αM, is referred to as "landowners", each of which is endowed with the same amount of land l/α, where l is the per-capita amount of land in the population.

Every citizen has the same period 1 endowment, y_1, which can be consumed or invested in either of the two sectors $S \in \{T, N\}$, where T stands for "traditional" and N for "new". The period 1 budget constraint of an individual from group I is thus

$$c_1^I + k^{I,T} + k^{I,N} = y_1 \ , \tag{1}$$

where c_1^I is his first-period consumption and $k^{I,T}$ and $k^{I,N}$ are his investments in the traditional and new sector, respectively.

In period 2, the same consumption good can be produced with two different technologies, associated with the two different sectors of production. In the new sector, production requires only capital and takes place according to a linear technology $Y^N = MAk^N$, where Y^N is output of the new sector and k^N is the per-capita investment in the new sector. The traditional sector has a well-behaved, constant-returns-to-scale production technology $Y^T = MQ(k^T, l)$, where Y^T is output of the traditional sector, and k^T is per-capita investment in the traditional sector. We assume that $Q(k^T, l)$ is increasing in both arguments and that $Q_{kk} < 0$, $Q_{ll} < 0$ and $Q_{lk} > 0$.[5]

A citizen in group I evaluates economic outcomes by the quasi-linear utility function:

$$V^I = H(c_1^I) + c_2^I \ , \tag{2}$$

where c_j^I is consumption in period j and we assume that $H_c > 0$ and $H_{cc} < 0$.

Policy and Growth Relative profitability of capital in the two sectors will be affected by a host of different policies, including regulatory, industrial, labor-market, and commercial policies. For simplicity, we represent such detailed policies by a catch-all sectorial tax $\tau \geq 0$, levied on the output of the new sector. The per-capita tax proceeds τAk^N are distributed as an equal lump-sum transfer f to every individual in the economy. The period 2 budget constraint of an individual from group I is thus:

$$c_2^I = (1-\tau)Ak^{I,N} + Q_k k^{I,T} + Q_l l^I + f \ , \tag{3}$$

where l^I denotes per-capita holdings of land in group I and we have exploited that in equilibrium the reward to each factor equals its marginal product.

When savings and investments are chosen τ is already known, as economic choices are made after the election in the political model below. Optimal economic decisions imply that in (an interior) equilibrium:

$$H_c(y_1 - k^{I,N} - k^{I,T}) = A(1-\tau) = Q_k(k^T, l) \ . \tag{4}$$

In equilibrium each person thus invests the same amount $k^I = k^{I,N} + k^{I,T}$ irrespective of whether she owns any land, and is indifferent between the two

[5] In a slight re-formulation of the model, the two sectors could be based on technologies requiring alternative sets of skills, as in Krusell and Rios-Rull (1996).

forms of investment. As H_{cc} is negative, we get a savings function, $k^I = K(\tau)$, which defines per-capita investment as a declining function of the sectorial tax. However, as $Q_{kk} < 0$ per-capita investment in the traditional sector is an increasing function of the tax on the new sector, $k^T = K^T(\tau)$. Moreover, this implies that the quasi-rents to land $R(\tau) = Q_l(K^T(\tau), l)$ are an increasing function of the tax as $Q_{lk} > 0$.[6]

Substituting into the utility function (2) yields:

$$V^I(\tau) = F(\tau) + R(\tau)(l^I - l) \ , \tag{5}$$

where $F(\tau)$ is defined as

$$F(\tau) = H(y_1 - K(\tau)) + A(K(\tau) - K^T(\tau)) + Q(K^T(\tau), l) \ , \tag{6}$$

and where we have used the fact that the per-capita budget constraint is $f = \tau A(K(\tau) - K^T(\tau))$. The expression $F(\tau)$ is the indirect utility of a hypothetical person, who owns the average per-capita amount of land. The indirect utility function V^I illustrates the conflict of interest between landowners and capitalists. Since $F_\tau(0) = 0$ (see below) and $R_\tau(0) > 0$, landowners with above average land holdings prefer a strictly positive value of τ, even though a positive tax rate depresses the return to capital. The utilitarian optimum is to set $\tau = 0$, as average utility has a maximum at the point $\tau = 0$.[7]

The two key results of the economic model for the growth rate and the structure of the economy are first that the growth rate (of GDP and GDP per-capita)

$$g(\tau) = \frac{M(y_2 - y_1)}{My_1} = \frac{1}{y_1}[A(K(\tau) - K^T(\tau)) + Q(K^T(\tau), l)] - 1 \tag{7}$$

is a decreasing function of the tax on the modern sector τ. Intuitively, the tax depresses growth for two reasons: it distorts the accumulation as well as

[6] The model does not explicitly allow for a market in land. As long as there is some indivisibility in land, such that inequalities in land hodings remain, we would obtain similar conclusions with the existence of a land market as the conflicts of interest over policy would remain. In the Krusell-Rios Rull (1996) interpretation of the model the issue does not arise, as a market for human-capital specific knowledge is more difficult to imagine.

[7] Differentiating (6) results in $F_\tau = \left[(A - H_c)K_\tau + (Q_k - A)K_\tau^T\right]$. From (4) $\tau = 0$ implies that $A = H_c$ and $Q_k = A$ which implies that $F_\tau(0) = 0$. Given the convexity of technology and perferences this is also the unique global maximum.

the allocation of capital between the two sectors.[8] Second, the share of the modern sector in period 2 output:

$$s^N(\tau) = \frac{Ak^N}{y_2} = \frac{A(K(\tau) - K^T(\tau))}{A(K(\tau) - K^T(\tau)) + Q(K^T(\tau), l)} \ .$$

is a decreasing function of the tax on the modern sector. The results of this subsection are summarized as follows:

Lemma 1 *A positive tax rate on the modern sector reduces the growth rate and increases the share of the traditional sector in output. Owners of land prefer a strictly positive tax rate on the modern sector, while the utilitarian optimum is to set the tax equal to zero.*

2.2 The Political Model

As mentioned above, each citizen has a political type P, defined by the utility obtained from non-economic issues. We distinguish three types: Democrats, Republicans and independents, $P \in \{D, R, 0\}$. Partisan voters make up a share $1 - \sigma$ of the population. Let $\delta(P, p)\Delta$ be the utility gain of a partisan from having his preferred political type, p, in the Governor's office. Only Democrats and Republicans are organized in parties, which field candidates for Gubernatorial office, $p \in \{D, R\}$. Thus, we set $\delta(D, R) = \delta(R, D) = 0$, and $\delta(P, P) = 1$. As explained below, independents also care about the parties' stance on non-economic issues, but to a smaller degree than partisans.

The political part of the model involves interest groups, political parties, elected Governors, and voters. We next describe each of these players.

Interest groups Agents who benefit from the use of capital in traditional technologies become vested interests and have strong incentives to get organized in order to protect their quasi-rents. In sectors based on new technologies, interest groups are harder to form, especially before the necessary factors or skills have been accumulated. As policy decisions precede economic decisions in the model, we assume that only economic group L lobbies the elected governor and his party, by paying a per-member transfer t in exchange for policy favors.

[8] In our simple two-period model, this result would hold even if total savings were inelastic in the sectorial tax rate, as the latter would still lead to misallocation of capital.

To simplify the analysis, we assume that the land-owning group only consists of ideologically motivated citizens from both parties. After the election, however, any political conflict is moot. Moreover, as all members own the same amount of land, there is no policy conflict within the group. The utility level of the representative member, at the point of lobbying, is:

$$V^{P,L}(\tau,t) = V^{L}(\tau) - t = F(\tau) + \frac{1-\alpha}{\alpha}R(\tau)l - t \ . \tag{8}$$

Parties and Elected Governors Each of the two parties, D and R, comprises a small fraction of ideologically motivated citizens, with $P = D, R$. We rule out any direct vested interests in the party, by assuming that all party members are capitalists, i.e., they have economic type K. Parties pick candidates for Governor among the party members. In spirit of the citizen-candidate models of Osborne and Slivinski (1986) and Besley and Coate (1997), candidate selection makes policy promises credible.

After the election, the candidate elected Governor picks the policy τ and decides how much transfers to take from the special interest. Elected candidates share any transfers they receive with party members, according to a fixed rule where the party's share is given by ρ (where $\rho < 1 - 1/M$). Party members differ in the amount of "guilt" or "shame" they attach to any bribe received. Let q, with $0 \leq q \leq 1$, denote the discounting due to guilt or shame, so a unit of transfers has value $(1-q)$ to a politician. In the following, we refer to q as the "quality" of a candidate. The preferences of an elected Governor, at the point where he sets policy, can thus be written as:

$$\begin{aligned} V^{G,K}(q,\tau,t) &= V^{K}(\tau) + (1-\rho)(1-q)t\alpha M + \Delta \\ &= F(\tau) - R(\tau)l + (1-\rho)(1-q)t\alpha M + \Delta \ . \end{aligned} \tag{9}$$

The party share of transfers is split equally between members. Let the number of party members (in each party) be mM, with $m < \frac{1}{2}(1-\sigma)$, and denote the average quality of party members by q^P. We assume that parties are "Coasian", maximizing the indirect utility of the average member and that $\frac{\rho}{m}(1-q^P) > 1$.

The utility of the average party member when the policy is τ and transfers are t is:

$$V^{P,K}(\tau,t) = V^{K}(\tau) + \delta\left(P,p\right)\left(\Delta + \frac{\rho}{m}(1-q^P)t\alpha\right) \ . \tag{10}$$

Selecting a candidate for Gubernatorial office thus amounts to picking a type q_p, which affects the level of t if the election is won by party P.

Voters The two groups of voters correspond to the political types defined above. A share $(1-\sigma)$ of the population – the types $P = D, R$ – strongly prefers one of the parties due to non-economic issues. We assume this preference to be strong enough that committed citizens vote for their preferred party no matter what (i.e., the utility gain Δ is large enough to dominate any economic concerns). Of these committed voters, a fraction $(1+\lambda)/2$ prefers party D. To fix ideas on the US South example, we think about race as the salient non-economic issue and the Democrats as having an advantage among the committed voters in this dimension, i.e., $\lambda > 0$.

The remaining share σ of voters are independent swing voters. We have already assumed that all landowners are partisans, so all swing voters are found among the capitalists. Thus, the economic payoff to a swing voter of having party $p \in \{D, R\}$ in office is $v_p = V^K(\tau_p)$, depending on the party's tax policy as evaluated by a capitalist. In addition, swing voters have an individual party preference, $\omega[\delta(0, D) - \delta(0, R)]$, for or against party D's relative stance on non-economic issues, with $\omega \lessgtr 0$ distributed among the voters.

A swing voter casts her ballot for party D whenever:

$$\eta + \omega + v_D - v_R > 0 \ ,$$

where η is an aggregate popularity shock. If G_ω denotes the c.d.f. for ω, it is easy to show that party D wins when:

$$\sigma\left[1 - 2G_\omega\left(-\eta - v_D + v_R\right)\right] + (1-\sigma)\lambda > 0 \ .$$

To simplify, ω is assumed uniform on $\left[-\frac{1}{2\phi}, \frac{1}{2\phi}\right]$, with $\frac{1}{2\phi} < \Delta$; namely, all swing voters have weaker preferences on non-economic issues than the partisan voters. We may use the support of the ω distribution to gauge the relative salience of non-economic issues among the swing voters, with a higher value of ϕ capturing lower salience.

Under this parametrization, the condition for a Democratic win becomes:

$$\sigma\phi\left[\eta + v_D - v_R\right] + (1-\sigma)\lambda > 0 \ ,$$

corresponding to the following critical value of the popularity:

$$\hat{\eta} = \kappa - \left[v_D - v_R\right] \ .$$

where $\kappa = \frac{1-\sigma}{\sigma} \cdot \frac{\lambda}{\phi}$ is our key measure of political competition. To further simplify the algebra, let η be uniform on $\left[-\frac{1}{2\xi}, \frac{1}{2\xi}\right]$.

We assume that parties pick their candidates for Governor knowing the distributions of ω and η, but not the realization of η. At that point in time, the probability of a Democratic win is:

$$P_D\left(\kappa + v_D - v_R\right) = \begin{cases} 1 & \text{if } \xi\left[\kappa + v_D - v_R\right] \geq \frac{1}{2} \\ \frac{1}{2} + \xi\left[\kappa + v_D - v_R\right] & \\ 0 & \text{if } \xi\left[\kappa + v_D - v_R\right] \leq -\frac{1}{2} \end{cases}. \tag{11}$$

Hence, this probabilistic voting model predicts the electoral success of the Democrats to primarily depend on two factors. One is any utility difference in the eyes of the swing voters between the policies pursued by the Democratic and Republican candidates, $v_D - v_R$.

Equation (11) shows why κ is crucial in affecting the probability that the Democrats win. The model is useful in identifying the factors that make political competition stiffer, i.e., κ closer to zero. The model shows that political competition increases as λ falls, i.e., as the Democrats' advantage in terms of committed supporters declines. Political competition is stiffer when σ is large – swing voters make up a larger fraction of the voting population. Lower salience of non-economic issues among the swing voters – a higher ϕ – also raises political competition, as would a more ideologically neutral set of swing voters.[9]

Post-election Politics The candidate and party winning the election is described by the pair $\{q_p, p\}$. In the post-election lobbying game, suppose the elected Governor can make a take-it-or-leave-it offer to the interest group (less drastic assumptions about bargaining would yield similar qualitative results). But the reservation utility of an interest group member cannot fall below the utility of a capitalist (e.g., because of the possibility of land sales), i.e., $V^K(\tau) = F(\tau) - R(\tau)l$. It follows from (8) that equilibrium transfers satisfy

$$t = \frac{R(\tau)l}{\alpha}.$$

[9] Our assumption that ω is uniformly distributed is made for analytical convenience. If instead ω had a smooth unimodal distribution, a shift of the mass in this distribution towards the middle would raise the p.d.f. g_ω in that range. An increase in the density ϕ of our assumed uniform can be thought of as approximating such a shift towards a more ideologically neutral electorate.

In other words, the rent from land is fully captured and transferred to the Governor and his party. Since $R_\tau > 0$, higher taxes go hand in hand with higher transfers.

The Governor's ex post payoff is therefore

$$F(\tau) + \Delta + R(\tau) l (1-\rho)(1-q_p) M - 1) \ . \tag{12}$$

Since there is no commitment in policy, the equilibrium tax rate is the ex post optimal tax rate for the elected Governor, i.e.,

$$\tau\left(q_p\right) = \arg\max_{\tau \in [0,1]} \left\{ F(\tau) + R(\tau) l \left((1-\rho)(1-q_p) M - 1 \right) \right\} \ . \tag{13}$$

It is easy to show that $\tau\left(q_p\right)$ is a declining function (see Appendix). Higher-quality Governors attach less value to transfers and are less prone to exchange money for policy favors to vested interests.

Pre-election Politics The main check on rent extraction by parties is the contest over swing-voter support. Effectively, parties compete by offering equilibrium utility levels of their candidates to the swing voters which are made "incentive compatible" by picking governors who deliver such policies. The range of utility levels $[\underline{v}, \overline{v}]$ a party can credibly offer, however, depends on the range of possible governors. The appendix characterizes this range in terms of the feasible choice of politicians who make these utility levels credible. It also shows that each party's payoff can be written as a decreasing function of swing voter utility: $W\left(v\right)$.

We can now write the pre-election maximands of the Democratic party:

$$v_R + P_D\left(\kappa + v_D - v_R\right)\left[\Delta + W\left(v_D\right) - v_R\right] \tag{14}$$

and the Republican party:

$$\Delta + W\left(v_R\right) - P_D\left(\kappa + v_D - v_R\right)\left[\Delta + W\left(v_R\right) - v_D\right] \ . \tag{15}$$

where we have used the fact that the party members have the same utility levels as ordinary capitalists if their party does not gain office.

The trade-off facing parties should now be clear. Offering a higher utility to the swing voters – i.e., picking a higher quality Gubernatorial candidate (someone with higher q_p) – they raise their chance of winning. However, this reduces the rents they capture if winning (τ and hence t will be lower).

The full politico-economic equilibrium reveals how this trade-off is resolved by party strategies. The only difference between the parties is captured by κ which measures the extent of political competition. As we will see, because $\kappa > 0$ the Democrats (more generally the party with an inherent electoral advantage) are less pro-growth. Intuitively, a party with a larger set of committed voters is tempted to pick politicians who care more about rents, protect the rents and the size of the traditional sector, and thereby retard growth.

2.3 Politico-economic Equilibrium

In this section, we study the equilibrium predictions of the model with respect to changes in political competition as measured by κ. An equilibrium is a pair of utility levels $\{v_D, v_R\} \in [\underline{v}, \overline{v}]^2$ which forms a Nash equilibrium in pre-election game between the two parties, given the equilibrium behavior of voters, interest groups and elected Governors, as described above. With no loss of generality, we focus on the empirically relevant case where $\kappa > 0$, i.e., the electorate is biased towards the Democrats.

We will study the equilibrium of the model when two assumptions hold:

Assumption 1

$$\frac{1}{2} \cdot \frac{\rho\left(1 - q^P\right)}{m} > 1 \ .$$

This guarantees that the party reaction functions slope upwards in a neighborhood of $\overline{v}$. We also postulate

Assumption 2

$$\frac{1}{2} \cdot \frac{\rho(1 - q^P) - m}{m} > \xi\Delta \ .$$

This says that the party's marginal cost in terms of foregone rents exceeds the marginal benefit in terms of ideological stance, at the point where no protection is given to the traditional sector. As a result, (dominant) parties will tend to pick an outcome where $v_p < \overline{v}$. Clearly, Assumptions 1 and 2 hold for small enough m or q^P, since then rents are concentrated in a small elite or the party members do not have large inhibitions in extracting political rents.

The key result linking policies and political competition (proven in the Appendix) is:

Proposition 1 *Suppose that Assumptions 1 and 2 hold, then an equilibrium exists and the effect of political competition on economic outcomes has three ranges:*

1. *For κ above an upper threshold (κ_H) the Democrats pursue their own preferred (anti-growth) policy by optimally picking bad Governors who win for sure and take bribes from the traditional sector which they protect.*

2. *For κ in an intermediate range above a lower threshold (κ_L), the Republicans pick highly pro-growth policies, and the Democrats still choose bad candidates for Governor, but are somewhat constrained. As competition increases, the probability of observing a Republican Governor goes up and the Democrats improve the quality of their gubernatorial candidates. Hence, taxes go down, while the quality of politicians, the output share of the modern sector and economic growth go up with competition.*

3. *For κ close enough to zero, the party ranking and the effect of political competition on policy and economic growth are ambiguous.*

This result provides the basis of our empirical tests below. It says that, starting from a low level of political competition, raising the degree of competition will improve policymaking and economic outcomes through the selection of better Governors.

3 The US as a Testing Ground

We want use the predictions of the model to study the consequences of statewide political competition in the United States. As already mentioned in the Introduction, the main historical episode we wish to exploit is the increase in political competition associated with the breakdown of Democratic near-monopoly on power in Southern states post World War II. This section describes our data, but also gives some historical background. The purpose of the latter is (i) to show that the assumptions in our theoretical model rhyme well with the situation in the South, and (ii) to describe in some detail the 1960s events used as our main source of identification.

3.1 Historical background

The Southern Economy, Polity and Society Understanding developments in the U.S. South inevitably requires a joint analysis of the economy, society, and polity of these states and their common historical roots. The Civil War may have abolished slavery for good, but its aftermath left an economy heavily specialized in certain forms of agriculture, a polity dominated by the Democratic party, and a society where the rights of blacks were severely constrained.

The long-standing differences in (average) living standards between Southern states and the remainder of the United States were rooted in an economy dominated by a single form of production, in particular the plantation for cotton or tobacco. As Naylor and Clotfelter (1975, p.190) note

> "Through most of its history, the South's political structure has been dominated by a conservative rural minority that sought to advance its self-interests through policies such as the perpetuation of a ready supply of cheap labor. Because of the South's rigid social structure, the rural middle class was abnormally subordinated to the planter class."

The planter class represents the elite from a traditional sector, like the one in our economic and political model, as do the owners of traditional textile mills. These elites clearly wanted to protect their quasi-rents, and worked to suppress public infrastructure and reduce educational attainment, slowing down rural diversification. There is no reason why the dominance of a small, rural elite should *always* stifle diversification and economic growth, as illustrated by Britain's industrial revolution. The key feature of our theoretical model is that the modern sector uses capital and not land. In 19th century Britain, the rural elite were needed as financiers in the modern sector creating a complementarity between landownership and industrial development. It is less clear that US Southern elites had anything similar to offer.

Bringing modern industry to the South became more important and by the 1930s a number of states were waking up to the possibility of promoting economic growth. For example, Governor White of Mississippi was elected in 1935 on a pro-industrialization ticket (Cobb, 1993). After the war, Southern states began to adopt policies aimed at attracting industry: business-friendly labor regulations discouraging unionization, a relatively regressive

tax base, provision of infrastructure and subsidies, especially in urban areas. A 1975 business friendliness ranking (compiled by Fantus consulting) had three southern states – Texas, Alabama and Virginia – at the top, and eight southern states in the top twelve (Cobb, 1993, Table 15). The post-war convergence of Southern per-capita incomes to the rest of the U.S is undisputable, and surely – in part – reflects the economic forces emphasized in the growth literature (see Barro and Sala-i-Martin, 2004, for an overview, including applications to U.S. States). Migration, both of businesses and of people, probably played a key role in the catch up. Of course, neither capital nor labor mobility is present in our model. As long as our empirical investigation allows for poor states to grow faster than rich states, the proximate sources of growth are not critical to our main argument, however.

Turning to Southern political history, the Democrats had completely dominated state politics since the 1880s. Key to our political model is that low-quality politicians become subservient to the vested economic interests of interest groups. Implicitly, competition within a dominant party, say through primary elections, thus does not serve as well in fostering a good selection of candidates as competition between parties.[10] That the domination by Southern Democrats lead to election of low-quality politicians is indeed a resounding theme in the political-science literature. V.O. Key's classic on Southern politics (Key, 1955) demonstrates just why within-party politics was an imperfect substitute for between-party competition in bringing forward good candidates. According to Key, personal connections was the main selection device rather than high skill and integrity. In his treatise on US Governors, Sabato (1978, p. 122) echoes this theme when he argues:

> "A one-party system is undesirable for a state because it can easily result in second-rate government. If a party is assured a victory regardless of whom it chooses to nominate for governor, then it is likely to treat the governorship more as a "reward" for dedicated service to the party than as a public trust where the best qualified men and women should be placed."

Our theoretical analysis has the Governor determining policies that affect growth. This rhymes well with the received view that Governors in the one-party South had large influence, especially on the budget (see Naylor and

[10] Adding primaries (at least closed primaries) in the model of the previous section would not significantly change the results, under our assumption about the motives of party members.

Clotfelter, 1975). It also fits with the more general trend emphasized by Sabato (1978) that Governors became more important in policy making. Results in Besley and Case (2003) also suggest that the incentives facing Governors shape policy making in U.S. states.[11]

After Reconstruction in 1877, Northern troops withdrew and relinquished control back to Southern states. From then on, white Democratic majorities systematically built a society, where blacks were treated as second-class citizens to whites. The Jim Crow laws imposed racial segregation on many aspects of public life. Blacks had to attend separate schools, be buried in separate churchyards, abstain from using public libraries or parks; they had to use separate restrooms, means of public transportation or entries to public buildings. The legislation also permitted or encouraged private discrimination, relegating blacks to badly paid jobs and forbidding them to enter private restaurants, participate in sports, and so on. These laws and practices were not only enforced by state courts and police forces, but also by white vigilante groups, such as the Ku Klux Klan.

As part of this *status quo*, blacks were largely disenfranchised. State regulations used all-white Democratic primaries, and "grandfather clauses" reserving the right to vote to individuals whose grandparents had it (before the Civil War). Requirements for voter registration did not discriminate *de jure*, but *de facto*. *Poll taxes* may have been relatively low, but were still significant for poorer voters. Moreover, some states cumulated tax liabilities over time; they had to be paid voluntarily, often before the beginning of primary elections and at collection points inconvenient for prospective black voters (see Ogden, 1958, for the history of poll taxes until the mid 1950s). *Literacy tests* were used and administered in a very discretionary fashion. Mackaman (2005) describes the rules in a county where blacks made up 58.7% of the population, in 1960, but only 3.3% of the registered voters.

> "In Selma, the county seat of Dallas County, for example, voter registration took place only two days per month. An applicant was required to fill in more than 50 blanks, write from dictation a part of the Constitution, answer four questions on the government process, read four passages from the Constitution and answer four questions on the passages, and sign an oath

[11] Naturally, political competition as modeled in this paper will also affect state congressional politics, and extensions of our – theoretical and empirical – analysis should take this into account.

> of loyalty to the United States and Alabama. ... Between May 1962 and August 1964 only 8.5 percent (93 out of 795) of blacks who applied to register were enrolled, while during the same period 77 percent (945 of the 1232) applications from whites were accepted."

The Civil Rights Movement and the Voting Rights Act Blacks in Southern states and elsewhere had long been fighting discrimination and segregation with limited success. In 1954, however, the US Supreme Court struck down on state-sponsored school segregation in its *Brown vs. Board of Education* decision. Spurred on by this ruling and the legitimacy it gave, Southern civil-rights organizations moved their struggle from the court room to the street. About ten years later, the issues were placed on the national political agenda by widely publicized events such as the 1963 March on Washington, culminating in mass demonstrations and Martin Luther King Jr's classic "I have a dream" speech, and the widely publicized 1964 murders by the Ku Klux Klan of three civil rights activists in Mississippi.

Having assumed the presidential duties of assassinated John F. Kennedy, Lyndon B. Johnson skillfully used the political momentum to introduce federal legislation. A landmark speech by the Senate Minority leader, Everett Dirksen, lead Republicans to join Northern Democrats to overcome the filibustering tactics of Southern Democrats and pass the Civil Rights Act, which Johnson signed into law on July 2, 1964. The Act bars racial discrimination and segregation in public accommodations and facilities, employment and education. Its first section also makes voting restrictions in *federal* elections illegal.

But the disenfranchisement of blacks in *state* elections remained, with no federal reform in sight as of early 1965. In his State of the Union Address, which outlined a very ambitious legislative agenda for the coming term, newly elected President Johnson did not mention anything whatsoever about existing voting restrictions in the South. Neither did Dirksen, whose support would once again become critical, in speeches about Republican legislative ambitions. It appears that the Voting Rights Act was initiated very quickly, in response to graphic media coverage of brutal crackdowns, on March 7, 1965, by state troopers on the protesters against political discrimination marching from Selma, AL to the state capital of Montgomery.[12]

[12] See Mackaman (2005) for an account of the political events in 1965 and the adoption

The 1965 Voting Rights Act, as its 1970 amendment, gave the Attorney General authority to appoint federal examiners to oversee voter registration in states, or counties, using literacy or qualification tests and where less than 50% of the voting age population was registered. The Attorney General could also seek legal action against poll taxes as a prerequisite for voting in state elections, and the Supreme Court ruled such usage illegal in a 1966 decision, which became directly binding on Alabama, Mississippi, Texas and Virginia.[13] Just before this, Supreme Court judgements had dealt with malapportionment of electoral districts, which over-represented rural areas in Southern states.[14]

This historical experience of the 1960s translates into higher political competition, i.e., a lower κ – the key parameter of our model. A first channel is due to the enfranchisement of black voters by the Voting Rights Act. Registration rates among blacks rose from about 20% on average, and 5-10% in Alabama and Mississippi, to above 60% over a few years. If these black voters were more prone than whites to be swing voters or committed Republicans – given the local Democrats' record on race – this would lower κ via higher values of σ or lower values of λ.

A second source of higher political competition is through citizens who had been enfranchised all along. Because the Civil Rights Act reduced the ability of Southern Democrats to enact discriminating state laws and policies, the salience of race in state politics is likely to have diminished. As discussed in Section 2.2, this is captured by a higher ϕ. This effect may have been reinforced by greater turnout among committed Republicans – resulting in a lower value of λ – or among swing voters – a higher value of σ – those who had earlier not found it worthwhile to participate in elections (in some Southern states Republican candidates had not even appeared on the ballot). These effects would also serve to reduce κ.[15]

To validate changes in voter preferences independently is difficult. How-

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of the Act.

[13] *Harper v. Virginia State Board of Elections* (1966). North Carolina, Louisiana, Georgia, Florida, Arkansas, and Tennessee had abolished their poll taxes at an earlier date.

[14] Baker vs. Carr (1963) and Reynolds vs. Simms (1964).

[15] The transformation of voter preferences and the two major parties in the South was undoubtedly a very complex process (see Black and Black, 2003 for a recent account). Whereas our model can be used to think about transformation of voter preferences, it has less to say about the tranformation of the parties (beyond the process of candidate selection).

ever, it is insightful to look at the data available in the biannual National Election Studies (NES) between 1952 and 2002.[16] The number of respondents in each NES cross-section is quite small, at most 1500 in total, even before singling out Southern voters and subdividing by race. (Moreover, every state did not have a Gubernatorial election in every NES year and the NES has no data concerning *state* congressional elections). With this caveat, Figure 4 graphs our estimate of κ for the south and non-south over the period of the surveys.[17] Our estimated value of κ is consistent with the claim that competition in the South increased over time. This is, in part, due to a rise in the share of southern swing voters, σ in the model, as well as a fall in the share of Southern Democrats less Republicans, λ in the model. The change in κ is particularly pronounced during and after the 1960s, with a slight aberration (probably due to the Goldwater Presidential race in 1964).

3.2 Data

Main Variables The empirical work demands a proxy for κ in the model, the composite parameter for the dominant party's electoral advantage. Un-

[16] See http://www.umich.edu/~nes/

[17] The parameter κ is estimated as follows. Respondents in the NES are classified as Republican if variable VCF0301 ("Generally speaking, do you usually think of yourself as a Republican, a Democrat, an Independent, or what?") is 6 (weak Republican) or 7 (strong Republican), as Democrat if 1 (strong Democrat) or 2 (weak Democrat), or as swing voters if 3 (independent closer to the Democratic Party), 4 (independent closer to neither party), or 5 (independent closer to the Republican Party). We calculate the proportion of each type in every state and year as the ratio of the number of Republicans/Democrats/swing voters to the total number of respondents (excluding those with a missing value) each year. (The sum of the three percentage points is not equal to a hundred as some respondents are categorised as apolitical (their variable VCF0301 is 9)).

Our estimate of $\kappa = \frac{(1-\sigma)\lambda}{\sigma\phi}$ is then computed as follows. We take the proportion of Democrats less the proportion of Republicans, i.e., $(1-\sigma)\lambda$, and divide by the proportion of swing voters, i.e., σ. We then calibrate ϕ to a constant which implies a 1952 winning probability of 90% for the Democrats in the South, i.e.,

$$\frac{1}{2} + \kappa = 0.9 \ .$$

(This implicitly normalizes $\xi = 1$.) As elsewhere in the paper, the Southern US states are Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

fortunately, the NES data has much too few observations and limited coverage to form a measure of κ state by state. Instead, our principal measure comes from data in Ansolabehere and Snyder (2002), who collected election results for a broad set of directly elected state executive offices, including down ballot officers, such as Lieutenant Governor, Secretary of State, Attorney General, etc. Vote shares in these elections should be a good proxy for relative party strength: the low name recognition rates for lower-state offices imply that ballots are mainly cast along party lines. Let d_{st} be the vote share of the Democrats in state s at time t, according to the Ansolabehere and Snyder data. Though we formulated our argument for Democratic dominance, several states – such as Iowa, Kansas, South Dakota and Wyoming – have been solidly Republican over the entire time period that we study. Thus, we use a party-neutral measure:

$$p_{st} = -abs\left(d_{st} - 0.5\right) \ .$$

A value of p_{st} close to zero means a high level of political competition (corresponding to a low value of κ). This variable has a distribution skewed to the left: its mean and standard deviation are both -0.084. The maximum value in the sample is -0.000 (Illinois in 1998), while the minimum is -0.447 (Texas in 1940). We also use a more conventional measure of political competition, namely the combined seat advantage of the stronger party in the state senate and house combined, as compiled by Besley and Case (2003) based on the reports in the *Book of the States*.[18]

To confront the predictions with data, we also need measures of the main outcome variables. State economic performance – the counterpart of y_2 and g in the model – is measured by per-capita state personal income and its growth rate. Data is provided by the Bureau of Census in electronic form, available from 1929 onwards. The structure of production is measured by data from the same source; we mainly identify the share of the modern sector, s^N in the model, with the share of non-farm income in total personal income. All nominal variables are deflated with the CPI for all urban consumers with the base year 1982-1984 provided by the Bureau of Labour Statistics.

To capture aspects of economic policy, τ in our model, we follow the historical discussion and consider total taxes and corporate income taxes. Data on these (originally appearing in the *State Government Finances* series) was

[18] The index is closely related to a well-known measure in the political science literature known as the "Ranney index".

electronically provided by the Bureau of the Census for each year from 1950 and selected years between 1942 and 1950. Following our discussion in the previous section, we consider business-friendly labor regulations. Specifically, we create a binary indicator whether the state has passed a so-called Right to Work law.[19] Such laws make it illegal to demand that employees join a union, to deduct union fees automatically from wages, etc. The first such laws were enacted in nine states in 1947. By 2001, 75% of southern states had such laws compared to only 44% of states in the whole sample.[20]

Finally, to measure the quality of gubernatorial candidates, the parameter q_p in the model, we estimate a set of Governor fixed effects. Each governor's party affiliation and tenure in office were taken from Congressional Quarterly (1998). The estimation of the Governor fixed effect is discussed in detail below.

Instruments Our measure of political competition is not necessarily exogenous to the outcome variables of interest. One possibility is that there is measurement error, for example, if our measure of voting for down ballot officers is affected by $v_D - v_R$. A second is that increases in income cause political competition to increase, either because turnout goes up or else because of a decline in the tolerance for the status quo by voters. The third, and most serious, is the possibility of omitted factors influencing both economics and politics.

We therefore exploit changes in the uses of poll taxes and literacy tests as instruments for political competition. As described above, these were driven in significant measure by the federal Voting Right Acts of 1965 and 1970 and there is little evidence that the Act was part of a pre-meditated federal strategy. To gauge these changes, we use data originally collected by Husted and Kenny (1997) and extended in Besley and Case (2003) to construct two variables. One is a binary indicator for the use of poll taxes. The other is a continuous measure of the share of the 1970 state population that was living in areas using literacy tests which attracted the scrutiny of the 1965

[19] Information on the use of right-to-work laws was taken form the webpage of the National Right to Work Legal Defense Foundation at `http://www.nrtw.org/rtws.htm`. We independently verified these data and the variable that we use denotes the date at which the law is enacted rather than passed.

[20] Right to Work laws were enacted in the south in the following years: 1947 (Arkansas, Georgia, North Carolina, Tennesee, Virginia), 1953 (Alabama), 1954 (South Carolina), 1960 (Mississippi), 1968 (Florida), 1976 (Louisiana), 1993 (Texas) and 2001 (Oklahoma).

Voting Rights Act or its 1970 revision. In the first year when these data are available, poll taxes are used in 10 states, while literacy and qualifying tests are used in 15 states. Table 1A in the appendix summarizes the abolition of these voting restrictions by state, year and coverage (of the literacy tests).

While these instruments will likely isolate permanent changes in political competition, a large part of their power comes from distinguishing between the South and the non-South. A remaining concern is that the civil rights movement culminating in the Civil Rights Act of 1964 may have increased political competition, but also independently raised output and income by removing discrimination in southern schools and labor markets. It is worth noting, however, that economic historians have been unable to identify large economic effects of these changes (see the overview in Wright, 1999). This also mirrors the conclusions of Donohue and Heckman (1991). Their extensive review of the evidence for economic progress of Southern blacks argues that there were indeed considerable gains to blacks in the South from 1960 to 1980, but it is hard to attribute much of them to the Civil Rights Act (Donohue and Heckman do not discuss general Southern growth).

Nevertheless, we address the prospective simultaneity problem by allowing for non-parametric time trends, specific to the South, in political competition as well as income. We thus obtain identification essentially from the variation of the instruments *within the South,* due to staggered timing and different coverage of the abolished voting restrictions.

4 Evidence

4.1 Baseline Specification and Results

Our basic results concern the relationship between political competition, income per-capita and economic growth. The base-line specification is:

$$y_{st} = \zeta_s + \upsilon_t + \chi p_{st} + \varepsilon_{st} \ , \tag{16}$$

where y_{st} is the log income per-capita in state s in year t, ζ_s is a state fixed effect and υ_t is a year dummy variable and p_{st} our political competition measure. We estimate robust standard errors clustered by state which allow for arbitrary state-specific serial correlation.

Baseline estimation results are collected in Table 1 where column (1) displays estimates of (16) by OLS for annual data between 1929 and 2001. It

shows a strong positive correlation between political competition and income per-capita. The coefficient χ gives us the causal effect of political competition on y_{st} as long as p_{st} is uncorrelated with ε_{st}. The main issue is that omitted factors, such as the Civil Rights movement, may be correlated with p_{st} as well as ε_{st}. As mentioned above, we address these concerns in two ways: (i) introducing instruments for p_{st} and (ii) adding in non-parametric time trends for the southern states.

Our IV strategy introduces drivers of political change that are likely to be independent of economic change – the abolition of poll taxes and literacy tests in the 1965 and 1970 Voting Rights Acts. As shown in Table 1A, the timing and extent of these voting law changes create a source of identification over time and states. We consider a first-stage equation:

$$p_{st} = f_s + n_t + \theta z_{st} + \mu_{st} \ , \tag{17}$$

where f_s is a state fixed effect and n_t a year fixed effect. The instruments z_{st} measure the extent to which registering to vote in state s in year t required passing a literacy test and/or paying a poll tax.

Results from the IV version corresponding to (16), using (17) as the first stage, is found in column (2). They suggest a causal effect of political competition on state per-capita income. The estimate is precise and considerably higher than the OLS estimate, as would be the case if political competition is measured with noise. More precisely, permanent changes in political competition will generate more pronounced effects on policy and economic outcomes, in the long term, than fluctuations from one election to the next. By construction, our instruments will isolate such permanent change. Column (3) displays the reduced form and, as expected, the instruments are negatively correlated with income per-capita. In this specification, poll taxes seem more important than literacy tests in explaining economic performance.

Our second strategy for identification is presented in columns (4) and (5) of Table 1, which augment (16) by a set of separate set of year indicators for Southern states (in addition to the year fixed effects). This will capture in a flexible – and completely non-parametric – way any trends in political competition and income in the South where the Civil Rights movement had its greatest impact. While the size of the estimated effect is now somewhat smaller than in columns (1) and (2), the effect of political competition remains highly significant. As shown by the first-stage F-statistic

in column (5), the instruments still have considerable bite on political competition. Given that we are identifying almost all of the change in political competition from variation within the Southern states, these results are quite a stiff test of the model and make us confident that an independent effect from political competition is at work.

In column (6) of Table 1, we take more literally the timing and importance of the 1965 Voting Rights Act and its effect on abolition of poll taxes. As explained in Section 3.1, Alabama, Mississippi, Texas and Virginia were forced to abolish poll taxes as a requirement for voting by the Supreme Court ruling following the Voting Rights Act. We create an indicator variable, which takes the value one before 1965 in these four states and zero for all other observations, and then use this as our sole instrument for political competition. Hence our identification comes only from these core states. As shown by the F-statistic, the core state-year indicator variable is strongly significant in predicting the change in political competition. Moreover, the IV estimate finds political competition to be highly significant with an effect similar in magnitude to the one in column (2).

We turn next to a dynamic specification akin to that used in the growth literature. This has two purposes. First, we difference out any source of unobserved heterogeneity in levels of income, reserving the fixed state effects for differences in average growth across states. Second, we allow for Solow-style convergence in incomes per capita. We thus include lagged income on the right-hand side and estimate:

$$g_{st} = \zeta_s + \upsilon_t + \beta y_{st-1} + \chi p_{st} + \varepsilon_{st} \ , \tag{18}$$

where g_{st} is the annual growth rate in state s at time t, and where $\beta < 0$ indicates income convergence. There are well-known issues from dynamic panels with fixed effects, but the large number of time periods we have (about 70) makes us confident that any bias is of small order.

Results for this specification are found in Table 2, which otherwise repeats the same specifications as in Table 1. We find strong evidence of income convergence. Nevertheless, with the exception of the OLS estimates in column (4), the results confirm the previous findings using the level of income per-capita. On the whole, the long-run effects on income implied by this table are very close to those in Table 1.

Table 3 explores our identifying assumptions in more detail. We begin in column (1) by reporting results from (17). This confirms the primacy of the

poll tax variable in shaping political competition. Column (2) shows that poll taxes and literacy tests remain strong predictors of political competition (the latter more so even than in column (1)), when a non-parametric Southern time trend is added to the specification. Columns (3) and (4) further explore the robustness of the timing implicit in the voting law changes. Here, we create five-year leads and lags of our instruments and include these "false" variables along with the "true" variables in the first-state regression. Thus we conduct a "Placebo test", asking whether the false variables predict the change in political competition as well as the true ones. With the exception of the five-year lead on poll taxes which is significant at the 10 percent level, these false variables are not significant, while the true poll taxes and literacy test variables remain highly significant, whether we take five-year leads or lags. These Placebo tests confirm that the timing of the political change agrees with the timing predicted by our instruments and further support the credibility of our identification strategy.

The results in this section show that political competition has a strong positive effect on economic performance. This effect is not only statistically significant, but also quantitatively important. By the IV estimate in column (2) of Table 1, e.g., an increase in political competition corresponding to one standard deviation (about 0.08) raises personal income per capita by about 11.5% in the long run ($(e^{0.08 \cdot 1.358} - 1) \cdot 100$). More interesting, perhaps, is the estimated effect of the removal of voting restrictions. The results in column (2) of Table 1 and column (1) in Table 3 imply an effect just above 20% of income in the average affected state by the poll tax alone ($(e^{0.137 \cdot 1.358} - 1) \cdot 100$). This number also squares well with the reduced-form estimate in column (3) of Table 1.

4.2 Inspecting the Mechanism

Our results, so far, provide convincing evidence of a causal effect of political competition on economic performance, which is fully consistent with the predictions of our model. In this subsection, we turn to the mechanism whereby political competition improves economic performance. Following the model, we analyze policy outcomes, the quality of governors, as well as some auxiliary predictions.

Policy To study policy, we run equations of the form:

$$\tau_{st}^k = \zeta_s^k + \upsilon_t^k + \chi^k p_{st} + \varepsilon_{st}^k \ , \ \ k = 1, 2, ...K \ , \tag{19}$$

where τ_{st}^k is the outcome variable, ζ_s^k is a state fixed effect and υ_t^k a year effect for the kth policy. As in the previous subsection, we estimate robust standard errors allowing for clustering at the state level.

Column (1) in Table 3 reports the OLS estimate of χ^k in (19), when τ^k is total taxes as a share of state income. Using total taxes focuses on the role of state policy in affecting overall accumulation, one of the channels whereby τ in our model diminishes growth. Clearly, more political competition is correlated with a lower overall burden of taxation. Column (2) reports the IV estimate, when we instrument political competition by the use of poll taxes and literacy tests, in the same way as in the previous subsection. It is close to the OLS estimate. The increase in political competition implied by the abolition of the voting restrictions, cuts the average state tax rate by more than 5% (0.5% of state income). Column (3) shows that this result holds up when we include separate year dummy variables for Southern states.

Columns (4)-(6) report OLS and IV estimates of χ^k, when τ^k is set equal to corporate taxes (again, normalized by state income). While the estimated coefficients are negative, they are at best marginally significant.

Finally, columns (7)-(9) replace taxation by labor market regulation as measured by Right to Work laws. These laws indeed depend strongly on political competition. According to the IV estimate, the higher political competition implied by the Voting Rights Act raised the probability of introducing a Right to Work law by circa 30%. The result is robust to including separate year dummies for Southern states.

While the policy regressions carry some of the same concerns that we discussed in the context of income levels, it seems less plausible that these conflate the impact of the Civil Rights movement with changes in political competition. It is not very convincing to argue that the Civil Rights movement would lead to either tax cuts or business friendly regulations.[21]

Quality of Governors The model predicts Governor quality to be a key determinant of policy and growth. To address this prediction, we first test

[21] Recall that Husted and Kenny (1997) used the federal interventions in the 1960s to find support for the prediction that an increase in the franchise might trigger hikes in welfare spending. We can replicate their results on welfare spending with our data.

for evidence of Governor quality, as such, and then ask whether quality is indeed related to political competition. During the period 1929 to 2000, there were 581 different Governors in office in the 48 continental states, who served for more than two years.[22] We now allow for the possibility that the quality of Governors has an impact on income per-capita in their state. This is similar in spirit to Bertrand and Schoar (2003) who test for the importance of CEO's by estimating CEO fixed effects for a set of U.S. firms.

Specifically, we estimate the following empirical model:

$$y_{gst} = q_{gs} + \upsilon_t + \vartheta_s t + \varepsilon_{gst} \ , \tag{20}$$

where y_{gst} is now the level of income per-capita with Governor g in state s in year t and q_{gs} is a Governor fixed effect. Thus, e.g., there is a specific Reagan dummy, which takes a value of 1 in the state of California in each year from 1967 to 1974, and a value of 0 in all other states and years. As above, υ_t is a year indicator, while the new parameter ϑ_s allows for a (linear) state-specific time trend. The standard errors are estimated robustly and clustered by state. The resulting test is quite stringent, because a "high-quality" Governor has to deliver increases in income per-capita above trend. Heuristically, we are thus "breaking up" the fixed state ζ_s in (16) into a set of governor fixed effects. We also estimate similar growth specifications:

$$g_{gst} = q_{gs} + \upsilon_t + \beta y_{st-1} + \varepsilon_{gst} \ , \tag{21}$$

again with standard errors estimated robustly and clustered by state.

To asses whether Gubernatorial quality "matters", we test the equality of q_{gs} *within a state*. This allows us to test whether all Governors are of uniform quality. Figure 5 shows the distribution, by state, of the F-statistics of this test from (21).[23] Even though the degrees of freedom vary across states, it is evident already from this graph that these are highly significant. In fact, in no case can we reject the hypothesis of no difference in Gubernatorial quality.

As a by-product, we can gauge the performance of specific governors. This is particularly interesting for those who go on to higher office, like the Presidency. Among recent presidents, the point estimates indicate that Bill

[22] Including the additional 135 governors that served less than two years in office in the sample only has a minimal impact on the results.

[23] The results are similar for the estimated level fixed effects. The correlation in the F-statistics is 0.64.

Clinton and George W. Bush were above-average performers while Ronald Reagan was a (just) below-average performer, relative to other chief executives in their states. Figure 6 displays a histogram of the estimated Governor fixed effects on growth for our entire sample, each expressed as an annualized mean relative to the state mean. The graph gives a feel for the distribution of Gubernatorial quality uncovered by our approach and suggests an important quality dimension in holding political office.

While suggestive, the distribution may also reflect good or bad luck – i.e., some Governors benefit from a series of positive exogenous shocks through their terms, while others suffer from negative ones. However, our model predicts quality to be systematically shaped by party selection, which in turn should be determined by political competition in the state at the time the Governor is elected. Thus, for example, we would expect the U.S. South to display a rising pattern of Gubernatorial fixed effects, due to improving quality. To investigate this we run the following regression:

$$\widehat{q}_{gs} = \zeta_s + \upsilon_t + \rho p_{gs} + \nu_{gs} \ , \tag{22}$$

where ζ_s is a state indicator, υ_t is a time indicator and p_{gs} is the state of political competition at the date of the Governor's first election. The error term ν_{gs} is estimated with robust standard errors clustered at the state level. If the quality of the Governor is affected by political competition, we should find $\rho > 0$. Because of the variation in entry dates and realized term lengths across states, this exercise is not just another way of estimating a relation between political competition and realized income or growth, as in Tables 1 and 2.

Table 5 shows our estimates of (22) to test for a positive relationship between political competition and Governor quality. In column (1), we report the OLS results for the Gubernatorial income level effects. They indicate a significant positive association. Column (2) introduces poll taxes and literacy tests as instruments for competition and – in line with the earlier results – the coefficient increases in size. In column (3), we look at the reduced-form effect of poll taxes and literacy tests on Gubernatorial quality. Again, these show that there is a significant reduced form relation. The same specifications are repeated in columns (4)-(6) for Gubernatorial growth effects. A similar pattern of significance and orders of magnitude appears. Overall, these results suggest that stiff political competition when Governors are elected do have a positive effect on their economic performance in office.

Auxiliary Implications of the Theory Table 6 investigates some further predictions of our model. We showed in Section 2 that higher political competition changes policy so as to allocate resources away from the traditional sector – cf. the result concerning $s^N(\tau)$ in Lemma 1. To test this prediction, we use the share of non-farm income in state income as the left hand side variable. Columns (1) and (2) shows that political competition is indeed positively associated with a greater share of non-farm income.

The model also predicts a non-linear relationship between political competition and economic performance – the three regions for κ in Proposition 1. To test for this, we create four indicator variables for political competition less than $-0.1, -0.2, -0.3$ and -0.4, respectively, and include these in our standard specification instead of the level of political competition. In column (3), the estimated effect of political competition in the range -0.3 to -0.4, say, must now be read as the *sum* of the coefficients on the first three indicator variables. Political competition between -0.1 and -0.2 is not significantly different from a higher degree of competition in terms of its effect on personal income per-capita. On the other hand, political competition is damaging in the -0.2 to -0.3 range, and more damaging still in the -0.3 to -0.4 range. However, the effect below -0.4 is not significantly different from the one in the -0.3 to -0.4 range.[24] In conformity with the theory, the effect of political competition is non-linear, with the main effect in an intermediate range (the range from κ_H to κ_L), in between the very even and the very lopsided.

Our model supposes that political competition shapes the incentives for candidate selection in the same way across parties. We test for this possibility by splitting up our measure of political competition by party. Thus, we multiply the competition measure with an indicator for the Governor's party, creating separate measures for Democratic and Republican party advantage – note that these measure the *lack of* political competition. We then put the party advantage indicators into the regression, along with a control for whether the Governor is a Democrat. The results are found in columns (4) and (5). For income as well as growth, we find that the diminishing political advantage of Democratic Governors is most important. This is in line with the discussion in Section 2.3, given that Democratic party dominance is more important over the period.

Finally, our model portrays political competition as the sole source of

[24] Note, however, that there are only 23 state-year observations below -0.4.

policy differences between parties. This runs counter to the stereo-typical view that the Republican party is more pro-business. Given that increased political competition in the South mainly involves the growth of Republicanism, can we rule out that our results are not driven by a "party-preference" effect? The remaining columns of Table 6 add in measures of political control in state legislatures to some of our previous specifications. In columns (6)-(7), we find that neither the party of the Governor nor the majority party of the state legislatures are correlated with the level or growth rate of personal income. An F-test comfortably rejects the significance of these variables. The final column shows that party control does have some bearing on the overall state tax rate in the expected direction. But the party effects are quantitatively small and the effect of political competition *per se* is identical to the point estimate in Table 4. Overall, we thus find no evidence that our previous estimates are an artefact of the gradual Republican takeover in the South.

4.3 Robustness Checks

In Table 7, we check whether the results are robust to the frequency of our data and to our measure of political competition.

As is well known in the growth literature, the strong cyclical component in annual data may bias upwards the estimated rate of convergence. Such bias could conceivably spill over to our point estimates of political competition, although – at the same time – an upward bias of the convergence coefficient would bias *down* the *long-run* effect of political competition on income implied by the growth specification. Thus, we reconsider our main results in a panel of five-year averages between 1930 and 2000. Columns (1)-(4) show that the main empirical findings from the annual data hold up in this case. As in Table 1, the estimated effect of political competition on income and growth rises with instrumentation. As expected, the rates of convergence estimated in columns (2) and (3) are indeed lower than in the annual data (about 6% per year rather than 10%).

Some readers may be concerned that running these regressions on a mere 13 observations in each state panel might generate biased estimates due to the presence of a lagged dependent variable. To shed some light on this concern, we use the Arellano and Bond GMM 1st difference estimator, as recommended by Caselli, Esquivel and Lefort (1996). The specification in column (5) uses one additional lag of income as an instrument for the lagged

dependent variable and treats political competition as endogenous with poll taxes and literacy tests as additional instruments. Here, we estimate the effects from 1950 and onwards, to avoid including the volatile income levels of the 1930s in the instrument set. As the table shows, the earlier results on political competition hold up.[25]

We have measured political competition by party votes shares in lower state office elections. What happens if we instead use the alternative measure discussed in Section 3.2 based on seat shares in the state house and senate? Most of our earlier results can be replicated under this alternative measurement, with the qualification that it is only available from 1950 and onwards. Columns (6) and (7) of Table 7 demonstrate that the main results from Table 1 remain robust.

5 Final Remarks

How politics and economics interact in promoting the quality of government and economic performance is of first-order importance. This paper argues that the structure of political competition, and a fortiori the underlying political institutions, can have a profound impact on economic life. Two forces take center stage in our story: attachment to parties on the basis of central non-economic issues, and support on such issues skewed towards parties. Even though the electoral institutions of democracy are nominally functioning, these forces create an entree for malign political influences – vested interests who wish to protect their quasi-rents.

The results demonstrate convincingly that the extent of political competition can be an important factor in shaping economic policy and performance. For social scientists who want to understand patterns of long-run development, it may be inescapable to study their political ramifications.

Our analysis also casts light on efforts to understand the differences between political systems across the globe. In formal terms, the southern United States had many institutions in common with the rest of the country. But small differences endured and historical factors shaped the way in which these institutions produced policy outcomes. Trying to understand the per-

[25] Because the dependent variable in column (5) is the level of income (even though the estimation is in 1st differences), the coefficient on lagged income should be compared to one plus the coefficient on lagged income ($1+\beta$) in the growth specification of columns (3) and (4).

formance of democracy without taking these factors into account could be quite misleading. Clearly, a great deal more research is needed to understand the heterogenous performance of political institutions, due to interactions with social and historical preconditions.

References

[1] Ansolabehere, Stephen and James M. Snyder, Jr., [2002], "The Incumbency Advantage in U.S. Elections: An Analysis of State and Federal Offices, 1942-2000," *Election Law Journal* 1(3), 315-338.

[2] Barro, Robert, J. and Xavier Sala-i-Martin, [2004], *Economic Growth*, Cambridge, MA, and London: MIT Press.

[3] Bertrand, Marianne and Antoinette Schoar, [2003], "Managing with Style: The Effect of Managers on Firm Policies," *Quarterly Journal of Economics* 118(4), 1169-1208.

[4] Besley, Timothy and Anne Case, [2003], "Political Institutions and Policy Choices: Evidence from the United States," *Journal of Economic Literature* 41(1), 7-73.

[5] Besley, Timothy and Stephen Coate, [1997], "An Economic Model of Representative Democracy," *Quarterly Journal of Economics* 112(1), 85-114.

[6] Black, Earl and Merle Black, [2003], *The Rise of Southern Republicans*, Cambridge, MA: Harvard University Press.

[7] Caselli, Francesco, Gerardo Esquivel, and Fernando Lefort, [1996], "Reopening the Convergence Debate: A New Look at Cross-Country Growth Empirics", *Journal of Economic Growth* 1(3), 363-390.

[8] Caselli, Francesco and Massimo Morelli, [2004], "Bad Politicians," *Journal of Public Economics* 88(3), 759-782.

[9] Cobb, James C., [1993], *The Selling of the South: The Southern Crusade for Industrial Development*, Urbana and Chicago, IL: Univerisity of Illinois Press, 2nd Edition.

[10] Congressional Quarterly [1998], "Gubernatorial Elections: 1787-1997", Washington, DC: Congressional Quarterly.

[11] Council of State Governments, *The Book of the States*, Lexington, KY: Council of State Governments, various years.

[12] Donohue, John J, III and James Heckman [1991], "Continuous versus Episodic Change: The Impact of Civil Rights Policy on the Economic Status of Blacks," *Journal of Economic Literature*, 29(4), 1603-43.

[13] Haber, Stephen, [2004], "Political Institutions and Economic Development: Evidence from the Banking Systems of the United States and Mexico," typescript, Stanford University.

[14] Husted, Thomas, and Lawrence Kenny, [1997], "The Effect of the Expansion of the Voting Franchise on the Size of Government", *Journal of Political Economy* 105(1), 54-82

[15] Key, V. O., [1950], *Southern Politics in State and Nation*, New York, NY: A.A. Knopf.

[16] Krusell, Per and José-Victor Rios-Rull, [1996], "Vested Interests in a Positive Theory of Stagnation and Growth," *Review of Economic Studies* 63(2), 301-321.

[17] Mackaman, Frank [2005], "Commemoration of the 40th Anniversary of the Passage of the Voting Rights Act", Mimeo, Howard H. Baker Center for Public Policy, University of Tennessee.

[18] Naylor, Thomas H. and James Clotfelter, [1975], *Strategies for Change in the South*, Chapel Hill, NC: The University of North Carolina Press.

[19] Ogden, Frederic D, [1958], *The Poll Tax in the South*, University, AL: The University of Alabama Press.

[20] Osborne, Martin J. and Al Slivinski, [1996], "A Model of Political Competition with Citizen Candidates," *Quarterly Journal of Economics* 111(1), 65-96.

[21] Pempel, T. J. (ed.), [1990], *Uncommon Democracies: The One-Party Dominant Regimes*, Ithaca, NY: Cornell University Press.

[22] Persson, Torsten and Guido Tabellini, [2000], *Political Economics: Explaining Economic Policy*, Cambridge, MA: MIT Press.

[23] Polo, Michele, [1998], "Electoral Competition and Political Rents", Mimeo, IGIER, Bocconi University.

[24] Sabato, Larry [1978], *Goodbye to Good-Time Charlie: The American Governor Transformed, 1959-1975*, Lexington MA, Lexington Books.

[25] Stigler, George, J. [1972], "Economic Competition and Political Competition", *Public Choice* 13, 91-106.

[26] Svensson, Jakob [1998], "Controlling Spending: Electoral Competition, Polarization, and Primary Elections", Mimeo, The World Bank.

[27] United States Bureau of Census, "State Government Finances", Washington DC, various years.

[28] Wittman, Donald, [1989], "Why Democracies Produce Efficient Results", *Journal of Political Economy* 97(6), 1395-1424.

[29] Wittman, Donald, [1995], *The Myth of Democratic Failure: Why Political Institutions are Efficient*, Chicago,. IL: University of Chicago Press.

[30] Wright, Gavin, [1987], "The Economic Revolution in the South," *Journal of Economic Perspectives* 1(1), 161-178.

[31] Wright, Gavin [1999], "The Civil Rights Revolution as Economic History," *Journal of Economic History* 59(2), 267-289.

6 Appendix

6.1 The implementable range of swing voter utility

Using (13), it is straightforward to see that for q_p below $\overline{q}$, defined by $(1-\rho)(1-\overline{q})M = 1$, we have $\tau(q_p) > 0$. Unless his quality is very high, the elected Governor wants to protect production in the traditional sector, because he can extract the rents of protection from the landowners through the lobbying process.

Given that $q_p < \overline{q}$, $\tau(q_p)$ follows from the first-order condition:

$$\frac{F_\tau(\tau(q_p))}{R_\tau(\tau(q_p))\, l} = -[(1-\rho)(1-q_p)M - 1] \ . \tag{23}$$

By the second-order condition, the left-hand side of (23) is decreasing in τ. As the right-hand side is increasing in q_p, $\tau(q_p)$ must be a decreasing function. By fielding a gubernatorial candidate of lower quality (a lower q_p), a (winning) party can thus implement a higher tax rate with more protection of the traditional sector and higher transfers to party members.

To define the implementable range $[\underline{v}, \overline{v}]$, let

$$\underline{v} = F(\tau(\underline{q})) - R(\tau(\underline{q}))l$$

be the swing voter's payoff, when a party picks its most preferred tax rate without worrying about the electoral consequences. Thus, the party just maximizes its ex post policy preferences, which from (10) are

$$F(\tau) + R(\tau)l(\frac{\rho}{m}(1-q^P) - 1) \ . \tag{24}$$

This simple problem of strategic delegation ideally calls for a Governor type whose weight on rents in the ex post payoff (12) coincides with the party's weight in (24). However, if the party's share of the rent is large enough, it will always want the most corrupt kind of Governor. Hence, the party's preference for quality $\underline{q}$ is given by

$$\underline{q} = \max\left\{1 - \frac{\rho(1-q^P)}{mM(1-\rho)}, 0\right\} \ . \tag{25}$$

We assume that M is large enough so that $\underline{q} > 0$.[26] Next, let

$$\overline{v} = F(0) - R(0)\, l$$

be the swing voters' highest utility level, i.e., when $\tau = 0$. By our previous results, this will be delivered by any Governor with $q_p \geq \overline{q}$. Without loss of generality, we can thus confine the party's choice of politician types to the range $q \in [\underline{q}, \overline{q}]$ or, equivalently, to the range of swing-voter utilities $v \in [\underline{v}, \overline{v}]$, where v is defined by

$$v = F(\tau(q(v))) - R(\tau(q(v)))\, l \ .$$

We can write the (ex post) payoff to party members if they offer v to the swing voters as:

$$W(v) = F(\tau(q(v))) - R(\tau(q(v)))\, l \frac{\left(m - \rho(1 - q^P)\right)}{m} \ .$$

It is straightforward to show that the derivative of this function satisfies

$$W_v(v) = 1 - \frac{\rho(1 - q^P)}{mM(1-\rho)(1-q_p)} < 0 \tag{26}$$

on $v \in (\underline{v}, \overline{v}]$.

6.2 Proof of Proposition 1

We begin by proving:
Lemma A1: *An equilibrium exists.*
Proof: If $\kappa \geq \frac{1}{2\xi} + \overline{v} - \underline{v}$, then $W_v(v_D^*) = 0$ or $v_D^* = \underline{v}$ and existence is trivial. Hence, suppose that $\kappa < \frac{1}{2\xi} + \overline{v} - \underline{v}$. Define $f(x)$ for $x \in [\underline{v}, \overline{v}]$ from:

$$-\left[\frac{1}{2} - \xi\left[\kappa + x - f(x)\right]\right] W_v(f(x)) + \xi\left[\Delta + W(f(x)) - x\right] = 0 \ .$$

[26] If there is equal sharing between the party and the Governor, i.e.

$$(1 - \rho) = \frac{1}{mM + 1}$$

then $\underline{q} = q^P$, i.e. the party prefers a Governor who is of the same quality as party members.

Observe that $f(x) > \underline{v}$ for all $x \in [\underline{v}, \overline{v}]$ since $W_v(\underline{v}) = 0$. Now, let:

$$v_R(x) = \begin{cases} \overline{v} & \text{if } f(x) > \overline{v} \\ f(x) & \text{for } f(x) \in (\underline{v}, \overline{v}] \end{cases}.$$

As $v_R(x)$ is everywhere continuous on $[\underline{v}, \overline{v}]$, so is:

$$H(x) = -\left[\frac{1}{2} + \xi\left[\kappa + x - v_R(x)\right]\right] W_v(x) + \xi\left[\Delta + W(x) - v_R(x)\right] .$$

It is straightforward to check that $H(\underline{v}) > 0$. Now, consider:

$$\begin{aligned} H(\overline{v}) &= -\left[\frac{1}{2} + \xi\left[\kappa + \overline{v} - v_R(\overline{v})\right]\right] W_v(\overline{v}) + \xi\left[\Delta + W(\bar{v}) - v_R(\overline{v})\right] \\ &= -\left[\frac{1}{2} + \xi\left[\kappa + \overline{v} - v_R(\overline{v})\right]\right] \frac{\rho(1-q^P) - m}{m} + \xi\left[\Delta + \overline{v} - v_R(\overline{v})\right] \\ &\leq -\left[\frac{1}{2} + \xi\kappa\right] \frac{\rho(1-q^P) - m}{m} + \xi\Delta \qquad \text{by Assumption 1} \\ &< 0 \qquad \text{by Assumption 2 if } \kappa > 0 . \end{aligned}$$

Since $H(\cdot)$ is continuous, there exists (by the intermediate value theorem) a v_D^* such that $H(v_D^*) = 0$.■

Define

$$\kappa_H = \frac{1}{2\xi} + \overline{v} - \underline{v}$$

as the level of κ which guarantees victory to the Democrats in this circumstance.

Lemma A2: *If $\kappa \geq \kappa_H$. the Democratic party wins for sure and picks $q_D = \underline{q}$ and $v_D^* = \underline{v}$.*

Proof: This follows by observing that for $\kappa \geq \kappa_H$, then the Democrats win for sure and hence pick their ideal policy.■

Now define:

$$\kappa_L = \kappa_H - \frac{\Delta m}{(\rho(1-q^P) - m)} .$$

Lemma A.3: *For $\kappa \in (\kappa_L, \kappa_H)$, $\underline{v} < v_D^* < \overline{v} = v_R^*$.*

Proof: First, we show for all $\kappa > \kappa_L$, the Republicans will pick $v_R = \overline{v}$. To see this, observe that at $v_R = \overline{v}$ and $v_D = \underline{v}$, the change in the payoff of the

Republican party from a small increase in v is:

$$-\left[\frac{1}{2}-\xi\left[\kappa+\underline{v}-\overline{v}\right]\right]\frac{\rho(1-q^P)-m}{m}+\xi\left[\Delta+W\left(\overline{v}\right)-\underline{v}\right] \;>$$
$$-\left[\frac{1}{2}-\xi\left[\kappa_L+\underline{v}-\overline{v}\right]\right]\frac{\rho(1-q^P)-m}{m}+\xi\Delta \;=\; 0$$

from the definition of κ_L. Moreover, Assumption 1 implies that this inequality holds for all $v_D > \underline{v}$.

Second, we show that it is optimal for the Democrats to pick $v_D^* < \overline{v}$. Suppose not, such that $v_D = \overline{v}$. Then, a small increase in v_D alters the Democratic payoff by:

$$-\left[\frac{1}{2}+\xi\kappa\right]\frac{\rho(1-q^P)-m}{m}+\xi\Delta<-\frac{1}{2}\cdot\frac{\rho(1-q^P)-m}{m}+\xi\Delta<0\ ,$$

where the last inequality follows from Assumption 1. Thus, the best response for the Democrats must be $v_D < \overline{v}$. To see that $v_D > \underline{v}$, observe that $W_v\left(\underline{v}\right) = 0$ – this follows from evaluating (26) at the point $q_p = \underline{q}$. To prove the last statement, observe that $v_D\left(\overline{v}\right)$ is defined from:

$$\left[\frac{1}{2}+\xi\left[\kappa+v_D\left(\overline{v},\kappa\right)-\overline{v}\right]\right]W_v\left(v_D\left(\overline{v},\kappa\right)\right)=\xi\left[\Delta+W\left(v_D\left(\overline{v},\kappa\right)\right)-\overline{v}\right]\ . \quad (27)$$

At any point where this equality holds, $W_v\left(v_D\left(\overline{v},\kappa\right)\right) < 0$. Moreover, a maximum exists on $[\underline{v},\overline{v}]$. Elementary arguments now show that, at any point satisfying (27), $v_D\left(\overline{v},\kappa\right)$ is decreasing in κ.■

Lemma A.4: *There exists $\kappa < \kappa_L$, for which we have an interior equilibrium with $v_p^* \in (\underline{v},\overline{v})$ for $p \in \{D,R\}$.*

Proof: For $\kappa = 0$, Assumption 2 implies that both parties will pick $v_p^* < \overline{v}$ for $p \in \{D,R\}$. Moreover, since strategies are continuous in κ, this holds for some $\kappa > 0$. ■

Collecting the results in Lemmas A.1 through A.4 above, we obtain the comparative statics as stated in Proposition 1.■

Table 1 - Political Competition and Personal Income

	(1) Personal income	(2) Personal income	(3) Personal income	(4) Personal income	(5) Personal income	(6) Personal income
Political competition	0.435***	1.358***		0.222**	0.887**	1.145***
	(0.099)	(0.268)		(0.105)	(0.396)	(0.368)
Poll taxes			-0.218***			
			(0.043)			
Literacy tests			-0.078			
			(0.057)			
Instruments		Literacy tests, Poll taxes			Literacy tests, Poll taxes	Four "core" states
South*year interactions	No	No	No	Yes	Yes	No
Method	OLS	IV	OLS	OLS	IV	IV
Sample	1929-2001	1929-2001	1929-2001	1929-2001	1929-2001	1929-2001
First-stage F-Statistic		388.83			189.46	467.27
Observations	3376	3376	3376	3376	3376	3376
R-squared	0.995		0.995	0.996		

Notes: Variables explained in text. All specifications include state and year indicator variables. In parentheses, standard errors, which are robust to heteroskedasticity and adjusted for clustering at the state level; * denotes significant at 10%; ** significant at 5%; *** significant at 1%

Table 2 - Political Competition and Growth

	(1) Growth of personal income	(2) Growth of personal income	(3) Growth of personal income	(4) Growth of personal income	(5) Growth of personal income	(6) Growth of personal income
Political competition	0.031**	0.122***		0.016	0.078**	0.096**
	(0.013)	(0.035)		(0.013)	(0.036)	(0.040)
Lagged income	-0.095***	-0.111***	-0.101***	-0.104***	-0.109***	-0.107***
	(0.015)	(0.015)	(0.015)	(0.016)	(0.014)	(0.016)
Poll taxes			-0.018***			
			(0.005)			
Literacy tests			-0.007			
			(0.005)			
Instruments		Literacy tests, Poll taxes			Literacy tests, Poll taxes	Four "core" states
South*year interactions	No	No	No	Yes	Yes	No
Method	OLS	IV	OLS	OLS	IV	IV
Sample	1930-2001	1930-2001	1930-2001	1930-2001	1930-2001	1930-2001
First-stage F-Statistic		400.02			191.47	471.97
Observations	3333	3333	3333	3333	3333	3333
R-squared	0.776		0.776	0.789		

Notes: Variables explained in text. All specifications include state and year indicator variables. In parentheses, standard errors, which are robust to heteroskedasticity and adjusted for clustering at the state level; * denotes significant at 10%; ** significant at 5%; *** significant at 1%

Table 3 - Voting Restrictions and Political Competition

	(1) Political competition	(2) Political competition	(3) Political competition	(4) Political competition
Poll taxes	-0.137*** (0.032)	-0.108*** (0.039)	-0.068*** (0.015)	-0.090** (0.044)
Literacy tests	-0.107* (0.057)	-0.096* (0.055)	-0.063** (0.031)	-0.076** (0.036)
Poll taxes (5-year lead)			-0.088* (0.047)	
Literacy tests (5-year lead)			-0.060 (0.070)	
Poll taxes (5-year lag)				-0.053 (0.039)
Literacy tests (5-year lag)				-0.036 (0.047)
South*year interactions	No	Yes	No	No
Method	OLS	OLS	OLS	OLS
Sample	1929-2001	1929-2001	1929-2001	1929-2001
Observations	3376	3376	3376	3376
R-squared	0.514	0.554	0.527	0.519

Notes: Variables explained in text. All specifications include state and year indicator variables. In parentheses, standard errors, which are robust to heteroskedasticity and adjusted for clustering at the state level; * denotes significant at 10%; ** significant at 5%; *** significant at 1%

Table 4 - Political Competition and Economic Policy

	(1) Total taxes as share of state income	(2) Total taxes as share of state income	(3) Total taxes as share of state income	(4) Corporate taxes as share of state income	(5) Corporate taxes as share of state income	(6) Corporate taxes as share of state income	(7) Right to work laws	(8) Right to work laws	(9) Right to work laws
Political competition	-0.031*** (0.008)	-0.059*** (0.014)	-0.026*** (0.008)	-0.002 (0.001)	-0.008* (0.004)	-0.001 (0.001)	0.837*** (0.291)	1.890*** (0.540)	0.755** (0.294)
South*year interactions	No	No	Yes	No	No	Yes	No	No	Yes
Method	OLS	IV	OLS	OLS	IV	OLS	OLS	IV	OLS
Sample	1942-2001	1942-2001	1942-2001	1942-2001	1942-2001	1942-2001	1929-2001	1929-2001	1929-2001
First Stage F-Statistic		218.06			141.20			388.83	
Observations	2640	2640	2640	2146	2146	2146	3376	3376	3376
R-squared	0.846		0.855	0.635		0.650	0.736		0.742

Notes: Variables explained in text. All specifications include state and year indicator variables. In parentheses, standard errors, which are robust to heteroskedasticity and adjusted for clustering at the state level; * denotes significant at 10%; ** significant at 5%; *** significant at 1%

Table 5 - Political Competition and Gubernatorial Quality

	(1) Governor income per capita	(2) Governor income per capita	(3) Governor income per capita	(4) Governor growth per capita	(5) Governor growth per capita	(6) Governor growth per capita
Political competition	0.260**	0.404**		0.291***	0.715***	
	(0.114)	(0.174)		(0.072)	(0.177)	
Poll taxes			-0.084**			-0.117***
			(0.039)			(0.030)
Literacy tests			0.043			-0.034**
			(0.048)			(0.044)
Method	OLS	IV	OLS	OLS	IV	OLS
Sample	48 States 581 Governors	48 States 581 Governors	48 States 581 Governors	48 States 581 Governors	48 States 581 Governors	48 States 581Governors
First Stage F-Statistic		65.70			65.70	
Observations	581	581	581	581	581	581
R-squared	0.918		0.918	0.809		0.817

Notes: Variables explained in text. All specifications include state and year indicator variables. We only include governors which served more than two years in office. In parentheses, standard errors, which are robust to heteroskedasticity and adjusted for clustering at the state level; * denotes significant at 10%; ** significant at 5%; *** significant at 1%

Table 6 - Further Implications of the Theory

	(1) Share of non-farm income in total income	(2) Share of non-farm income in total income	(3) Personal income	(4) Personal income	(5) Growth of personal income	(6) Personal income	(7) Growth of personal income	(8) Total taxes as share of state income
Political competition	0.109***	0.166*				0.255***	0.028**	-0.031***
	(0.036)	(0.091)				(0.051)	(0.012)	(0.009)
Democratic governor advantage				-0.588***	-0.039***			
				(0.056)	(0.011)			
Republican governor advantage				0.019	-0.006			
				(0.115)	(0.034)			
Democratic governor				0.026***	0.003	-0.006	0.001	0.000
				(0.009)	(0.002)	(0.005)	(0.001)	(0.001)
Democrats control house and senate						-0.004	0.001	0.002**
						(0.008)	(0.001)	(0.001)
Republicans control house and senate						0.011	-0.000	-0.001*
						(0.008)	(0.001)	(0.001)
Lagged income					-0.094***		-0.098***	
					(0.014)		(0.026)	
Political competition < -0.4			-0.077					
			(0.059)					
Political competition < -0.3			-0.131**					
			(0.055)					
Political competition < -0.2			-0.038**					
			(0.016)					
Political competition < -0.1			-0.020					
			(0.014)					
Method	OLS	IV	OLS	OLS	OLS	OLS	OLS	OLS
Sample	1929-2001	1929-2001	1929-2001	1929-2001	1929-2001	1950-2001	1950-2001	1950-2001
First Stage F-statistic		377.21						
Observations	3329	3329	3376	3348	3305	2324	2324	2324
R-squared	0.747		0.995	0.995	0.775	0.997	0.596	0.832

Notes: Variables explained in text. All specifications include state and year indicator variables. In parentheses, standard errors, which are robust to heteroskedasticity and adjusted for clustering at the state level; * denotes significant at 10%; ** significant at 5%; *** significant at 1%

Table 7 - Robustness to Alternative Measurement

	(1) Personal income	(2) Growth of personal income	(3) Growth of personal income	(4) Political competition	(5) Personal income	(6) Personal income	(7) Personal income
Political competition	0.607***	0.080*	0.369***		1.061*	0.592***	1.978***
	(0.130)	(0.040)	(0.116)		(0.573)	(0.102)	(0.445)
Lagged income		-0.307***	-0.366***		0.512**		
		(0.037)	(0.038)		(0.221)		
Poll taxes				-0.153***			
				(0.036)			
Literacy tests				-0.116			
				(0.079)			
Specification	Five-year averages	Five-year averages	Five-year averages	Five-year averages	Five-year averages	Alternative competition measure	Alternative competition measure
Method	OLS	OLS	IV	OLS	GMM 1st Differences	OLS	IV
Sample	1930-2000	1930-2000	1930-2000	1930-2000	1950-2000	1950-2001	1950-2001
First-stage F-statistic			116.58				160.67
Observations	649	601	601	601	459	2372	2372
R-squared	0.973	0.863		0.610		0.997	

Notes: Variables explained in text. All specifications include state and year indicator variables. In parentheses, standard errors, which are robust to heteroskedasticity and adjusted for clustering at the state level; * denotes significant at 10%; ** significant at 5%; *** significant at 1%

Figure 1

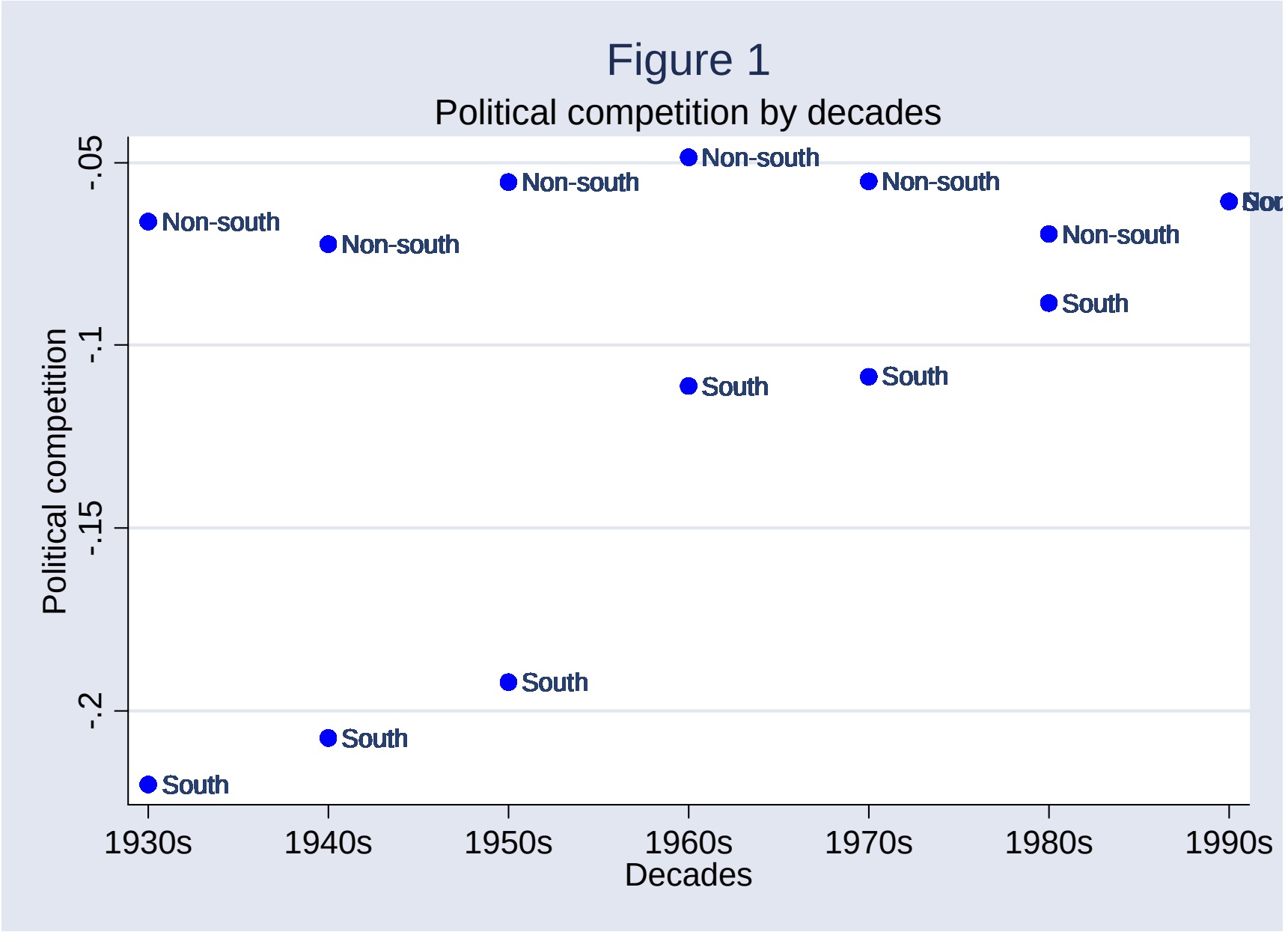
Political competition by decades
Political competition
-.05
-.1
-.15
-.2
Non-south
Non-south
Non-south
Non-south
Non-south
Non-south
South
South
South
South
South
1930s
1940s
1950s
1960s
1970s
1980s
1990s
Decades

Figure 2

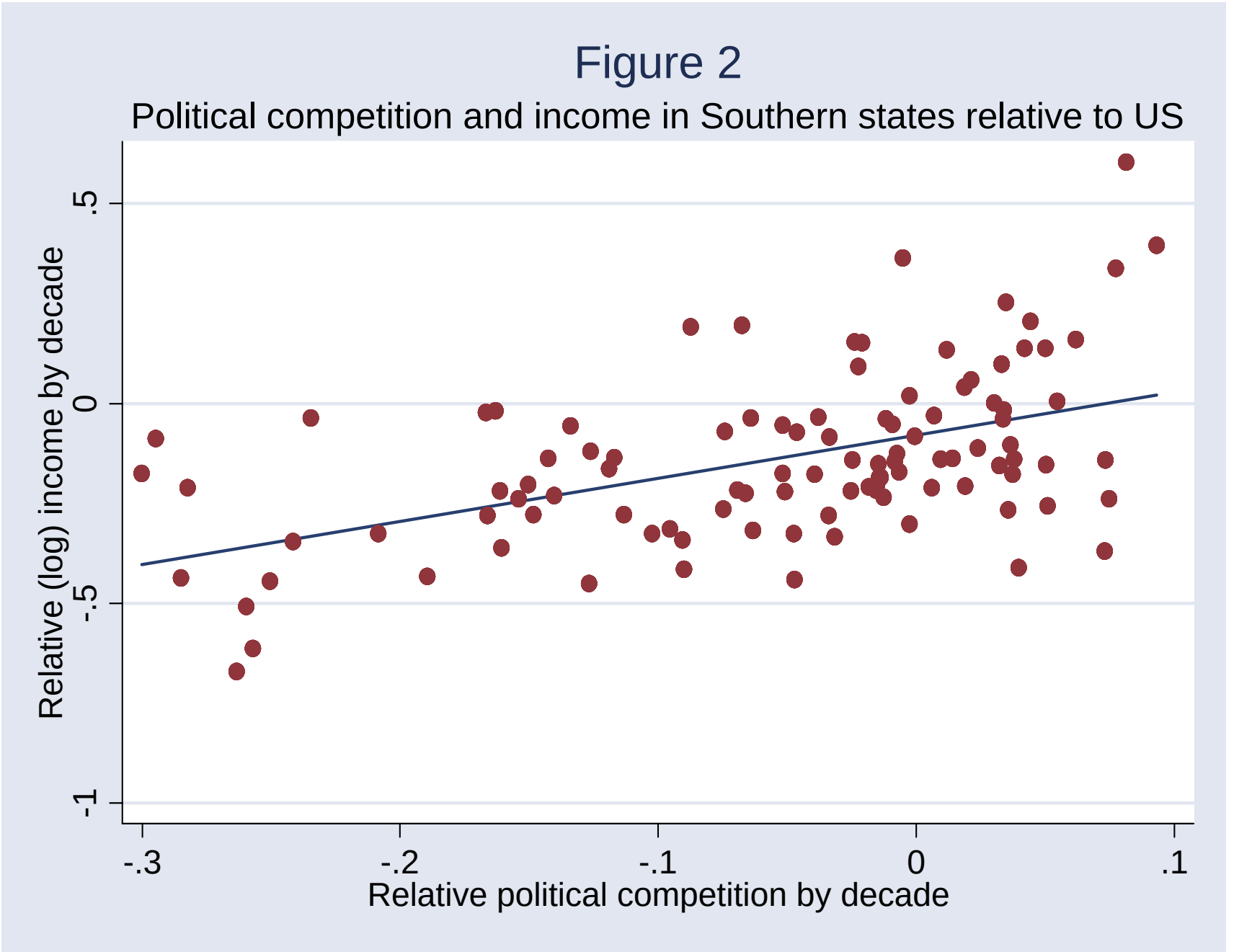
Political competition and income in Southern states relative to US
Relative (log) income by decade
.5
0
-.5
-1
-.3
-.2
-.1
0
.1
Relative political competition by decade

Figure 3: Growth Before and After Abolition of Voting Restrictio

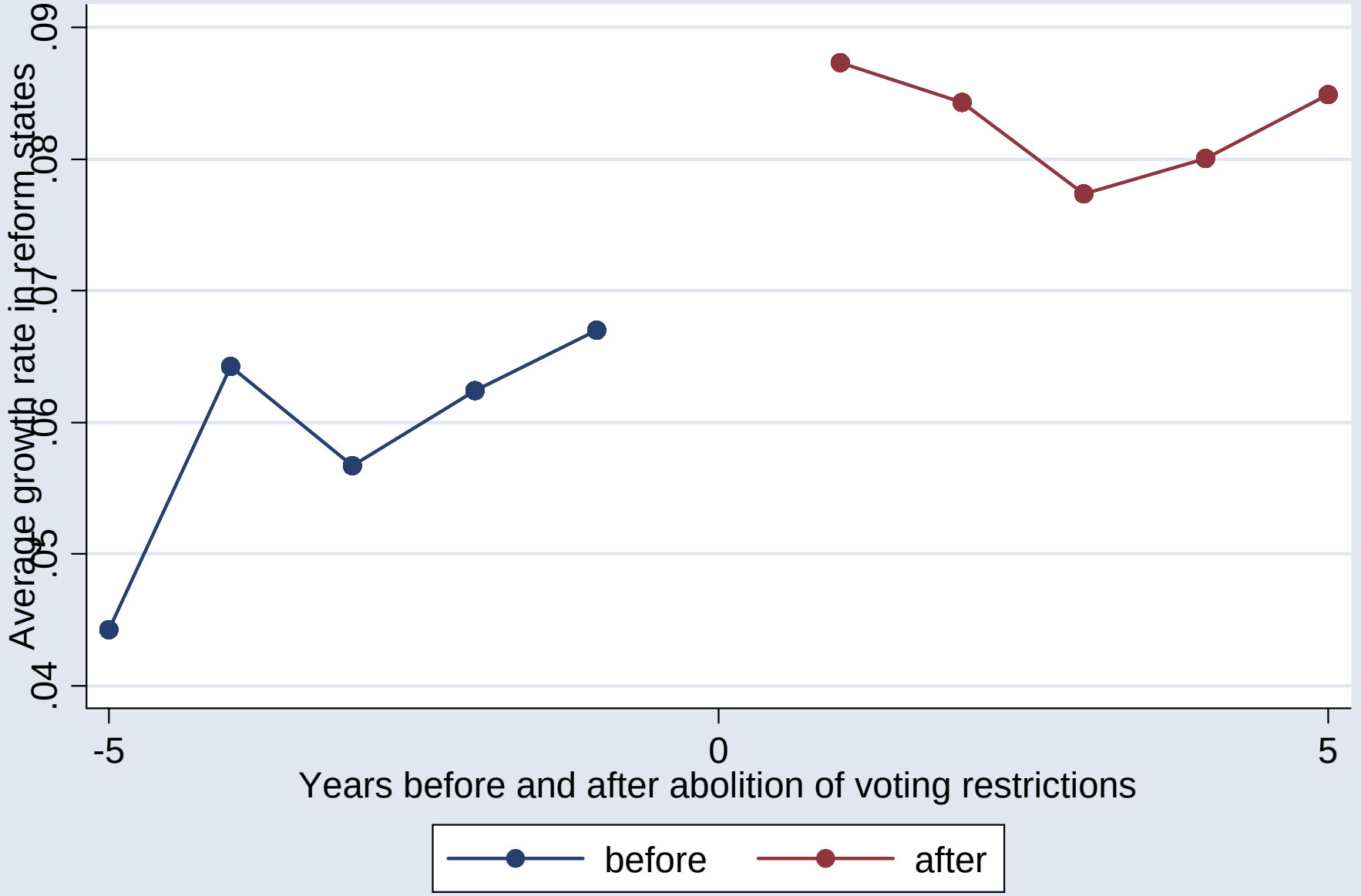

Figure 4: Political Competition Calibrated from NES Surveys

Figure 5: Distribution of F-Statistics

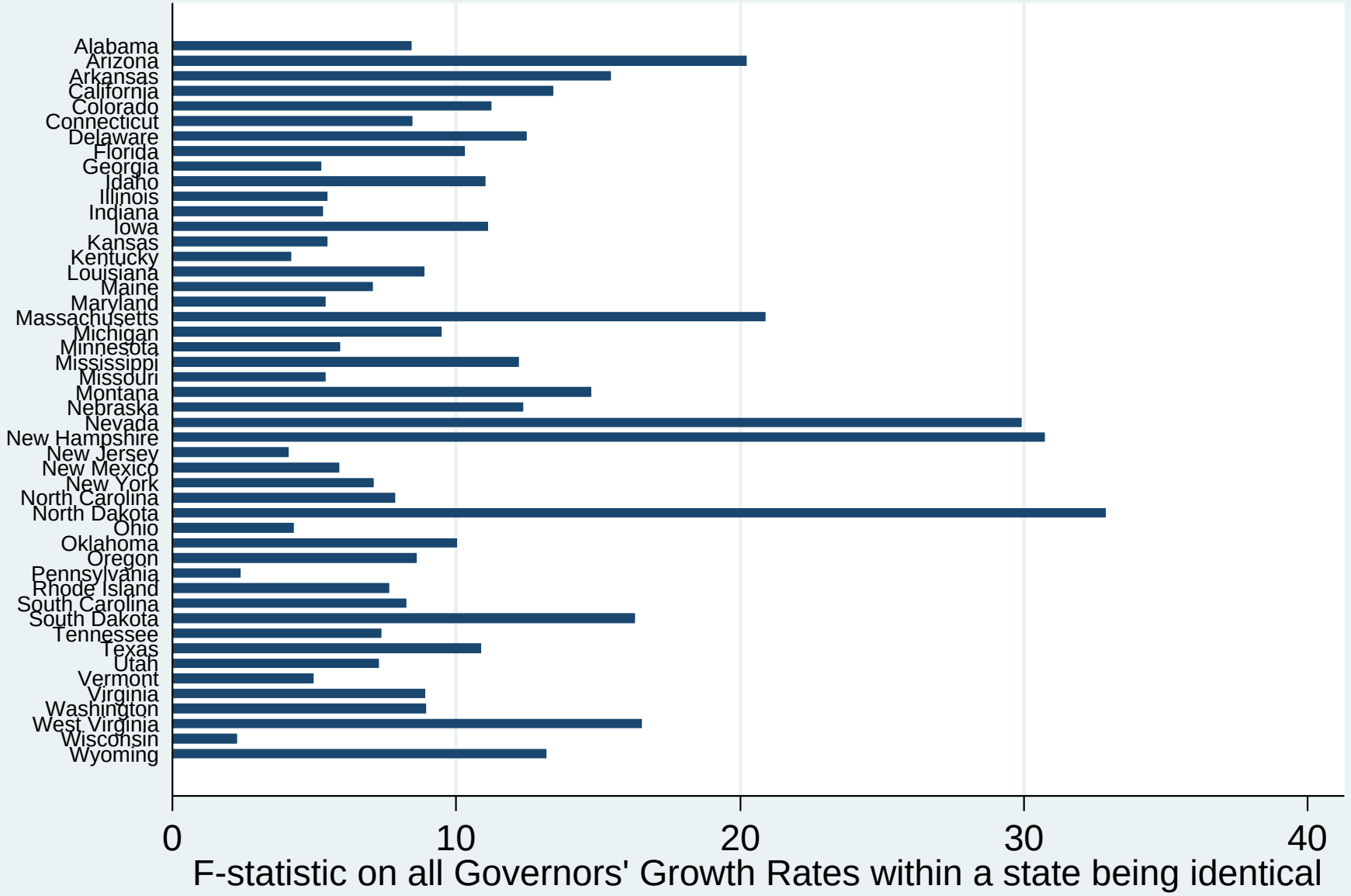

Figure 6: Histogram of Governor Quality

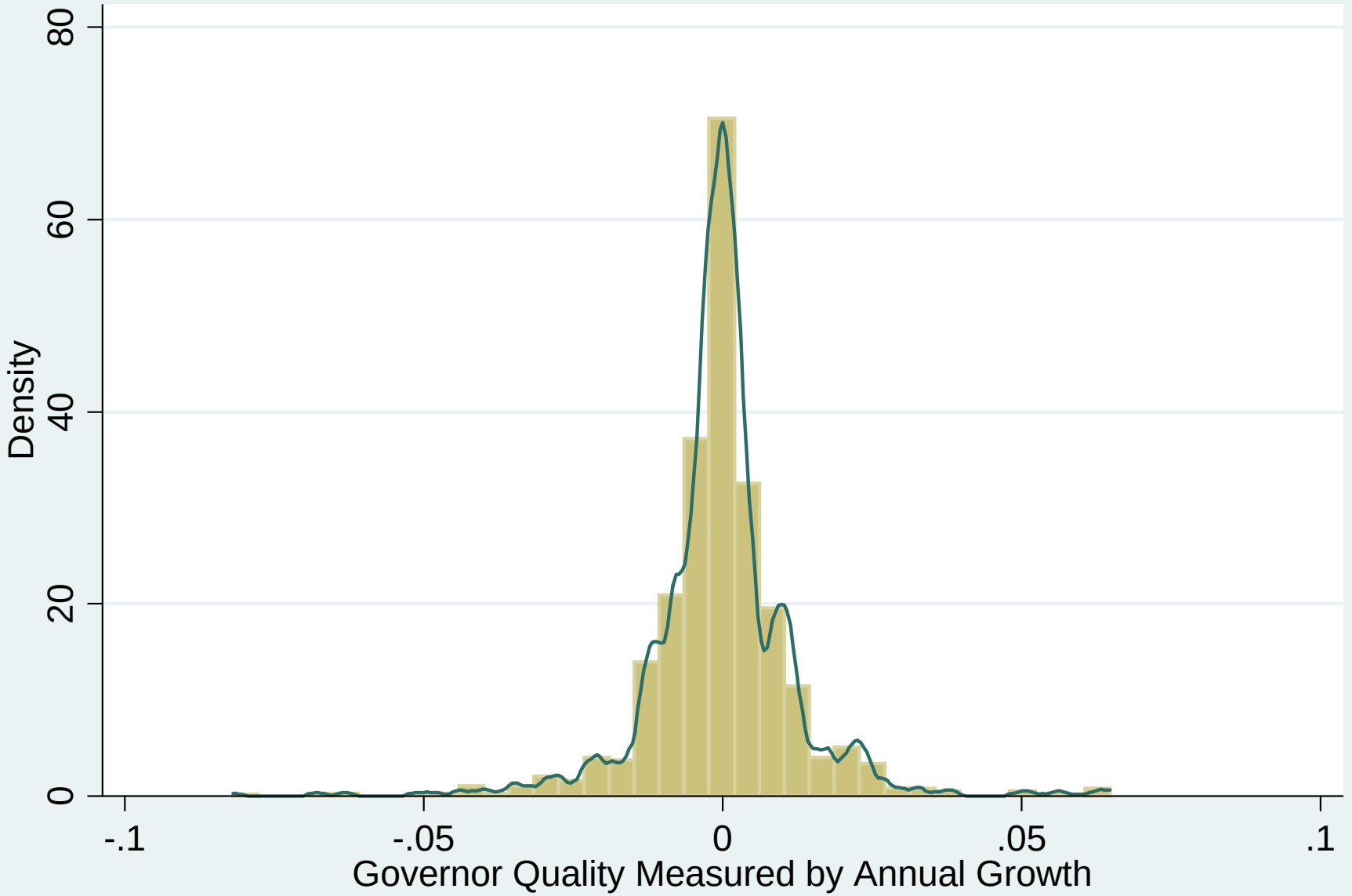

Table 1A - Poll Taxes and Literacy Tests (1929 – 2001)

Voting requirement	State and year in which voting requirement is abolished
Poll Taxes	Louisiana (1934), Florida (1937), Georgia (1945), South Carolina (1951), Tennessee (1951), Arkansas (1964), Alabama (1966), Mississippi (1966), Virginia (1966), Texas (1966)
Literacy Tests	Arizona (1965, 0.40), Georgia (1965, 1.0), Louisiana (1965. 1.0), Mississippi (1965, 1.0), North Carolina (1965, 0.37), South Carolina (1965, 1.0), Virginia (1965, 1.0), California (1971, 0.015), Connecticut (1971, 0.012), Massachusetts (1971, 0.015), New Hampshire (1971, 0.015), New York (1971, 0.31), Wyoming (1971, 0.039).

Notes: First number in brackets is the year in which the voting restriction was abolished. For literacy tests, we only consider literacy tests in states all or parts of which were declared a "covered jurisdiction" under the 1965 Voting Rights Act or its 1970 revision. Second number in brackets is the share of the state population living in such covered jurisdictions in the year of the abolition. Sources: Ogden (1958) and Husted and Kenny (1997).