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Do Businessmen Make Good Governors?

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Do Businessmen Make Good Governors?

Florian Neumeier

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Do Businessmen Make Good Governors?*

Abstract

This paper empirically evaluates the economic performance of U.S. state governors who came to the position from a business background (CEO governors), focusing on income growth, unemployment, private investment, and income inequality. Methodologically, I apply a matching method to account for the endogeneity of political selection. I find that the tenures of CEO governors are associated with a 0.6 percentage points higher annual income growth rate, a 0.4 pp higher growth rate of the private capital stock, and a 0.6 percentage points lower unemployment rate than are the tenures of non-CEO governors. Income inequality decreases when CEO governors hold office.

JEL Code: C21, D31, E24, J6.

Keywords: U.S. Governors, economic growth, unemployment, income inequality, businessmen, entropy balancing.

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1. Introduction

The typical high-ranking U.S. politician holds a law degree, turned to politics at a rather young age, with a subsequent climb up the political career ladder. Ten out of the past 20 U.S. presidents, 55 out of 100 current U.S. senators, and 21 out of 50 current state governors are law school graduates with extensive public-sector, but almost no private-sector, experience (as of mid-2014).¹ From time to time, though, businesspeople who made a fortune in the private sector step onto the political stage and are elected to high political office. Mitt Romney, cofounder of the private equity firm Bain Capital and former governor of Massachusetts, Jon Corzine, former CEO of Goldman Sachs and later U.S. senator as well as governor of New Jersey, and current Florida governor Rick Scott, formerly CEO of Columbia/HCA, the largest private health-care company in the U.S.A., are some prominent examples.

There are mixed opinions, however, over businesspersons' engagement in politics. In the United States, disagreement over this issue reached a seeming climax in 2012 when the Republican National Convention nominated Mitt Romney as a candidate for the presidency. In their political campaigns, businessperson candidates often refer to their business background and private-sector success, arguing that the skills and experiences they acquired in that arena will make them successful in politics as well. However, their critics argue that these candidates fail to live up to this expectation, referring to the examples of former businessmen and U.S. presidents Warren G. Harding, Herbert Hoover, and George W. Bush, all of whom are believed to have steered the U.S. economy into crises. To date, though, the performance of businesspeople in U.S. politics has not been studied empirically.

This paper fills this gap by investigating the impact U.S. state governors with a business background—referred to CEO governors—exert on a state's economic performance, specifically focusing on a state's growth rate of real personal income per capita, unemployment rate, private investment, and income inequality. To this end, I collected a dataset containing information on the occupational backgrounds of the governors of 48 states between 1960 and 2009. My analysis covers 446 U.S. state governors, of which 48 were businesspeople prior to entering politics.

The biggest challenge to the empirical approach involves the political selection process. The election process for governors proceeds in several stages, as they first compete against fellow

¹ According to Besley and Reynal-Querol (2011), this appears to be a global rather than simply a U.S. phenomenon, as between 1848 and 2004, roughly 30% of all leaders of democratic countries were law school graduates.

party members in primaries and then against one or more opponents from different parties in the gubernatorial election. It seems unlikely that the chances of obtaining office are unrelated to a candidate's characteristics. For instance, both the pool of candidates as well as voters' choice between particular candidates with certain characteristics and experiences may depend on a state's economic situation. In econometric terms, election of a candidate of a certain "type" is likely endogenous.

To address these problems, I rely on a matching approach. I apply entropy balancing, a method proposed by Hainmueller (2012), which has several advantages over "conventional" matching estimators. Matching estimators are frequently used to study the outcome after some sort of intervention or treatment when units are not randomly assigned to the treatment group.² The idea behind matching is to mimic randomization with respect to selection into treatment by constructing a control group that is as similar as possible, regarding all relevant characteristics, to the units exposed to treatment. The average realization of the outcome variable within the control group then represents a credible counterfactual outcome for the treated units. In my analysis the tenure of a CEO governor is considered as a treatment; accordingly, state-year observations in which a CEO governor holds office represent the treatment group. To disentangle the treatment effect from the selection effect, CEO governors are matched with non-CEO governors who have similar characteristics and took office under comparable conditions.³

This paper contributes to two strands of the economic literature. First, it contributes to a growing branch of empirical economic studies that examines the influence heads of governments exert on a country's economic and political performance. Following the work by Jones and Olken (2005), who investigate the association between exogenous leader transitions—that is, leader transitions due to the incumbent's natural death—and countries' GDP growth rates, economists have discovered relationships between various characteristics of the incumbent political leader and his or her policy stance. Besley et al. (2011), for instance, using the same identification strategy as put forward by Jones and Olken (2005), find that the tenures of more educated leaders are associated with higher GDP growth rates.⁴

² Several empirical economic studies applying matching estimators are briefly described in Caliendo and Kopeinig (2008).

³ Matching approaches are applied in similar contexts by Neuenkirch and Tillmann (2013) as well as by Malmendier and Tate (2009). Neuenkirch and Tillmann (2016) study the influence of central bankers receiving top grades by the international financial press on a country's output and inflation. Malmendier and Tate (2009) analyze the impact of award-winning CEOs on firm performance.

⁴ However, whereas there is not much doubt that the *timing* of leader transitions due to the incumbent's natural death is exogenous, the *characteristics* of a deceased leader's successor may not be, casting doubt on the validity of this identification strategy in this particular context.

Other studies document relationships between leaders' educational and occupational backgrounds and fiscal policies (e.g., Hayo and Neumeier, 2012, 2014, 2016) as well as countries' constitutional and institutional frameworks (Hayo and Voigt, 2013; Dreher et al., 2009).⁵ However, these approaches typically ignore the possibility that the selection of a particular "type" of leader may be related to a country's economic and political situation.⁶ My analysis differs from the aforementioned studies chiefly in that in my empirical approach I explicitly account for the fact that a politician's characteristics are related to (economic) conditions prevailing before the leader took office.

Second, by accounting for the endogeneity of electoral choices and by relating the "type" of governor to a state's economic and fiscal situation, this paper contributes to the literature on political selection. This strand of the literature comprises both theoretical (e.g., Besley and Coate, 1997; Caselli and Morelli, 2004) and empirical analyses (e.g., La Porta et al., 1999; Besley and Reynal-Querol, 2011) of how institutional and political features affect the quality of elected politicians. In this regard, the paper at hand relates to work by Gehlbach et al. (2010) and Li et al. (2006), who examine the influence of political as well as market-supporting institutions like, for instance, government transparency, media freedom, and market regulation, on the participation of businesspeople in Russian and Chinese politics, respectively. However, as the objects of analysis in this study—the U.S. states—are characterized by strong and homogenous institutional frameworks and credible legal systems, I focus primarily on economic and fiscal variables to discover the conditions under which voters may prefer businessperson candidates over career politicians.

My main findings are as follows. First, descriptive statistics suggest that businessperson candidates are more likely to take office during times of economic and fiscal strain. More specifically, CEO governors tend to be elected when income growth rates are particularly low, unemployment rates and income inequality—as measured by the Gini coefficient—are high, and the level of public debt as well as the state's reliance on deficit spending is large. Second, I find that CEO governors exert a statistically significant and economically relevant impact on a state's economy. The incumbencies of CEO governors are associated with a 0.6 percentage points (pp) higher annual growth rate of personal income per capita, a 0.6 pp lower unemployment rate, and a 0.4 pp higher growth rate of the private capital stock. Moreover,

⁵ Another strand of the literature investigates the association between characteristics of central bankers and their monetary policy stance. See, for instance, Neuenkirch and Neumeier (2015) and Göhlmann and Vaubel (2007).

⁶ An exception is the study by Hayo and Neumeier (2016), which examines the influence of political leaders' social status on public deficits in a sample of OECD countries using the social status of leaders' parents as an instrument.

the extent of income inequality within a state decreases under the leadership of a CEO governor. Third, the results indicate that the positive influence of CEO governors increases with tenure. Fourth, I find that Republican CEO governors perform slightly better than their Democratic colleagues. Fifth, the improvement of state economic conditions seems to be driven by an adoption of liberalizing economic reforms: tenures of CEO governors are associated with a reduction in government size and a deregulation of labor markets, both of which are found to boost economic activity. The results remain robust when focusing only on CEO governors who won the position by a close margin and when certain modifications are made to the empirical approach, involving the application of a regression discontinuity design as well as difference-in-difference estimation.

The remainder of the paper is organized as follows. Section 2 describes how businessperson candidates differ from career politicians and why CEO governors can be expected to have an influence on their state's economy. In Section 3, I introduce the data, explain and motivate the empirical approach, and present the results of the empirical analysis. In Section 4, I test the robustness of the empirical findings. Section 5 sheds some light on the transmission channels through which CEO governors boost economic activity. Section 6 concludes.

2. *Can Businessmen Make Good Governors? Some Considerations*

A burgeoning strand of the economic literature on political selection studies how political structures and institutional features affect the quality of elected politicians. This strand of literature is committed to the notion that the quality of politicians is key to a country's economic success. As Besley (2005: 44) put it: "Almost every major episode of economic change [...] has been associated with key personalities coming to power with a commitment to these changes."

Empirical findings appear to support this statement. The economic literature has only recently begun to analyze the influence policymakers exert on a country's economic performance, but the work that has been done provides strong evidence that political leaders matter to economics. In a large sample of countries, Jones and Olken (2005) find that exogenous leader transitions, that is, transitions due to the incumbent's natural death, are associated with significant changes in GDP growth rates. More recent literature focuses on particular characteristics of political leaders as potential correlates of their quality or policy stance. For instance, Besley et al. (2011) find that a leader's educational attainment is significantly related to GDP growth, that is, the more highly educated a leader, the stronger his or her country's economic growth. However, most of the existing evidence on how

political leaders influence economic performance is based on cross-country analyses. In contrast, this paper focuses on subnational governments within a federal system. Thus, the question is to what extent U.S. state governments in general—and governors in particular—are responsible for statewide economic conditions.

There seems to be a strong consensus among scholars that U.S. state governments have a notable influence on regional economic activity. Due to their high degree of legislative authority and policy discretion, regulatory environments and economic policies differ considerably across the U.S. states, resulting in very heterogeneous macroeconomic conditions (e.g., Owyang et al., 2009; Carlino and Sill, 2001; Isserman, 1994). Over the past decades, state governments have adopted a variety of measures aimed at promoting economic development. Originally, the focus was on recruiting and retaining businesses and jobs via measures such as, for instance, tax breaks and subsidies, as well as de-regulative policies intended to create a business-friendly environment (Leicht and Jenkins, 1994). Starting in the 1980s, however, state governments began to take a more proactive stance toward economic development, cumulating in the manifestation of the “entrepreneurial state” (Eisinger, 1988). Though state governments continue to use financial and regulatory incentive to attract firms, they nowadays also attempt to create new enterprises, technologies, and markets by acting as innovators, entrepreneurs, and venture capitalists.

In 2012, almost 1,800 state economic development programs were in effect, and every year sees the enactment of new initiatives.⁷ The number, character, and scope of economic policy programs differ considerably across states, and so does their effectiveness, making the U.S. states a huge laboratory for economic policy experimentation (e.g., Isserman, 1994; Eisinger, 1988). A large body of case studies highlights the instrumental role of U.S. state governors in this context (e.g., Cobb, 1993; Eisinger, 1988; Hart, 2008). Governors appear to set the priorities for state economic development and often act as “policy entrepreneurs” in shaping economic policies (Hart, 2008). Moreover, due to their prominent influence on state legislative agendas and their *de facto* control over state development agencies, governors are believed to be the most conducive actors when it comes to the effectiveness of economic development measures (Adams and Kenny, 1989; Grady, 1989).⁸ Based on his own

⁷ Data: Council of Community and Economic Research, http://members.c2er.org/download/2012_Economic_Development_Program_Survey_Report.pdf (accessed on 5/12/2015).

⁸ This belief appears to be shared by both governors and voters. Having surveyed 104 former governors who held office between 1960 and 1982, Grady (1989) reports that roughly 89% either strongly agree or agree with the notion that governors are responsible for the state’s economic health. Moreover, there is strong empirical evidence that the approval ratings of state governors are related to statewide economic conditions, indicating that

investigation, Grady (1989: 892) concludes that “[i]t is our governors who are developing the blueprints for our future economic stability and it is they who are building the foundation of our nation’s economic future.”

It is plausible to expect that governors with a business background will be more successful when it comes to economic policymaking, implying that state economic conditions should improve during their tenure. First, CEO governors may differ from “career politicians” with respect to their *economic policy competence*. Both economists and political scientists acknowledge that policymakers have imperfect information about the true state of the economic environment as well as about the appropriateness of different policy programs *ex ante* (e.g., Callander, 2011; Majumdar and Mukand, 2004). In short, policymaking is a highly uncertain process, where policymakers “fumble their way through the policy space” (Callander, 2011: 643). Thus, extensive business experience could be a valuable asset. Judging by their private-sector success, CEO governors should know what is key to growing businesses and jobs. The skills acquired in the business world, their expertise in managing firms, and their insights into the business community may enable CEO governors to make more sensible economic policy choices and to improve the effectiveness of economic policies.⁹ Indeed, the political campaigns of businesspeople often stress the advantages of the candidate’s alleged competence. Candidates with a business background tend to focus strongly on their business expertise, arguing that their skills and experiences are essential to successfully boost state economic activity.

Being a successful CEO, where I’ve driven a bottom line, assembled teams, driven results, that’s a critical benefit to running the state government. A CEO’s job is leadership, problem solving, and team building. I’ve done that my whole career.

Bruce Rauner, Governor of Illinois since 2015

Our economy is in shambles and there is no doubt we are heading in the wrong direction. The economic problems in this state started long before the economic meltdown hitting the rest of this country due, in large part, to the lack of leadership and vision of the professional politicians in Lansing.

Rick Snyder, Governor of Michigan since 2011

voters hold governors responsible for state economic development (e.g., Cohen and King, 2004; Hansen, 1999; Adams and Kenny, 1989).

⁹ Mattozzi and Merlo (2008), for example, set up a dynamic equilibrium model to evaluate the career paths of politicians, presuming that private-sector success and political skills are positively correlated.

I want to get Arizona back on top again in the next few years. I maintain that the skills that it takes to do that, to be a good chief executive officer, are found in the private sector, not in the ranks of the professional politicians.

J. Fife Symington III, Governor of Arizona from 1991 until 1997

Second, CEO governors may differ from career politicians not only with regard to their competence to identify economy-boosting policies, but also in their *willingness to adopt them*. Governments often appear reluctant to implement reforms that are believed to be efficiency enhancing; policies found to be ineffective or even detrimental to economic growth persist (e.g., Coate and Morris, 1999; Fernandez and Rodrik, 1991). One explanation for this is that certain efficiency improving reforms are unpopular within the incumbent's political party because they are not in alignment with its ideological orientation. Galasso and Nannicini (2011) as well as Besley (2005) emphasize the role of the party elite in candidate selection. They argue that in party systems, the party leadership is primarily concerned about the interests of its constituency, which is why obedient candidates with strongly aligned ideological leanings are favored. Candidates with a business background, though, do not seem to meet these requirements. In fact, businesspeople tend to be rather unpopular among party leaders, at least as frontline candidates. For example, when Rick Scott, who was elected Governor of Florida in 2010, decided to enter the Republican primaries and run against Bill McCollum, former Republican Party member of the U.S. House of Representatives and Attorney General of Florida, the Florida Republican elite "rallied to repel"¹⁰ Scott's bid. In another example of this phenomenon, Rick Snyder, Governor of Michigan since 2010, is believed to have won the Republican primaries only because he had Democrats and independents voting for him. Analogously, as indicated by the quotes above, businessperson candidates tend to dissociate themselves from "professional politicians." Arguably, CEO governors, by reputation and experience, indeed, almost by definition, are more committed to economic imperatives than to ideology. In their gubernatorial campaigns, they focus almost exclusively on economic issues and pay little attention to ideological topics. Boosting the economy, creating jobs, and improving public-sector efficiency are their main stated goals, and commitment to these might be particularly valuable in light of the strong competition between U.S. states for mobile capital (Hart, 2008; Leicht and Jenkins, 1994). As firms' investment and location decisions ought to be affected by their expectations about a state's

¹⁰ The quote is taken from an online article published by the *Orlando Sentinel*. See http://articles.orlandosentinel.com/2010-08-25/news/os-gop-gubernatorial-primary-results-20100824_1_rick-scott-high-unfavorable-ratings-primary-fight (accessed on 11/13/2014).

future economic policy stance, having a like-minded person in charge of state government could be a strong locational advantage.

Special interest groups are believed to be another impediment to growth-promoting economic reforms (e.g., Becker, 1983; Murphy et al., 1993). Any policy change produces winners and losers. The success of a reform depends not only on the relative size of these two groups, but also on the strength of their political influence. Campaign contributions are a particularly important way for special interest groups to wield political influence. Both economists and political scientists view campaign funds as a form of investment, the return on which is some sort of favor (e.g., Coate, 2004; Snyder, 1990; Welch, 1974). Businessperson candidates, however, are often in a position to self-finance their political campaigns. For instance, Meg Whitman, Republican gubernatorial candidate for California in 2010, spent \$140 million of her private fortune on her political campaign, with total campaign spending amounting to \$177 million. Rick Scott spent about \$60 million of his own money in Florida in 2010 (total: \$67 million); Jon Corzine \$38 million in New Jersey in 2006 (total: \$45 million); Dick DeVos \$35 million in Michigan in 2006 (total: \$42 million).¹¹ Thus, the election of a CEO governor may minimize the danger of state policy being overly influenced by lobbyists.

However, there is, as always, another view of the so-called competence and public-spiritedness of CEO governors. When businesspeople wield political influence from a backseat, for example, via campaign contributions and party donations, they are suspected of having primarily their own self-interest at heart (e.g., Snyder, 1990; Welch, 1974). Accordingly, obtaining high political office may be just another way for an opportunistic businessperson to extract political rents and ensure a self-favorable policy stance, which may or may not benefit the state's economy as a whole. Also, CEO governors likely maintain connections to peers in the business community, fostering the establishment of informal ties between politics and the business world. Hence, it is possible that having a businessperson governor increases, rather than reduces, the danger of special interest group influence.¹²

Moreover, businessperson candidates' lack of political experience may be disadvantageous, as the "art" of policymaking can be vastly different from the "art" of running a business. Companies are hierarchical organizations in which CEOs can issue directives and expect them

¹¹ Detailed figures on campaign contributions for gubernatorial candidates are provided by the National Institute on Money in State Politics. See <http://www.followthemoney.org/> (accessed on 11/13/2014).

¹² Note, though, that the findings by Gehlbach et al. (2010) and Fisman et al. (2012) cast doubt on this view. Gehlbach et al. (2010) argue that in mature democracies, there is not much incentive for businesspersons to run for public office in order to extract rents due to the high levels of government transparency and accountability. Fisman et al. (2012) estimate the market valuation of personal ties to former U.S. Vice-President Richard Cheney, who served as CEO of the oil service company Halliburton before becoming vice-president, to be zero, concluding that institutions are effective in impeding rent-seeking activities in U.S. politics.

to be carried out by subordinates. A governor's power, however, is far more constrained. Governors need to form majorities and cope with a variety of interests and ideological leanings. Thus, even if a CEO governor may have favorable qualities, it is far from a sure thing that the governor will be able to overcome political obstacles and institute his or her preferred policies. As Jon Corzine, former CEO of Goldman Sachs and Governor of New Jersey from 2006 to 2010, put it: "The idea that you're accountable to a bottom line and to a payroll in managing a business—it gives voters the confidence that you have the right skills. But it's 20,000 people versus 9 million. I don't think candidates get the scale and scope of what governing is. [...] There's no exact translation." Thus, the question of whether governors with a business background actually improve state economic conditions is an empirical one.

3. Do Businessmen Make Good Governors? Empirical Analysis

3.1. Data and Empirical Approach

The aim of this paper is to discover whether CEO governors have an impact on a state's economic performance. The performance measures considered in my analysis are (i) a state's annual growth rate of real personal income per capita, (ii) its unemployment rate, (iii) private investment, measured as the annual growth rate of the private capital stock per capita (all in percentage points), and (iv) the extent of income (in)equality as measured by the Gini coefficient. Income per capita and the unemployment rate are the most common indicators for assessing macroeconomic condition and, arguably, the most important determinants of aggregate economic well-being. Income (in)equality is an important measure of public welfare as well because well-being is found to depend not only on the absolute level of income, but also on relative income as compared to that of other members of a society (e.g., Easterlin, 1995; McBride, 2001; Ferrer-i-Carbonell, 2005). In addition, allocation and (re)distribution goals often conflict, so that the issue of whether improvement of overall economic performance is at the expense of income equality is of particular interest. As outlined in Section 2, the attraction of mobile capital represents a potential transmission channel through which governors may improve statewide macroeconomic conditions. Changes in the private capital stock may capture a governor's capability to create a business-friendly and growth-enhancing environment.

The biggest challenge to the empirical approach is related to the political selection process. Election of a governor with a business background might be endogenous, that is, associated with factors that affect the outcome variables of interest. The endogeneity of CEO governors'

tenures may have various origins. For instance, voters may use the information available about gubernatorial candidates to draw conclusions about candidate competence and base their vote on this. Also, the candidate characteristics that appeal to voters may vary with the economic and political situation. Finally, economic and political conditions may affect the decision of a certain “type” of candidate to run for office.

To address these concerns, I employ a matching approach. My analysis is based on the idea that the incumbency of a CEO governor can be considered as a treatment. The units of analysis are state-year observations; state-year observations with CEO governors represent the treatment group, whereas observations without CEO governors represent a potential control group. The measure of interest is the so-called average treatment effect on the treated (ATT), which is defined as follows:

$$(1) \tau_{ATT} = E[Y(1)|T = 1] - E[Y(0)|T = 1]$$

where $Y(\cdot)$ is the outcome variable, that is, either the growth rate of real personal income per capita or the unemployment rate or the growth rate of the private capital stock or the Gini coefficient, and T is a variable indicating whether a unit is exposed to treatment ($T = 1$) or not ($T = 0$). Accordingly, $E[Y(1)|T = 1]$ is the expected outcome after treatment and $E[Y(0)|T = 1]$ the counterfactual outcome, that is, the outcome a unit exposed to treatment would have achieved if it had not received treatment. As the counterfactual outcome is not observable, a proper substitute is needed to identify the ATT. If the treatment is randomly assigned, the average outcome of units not exposed to treatment represents a suitable substitute. However, as discussed above, electing a CEO governor and, thus, selection into treatment could be endogenous.

The general idea behind matching estimators is to mimic randomization with regard to the assignment of the treatment and control group. The missing counterfactual outcome is imputed by selecting a control group that is as similar as possible to the treatment group with regard to relevant pre-treatment characteristics. Relevant are all pre-treatment characteristics that (i) are associated with selection into treatment and (ii) influence the outcome of interest. The average realizations of the outcome variables for the selected control group are then used as an empirical proxy for the counterfactual. Formally, the estimate of the ATT based on matching methods is as follows:

$$(2) \hat{\tau}_{ATT}(x) = E[Y(1)|T = 1, X = x] - E[Y(0)|T = 0, X = x]$$

where x is a vector of relevant pre-treatment characteristics, $E[Y(1)|T = 1, X = x]$ the expected outcome for the units that received treatment, and $E[Y(0)|T = 0, X = x]$ the expected outcome for the control group.

In this paper, the matching approach is used so as to compare the performance of CEO governors to that of non-CEO governors who took office under similar conditions. The average difference in performance between CEO governors and the “most similar” non-CEO governors must then be due to treatment, that is, the incumbency of a businessperson governor. In this sense, the empirical approach mimics a randomized experiment by balancing the treatment and the control group according to observable characteristics. In the subsequent empirical analysis, I apply entropy balancing to estimate the ATT, a matching method proposed by Hainmueller (2012) that has some advantages over “conventional” matching approaches.

With conventional matching methods, such as nearest neighbor matching or propensity score matching, for instance, each treated unit is—in the simplest case—matched with the one untreated unit that is closest in terms of a metric balancing score.¹³ Accordingly, the control group comprises only a subset of the units that are not subject to treatment; only those untreated units that represent “best matches” are assigned to the control group (Diamond and Sekhon, 2013; Hainmueller, 2012). However, when the sample is limited and the number of pre-treatment characteristics is large, this procedure does not ensure a sufficient covariate balance between the treatment and control group, which is a serious problem, as a low covariate balance may lead to biased treatment effect estimates.¹⁴

Entropy balancing addresses this issue by constructing a synthetic control group (Hainmueller, 2012). Scalar weights are assigned to each untreated unit; these weights are chosen to satisfy pre-specified balance constraints by remaining, at the same time, as close as possible to uniform base weights.¹⁵ It is thus ensured that the control group contains, on average, credible counterfactuals for the units exposed to treatment. The pre-specified balance constraints involve the sample moments of the pre-treatment characteristics. In the subsequent empirical analysis, the balance constraints require equal means for all pre-treatment

¹³ In general, the number of matches to be chosen for each treated unit is subject to the researcher’s discretion. See Caliendo and Kopeinig (2008) for an overview of different matching approaches as well as methods to identify an adequate number of matches.

¹⁴ Based on Monte Carlo simulations as well as empirical applications, Hainmueller (2012) demonstrates that entropy balancing outperforms other matching techniques, such as propensity score matching, nearest neighbor matching, and genetic matching, in terms of estimation bias and mean squared error.

¹⁵ Entropy balancing can be interpreted as a generalization of common matching procedures. With common matching methods, each untreated unit either receives a weight equal to (i) 0 in the event it does not represent a best match for a treated unit and is thus discarded; (ii) 1 in the event it represents a best match for one treated unit; or (iii) any positive integer larger than 1 in the event it represents a best match for more than one untreated unit and the matching procedure allows for replacement. Entropy balancing, on the other hand, allows the vector of weights to contain any non-negative real numbers.

characteristics across the treatment and control group.¹⁶ The biggest advantage of entropy balancing is that it is non-parametric in that no empirical model for either the outcome or selection into treatment needs to be specified. Thus, potential types of misspecification like those, for instance, regarding the empirical model's functional form, which likely lead to biased estimates, are ruled out.

Entropy balancing is applied in a two-step procedure. In the first step, the vector of weights to be applied to the untreated units to satisfy the balance constraints is identified. The weights are chosen according to the following scheme:

$$(3) \min_{w_{it}} H(w) = \sum_{\{i,t|T=0\}} h(w_{it})$$

subject to balance and normalizing constraints:

$$(4) \sum_{\{i,t|T=0\}} w_{it} c_{it}(x_{it}) = m$$

$$(5) \sum_{\{i,t|T=0\}} w_{it} = n_T$$

$$(6) w_{it} \geq 0 \text{ for all } i, t \text{ with } T = 0$$

where w_{it} refers to the weight assigned to the untreated unit i in period t and x_{it} to the realizations of the pre-treatment characteristics for the untreated unit i in t . $h(\cdot)$ is the entropy distance metric. Equation (4) refers to the balance constraints imposed on the covariates' sample moments. $c_{it}(x_{it})$ is the moment function of pre-treatment characteristic x and m the corresponding realization of that characteristic's moment in the treatment group. Equation (5) states that the sum of weights assigned to the non-treated units must be equal to the number of treated units n_T .

In the second step, the weights computed in step 1 are used to estimate the ATT, that is, the conditional difference in means for the outcome variable between the treatment and the (synthetic) control group by means of a regression analysis with the treatment indicator as an explanatory variable. The corresponding regression equation is:

$$(7) y_{it} = \alpha_i + \tau T_{it} + \mu_t + \varepsilon_{it}$$

where y_{it} is the outcome variable, T_{it} is the treatment indicator, and τ represents the ATT as defined above. In Equation (7), I also include state-fixed effects (α_i) to account for any state-specific, time-invariant factors that may affect the outcome variables of interest, such as, for

¹⁶ More precisely, the balance constraints require that the differences in means lie within a pre-specified tolerance level. The tolerance level chosen in our analysis is 1.5%, which is the default setting in the Stata package *ebalance*.

instance, state budget rules. Finally, to account for the interdependency of state economies, I also include year-fixed effects (μ_t) to control for nationwide time-specific effects such as the business cycle or changes in federal laws.

In my analysis I consider the following pre-treatment characteristics.¹⁷ As *economic variables*, I include the real per capita value of the private capital stock, real per capita personal income (both in US\$), as well as the share of personal income from different sources to account for a state's economic structure, i.e., (i) personal income from farming, (ii) personal income from mining (coal, gas, oil, and other natural resources) to control for states' abundances of natural resources, and (iii) personal income from government transfers to assess the population's dependence on the government. In addition, I include the pre-incumbency realizations of the annual growth rate of real personal income per capita and the Gini coefficient to the empirical models. Finally, when estimating the ATT for the unemployment rate, I control for pre-incumbency unemployment.¹⁸

Further, I employ several *fiscal variables*, namely, state government spending on education and capital outlays, as these spending categories are typically considered as particularly productive and growth promoting, as well as the level of public debt, public borrowing, and tax revenues, to control for the budgetary situation. All fiscal variables are measured in real US\$ per capita. I also control for state population. All economic and fiscal variables as well as population figures refer to the year before a governor took office, which typically corresponds to the election year, at least when a governor took office by regular means, and remain constant throughout the incumbency of a particular governor.¹⁹ Thus, the covariates depict the information set voters had when gubernatorial elections were held and on which their electoral choice might be based.

Moreover, I add several variables depicting the incumbent governor. I include a dummy taking the value 1 for Democratic governors (0 otherwise) and control for the governor's age and years in office. These variables increase the likelihood that CEO governors are matched with non-CEO governors from the same party, of similar age, and who have spent a similar amount of time in office. Also, I employ a dummy variable taking the value 1 if the

¹⁷ Data sources are listed in the Appendix.

¹⁸ I do not control for the unemployment rate when estimating the ATTs for income growth, income inequality, and net private capital growth, as data on state-level unemployment rates are available only from 1977 onward, whereas the data series on income growth, income inequality, and net private capital growth start in 1960.

¹⁹ Note that state fiscal years are not the same as calendar years, i.e., the fiscal year t lasts until the end of the first quarter of calendar year t in the state New York, until the end of the third quarter of calendar year t in Alabama, Michigan, and Texas, and until the end of the second quarter of calendar year t in all other states covered in our analysis.

incumbent governor is politically experienced (0 otherwise), which I define as having held any political office at the local, state, or federal level before the current incumbency.

My main variable of interest is the treatment variable, which is a dummy variable taking the value 1 if the incumbent governor was a businessperson prior to entering politics and 0 otherwise.²⁰ I define as businesspersons all those governors who ran a private corporation before turning to politics, that is, founders and owners of private businesses (entrepreneurs), as well as those employed as presidents or chief executive officers. I believe that this definition is the least arbitrary one, as only those to which the label undoubtedly applies are labeled as businesspersons. A full list of governors classified as businesspersons is provided in Table A1 of the Appendix. I exclude from my definition working proprietors in retail trade, the catering and hotel industry, and self-employed physicians, pharmacists, lawyers, farmers, and the like, as I believe that these professions do not correspond to the common sense of a businessperson. Examples of governors who fall into the latter category and thus are not classified as businesspersons include William O'Neill, former Governor of Tennessee (1980–1991), who ran a tavern, Don Samuelson, former Governor of Idaho (1967–1971), who owned a sporting goods store, and Jimmy Carter, former U.S. President and Governor of Georgia (1971–1975), who ran a peanut farm.

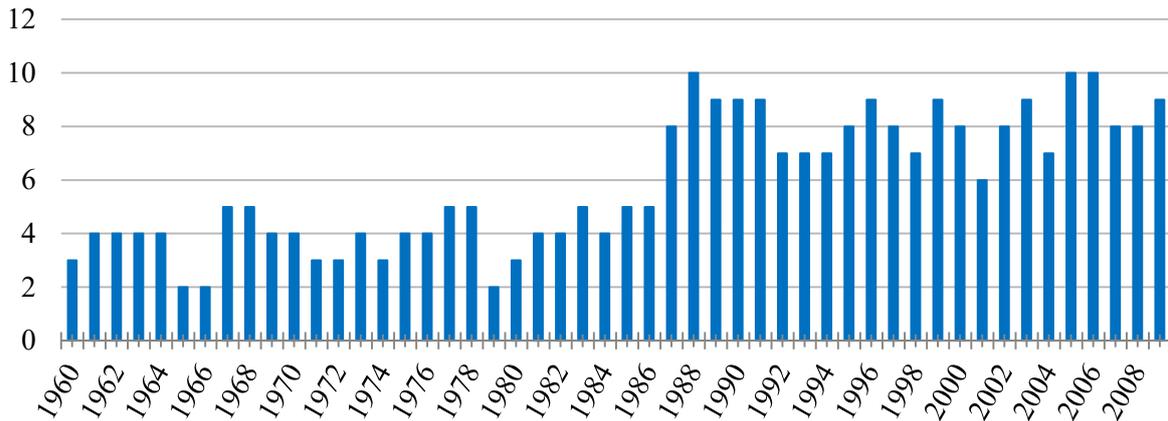
The analysis covers the governors of 48 states, that is, all states except Alaska, Hawaii, and the District of Columbia. The sample period is 1960 to 2009 when estimating the ATT for the growth rate of real personal income per capita as well as the Gini coefficient, 1960 to 2007 when estimating the ATT for private investment, and 1977 to 2009 for estimation of the ATT with regard to the unemployment rate.²¹ However, for some states, data on personal income from mining are missing for certain years because this information is classified as confidential by the federal government. Thus, the panel is slightly unbalanced. Also, I excluded all governors who took office before 1960 as data for certain pre-treatment characteristics were not available for earlier years. The final sample comprises 446 governors, of which 48 were businesspersons before entering politics. I have a total of 258 state-year observations in the treatment group and 1,920 state-years in the (potential) control group.

²⁰ In our analysis, we can take into account only one governor per state-year. In most instances, this is unproblematic, since new governors typically enter office at the beginning of a year and leave office at the end of a year. In a few cases, however, governor transitions occur mid-year, involving coding problems. In such instances, we decided to include the governor who held office when the budget was passed. Dates when state budgets were passed are provided by Carl Klarner from Indian State University (<http://www.indstate.edu/polisci/klarnerpolitics.htm>).

²¹ The difference in the sample periods is due to the fact that data on state-level private capital stocks are available only until 2007 and data on state-level unemployment rates only from 1977 onward.

Figure 1 shows the distribution of CEO governors over the sample period. There is a noticeable increase in the number of CEO governors starting at the end of the 1980s. Since then, the number of CEO governors has been relatively stable and remarkably high. On average, between 1960 and 2009, roughly 6 out of 48 states have had a CEO governor in a particular year.

Figure 1: Number of CEO governors per year between 1960 and 2009.



3.2. Descriptive Statistics

Figures 2 to 5 show average growth rates of real personal income per capita (Figure 2), unemployment rates (Figure 3), growth rates of private capital (Figure 4), and Gini coefficients (Figure 5) during the incumbencies of CEO governors, their predecessors, and successors, as well as during tenures of all non-CEO governors. Note that the Gini coefficients are multiplied by 100 in order to avoid very small coefficients in the subsequent empirical analysis. Moreover, the figures contain average national income growth rates, unemployment rates, private capital growth rates, as well as Gini coefficients over the same period in which CEO governors, their predecessors, and successors held office, which allows us to evaluate their performance against the background of the national development.²²

The figures reveal some interesting insights. First, on average, there are only negligible differences between the tenures of CEO governors and those of all non-CEO governors with regard to income growth and unemployment. Second, the growth rate of real personal income per capita is somewhat larger in states in which a CEO governor holds office, whereas the unemployment rate is notably lower, as compared to the national figures over the same

²² To facilitate interpretation, national averages are computed by multiplying the national realization of the outcome variable in a particular year by the number of CEO governors/predecessors/successors incumbent in that year and dividing the product by the total number of tenure years of CEO governors/predecessors/successors.

period. The difference is 0.3 pp with respect to the growth rate (i.e., 2.32 pp versus 2.02 pp) and 0.2 pp with regard to the unemployment rate (i.e., 5.77 pp versus 6 pp). Third, CEO governors perform remarkably better than their predecessors, as the income growth rate is 0.4 pp larger and the unemployment rate 0.4 pp lower during the tenures of businesspeople. Also, the incumbencies of CEO governors' predecessors are associated with lower income growth rates as compared to the national growth rate (difference: 0.2 pp). Similar patterns can be observed with regard to changes in the private capital stock. CEO governors notably outperform their predecessors as well as their successors, the difference being 0.2 pp in both cases. These findings not only support the conjecture that CEO governors make a difference, they also indicate that businesspeople tend to take office during times of economic pressure.

Figure 2: Average annual growth rates of real personal income per capita in U.S. states during incumbencies of CEO governors, their predecessors, and successors (1960–2009).

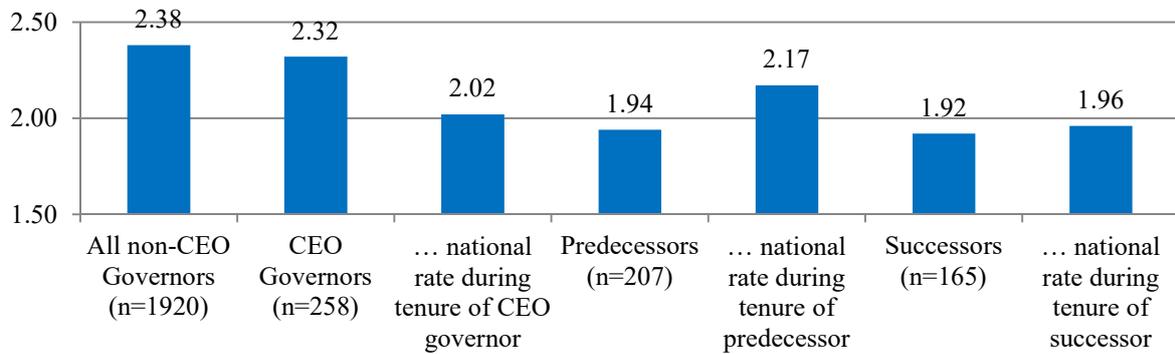


Figure 3: Average unemployment rates in U.S. states during incumbencies of CEO governors, their predecessors, and successors (1977–2009).

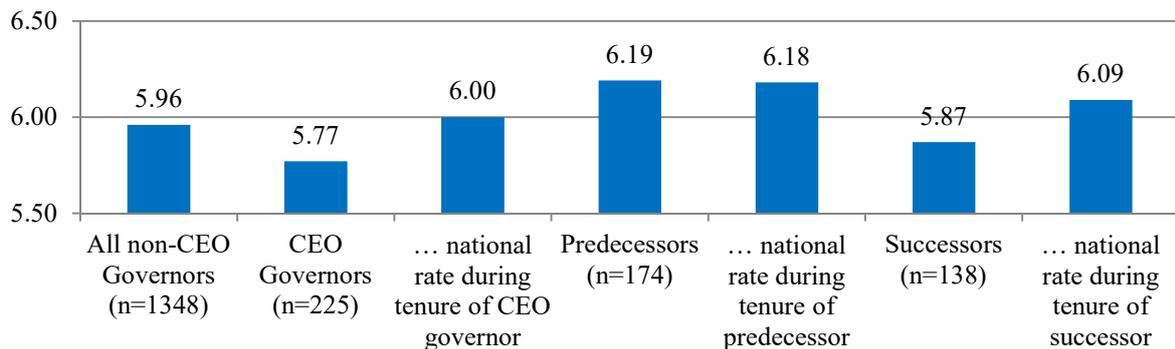


Figure 4: Average annual growth rates of the private capital stock in U.S. states during incumbencies of CEO governors, their predecessors, and successors (1960–2007).

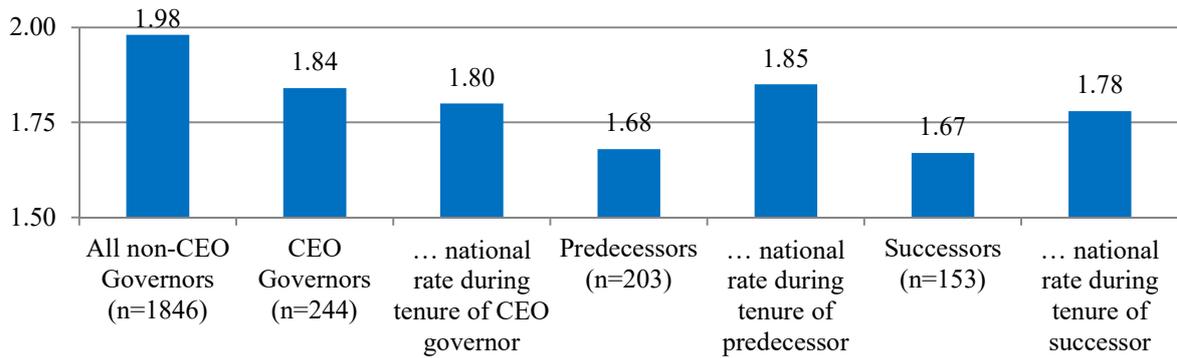
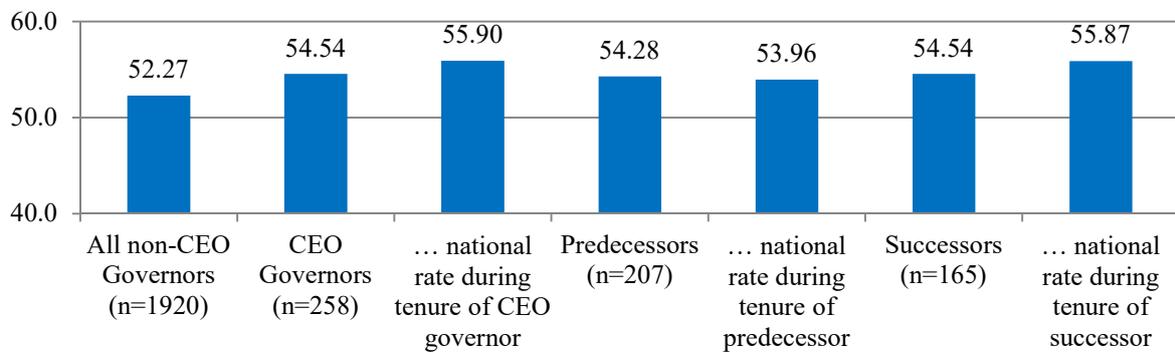


Figure 5: Average Gini coefficients in U.S. states during incumbencies of CEO governors, their predecessors, and successors (1960–2009).



Note: Original values of Gini coefficients are multiplied by 100 so that it ranges from 0 to 100.

The descriptive statistics reveal a somewhat larger extent of income inequality during the tenures of CEO governors as compared to all non-CEO governors. However, states in which a former businessperson holds the governorship are characterized by, on average, a more even distribution of income compared to the national average, indicating yet again that incumbent governor characteristics are related to a state's economic situation. The differences between the tenures of CEO governors, their predecessors, and successors appear to be only negligible, suggesting that the improvement in the overall economic situation—as indicated by the higher income growth rates and lower unemployment rates during CEO governors' incumbencies—does not come at the expense of distributional fairness.

To glean further insight into the conditions under which CEO governors take office, I commence my analysis with the descriptive statistics for the covariates. Table 1 shows the average realizations of the pre-treatment and governor characteristics for state-years *with* a CEO governor (treatment group; Column (1)), state-years *without* a CEO governor (Column (2)), as well as the differences between these two groups (Column (3)). The table also

contains averages for state-years in the (synthetic) control group obtained after applying entropy balancing (Column (4)).

Table 1: Average realizations of pre-treatment and governor characteristics across tenures of CEO governors and non-CEO governors

Variable	(1) CEO Governors	(2) Non-CEO Governors	(3) Difference (1) – (2)	(4) Synthetic Control Group
<i>Pre-incumbency conditions</i>				
Income growth	2.18	2.51	−0.33(*)	2.18
Gini coefficient	52.94	50.68	2.26**	52.94
Unemployment	6.45	6.13	0.32*	6.45
Private capital stock	26,040	24,694	1,346*	26,043
Personal income	25,138	23,325	1,813**	25,142
Population size	4,646,296	4,902,626	−256,330	4,645,743
Income farming	1.43	2.51	−1.08**	1.43
Income transfers	12.29	10.69	1.60**	12.29
Income mining	1.47	1.48	−0.01	1.47
Public debt	1,872	1,568	304**	1,872
Public borrowing	305	249	56**	305
Taxes	1,524	1,418	106**	1,524
Capital outlays	319	318	1	319
Education spending	11,032	9,649	1,383**	11,033
<i>Governor characteristics</i>				
Republicans	0.61	0.42	0.19**	0.61
Independents	0.00	0.01	−0.01	0.00
Divided government	0.38	0.53	−0.15**	0.38
Age	55.65	52.21	3.44**	55.65
Years in office	3.76	3.92	−0.16	3.76
Female	0.00	0.05	−0.05**	0.00
Political experience	0.63	0.95	−0.32**	0.63

Notes: Units of analysis are state-years. Private capital stock, personal income, public debt, public borrowing, taxes, capital outlays, and education spending are reported in real US\$ per capita. Figures for income from farming, transfers, and mining represent shares of total personal state income (in percentage points). (*), * and ** indicate significance at the 10%, 5% and 1% level, respectively.

The figures in Columns (1) to (3) of Table 1 reveal that CEO governors indeed tend to take office under very different conditions than non-CEO governors. Years before CEO governors take office are characterized by a lower growth rate of personal income per capita and a larger unemployment rate, indicating once more that CEO governors tend to take office during times

of economic pressure. In addition, income is significantly less evenly distributed in years in which businesspeople are elected, as the average realizations of the Gini coefficients suggest. Also, the share of personal income from government transfers is notably larger in years before a businessperson becomes governor, implying that the state's citizens depend on the government to a larger extent. Moreover, the levels of public borrowing and public debt are higher in years in which a businessperson candidate is elected, indicating that businesspersons may find it easier to become elected in times of fiscal strain. All in all, the descriptive statistics are in good accordance with recent experience from gubernatorial elections. Mitt Romney, Governor of Massachusetts between 2003 and 2007, Philip Bredesen, Governor of Tennessee between 2003 and 2011, Jack Markell, Governor of Delaware since 2009, and Rick Snyder, Governor of Michigan since 2011, are examples of businesspersons who obtained governorship at the peak of an economic or fiscal crisis. Arguably, during times of economic hardship, frustration with career politicians may be high and the distinct skills and experiences businesspersons have may appeal to voters. Concerning governor characteristics, the descriptive statistics indicate that a CEO governor is, on average, older when holding office, more likely to lack political experience when entering office, and more likely to be a Republican than the average non-CEO governor.

A glance at the average realizations of the pre-incumbency and governor characteristics within the synthetic control group (Column (4) of Table 1) reveals the efficacy of entropy balancing. All covariates are virtually perfectly balanced between the treatment and the control group and no statistically significant differences remain. Thus, I am confident that the control group in the subsequent empirical analysis is comprised of credible counterfactuals for the sample of CEO governors.

3.3. Empirical Results

The results of the matching approach are presented in Table 2. The first column shows the estimate of the average treatment effect on the treated (ATT) for the growth rate of real personal income per capita, the second column shows the ATT for the unemployment rate, the third column for the growth rate of the private capital stock, and the last column shows the ATT for income inequality.

Table 2: Estimated average treatment effects on the treated

Growth rate real personal income p.c.		Unemployment rate		Growth rate capital stock p.c.		Income inequality	
$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error
0.585**	0.099	-0.567**	0.078	0.383**	0.123	-0.588**	0.083
Treated units: 258		Treated units: 216		Treated units: 244		Treated units: 258	
Total obs.: 2,178		Total obs.: 1,404		Total obs.: 2,090		Total obs.: 2,178	

Note: (*), * and ** indicate significance at the 10%, 5% and 1% level, respectively.

All four estimates are statistically significant at the 1% level and indicate that state economic conditions improve during the tenures of CEO governors. Economically, the findings suggest that the annual growth rate of personal income is, on average, almost 0.6 pp higher during tenures of CEO governors compared to those of non-CEO governors who took office under similar conditions. At the same time, in an average year in office, the unemployment rate is 0.6 pp lower during the incumbency of a governor with a business background. Put differently, states that elected a CEO governor would have had a notably lower growth rate of personal income and a higher unemployment rate if they had decided to elect a non-CEO governor under the same conditions as the CEO governor was elected. The increase in the income growth rate translates into a gain in real personal income per capita of about \$150 after the first year of incumbency and an accumulated gain of more than \$1,500 per person at the end of a four-year term (measured in 2009 US\$).²³ Thus, the effects are not only statistically significant, but also highly relevant economically. An increase in private investment appears to be an important determinant of CEO governors' success. On average, tenures of governors who come to office from a business background are characterized by a 0.4 pp higher growth rate of the private capital stock. The estimate for income inequality, however, is of modest size. The Gini coefficient decreases by roughly 0.6 points when a CEO governor holds office, indicating that the improvement in the overall economic condition is not achieved at the expense of fairness. Indeed, the tenures of CEO governors are associated with a more even distribution of income, implying that low-income households benefit from the economic upswing caused by CEO governors' incumbencies. However, given that in the present analysis the Gini coefficient ranges from 0 to 100, the effect appears to be economically negligible.

²³ To compute this figure, I assume a pre-incumbency level of real personal income per capita of \$25,138 and an average growth rate of 2.3% during the tenure of a CEO governor. See the descriptive statistics in Table 1 and Figure 2.

To glean further insight, I decompose the ATTs along various dimensions. The results are presented in Table 3. First, I study the development over time of the CEO governors' impact on economic performance. To do so, I compute ATTs for (i) the first and second years in office, (ii) the third and fourth years in office, (iii) the fifth and sixth years in office, and (iv) for the years in office beyond the sixth year.²⁴ It appears that the effect of having a CEO governor on income growth/unemployment rate tends to increase over the first four/six years in office; with respect to capital growth and income (in)equality, there is a steady improvement during the incumbency of CEO governors. This finding seems plausible as it indicates that it takes some time before a CEO governor exerts the maximum possible influence on a state's economic activity. The fact that the ATT estimate for the unemployment rate more than doubles over the first six years implies that CEO governors create a certain number of new jobs during every year of their incumbency.

Table 3: Decomposed estimates for average treatment effects on the treated

	Growth rate real personal income p.c.		Unemployment rate		Growth rate capital stock p.c.		Income inequality	
	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error
<i>By years in office</i>								
1 st and 2 nd year	0.397**	0.124	-0.374**	0.094	0.141	0.150	-0.579**	0.104
3 rd and 4 th year	0.716**	0.124	-0.581**	0.095	0.342*	0.155	-0.537**	0.104
5 th and 6 th year	0.682**	0.154	-0.817**	0.113	0.753**	0.193	-0.595**	0.129
7 th year +	0.609**	0.170	-0.777**	0.122	0.762**	0.206	-0.754**	0.142
<i>By party affiliation</i>								
Democrats	0.552**	0.147	-0.260*	0.125	0.540**	0.187	-0.430**	0.123
Republicans	0.604**	0.119	-0.716**	0.091	0.294*	0.147	-0.685**	0.099
<i>By political dispersion</i>								
Unified govern.	0.623**	0.112	-0.611**	0.086	0.535**	0.138	-0.353**	0.093
Divided govern.	0.520**	0.133	-0.480**	0.106	0.123	0.165	-0.987**	0.110
Total obs.:	2,178		1,404		2,090		2,178	

Note: (*), * and ** indicate significance at the 10%, 5% and 1% level, respectively.

Second, I investigate whether political party matters, that is, whether a state's economic performance varies between Republican and Democratic CEO governors. The results reveal that Republican CEO governors appear to outperform Democratic CEO governors. The differences in the effects on the income growth rate, the growth rate of the private capital stock, and the Gini coefficient are modest and not statistically significant.²⁵ However, the

²⁴ I compute average ATTs for two consecutive years to increase the number of observations in each category.

²⁵ The p-values for the tests with the null that both ATT estimates are equal are 0.77 for income growth, 0.27 for private capital growth, and 0.08 for income inequality.

difference with respect to the unemployment rate appears to be of notable size: during the tenure of a Republican CEO governor, the unemployment rate is on average about 0.4 pp lower than during the tenure of a Democratic CEO governor. This difference is significant on the 1% level.²⁶

Third, I evaluate the impact of political dispersion by estimating separate ATTs for unified and divided governments. I consider governments as unified when the governor's party also controls both chambers of the state legislature. In contrast, I define the government as divided when at least one chamber of the legislature is not controlled by the governor's party. Arguably, divided governments can constrain a governor's political power as the governor may find it more difficult to achieve the majority necessary for enactment of his or her preferred policies (Bjørnskov and Potrafke, 2013). Thus, I expect that the difference a governor can make will be smaller under divided governments. And, indeed, the findings suggest that the ATTs for income growth and unemployment are somewhat smaller under divided governments.²⁷ However, as both estimates appear to be statistically and economically significant, I conclude that CEO governors exert a positive economic impact even in the presence of political dispersion. I obtain a different picture when focusing on private capital growth, though. Tenures of CEO governors appear to be associated with a significant increase in private investment only in case of unified state governments. When turning to the ATT estimates for the Gini coefficient, I find that the degree of income inequality is notably lower when CEO governors head a divided government; the ATT estimate is almost three times as large as under a unified government. Further investigation reveals that this difference is particularly pronounced for Republican CEO governors heading a government in which at least one chamber of the legislature is controlled by the Democratic Party. Arguably, this result reflects the outcome of political bargaining: Republican CEO governors may need to "buy" the Democratic Party's support for their policies by promoting a more equal distribution of income.

4. Robustness Checks

To check the robustness of the results, I modify the empirical specification in several ways. First, I estimate separate ATTs for CEO governors who won elections by a close margin. Close elections are often regarded as a sort of natural experiment, allowing study of the causal

²⁶ The p-value is 0.002.

²⁷ Note, though, that the ATT estimates for unified and divided government are not statistically different. The p-values for the test of ATT estimates of equal size are 0.48 and 0.31, respectively.

influence of voting outcomes. In empirical analyses, it is often argued that vote shares contain a stochastic element that is beyond the control of political actors (e.g., Lee, 2008). Thus, in close elections, voting outcomes are believed to depend to a noticeable extent on chance. Building on this idea, I redefine the treatment indicator and focus on CEO governors who won elections by a margin of (i) 5 pp and (ii) 2.5 pp. Arguably, if a businessperson candidate wins by such a close vote, assignment to the treatment group has a random element. Table A2 in the Appendix shows the results. The findings indicate that the ATT estimates for income growth and the unemployment rate remain statistically and economically significant. The same is true for the ATT estimate for private capital growth when focusing on a winning margin of 5%. However, the estimate decreases notably and becomes statistically insignificant when focusing only on CEO governors who won election by a margin of 2.5 pp at most. A similar pattern applies to the ATT estimate for the Gini coefficient.

Second, I apply a placebo treatment approach. A number of businesspersons who ran for governor lost gubernatorial elections to competitors without a business background. Famous examples include Meg Whitman, CEO of Hewlett-Packard and Republican gubernatorial candidate for California in 2010, as well as Dick DeVos, former president of Amway, current president of the Windquest Group, and gubernatorial candidate in Michigan in 2006. Whenever available, I collected information on the occupational backgrounds of losers in gubernatorial elections, mainly relying on candidates' personal websites. Then, I construct a placebo dummy taking the value 1 for non-CEO governors who won their first gubernatorial election against a businessperson (0 otherwise). Finally, I estimate ATTs for this placebo group. I identified 28 non-CEO governors who entered office winning against a businessperson during the period I study, resulting in 127 observations in the placebo group.²⁸ Arguably, insignificant ATT estimates for the placebo group indicate that the positive influence CEO governors exert on state economic development is not driven by any unobservable factors affecting the pool of gubernatorial candidates. The results are shown in Table A3 of the Appendix. All ATT estimates are close to zero and statistically insignificant at every reasonable level of significance.

Third, I interact the state-fixed effects with a trend term in order to control for potential state-specific economic development paths. To this end, I consecutively include a state-varying (i) linear time trend and (ii) a linear plus a quadratic time trend to the specifications. Table A4 of the Appendix contains the results. The findings are qualitatively unchanged. In

²⁸ Note that detailed information on occupational histories was not available for all of the losers of gubernatorial elections.

absolute terms, the ATT estimates for income growth, the growth rate of the private capital stock, and unemployment even increase after inclusion of state-specific time trends, whereas the ATT estimate for income inequality is hardly affected by this modification.

Forth, I test whether the results are driven by the choice of empirical method. To do so, I evaluate the treatment effect of having a CEO governor using panel difference-in-difference estimation, employing the same covariates as in the matching approach. The results are shown in Table A5 of the Appendix. Based on regression analysis, the treatment effect estimate is 0.30 pp for personal income per capita growth, -0.29 pp for the unemployment rate, and -0.26 for income inequality.²⁹ All three effects are significant at least at the 5% level. The ATT estimate for private capital growth, though, is insignificant when applying difference-in-difference estimation.

Finally, I employ a regression discontinuity (RD) design to estimate the treatment effect of a CEO governor’s incumbency on state economic performance. RD design is applicable when selection into treatment is determined by an underlying continuous variable, commonly referred to as the assignment variable (Lee and Lemieux, 2010). For the “sharp” RD design, treatment is a deterministic function of the assignment variable z and applied whenever the assignment variable exceeds a certain threshold \bar{z} :

$$(8) T_{it} \begin{cases} 1 & \text{iff } z_{it} \geq \bar{z} \\ 0 & \text{iff } z_{it} < \bar{z} \end{cases}$$

The idea is to evaluate whether a discontinuous “jump” in the realizations of the outcome variables exists at the threshold \bar{z} . Since units just below and just above the threshold should differ only with regard to treatment assignment, a discontinuity at the threshold \bar{z} provides evidence for a causal treatment effect. The use of RD design in the context of political elections has been validated in a number of studies (e.g., Eggers et al., 2015).

In the context of my analysis, the assignment variable is the difference between the share of votes received by a businessperson candidate and a non-businessperson candidate in the gubernatorial election, implying that the threshold determining treatment is equal to zero. Consequently, the assignment variable is only defined in the case where a businessperson actually ran for governorship. This includes state-years in which a CEO governor holds office as well as office terms of non-CEO governors who won the gubernatorial election against a

²⁹ Arguably, the coefficient estimates based on regression analysis are smaller compared to the matching approach (in absolute terms) because in a regression-based approach a restriction regarding the functional form of the empirical model is imposed. If, for instance, it is harder for a governor to stimulate the economy during a recession and, at the same time, CEO governors tend to be elected in times of economic hardship, as the descriptive statistics in Section 3 indicate, one may underestimate the true ATT of having a CEO governor when relying on difference-in-difference estimation.

businessperson. Put differently, all state-years in which the incumbent governor is *neither* a former businessperson *nor* won in a gubernatorial race in which one of the contestants was a businessperson are omitted from the analysis. As a consequence of applying an RD design, I lose roughly 80% of the observations.

In principle, an RD design can be implemented in a number of ways. Here, because my data has similar features, I adopt an approach that is similar to those put forward by Pettersson-Lidbom (2012) and Becker et al. (2010). More specifically, I implement a parametric RD design involving a control function approach in order to address the comparably small size of my sample and account for the panel structure of the data by including state and year-fixed effects:³⁰

$$(9) y_{it} = \alpha_i + \tau T_{it} + f(z_{it}) + T_{it} \times f(z_{it}) + \mu_t + \varepsilon_{it}$$

Here, y_{it} is the outcome variable, T_{it} is the treatment indicator taking on the value 1 if a former businessperson was incumbent in state i and year t (and 0 otherwise), z is the assignment variable, i.e., the difference between the vote share of the businessperson candidate and her opponent, and $f(\cdot)$ is the control function, that is, some function of the assignment variable z . In order to investigate whether the results are sensitive to the control function's functional form, I consecutively use a linear, a quadratic, and a third-order polynomial specification for $f(z)$. As recommended by Lee and Lemieux (2010), I further allow the control function to differ on both sides of the threshold by including an interaction term between T and $f(\cdot)$. Finally, α_i is a state-specific and μ_t a year-specific effect.³¹

The results are outlined in Table A6 of the Appendix. In general, the estimates based on the RD design tend to support the findings from the matching approach. Most specifications suggest that income growth and private investment are significantly higher during tenures of CEO governors, while unemployment and income inequality tend to decrease, at least at the 10% level of significance.³² Although the treatment effect estimates are less significant in the RD design, they appear to be of similar size as the ones obtained from the matching approach. Thus, the decrease in significance is due to higher standard errors resulting from the loss of observations and reflects the lower degree of estimation efficiency. Turning to the parameter

³⁰ Also common is the estimation of local (linear) regressions, meaning that only observations within a certain bandwidth around the threshold, i.e., observations just below and just above the threshold, are used to estimate Equation (9). However, using local regressions comes at the expense of estimation efficiency, yielding imprecise estimates especially in small samples (Lee and Lemieux, 2010). In addition, as highlighted by Bruhn and McKenzie (2009), a small sample size resulting from the choice of a narrow bandwidth makes it questionable whether the treatment and control are comparable with regard to relevant pre-treatment characteristics.

³¹ Hoxby (2000: 1253) argues that the “within-unit” RD design “is more powerful and less subject to bias”.

³² Note that the treatment effect estimate for income growth when using a linear control function is only marginally insignificant at the 10% level (p-value: 0.106).

estimates, the most noticeable difference concerns the treatment effect estimate for private investment. Compared to the matching approach, the estimate from the RD design is more than three times larger.

5. How Do Businessmen Make a Difference? CEO Governors and Economic Reform

The aim of this section is to uncover the determinants of CEO governors' economic success, that is, the transmission channels through which CEO governors boost economic activity. Governors do not have a direct influence on the outcome variables considered in the empirical analysis in Section 3; rather, the improvement of state economic conditions during their tenures is the result of particular policies adopted by CEO governors.

One of the arguments put forward in Section 2 to support the conjecture that businessmen are more successful economic policymakers refers to their reform efforts. I conjectured that, due their extensive business experience and their commitment to economic imperatives, CEO governors may be more competent to identify and more willing to adopt efficiency enhancing economic reforms. Arguably, a strong commitment to economic reform and a business-friendly environment may become manifest in a more liberal policy stance. To test this conjecture, I evaluate whether CEO governors tend to adopt reforms involving a liberalization of state economies. Using the entropy balancing approach, I estimate the ATT of CEO governors' incumbencies on state-level economic freedom.

The indicator variable employed for this analysis is the Fraser Institute's *Economic Freedom of North America* index (cf. Karabegovic et al., 2003). This index covers all 48 states included in my analysis and the period 1981-2009. It represents an average of three equally weighted sub-indices: (i) size of government (i.e., general state government consumption expenditures as a percentage of income; transfers and subsidies as a percentage of income; insurance and retirement payments as a percentage of income), (ii) takings and discriminatory taxation (i.e., income and payroll tax revenue as a percentage of income; top marginal income tax rate and the income threshold at which it applies; indirect taxes as a percentage of income; sales taxes as a percentage of income), and (iii) labor market regulation (i.e., the extent of minimum wage legislation; government employment as a percentage of total state employment; union density). The composite index as well as the three sub-indices are scaled to take on values between 0 and 10, with higher numbers indicating a larger degree of economic freedom. The extant empirical literature provides strong and robust evidence for a positive relationship between the economic freedom index, income growth, and private investment and a negative relationship between the index and unemployment (e.g., Campbell et al., 2011; Compton et

al., 2011; Garret and Rhine, 2011). I estimate ATTs for both the composite index as well for the three sub-indices. In the matching approach, I employ the same covariates as in the previous analyses.

The results are presented in Table 4. The first column shows the results for the composite index, the second, third, and fourth column for the three sub-indices. In support of my conjecture, the results show that CEO governors tend to adopt reforms that lead to a liberalization of the state economy, although the effect is rather small. During the tenure of a CEO governor, the composite economic freedom index increases by 0.07 points, which roughly corresponds to one-tenth of the index's standard deviation. A glance at the estimates for the sub-indices reveals that the overall effect is driven by a decrease in the size of government as well as a reduction in labor market regulation. Whereas the former indicator increases by 0.1 points (about one-ninth of the index's standard deviation) during the incumbency of a CEO governor, the latter grows by 0.09 points (about one-twelfth of the index's standard deviation). In contrast, my findings suggest that there is no significant treatment effect for the sub-index measuring the level of takings and taxation.

Table 4: Estimated average treatment effects on the treated

Economic freedom– composite index		Size of government		Takings and taxation		Labor market regulation	
$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error
0.069**	0.014	0.100**	0.025	-0.017	0.019	0.093**	0.017
Treated units: 209		Treated units: 209		Treated units: 209		Treated units: 209	
Total obs.: 1,313		Total obs.: 1,313		Total obs.: 1,313		Total obs.: 1,313	

Note: (*), * and ** indicate significance at the 5% and 1% level, respectively.

However, the analysis does not reveal whether it is only the willingness to reform or competence that is responsible for CEO governors' success in terms of boosting economic activity. To provide an answer to this question, I regress the outcome variables, i.e., income growth, unemployment, private investment and income inequality, on the absolute change in each of the economic freedom sub-indices (i.e., the current period's realization minus the previous period's realization) as well as interaction terms between the changes in the sub-indices and the treatment dummy using pooled OLS regression.³³ As control variables, I include the same covariates used in the previous analyses. Significant interaction terms

³³ Note that the results do not change notably when using panel fixed-effects estimation or difference-in-difference estimation. Results are available on request.

indicate that reforms adopted by CEO governors differ in terms of their effectiveness from those adopted by non-CEO governors. This would support the notion that governors with a business background differ from those without a business background with respect to their competence of identifying economy-boosting reforms. If, however, only the linear terms turn out to be significantly related to the outcome variables, then liberalizing reforms have the same impact irrespective of whether they are undertaken by CEO governors or non-CEO governors. This, then, would indicate that the difference between CEO governors and non-CEO governors is rather due to differences with respect to the willingness to reform.

The results are presented in Table A7 of the Appendix. The findings suggest that liberalizing reforms indeed improve state economic conditions. In general, reforms that lead to more economic freedom are associated with higher income growth rates, lower unemployment rates, and a higher level of private investment. There is no significant association, though, between changes in economic freedom and income inequality. Reforms involving a reduction of government size and labor market regulation appear to be the most effective ones. A reduction in takings and taxation only affects personal income growth.

The insignificant interaction terms between the treatment indicator and the economic freedom sub-indices suggest that reforms adopted by CEO governors do not tend to be more (or less) effective than reforms undertaken by non-CEO governors. Thus, the better economic performance of CEO governors compared to non-CEO governors appears to be primarily driven by the formers' greater willingness to reform.

6. Conclusions

The aim of this paper is to evaluate the economic performance of U.S. state governors who were businesspersons prior to entering politics. I focus on the influence CEO governors exert on a state's annual growth rate of real personal income per capita, the unemployment rate, the growth rate of the private capital stock, and income inequality as measured by the Gini coefficient. For this purpose, I collected a dataset of information on the occupational backgrounds of the governors of 48 states between 1960 and 2009. To account for the fact that the election of a businessperson to the governorship may be related to a state's economic and fiscal situation, I rely on a matching approach. The performance of CEO governors is compared to the performance of credible counterfactuals, that is, non-CEO governors with similar characteristics who took office under comparable economic and fiscal conditions. I identify credible counterfactuals using entropy balancing, a matching method proposed by Hainmueller (2012) that has certain advantages over "common" matching approaches.

The findings presented in this paper tell a nice story: descriptive statistics as well as anecdotal evidence indicate that businessperson candidates are especially appealing to voters in times of economic pressure. More specifically, businesspeople appear to find it easier to win gubernatorial elections during recessions or during periods of fiscal strain. In such times, the skills and experiences characteristic of a successful CEO may hold strong appeal. The confidence voters put in businessperson candidates seems to be justified, as CEO governors boost the economy notably. An average year of incumbency of a CEO governor is associated with a 0.6 percentage point (pp) higher growth rate of real personal income per capita, a 0.4 pp higher growth rate of the private capital stock, and a decline in the unemployment rate of 0.6 pp. At the same time, income inequality decreases, implying that low-income households benefit from the economic upswing. Moreover, these governors' positive impact on a state's economy is larger the longer they are in office. The findings are robust to various modifications in the empirical specification, including the application of a regression discontinuity design as well as difference-in-difference estimation. Further analyses suggest that the positive influence CEO governors have on state economic conditions is due to the fact that they are characterized by a greater willingness to adopt efficiency promoting economic reforms. Tenures of CEO governors are associated with a reduction of government size and a deregulation of labor markets, both of which are demonstrated to boost economic activity.

A word of caution is necessary concerning any conclusions that may be drawn from the findings. It seems plausible to conclude that CEO governors should be preferred over career politicians at the polls since their economic performance is noticeably better. However, in my analysis, I focus solely on the influence CEO governors exert on macroeconomic aggregates. My analysis does not reveal, for instance, the extent to which different groups within a state's population benefit from the positive economic development. For example, the reduction of labor market regulation observed during tenures of CEO governors may impose noticeable costs on employees and involve an erosion of worker protection and employment standards. Moreover, politics involves tradeoffs. Accordingly, a governor's performance has many dimensions, with economic performance only one of them. Boosting the economy may not necessarily translate into higher public welfare or aggregate life satisfaction, as these aspects are influenced by more than simply the economic situation. Thus, the findings pave the way for future research in this area.

Appendix

Data

All data are at annual frequency.

The *economic variables* and *population* figures are from various sources. Data on state personal income, state personal income per capita, the growth rate of personal income per capita, and the shares of personal income from farming, mining, and government transfers, as well as state population are from the U.S. Bureau of Economic Analysis (<http://www.bea.gov/>). For price adjustment of state personal income per capita and state personal income per capita growth, I use the national personal consumption expenditure price index (PCE; base year is 2009) since state-level price indices are not available for my sample period. PCE data are also from the Bureau of Economic Analysis. State-level unemployment rates are from the Bureau of Labor Statistics (<http://www.bls.gov/>). Data on state-level private capital stocks are taken from the website of Steven Yamarik (<https://web.csulb.edu/~syamarik/>) and described in Garofalo and Yamarik (2002). The figures are based on an apportionment of national capital stock estimates to the states using industry-level income data. The base year for price adjustment is 2000. Per capita values are computed using the population figures from the U.S. Bureau of Economic Analysis. Gini coefficients for U.S. states are taken from the website of Mark R. Frank (http://www.shsu.edu/eco_mwf/inequality.html) and described in Frank (2014). These figures are based on individual tax filing data available from the Internal Revenue Service.

The *fiscal variables* are from the U.S. Census Bureau, which provides all figures in per capita terms. Like the economic variables, fiscal variables are price adjusted using the national personal consumption expenditure price index.

The measures of *economic freedom* are from the Fraser Institute's Economic Freedom of North America index (<http://www.freetheworld.com/efna.html>) and described in Karabegovic et al. (2003).

Information on U.S. state governors is mainly from the website of the National Governors Association (<http://www.nga.org/>). The website provides detailed information on governors, including their party affiliation, tenure, and year of birth, as well as their educational and occupational backgrounds. The information provided on this website was cross-checked using the websites of the respective state governments as well as by checking the personal websites of the governors (when available). The indicator for *divided governments* is taken from the dataset provided by Carl Klarner from Indian State University (<http://www.indstate.edu/polisci/klarnerpolitics.htm>).

Additional Tables and Robustness Tests

Table A1: List of U.S. state governors who were businessmen prior to holding office

Governor	State	Tenure
J. Fife Symington III	Arizona	1991–1997
Paul Jones Fannin	Arizona	1959–1965
Elbert Nortrand Carvel	Delaware	1961–1965
Jack Markell	Delaware	2009–open
Claude Roy Kirk, Jr.	Florida	1967–1971
John Ellis Bush	Florida	1999–2007
Joe Frank Harris	Georgia	1983–1991
Don William Samuelson	Idaho	1967–1971
C. L. “Butch” Otter	Idaho	2007–open
Robert D. Orr	Indiana	1981–1989
Mitchell Elias Daniels, Jr.	Indiana	2005–2013
John Y. Brown, Jr.	Kentucky	1979–1983
Wallace G. Wilkinson	Kentucky	1987–1991
Paul E. Patton	Kentucky	1995–2003
Charles Elson Roemer III	Louisiana	1988–1992
Mitt Romney	Massachusetts	2003–2007
George Wilcken Romney	Michigan	1963–1969
Elmer Lee Anderson	Minnesota	1961–1963
Daniel Kirkwood Fordice, Jr.	Mississippi	1992–2000
John James Exon	Nebraska	1971–1979
Kenneth C. Guinn	Nevada	1999–2007
Meldrim Thomson, Jr.	New Hampshire	1973–1979
John H. Sununu	New Hampshire	1983–1989
Craig Benson	New Hampshire	2003–2005
John H. Lynch	New Hampshire	2005–2013
Jon S. Corzine	New Jersey	2006–2010
Gary E. Johnson	New Mexico	1995–2003
Edward Thomas Schafer	North Dakota	1992–2000
Dewey Follett Bartlett	Oklahoma	1967–1971
Robert William Straub	Oregon	1975–1979
Neil Goldschmidt	Oregon	1987–1991
Milton Jerrold Shapp	Pennsylvania	1971–1979
Mark S. Schweiker	Pennsylvania	2001–2003
Bruce G. Sundlun	Rhode Island	1991–1995
Donald L. Carcieri	Rhode Island	2003–2011
Ned Ray McWherter	Tennessee	1987–1995

Table A1 (continued)

Governor	State	Tenure
Don K. Sundquist	Tennessee	1995–2003
Philip N. Bredesen, Jr.	Tennessee	2003–2011
William P. Clements, Jr.	Texas	1979–1983; 1987–1991
George W. Bush	Texas	1995–2000
Norman Howard Bangerter	Utah	1985–1993
Michael Okerlund Leavitt	Utah	1993–2003
Jon Huntsman, Jr.	Utah	2005–2009
Richard A. Snelling	Vermont	1977–1985; 1991
Mark R. Warner	Virginia	2002–2006
Booth Gardner	Washington	1985–1993
William Gaston Caperton III	West Virginia	1989–1997
Joseph Manchin III	West Virginia	2005–2010

Table A2: ATT estimates for CEO governors who won by a close margin

	Growth rate real personal income p.c.		Unemployment rate		Growth rate capital stock p.c.		Income inequality	
	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error
Margin \leq 5%	0.772**	0.131	-0.800**	0.095	0.509**	0.161	-0.302**	0.109
Margin \leq 2.5%	0.739**	0.155	-0.341**	0.120	0.232	0.187	-0.194	0.128
Total obs.:	2,178		1,404		2,090		2,178	

Note: (*), * and ** indicate significance at the 10%, 5% and 1% level, respectively.

Table A3: Placebo treatment approach

Growth rate real personal income p.c.		Unemployment rate		Growth rate capital stock p.c.		Income inequality	
$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error
0.059	0.094	0.100	0.061	-0.026	0.136	-0.119	0.077
Treated units: 127		Treated units: 100		Treated units: 120		Treated units: 127	
Total obs.: 2,178		Total obs.: 1,404		Total obs.: 2,090		Total obs.: 2,178	

Note: (*), * and ** indicate significance at the 10%, 5% and 1% level, respectively.

Table A4: Controlling for state-specific time trends

	Growth rate real personal income p.c.		Unemployment rate		Growth rate capital stock p.c.		Income inequality	
	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error
Linear time trend	0.548**	0.114	-0.687**	0.076	0.597**	0.142	-0.706**	0.077
Quadr. time trend	1.032**	0.133	-0.735**	0.094	0.982**	0.174	-0.439**	0.080
Treated units:	258		216		244		258	
Total obs.:	2,178		1,404		2,090		2,178	

Note: (*), * and ** indicate significance at the 10%, 5% and 1% level, respectively.

Table A5: Estimated treatment effects based on difference-in-difference estimation

Growth rate real personal income p.c.		Unemployment rate		Growth rate capital stock p.c.		Income inequality	
$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error
0.298*	0.137	-0.285**	0.107	0.155	0.168	-0.260*	0.112
Treated units: 258		Treated units: 216		Treated units: 244		Treated units: 258	
Total obs.: 2,178		Total obs.: 1,404		Total obs.: 2,090		Total obs.: 2,178	

Notes: Results are based on a panel difference-in-difference estimation. Coefficients of control variables are omitted to conserve space. (*), * and ** indicate significance at the 10%, 5% and 1% level, respectively.

Table A6: Estimated treatment effects based on regression discontinuity design

	Growth rate real personal income p.c.		Unemployment rate		Growth rate capital stock p.c.		Income inequality	
	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error	$\hat{\tau}_{ATT}$	Std. error
Linear c-function	0.603	0.373	-0.526(*)	0.273	1.233*	0.487	-0.513(*)	0.273
Quadr. c-function	0.966(*)	0.539	-0.885*	0.400	1.204(*)	0.687	-0.573	0.439
3 rd order polynom.	1.429*	0.625	-0.409	0.449	1.857*	0.818	-1.042*	0.506
Total obs.:	462		376		418		462	

Notes: Results are based on Equation (9). The first row shows the estimates for a linear control function, the second row for a quadratic function, and the third row for a third-order polynomial. (*), * and ** indicate significance at the 5% and 1% level, respectively.

Table A7: Evaluating the effectiveness of economic reform

	Growth rate real personal income p.c.		Unemployment rate		Growth rate capital stock p.c.		Income inequality	
	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error
CEO governor	0.106	0.153	-0.139	0.112	0.248	0.206	0.002	0.155
$\Delta(\text{govern. size})$	1.094**	0.200	-0.408**	0.140	1.115**	0.253	0.169	0.197
$\Delta(\text{taxation})$	1.469**	0.334	-0.297	0.203	0.356	0.428	0.219	0.284
$\Delta(\text{regulation})$	4.238**	0.423	-0.878**	0.294	3.464**	0.630	-0.462	0.458
CEO governor*...								
... $\Delta(\text{govern. size})$	0.040	0.231	-0.002	0.174	-0.015	0.332	-0.140	0.261
... $\Delta(\text{taxation})$	0.004	0.669	-0.374	0.418	0.758	0.724	0.072	0.522
... $\Delta(\text{regulation})$	-0.037	0.519	0.039	0.427	-0.640	0.742	-0.583	0.539
Total obs.:	1,291		1,275		1,203		1,291	

Notes: Results are based on pooled OLS estimation. Coefficients of control variables are omitted to conserve space. (*), * and ** indicate significance at the 10%, 5% and 1% level, respectively.

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