DATA ARTICLE

When TED talks, does anyone listen? A new dataset on political leadership

Thomas Edward Flores[1] · **Gabriella Lloyd[2]** · **Irfan Nooruddin[3]**

Abstract

The Technocratic and Education Dataset (TED) provides comprehensive new data on the educational and professional backgrounds of the heads of government of all sovereign states between 1946 and 2015. TED details the educational and employment credentials of 1733 unique heads of government, and provides additional information on their demographic backgrounds and military experience. TED comes in leader-level and country-year versions. These data make three major contributions to the study of leadership. First, TED offers a longer time series than most extant data sets on leadership. Second, TED offers data on a broader cross section of countries, facilitating scholarship on a wider variety of countries, including non-OECD ones, which are excluded from many existing datasets on leaders. Third, by offering detailed data on the educational and employment experiences of leaders, TED helps scholars interested in the mechanisms underlying the effects of these experiences generate more rigorous tests of their theories. TED, therefore, represents a major step forward for those interested in leadership. In this article, we introduce TED and use it to show how the pool of international leaders has changed over time. We end with an empirical application of the data in which we use leadership characteristics to predict countries' sovereign credit ratings. The article concludes with a discussion of other potential applications of these new data.

Keywords Technocracy · Education · Leadership · Sovereign debt · Credit ratings

✉ Irfan Nooruddin
   in62@georgetown.edu

   Thomas Edward Flores
   tflores2@gmu.edu

   Gabriella Lloyd
   gabriellalloyd@gmail.com

1 George Mason University, Arlington, VA, USA

2 Office of the Naval Inspector General, Department of Defense, DC, Washington, USA

3 Georgetown University, DC, Washington, USA

🙋 Springer

1 Introduction

Over the last fifteen years, scholars have dramatically expanded our understanding of the real impact of political leadership on political and economic outcomes. Political economists, for example, have investigated the possibility that international leaders affect international development patterns (Jones & Olken, 2005; Hayo & Neumeier, 2014; Besley et al., 2011). Leaders with training in economics have been connected with substantive shifts in government policy priorities and economic performance (Chwieroth, 2007; Dreher et al., 2009; Kogut & Muir MacPherson, 2008; Nelson, 2017). Economics is not the only domain where the educational and professional backgrounds of leaders might matter. Military experience, for instance, has been shown to affect presidents' foreign policy postures (Horowitz & Stam, 2014), and scholars continue to debate whether more educated leaders provide their citizens better governance.[1] A related and burgeoning body of research suggests that the attributes of leaders affect how others perceive them, with important consequences for international and domestic politics (Barceló, 2018; Bertsou & Caramani, 2022; Fuhrmann & Horowitz, 2015; Horowitz et al., 2015; Horowitz et al., 2018; Yarhi-Milo, 2014).

The broad thrust of this new scholarship is that leaders' personal attributes affect how they govern and the outcomes of their efforts. Nevertheless, much remains to be learned. Let us take one example: how do Western audiences react to different kinds of leaders from the Global South and how does that affect how voters and parties choose leaders in the Global South? Anecdotal evidence suggests that these effects could be large. In August 1982, Mexico faced a dire financial crisis at the outset of the global debt crisis. Miguel de la Madrid Hurtado was the ruling Institutional Revolutionary Party's (PRI) choice for the presidency. De la Madrid was the first candidate of the PRI to have studied in the United States. He studied at a prestigious American university, obtaining his Masters in Public Administration from Harvard University's Kennedy School of Government. He began a process of liberalizing the Mexican economy. He would be followed by four more leaders who would broadly follow his pattern of economic reform, as well as his connection to the Ivy League: Carlos Salinas de Gortari (1988–1994, doctorate in economics from Harvard); Ernest Zedillo (1994–2000, doctorate in economics from Yale); Vicente Fox (2000–2006, MBA from Harvard); and Felipe Calderón (2006–2012, MPA from Harvard). The fact that Mexico turned to Harvard- and Yale-educated leaders just as it liberalized its economy seems unlikely to be a coincidence. Across the globe, Ellen Johnson Sirleaf's election as president of Liberia was widely praised by international audiences after Liberia's long civil war and predatory rule by Charles Taylor. Not only was Sirleaf the first woman head-of-government in Sub-Saharan Africa, but she was also a veteran of the World Bank and Citibank (and a Harvard alumna). She subsequently obtained deep debt relief for Liberia from multilateral

---

[1] A large body of relevant research contributes to this debate. In addition to many of those already cited in this paragraph, notable contributors include Wade and Veneroso (1998) and Chwieroth (2007).

lending organizations and sovereign governments. Did her success in doing so relate to her background?

Investigating these questions requires new data on leader attributes that offers detailed information on leader backgrounds for a wide array of countries over a long time period. Such data are unfortunately rare. Most existing data on leadership centers on a small sample of countries, particularly Europe and North America. Datasets with a broader cross-section and longer time-series often code very few variables. An opportunity therefore exists to bolster the study of leadership with new data.

We present a new data set on leaders called the Technocratic and Educational Dataset (or TED). TED provides new fine-grained information on the professional and educational backgrounds of 1733 leaders from 180 countries between 1946 and 2015. TED improves upon extant data on the attributes of international leadership in at least two ways. First, it covers more countries over a longer time period than existing data sets on leaders. It therefore permits deeper investigation of leadership dynamics in countries previously excluded from such scholarship. Second, the dataset provides finer-grained, and hitherto uncollected, data on leaders. TED provides detailed information about leaders' educational experiences (e.g., highest degree obtained, universities attended, international education, and field of study) and their employment experiences (e.g., employment by international organizations, government, or private banks). Using the data in TED, scholars will be able to test new mechanisms through which leaders' backgrounds shape important outcomes, both domestic and international.

The article proceeds as follows. We begin by describing in greater detail our motivation for collecting these new data. We then summarize the variables in TED and describe our data collection procedures. We follow this with a summary of major trends in global leadership since 1945. An empirical application in which we use TED to predict sovereign debt ratings provides strong evidence that developing country leaders with elite educations earn higher ratings for their countries, even when we control for political and economic factors identified by previous scholars. Importantly, the educational advantage is contingent on the presence of uncertainty about leaders' willingness to service their countries' debts; that is, the educational advantage is only visible in developing countries which are all too often excluded from leadership data sets. We conclude with a discussion of other potential uses for these exciting new data on global leadership.

2 Motivation

In the past fifteen years, the study of political leaders—their backgrounds, impact, and actions while in office—has advanced dramatically due to the production of several groundbreaking data sets on leadership (see Table 1). These data collection efforts have supported new insights into leadership, but collectively remain limited in two important ways.

First, the temporal and spatial samples tend to be relatively small. Chwieroth (2007), for example, offers data on central bank heads and finance ministers, but only for twenty-nine

Table 1 Existing data sets on leaders

Study	Countries	Period	Type of leaders	Most similar variables coded
Jones and Olken (2005)	130	1945–2000	Leaders taking office after natural death of previous leader	Educational attainment
Chwieroth (2007)	29	1977–1999	Central bank heads, finance ministers	Neoliberal graduate training in economics
Kogut and Muir MacPherson (2008)	92	1981–1997	N/A (general population)	Number of U.S.-trained economists in-country
Dreher et al. (2009)	64	1970–2002	Heads of government	Field of study
Goemans et al. (2009)	188	1875–2004	Heads of government	Term in office, mode of entry and exit
Besley et al. (2011)	197	1848–2004	Leaders taking office after natural death of previous leader	Educational attainment
Hallerberg and Wehner (2012, 2020)	40 (OECD)	1973–2010	Heads of government, central bank heads, finance ministers	Graduate education in economics, prior employment as economics professor, in a central bank, or in financial services
Horowitz, Stam, and Ellis (2015); Ellis et al. (2015)	188	1875–2001	Heads of government in Archigos	Military education, education level, occupation, prior political experience
Baturo (2016)	145	1960–2010	Heads of government	Education field and level, prior experience as finance minister
Kaplan (2017)	19 (Latin America)	1960–2010	Central bank presidents, finance ministers	Educational attainment, economics expertise
Nelson (2017)	90 IMF clients	1980–2000	Economic policy-makers	Education in economics in the USA
Gift and Krcmaric (2017)	Non-OECD countries	1946–2004	Leaders who lasted at least 3 years in office	Education in the West, specific colleges attended
Alexiadou and Gunaydin (2019) / Alexiadou et al. (2021)	21 European Democracies	1992–2012	Finance ministers	Prior political office, previous work as economists, PhDs in economics
Gerring et al. (2019)	145	2010–2013	Political elites (executive, judiciary, legislative, and other)	Education level, occupation type
Dreher and Shu (2020)	177	1989–2020	Heads of government	Education level, field of study
Nyrup and Bramwell (2020)	177	1966–2016	Cabinet members	Age, gender, party affiliation, ministerial portfolio, tenure

emerging markets for twenty-two years. Hallerberg and Wehner (2012, 2020) offer data on technical competence for 1200 heads of government, central bank heads, and finance ministers, but only for forty OECD countries. Jones and Olken (2005) and Besley et al. (2011) rely on longer-time series, but only for those few leaders who took office after the previous leader died of natural causes. Alexiadou and co-authors (Alexiadou & Gunaydin, 2019; Alexiadou et al., 2021) record detailed information about leaders' and finance ministers' professional and political backgrounds, but do so only for European democracies.

Second, the depth of leader-level variables coded is often inversely correlated to the size of the sample. Chwieroth (2007) covers 1500 central bank heads and finance ministers, but codes only one variable on their professional background. The Archigos data set of Goemans et al. (2009) covers all heads of government of independent states, but does not record information about their employment or educational credentials. Horowitz, Stam, and Ellis (2015) added considerable information about leaders in their expansion of Archigos, including some information about leaders' education and prior employment. While their efforts represent an excellent addition to Archigos, the data they collected on leaders' education and employment are quite limited. Gerring et al. (2019) do provide global coverage, but with limited temporal coverage (2010–13) and without the detailed focus on the educational experience of leaders that we desire. The Political Leaders' Affiliation Database (PLAD) offers data on place of birth and ethnicity for leaders from 177 countries, but lacks data on educational background and only begins in 1989 (Dreher et al., 2020). Nyrup and Bramwell (2020) provide a global data set for cabinet members in 177 countries from 1966 to 2016 but do not code educational or employment backgrounds of these offiicals.

TED bolsters our knowledge by covering a longer time series, a broader section of countries, and a deeper set of variables. TED provides data on 1733 leaders from 180 countries between 1946 and 2015.[2] This offers major benefits for scholars of political leadership. First, by offering a longer time series, TED allows scholars to analyze how the quality and characteristics of leaders have changed since the end of the Second World War. Second, by offering data on a broader section of countries, TED facilitates scholarship on a wider variety of countries, including non-OECD countries and non-democracies, which are often excluded from existing data sets on leaders. Such long time-series information on leaders for a large cross-section of countries will allow scholars to draw informative comparisons across countries and time, as well as within countries. Third, the detailed data on the educational and employment credentials of leaders in TED will permit scholars interested in the mechanisms underlying the effects of these experiences to generate more rigorous tests of their theories. TED, therefore, represents a major step forward for those interested in global leadership.

---

[2] Missing data fall into one of two categories: the effective head of government cannot clearly be identified or pertinent information cannot be found on that leader.

3 The data

3.1 Sample

To identify world leaders, we employ data from Cheibub et al. (2010) on effective heads of government. Effective heads of government are defined as those who wield de facto power. Consequently sometimes, effective heads of government will differ from nominal heads of government, or those who notionally wield power. In TED, we collect data on effective heads of governments' spells in power, gender, birth dates, as well as their dates of entry and dates of exit from office. Since Cheibub, Gandhi, and Vreeland's data set ends in 2008, we supplement it with leadership data from Archigos between 2009 and 2015. Archigos unfortunately does not distinguish between nominal and effective heads of government; when a country has both a nominal and effective head of government, Archigos identifies both. In this case, we identified the effective head of government using Cheibub, Gandhi, and Vreeland's definition and collected data for that leader. TED is available in two versions: a leader version, in which the unit of observation is the leader, and a country-year version.[3] Both versions of the data set contain country codes from the Correlates of War to support easy merging with other data sets.

3.2 Variables

Table 2 summarizes the variables coded in TED for each leader. TED records basic information about leaders, including their name, spell in power, gender, and nine variables recording the day, month, and year of their birth, entry into office, and exit from office. It includes eleven new variables on education. The first of these records the highest degree attained by leaders (to include a graduate degree, undergraduate degree, a degree from a military institution, a secondary degree, a primary degree, or no degree) prior to assuming office. A leader is said to have attained a graduate degree if she completes any post-graduate training, including a law degree, master's degree, or doctoral degree. TED also records whether a leader studied a technocratic field, including business, economics, finance, or public policy. The dataset lists all of the universities attended by a leader, separated by commas, regardless of whether she received a degree. In two additional variables, it records the university where the leader received her highest degree and the country where that university is located. We also code whether leaders studied abroad, as well as whether they received degrees from universities in the United States, United Kingdom, or France. If so, we further record whether each leader received her degree from "prestigious" European and American universities. Prestigious American universities include the eight Ivy League institutions (Harvard, Yale, Princeton, Cornell, Pennsylvania, Columbia, Dartmouth and Brown) as well as Stanford and the University of Chicago.

---

[3] To convert the leader data set into a country-year format, we follow the rule of coding for the year the values of the leader who was in power on January 1st of the year in question. Scholars who prefer to follow a different coding scheme can do so using the original leader-level data.

Table 2 Summary of Variables in TED

Variable	Description
Basic information	
Leader Name	Leader name Sources: CGV (1946–2009) Archigos (2009–2015)
Spell	Spell in power
Gender	Female or male
Birth Date Variables	Year, month, and day of birth
Entry Date Variables	Year, month, and day of entry into office
Exit Date Variables	Year, month, and day of exit from office
Education	
Highest Degree	Highest degree received: primary, secondary, undergraduate, graduate, or military
Technocratic Field	Received a degree in the following fields? Business, Economics, Finance, or Public Policy
Universities Attended	Lists all universities attended
University Name for Highest Degree	University where the leader received highest degree
University Location for Highest Degree	Country of university where highest degree attained
Studied Abroad	Indicates whether the leader studied abroad while receiving education
US University	Received a degree from a US university?
Prestigious US University	Received a degree from the following universities? Harvard, Yale, Princeton, Cornell, U. Pennsylvania, Columbia, Dartmouth, Brown, Stanford, Chicago
University in UK or France	Received a degree from a university in the UK or France?
Prestigious European University	Received a degree from the following universities? Oxford, Cambridge, London School of Economics, Sorbonne, Sciences-Po, or INSEAD
Top 50 University	Received a degree from a top-50 university?
Work Experience	
Major Money Center Bank	Worked at Goldman Sachs, JP Morgan Chase, Morgan Stanley, Merrill Lynch, Bear Stearns, Lehman Brothers, Citigroup, Deutsche Bank, UBS, Credit Suisse, Barclays, HSBC, or Société Générale?
IMF	Worked at the IMF?
World Bank	Worked at the World Bank?
UN	Worked at the UN?
WTO	Worked at the WTO/GATT?
Regional Development Bank	Worked at Inter-American Development Bank, European Central Bank, African Development Bank, or Asian Development Bank?
Business Experience	Was the leader a businessman/woman?
Central Banker or Finance Minister	Was the leader employed as a central banker or finance minister?
Other	
Family Class	Poor, Middle, or Rich
Lived in US or Western Europe	Lived in the US or Western Europe for at least five years before taking office?

Prestigious European universities include the universities of Oxford and Cambridge, London School of Economics, Sorbonne, Sciences-Po, and INSEAD.

To capture degrees earned from reputable universities other than those we characterized as 'prestigious,' we also include a binary variable equal to one if the leader received her degree from any university on a list of top-fifty worldwide universities and zero otherwise. Top-fifty worldwide universities were identified using the ranking of top-400 universities published by US News in 2011 (the year this project began).[4] This variable makes two important contributions to TED. First, it casts a wider net, identifying leaders educated in top universities outside of the few most famous Western ones we identified. Second, it captures a different aspect of educational achievement: whereas our prestigious university variable captures leaders with degrees from predominantly private universities with enduring global reputations, the top-fifty variable captures leaders with degrees from universities that perform well on numerical rankings of academic productivity and impact. That said, there is tremendous overlap between the two variables: among the leaders in our sample who attended a top-fifty university, 73 % attended a prestigious Western university.

TED also contains eight new variables on leaders' employment credentials. It records whether a leader has prior employment experience at a number of international organizations (including the IMF, World Bank, United Nations, or World Trade Organization/General Agreement on Tariffs and Trade). Two additional variables identify leaders that worked in major money center and/or regional banks. It also identifies leaders with prior work experience in business or as finance ministers or central bankers.

Finally, TED includes one variable that identifies the socio-economic class of the leader's family (poor, middle class, or rich). It also includes an indicator of whether a leader lived in the United States or Western Europe for at least five years prior to taking office.

We employed strict coding procedures, careful vetting and documentation of sources, and regular reviews of research assistants' work to ensure that the data in TED are of the highest quality. The main issue we encountered during data collection was how to distinguish between zeroes (e.g., knowing a leader did not work at the IMF) and missing data (e.g., not being able to find any information on whether a leader worked at the IMF). We recorded a leader as not having a credential if the coder could find three credible sources and none of them mentioned that leader having that credential. If the coder could not find three credible sources, then the data were recorded as missing. Research assistants recorded the information on leaders in memos, which were individual Word documents for each leader. They were required to find and cite three credible sources for each piece of information they obtained on each leader. Coders relied on a wide array of sources and were instructed to avoid potentially unreliable crowd-sourced sites on the Internet (e.g., Wikipedia). Research assistants relied on Who's Who biographies, encyclopediae, news articles, and published histories. In the case of leaders from earlier time periods, coders more

---

[4] 2022 US News Rankings are available at https://www.usnews.com/education/best-global-universities/rankings (accessed 28 January 2022).
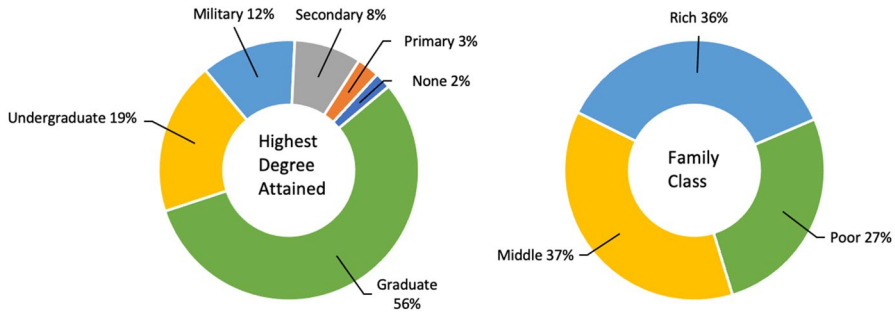
Fig. 1 Family Social Class and Highest Degree Attained by Heads of Government, 1945–2015

often relied on newspaper sources.[5] They recorded their sources in two places: they added in-text citations after each response in their memos and maintained a separate Master Source Document on each country, in which they copied and pasted links and source material from all of the sources cited in their memos. The information collected by the research assistants in the memos was subsequently checked and recorded in TED by one of the authors. In addition, the authors regularly, but unpredictably, assigned research assistants the same leader to code and compared their responses. When discrepancies were found—either as a result of the inter-coder comparison or during the authors' final check—they were addressed and resolved.

4 Describing leaders

Figure 1 summarizes the data in TED for leaders' family class and highest degree attained. It shows that leaders arise from diverse backgrounds—they come to office in approximately equal numbers from poor, middle class, and wealthy families. While leaders emerge from all walks of life, most of them (56 %) arrive in office with graduate degrees. An additional 19 % of leaders have undergraduate degrees, and 12 % take office with military degrees. Only 13 % have a secondary education or less when they assume office.

As Fig. 1 shows, 75 % of leaders arrive in office having completed at least some post-secondary education. Figure 2 uses TED to illustrate *where* leaders receive their higher educations. Approximately one-third of leaders receive degrees from universities in the United States, United Kingdom, or France before taking office. Of these, 41 % attain degrees from the most prestigious educational institutions in those countries. Another 7 % (thirty-two leaders) attended universities in these countries that did not make our list of 'prestigious' universities, but did appear on US News' list of top-fifty universities. Nearly half of all global leaders between 1946 and 2015 (48 %) took office having received a degree from a university outside of these countries.

---

[5] Research assistants were instructed on how to identify credible sources before beginning work on TED, and received guidance from the authors on useful sources of information.

Fig. 2 Where Leaders Receive Their Higher Educations, 1945–2015

Of these, just eighteen (3 %) received their degrees from top-fifty universities outside of the United States, United Kingdom, or France. Twenty percent of leaders take office without any higher education. Among those without higher educations, military educations are common: 40 % (four in ten) of these leaders graduated from a military academy.

TED also reveals information about how leaders spend their educations. One in five leaders received a degree in a technocratic field (to include business, economics, finance, or public policy). Forty percent (696 leaders) studied abroad during the course of their education, and 38 % (646 leaders) lived in the United States or Western Europe for at least five years before taking office. Many of those who lived in the United States and Western Europe went on to hold office outside of North America and Western Europe (78 %).

TED also provides details on leaders' pre-office employment experiences. Employment in international institutions is rare. Only 5 % of leaders worked at such

Fig. 3 Temporal Trends in Western University Attendance by Heads of Government, 1945–2015
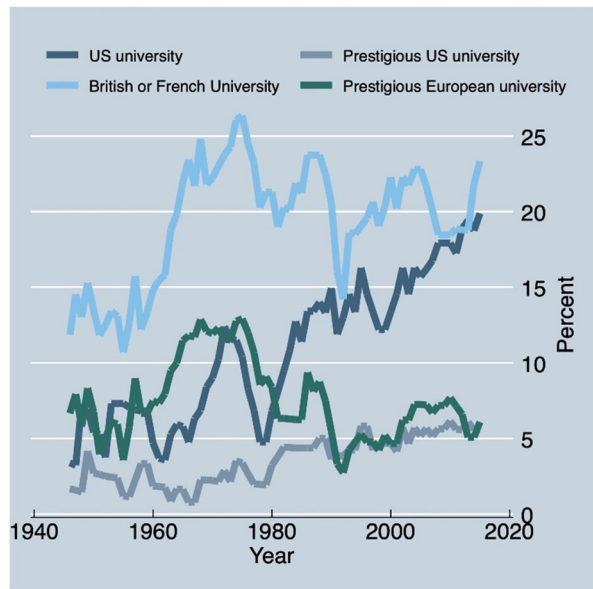
organizations before taking office (to include the IMF, World Bank, UN, WTO/GATT). Just twenty-six leaders (1.5%) worked at a major money center bank or regional development bank. Employment in domestic financial institutions is more common. One in five worked as central bankers or finance ministers before taking office. Eleven percent had careers in business.

4.1 Trends over time

The education and employment makeup of leaders has changed over time. The proportion of leaders studying abroad has nearly doubled over seventy years, growing from 30 % in 1946 to 58 % in 2015. The proportion of leaders receiving degrees from US universities followed a similar trajectory, growing from 3 % in 1946 to 20 % in 2015 (Fig. 3). The percentage of leaders attending prestigious US universities also increased three-fold during the sample period, although this value is low in all years (it finally reached 6 % in 2015). The percentage of leaders attending European universities, prestigious or otherwise, grew rapidly in the 1960s before entering a steady decline in the 1980s and 90s. Prestigious European universities never recovered from this decline: the percentage of leaders with degrees from these schools in 2015 was the same as in 1946 (6 %). Despite experiencing a decades-long decline, the proportion of leaders who attended non-prestigious universities in the UK and France was higher than for US universities in nearly all years in TED, and was back on the rise as of 2015.

Figure 4 shows how higher education has become more common over time. The percentage of world leaders holding graduate degrees has skyrocketed since 1980 and exceeded 60 % by the early 2000s. Undergraduate degrees also became more common among leaders; by 2015, one in five leaders held an undergraduate degree.

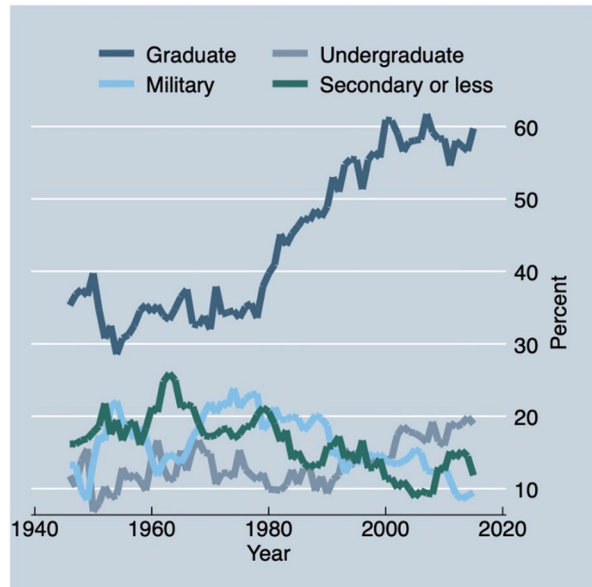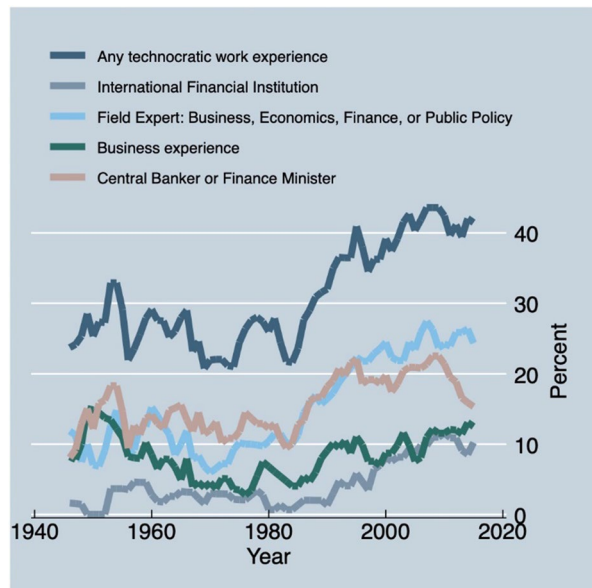**Fig. 4** Temporal Trends in Highest Degree Received by Heads of Government, 1945–2015

Fig. 5 Temporal Trends in Technocratic Employment Credentials, 1945–2015

The percentage of leaders with military educations has declined steadily since the late 1970s, as has the proportion of leaders without any post-secondary education. Overall, the trend toward higher education appears to have accompanied a rise in
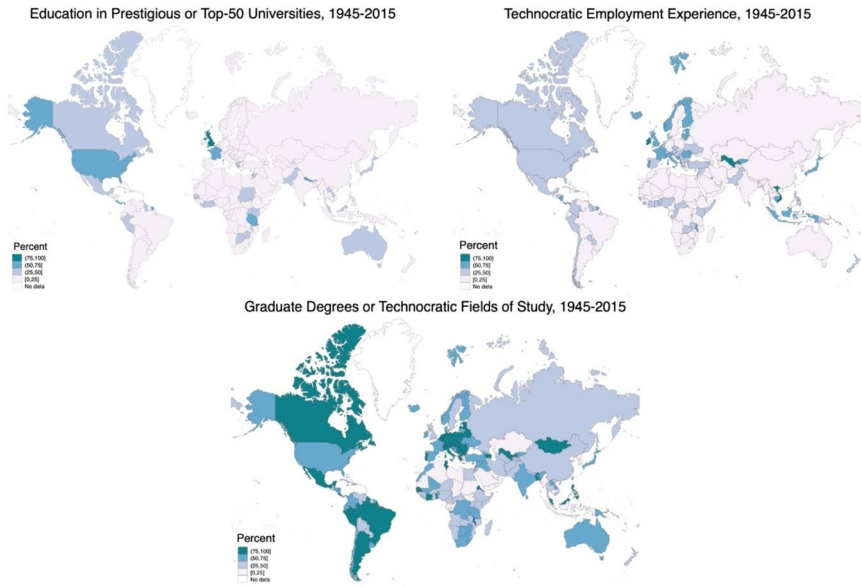
Fig. 6 Spatial Trends in Leaders' Education and Employment Credentials, 1945–2015

transnational educational credentials, such as studying abroad or attending Western universities, over the past seventy years.

We now turn to temporal changes in leaders' professional experience. Heads of government are increasingly coming to office with technocratic work experience; by 2015, four in ten had field expertise in a technocratic field or had prior experience working in an international financial institution (IFI), in business, or as central bankers or finance ministers (Fig. 5). Employment experience in IFIs, whilst remaining leaders' rarest credential, has become an increasingly common part of leaders' résumés; by 2015, one in ten had worked in an IFI before taking office.

4.2 Trends across space

TED makes it easy to visualize variation in leaders' employment and educational experiences. Figure 6 provides a glimpse into the scope of global variation in leaders' pre-office educational and employment credentials. Importantly, it shows that access to education in high-ranking universities and employment international or domestic financial institutions favors—but is not exclusive to—Western leaders. Many countries throughout Central and South America, Africa, and South Asia all have long records of leaders with such credentials. Countries and regions whose leaders tend not to have these credentials—such as China, Central Asia, and Sub-Saharan Africa—do, nevertheless, tend to employ people with advanced degrees and degrees in fields relevant to governance in their highest offices.
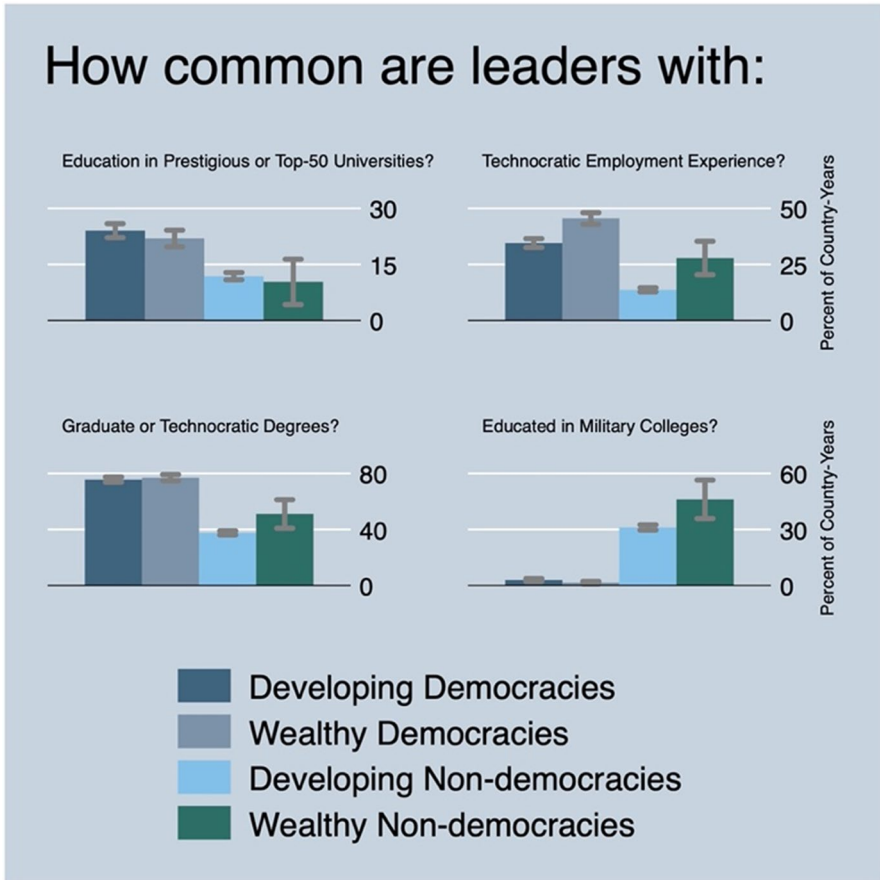
Fig. 7 Education and Employment Experiences of Leaders in Countries with Different Democratic and Development Status, 1945–2015

A closer look at the data suggest that prestigious educations and technocratic employment credentials correlate more tightly with democratic status than development. As Fig. 7 shows, democracies—both wealthy and poor ones—are far more likely than nondemocracies to have heads of government with these credentials. This is in line with existing research, which argues that democracies select more competent leaders (e.g., Besley & Reynal-Querol, 2011; Chwieroth, 2007; Hallerberg & Wehner, 2012, 2020; Kaplan, 2017). In contrast, wealthy and developing non-democracies are far more likely to have leaders educated in military colleges.

4.3 What kinds of leaders receive these credentials?

We have already reported that leaders tend to emanate from wealthy, middle class, and poor families in equal proportions. We now examine the possibility that socio-economic class poses a barrier to who can obtain the education and
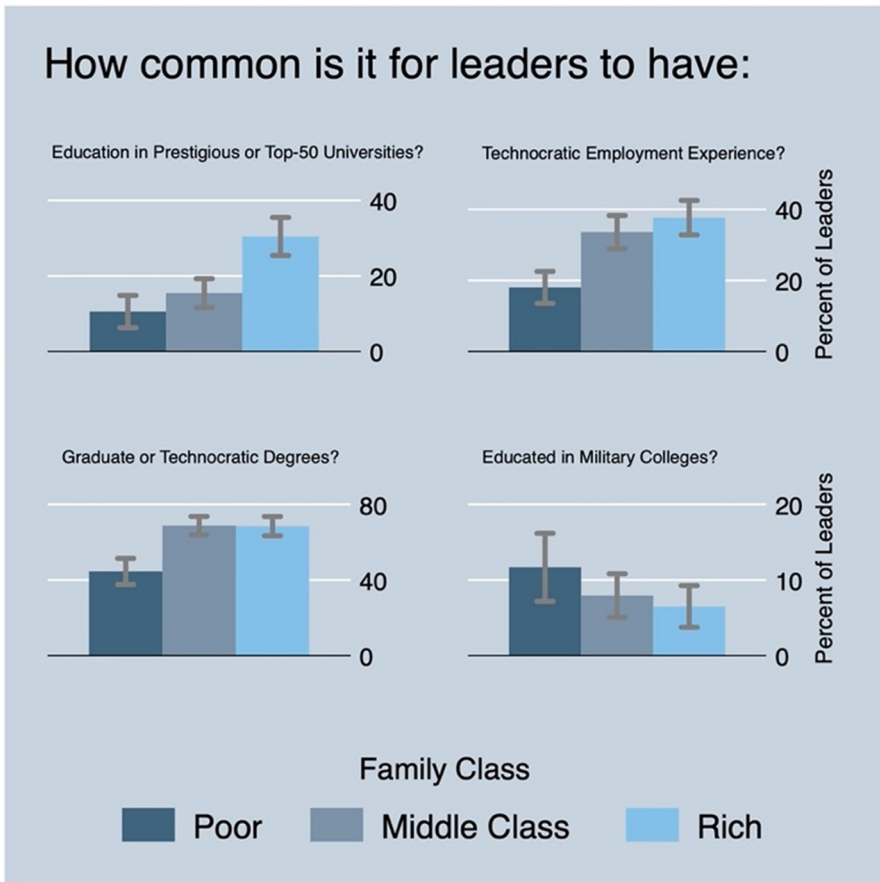
How common is it for leaders to have:

Fig. 8 Proportion of Leaders from Poor, Middle Class, and Wealthy Families with the Prestigious Education and Technocratic Employment Credentials in TED, 1945–2015

employment credentials captured in TED. Figure 8 shows the percent of leaders with these credentials coming from poor, middle class, and wealthy families. We find that leaders from wealthy backgrounds are more likely to be educated in top universities. This finding is consistent with the relationship between education and socio-economic status identified by Gerring et al. (2019). Technocratic employment experience and graduate/technocratic degrees are likewise least likely among leaders coming from poor backgrounds. However, unlike education, these experiences are open to leaders from middle-class backgrounds, as well as wealthy ones. Education in military colleges, in contrast, is slightly more common among those from poor backgrounds than among those from middle class or wealthy backgrounds.

We also examine a possible link to right-leaning political ideologies. Critics of neoliberalism often claim that leaders educated in American, British or French universities--or in prestigious universities outside of these countries—or employed in
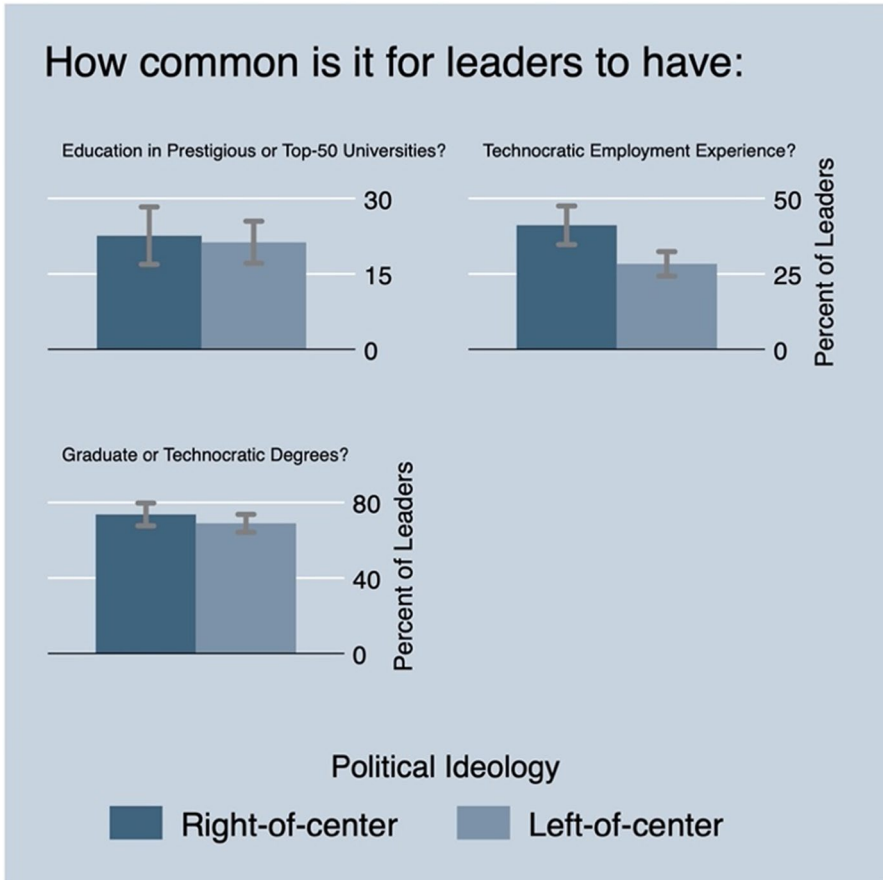
Fig. 9 Proportion of Leaders from Right-of-Center and Left-of-Center Parties with the Education and Employment Credentials in TED, 1945–2015

IFIs or other financial positions are deeply steeped in orthodox approaches to economic governance, making them more likely to lean right on economic matters in their political careers. TED does not contain data on leaders' personal ideologies. For this, we rely on the Database on Political Institutions (DPI), which charts the political parties of the chief executive in a wide range of countries beginning in 1975 (Cruz et al., 2016). From 1975 onward, the DPI codes political parties into right-of-center, center, and left-of-center based on economic policymaking instead of social or foreign policy. Figure 9 suggests that a political divide does exist, but predominantly for leaders with technocratic employment experience, who are about 10 % more likely to belong to right-of-center parties than left-of-center ones. This suggests that working in international or domestic financial institutions either produces, or selects for, leaders with more orthodox neoliberal economic leanings.

5 Application: The technocratic advantage in sovereign creditworthiness

TED has the potential to allow more flexible and rigorous testing of hypotheses on international leadership for scholars of political economy, comparative politics, and international relations. To demonstrate this utility, we return to a central theme in international politics that we described earlier: how do international audiences react to world leaders? As summarized above, new research broadly argues that the attributes of leaders affect how other international actors perceive their actions, with potentially pivotal consequences for international politics (Bertsou & Caramani, 2022; Fuhrmann & Horowitz, 2015; Horowitz et al., 2015; Horowitz et al., 2018; Yarhi-Milo, 2014). In our application, we test whether leadership matters for how credit ratings agencies (CRAs) rate sovereign debt.

CRAs use proprietary models to predict default risk of public debt issued by sovereign countries. They rose to prominence in international finance after the Latin American debt crisis, when commercial bank lending to sovereigns was replaced by an international bond market, in which countries submitted their debt for purchase (Sinclair, 2005). In the new system, CRAs are hired by countries ("sovereigns") to rate their creditworthiness. By assessing sovereigns' capacity and willingness to service their debt, CRAs influence not only countries' cost of borrowing and access to local and international capital markets, but also markets' perceptions of the impact of their macroeconomic policy framework (Bhatia, 2002; Cox & McCubbins, 2015; Elkhoury, 2009). This gives CRAs important influence over the economic prospects of countries, especially developing ones, whose access to international credit markets is uncertain even in the best of times. Small deteriorations in a countries' perceived risk can cost them billions of dollars in debt repayment, which in turn constrains states' ability to provide public goods expected by citizens. In the extreme, the repercussions of a sovereign credit downgrade could trigger a full-blown debt crisis.[6]

Questions of leadership have remained absent in the analysis of international debt ratings, in part because of a lack of data. Instead, scholars have identified two main influences on CRAs' rankings of sovereign debt. First, objective economic data drive their assessment of countries' capacity to pay their debts (Elkhoury, 2009). CRAs clearly state that factors like the rate of GDP growth and current account balance affect their ratings. (Moody's Investor Services, 2015; Standard & Poor's, 2011). Their reliance on these factors is also confirmed by academic research (Archer et al., 2007; Saiegh, 2005). Second, a growing body of research suggests that CRAs also consider political indicators of good governance when assessing countries' willingness to pay their debts. Moody's says that it considers "institutional strength" as part of its assessments (Moody's Investor Services, 2015), while S&P's evaluates "institutional effectiveness and political risks" (Standard & Poor's, 2011). Scholars have argued that democracies receive higher ratings due to the higher domestic political

---

[6] Not all scholars agree, with many arguing that sovereign credit ratings generally lag, rather than predict, shifts in market perceptions and major financial crises (Cox & McCubbins, 2015; González-Rozada & Yeyati, 2008; Reinhart, 2002).
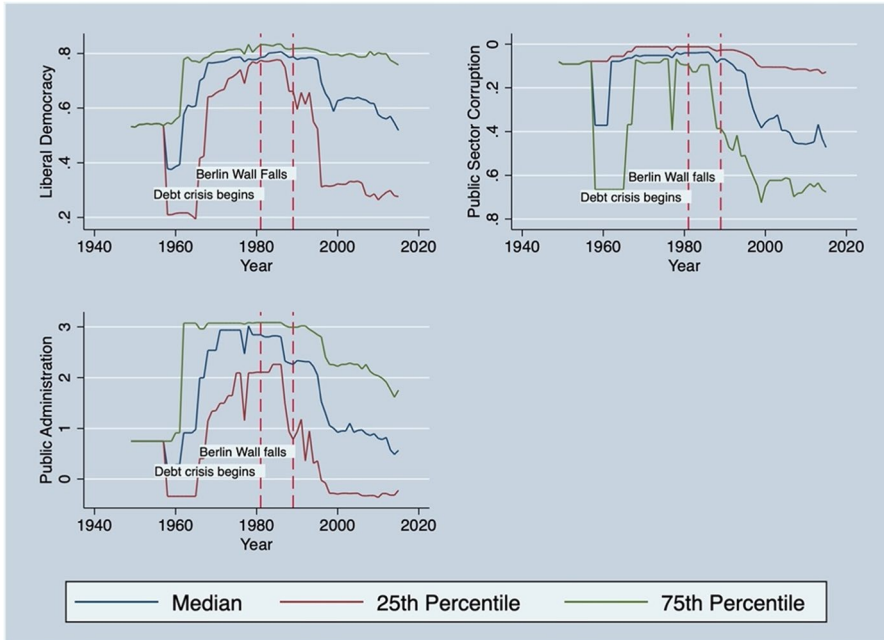
Fig. 10 How the Countries Rated by Moody's Have Changed Over Time. *Note:* Data come from the Varieties of Democracy project (Coppedge et al., 2021). Author calculations

costs of default (Beaulieu et al., 2012) and institutional checks and balances that constrain against rash executive decision-making (Biglaiser & Staats, 2012).

This scholarship has advanced our understanding of international debt markets, but also ignores the rapidly deteriorating informational landscape CRAs face—and how leadership might take on major importance in such a landscape. The death of bank lending to sovereigns after 1982 created new demand for CRAs from countries desperate to raise capital in bond markets. As late as 1986, Moody's assessed the sovereign debt of only fifteen countries; by 2018, Moody's rated 129 sovereigns. This expansion in the *number* of countries also brought a change in the *type* of country rated. Before the expansion, CRAs nearly exclusively rated transparent, wealthy, democratic countries that presented rigorous data from transparent bureaucracies. After 1982, this changed, as Fig. 10 demonstrates. It displays the median, twenty-fifth, and seventy-fifth percentiles for three variables from the Varieties of Democracy Project (V-Dem)—the liberal democracy index, public sector corruption, and quality of public administration—for countries rated by Moody's (Coppedge et al., 2021).[7] The median lines for each group demonstrate that the typical country Moody's rated in the mid-1980s was highly democratic with low corruption and a capable public administration. Moreover, even the bottom twenty-fifth percentile still scored well on each of these markers. Thereafter,

---

[7] The public sector corruption is reverse-scaled so that higher scores indicate less corruption. Substantive patterns are similar for S&P's.

Moody's came to rate a very different kind of sovereign: less democratic, more corrupt, with a less capable public administration. The collection of countries that CRAs rate now is far more diverse, as evidenced by the widening gap between the twenty-fifth and seventy-fifth percentile lines.

The changes to CRAs' client base fundamentally altered the central challenge of assessing sovereign debt for Moody's and other CRAs. Today's CRA staff members must assign ratings to a heterogeneous set of countries, relatively few of which provide the trustworthy economic and political data CRAs need to assess risk accurately (see Hollyer et al., 2011), forcing analysts to identify other sources of information by which to evaluate countries.

We argue CRAs use information about leaders' educational credentials as a heuristic for estimating their willingness to pay their countries' debts. When objective assessment is impossible or extremely difficult, as in cases of limited data availability, decision-makers rely on heuristics. Heuristics, sometimes based in implicit biases, allow them to reduce the complex task of "assessing probabilities and predicting values to simpler judgmental operations" (Tversky & Kahneman, 1974: 1124). Economists have previously noted the importance of biases and subjectivity on the part of CRAs (Vernazza & Nielsen, 2015). These biases include changing risk tolerances over time (Ferri et al., 2003) and regional and home-country favoritism (French & Poterba, 1991; Altdörfer et al., 2019; Fuchs & Gehring, 2017; Yalta & Yasemin Yalta, 2018).

We suggest a new heuristic that, to our knowledge, has not been theorized or tested: an implicit bias for certain types of leaders. We contend that CRA staff members possess a favorable implicit bias of leaders educated at prestigious universities for three reasons. First, CRA staff members are likely to view leaders with prestigious educations as better qualified to govern because they perceive them as more intelligent, more rigorously educated, and presumably more aware of the negative effects of default. Within political science, it has become common practice to use educational attainment as a proxy for leader quality or competency (e.g., Kotakorpi & Poutvaara, 2011; Carnes & Lupu, 2016). This assumption is underpinned by findings that leaders with more education preside over greater economic growth (Besley & Reynal-Querol, 2011) and initiate more reforms (Dreher et al., 2009).

Second, CRA staff members likely view leaders with elite educations as more like themselves—part of a transnational community dedicated to a well-functioning international system. Leaders with elite educations and degrees from elite universities possess a credential for membership in an exclusive club. Such credentials define "which actors get to play which roles" in a world system that relies on hierarchies of actors (Mattern & Zarakol, 2016: 7) and in which certain statuses can accrue only to those with particular university backgrounds (Keene, 2012). Students at such universities are more likely to study and mingle with future politicians, investment bankers, and heads of international organizations. These transnational networks of leaders serve leaders well, since they provide a new form of political capital and governance capacity.

Third, CRA staff members may also ascribe a greater belief in markets and orthodox policymaking to leaders with elite educations *and* a greater propensity to act on those beliefs. CRAs likely prefer political parties and leaders with a professed commitment to orthodox macroeconomic management. In the kinds of low-information

contexts identified in Fig. 10, CRAs may judge leaders with elite educations as more deeply immersed in orthodox attitudes to economic governance than those without such educations. They may be justified in that assumption based on recent scholarship, which finds that elite universities imbue students with "class cultural norms" that build their opposition to higher taxation of the wealthy (Mendelberg et al., 2016). Other scholarship shows that leaders with economics training are more likely to liberalize capital accounts (Chwieroth, 2007) and privatize state-owned enterprises (Kogut & Muir MacPherson, 2008).

If CRA staff possess implicit biases that lead them to favor heads of government with elite educations when assigning ratings to developing countries, then the following hypothesis should be true:

Educational advantage hypothesis Ceteris paribus, CRA staff will more favorably assess developing countries led by educational elites over countries led by non-educational elites.

5.1 Using TED to test our argument

Prior to TED, testing the educational advantage hypothesis for a global sample over a long time series would have been impossible. CRA decision-making thus provides a telling application of these new data and illustrates the opportunities for new insights they create. To identify leaders who might earn their countries educational advantages in sovereign debt, we create a composite variable that indicates whether a leader attended a prestigious university in the United States or Western Europe *or* a top-fifty university. When combined, the resulting variable captures leaders with elite educations at prestigious universities, regardless of whether that prestige emanates from international reputation or numerical rankings. In total, our sample includes 236 educational elites; 14 % of the 1733 leaders in TED are educational elites.

With these data in hand, we estimate a statistical model of sovereign credit ratings. To capture the impact of leaders' educational backgrounds in developing countries, our analysis includes all but the twenty-four earliest members of the OECD, which today include the wealthiest democracies in the world.[8] By excluding these countries, we do not mean to signal that we believe they are too wealthy to default. Instead, we exclude these countries because they are arguably the most transparent democracies in the world. We expect CRAs to be able to gauge these countries' *willingness* to repay their debts without relying much on heuristics. The remaining 177 countries in our sample are highly diverse and at different stages of development. Relative to the advanced industrial democracies of the

---

[8] These countries are Australia, Austria, Belgium, Canada, Denmark, Finland, France, West Germany, unified Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Of course, these countries are not immune to default risk, as made clear by Greece's experience in 2010–12, or to downgrades, as experienced by Spain and other countries in the European periphery. We estimate separate models with the developed countries; these are reported in the appendix.

world, we think these countries generate more uncertainty for CRA staff about their willingness to service their debts. This uncertainty sources from the development process, which generally involves less-than-pristine economic and financial track records, greater potential for corruption and political obstruction, and new or changing political institutions.

5.2 Dependent variable

CRAs such as Moody's, Standard & Poor's (S&P's), and Fitch rank debtors on an ordinal scale from 'highly creditworthy' to 'in default.' S&P's, for example, rates long-term sovereign debt on a twenty-two-point scale. Debt rated 'AAA' is associated with a perceived high ability and commitment to servicing debt. Lower ratings correspond to higher uncertainty regarding future repayment. A rating of 'CCC' signals a high possibility of nonpayment, while 'D' signifies countries already in default (Archer et al., 2007). Moody's follows a similar approach, but uses a twenty-one-category scale, while Fitch uses a twenty-five-category scale. We follow previous studies in assigning a number to each point on the ratings scale to generate ordinal dependent variables that have between twenty-one and twenty-five categories, depending on the CRA, and use them to estimate the effect of educational elites on Moody's, S&P's, and Fitch ratings.[9]

Our time-series for each dependent variable begins in the first year the CRA rates a developing country and ends in 2015, when our data set on global leadership ends. Our sample includes all rated developing countries. For Moody's, this means our data begin in 1958, when Panama became the first developing country to be rated. For S&P, our data begin twenty years later in 1978 with Venezuela. For Fitch, our data begin in 1995 with Brazil, Chile, Colombia, South Africa, Turkey, and Uruguay.

Using these data and the data on leader characteristics in TED, we take a first look at the relationships between Moody's, S&P's, and Fitch ratings and the educational credentials of heads of government. Figure 11 shows the results of three t-tests comparing the average ratings assigned by Moody's, S&P's, and Fitch to countries with and without educational elites in power. It suggests descriptive relationships between sovereign debt ratings and the educational status of leaders that are consistent with expectations: on average, countries with educational elites in power receive ratings that are 1.86 categories higher from Moody's, 1.73 categories higher from S&P's, and 1.6 categories higher from Fitch. Two-tailed t-tests suggest that these differences are statistically significant at $p < 0.01$. Of course, these findings are purely descriptive, as they lack any statistical controls for confounding variables.

---

[9] The conventional approach in existing research on sovereign debt ratings is to transform the ordinal ratings variables by taking a natural log of a linear transformation (Archer et al., 2007; Beaulieu et al., 2012). However, the twenty-plus categories in each dependent variable should make them suitable for estimation using linear regression without transformation; doing so produces findings that are, in our opinion, easier to interpret. In the Appendix, we provide the results estimated using the log linear-transformed versions of these three dependent variables. We find that the transformations have no effect on our findings.

Fig. 11 Comparing Moody's, S&P's, and Fitch ratings assigned to countries with and without leaders possessing elite educations. *Note*: Capped lines describe 95% CIs
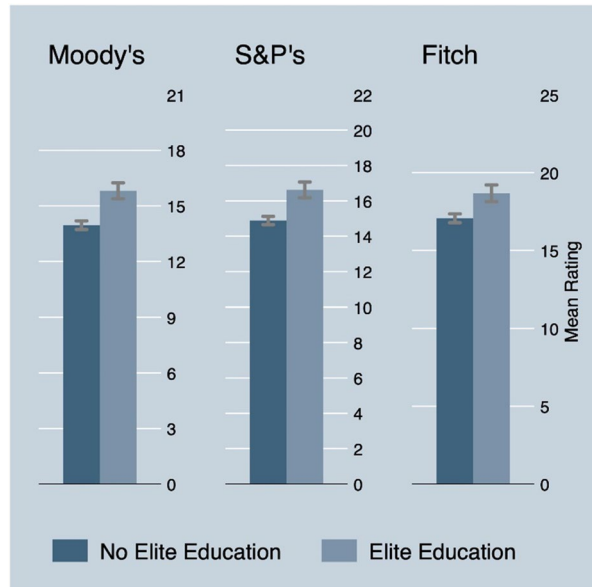
5.3 Control variables

We begin with a control for leaders' areas of *professional expertise*. It is possible that leaders' professional expertise—rather than where they were educated—drives the advantage. Using TED, we construct a novel indicator of technocratic professional experience that equals 1 if a leader worked for an international financial, trade or development institution, their domestic finance ministry or central bank, or a major international money-center bank. A leader can also be coded as a technocrat if they hold a graduate degree in business, economics, finance, or public policy. Technocrats account for 438 leaders in TED; 119 of these technocrats were educated at prestigious Western or top-fifty universities.

Second, we control for a number of political factors that may impact a country's rating. We control for *democracy*, constructed as a dummy variable based on the Democracy and Dictatorship Data (Cheibub et al., 2010). Doing so accounts for the possibility that democracies more likely are led by educational elites (Besley & Reynal-Querol, 2011) and more likely earn higher sovereign debt ratings (Beaulieu et al., 2012). We use data from the UCDP Armed Conflict Data set to control for whether a country is experiencing civil conflict (Conflict Type 3), which we anticipate will reduce its creditworthiness in the eyes of CRAs. We control for public sector corruption using data from the Varieties of Democracy (Coppedge et al., 2021), judicial independence using data from the Quality of Government data set (Teorell et al., 2021), and political constraints using the Political Constraints Index V (Henisz, 2000). Following Biglaiser and Staats (2012), we expect these political characteristics to have positive effects on sovereign debt ratings.

Third, we control for a series of macroeconomic and financial variables that together proxy for economic health and global financial standing. In our main

analysis, we control for per capita *income*, which we measure as logged per capita gross domestic product (GDP). We also control for *economic growth*, measured as lagged growth in per capita GDP; *trade*, measured as a share of a country's GDP; and *resource endowments*, measured as fuel and ore exports as a percentage of GDP. In each of these cases, we expect a positive relationship with credit ratings, since each signifies a country's basic macroeconomic capacity to repay its debts. Fourth, we insert controls for a series of variables that indicate the health of a country's currency and global financial standing. We control for *current account balance* and *foreign exchange reserves*, both of which we measure as a share of GDP. Both measures should correlate positively with credit ratings since countries with larger surpluses (or smaller deficits) in their current account and larger reserves should have a higher capacity to pay their debts. We control for *inflation*, expecting that higher inflation indicates greater macroeconomic instability and should therefore lead to lower ratings. We also control for whether a country is in formal *default* on its debts; such countries should also earn lower ratings. All of these variables except *default* come from the World Bank's World Development Indicators; our indicator of *default* is a composite variable generated using data from Beaulieu et al. (2012) and Reinhart and Rogoff (2009).

Finally, we add a linear control for year to account for temporal trends in ratings not captured by our other control variables. With all of these likely correlated controls, multicollinearity is a concern. We calculate the variance inflation factor (VIF) for the variables and observations included in our estimation sample in Table 1, Model 1. We find a fairly low mean variance inflation factor of 1.71.

5.4 Endogeneity

Our model must also account for a non-random sample, since countries would likely avoid ratings if they believe the verdict will be bad. Over time, more and more countries seek CRA ratings, making those that do not more anomalous. Hence, the standard practice in this literature is to report selection-corrected models of sovereign credit ratings. However, such selection-corrected models are notoriously difficult to implement successfully, and must meet a range of criteria, such as the exclusion restriction, that are very challenging to satisfy persuasively.

For this reason, we report the results of a fixed effects panel Ordinary Least Squares (OLS) model with country-clustered robust standard errors in our main analysis. We use fixed effects to mitigate selection bias by eliminating between-country variation (Allison, 2009; Wooldridge, 2010). Country-clustered robust standard errors address the heterogeneity in standard errors across countries and the non-independence of these errors within countries. In the Appendix, we replicate our findings using a selection model. As in Beaulieu et al. (2012), a first-stage probit model predicts each country's decision to enter the market and be rated by Moody's, S&P's, or Fitch. The second-stage regression estimates the sovereign debt rating received from Moody's, S&P's, or Fitch. Thus, these models estimate the effects of leaders who are educational elites on sovereign debt ratings, conditional on the likelihood the country was rated.

To assess the robustness of our findings, we replicate our findings using the lagged change in the KOF Index of Social Globalization in the first stage as an instrument (see Appendix) (Dreher, 2006; Gygli et al., 2019). This approach relies on the logic that more socially open countries more likely seek a CRA rating, but also should not receive higher CRA ratings, all else equal. While this variable appears to function as an instrument, we are keenly aware of many possible ways it could violate the exclusion restriction and, therefore, favor the fixed effects panel OLS regression.

6 Results

We begin by presenting the results of three fixed-effects panel OLS regression models with country-clustered standard errors. The dependent variables in Table 3 are the ordinal ratings assigned by Moody's (Model 1), S&P's (Model 2), and Fitch (Model 3). The results using the Moody ratings support the Educational Advantage hypothesis. Ceteris paribus, Moody's rates developing countries with effective heads of government educated within an elite network of top academic institutions higher ratings. The effect of having an educational elite in office—that is, a head of government who attended a prestigious Western or top-fifty global university—is statistically significant at $p < 0.05$. This effect is also substantively significant. All else equal, having an educational elite at the helm improves a developing country's Moody's rating by nearly one full category in Moody's rankings (0.8 categories, to be exact). The results for S&P's and Fitch's ratings are less encouraging but we note that the overall set of results are actually far stronger in our selection-corrected models, in which educational elites earn a boost from all three ratings agencies.

As for our control variables, we find mostly expected relationships between our macroeconomic and political variables and sovereign debt ratings, with a few surprises. For example, a higher current account balance is associated with lower ratings from S&P's and Fitch, which is unexpected. Reliance on trade is not statistically significant in any model. While we did not expect judicial independence to be associated with lower ratings from Moody's, we suspect that the strong correlations among judicial independence, democracy, and executive constraints likely drive this result (see Rios-Figueroa and Stanton (2014) for a comprehensive discussion of the limitations of extant judicial independence measures). We also find that democracy is not associated with higher ratings in contrast with previous work that reports a democratic advantage in sovereign debt ratings (Beaulieu et al., 2012). This difference likely emanates from two differences between our analyses. First, we control for per capita income while they do not. If democracies earn higher ratings because of income differences between democracies and non-democracies, then controlling for per capita income might explain away the democratic advantage they found. We also control for political constraints—which are associated with higher ratings—and are likely another source of the democratic advantage that our model addresses that theirs does not. Second, democracies are more likely to bring educational elites and technocrats to political power in the first place. About 68% of educational

Table 3 The effect of leaders' educational credentials on sovereign debt ratings in developing countries

	(1) Moody's	(2) S&P's	(3) Fitch
Elite education	0.802	0.238	−0.057
	(0.384)*	(0.321)	(0.289)
Technocratic expertise	−0.093	−0.136	−0.119
	(0.318)	(0.274)	(0.245)
Economic controls			
Default	−1.664	−2.439	−2.077
	(0.379)**	(0.592)**	(0.456)**
GDP per capita (log)	4.339	5.002	4.972
	(1.622)**	(1.314)**	(1.268)**
Economic growth	0.023	0.055	0.022
	(0.017)	(0.018)**	(0.017)
Current account balance	−0.033	−0.057	−0.041
	(0.024)	(0.018)**	(0.016)*
Reserves	3.712	3.281	3.826
	(1.704)*	(1.227)**	(1.416)**
Resource endowments	3.382	1.280	3.254
	(1.590)*	(1.165)	(1.374)*
Trade	−0.002	−0.004	−0.004
	(0.007)	(0.005)	(0.006)
Inflation	−0.065	−0.095	−0.055
	(0.026)*	(0.029)**	(0.019)**
Political controls			
Democracy	−0.345	−0.095	0.103
	(0.509)	(0.298)	(0.239)
Political constraints	1.641	1.321	1.038
	(0.623)*	(0.655)*	(0.608)+
Judicial independence	−1.369	−0.721	−0.889
	(0.394)**	(0.414)+	(0.363)*
Public sector corruption	3.595	4.483	3.484
	(1.754)*	(1.290)**	(1.249)**
Civil conflict	−1.038	−0.562	−0.346
	(0.389)**	(0.386)	(0.265)
Year	−0.129	−0.110	−0.084
	(0.061)*	(0.050)*	(0.056)
Constant	229.674	187.350	138.059
	(110.013)*	(91.539)*	(102.968)
Time period in estimation sample	1979–2015	1989–2015	1995–2015
Countries	67	69	64
N	1059	1008	803

+ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$

Country fixed effects panel OLS regression with country-clustered standard errors

Models estimated using xtreg in Stata 16

elites take office in democracies. Even so, we still might expect a coefficient for democracy to be positive and statistically significant if democratic governance influences CRAs in other ways—through audience costs or executive constraints, for example. The absence of this positive coefficient suggests that developing-country democracies gain an advantage mainly through markets' appraisals of their leadership.

Finally, while not reported here, we re-estimate our models using a sample that includes all countries, including the richer countries that we initially excluded from our sample (see Appendix). As expected, the educational advantage does not obtain using this sample. The transparent, established political processes in the developed countries—combined with their long and relatively stable financial track records—eliminate uncertainty about their leaders' willingness to service their debts. Including them obfuscates the significance of the educational advantage for the developing sample.

TED also makes possible the delineation of two different claims about the impact on leadership: do CRAS reward educational-elite leaders for better *retrospective* economic performance or do they *prospectively* raise credit ratings of these leaders? We support our argument by comparing the probability of credit upgrades and downgrades during the first year of stewardship by educational elites with that of non-educational elites. By focusing on leaders' first year in office, we seek to isolate the impact of their ascent to office on CRAs' prognostications of *future* performance from any subsequent effects they may have on creditworthiness because of their *actual* performance while in office. The data, presented in Table 4, clearly show that educational elites reap an advantage in their very first year in office, suggesting that CRAs act on reputation alone. This

Table 4 Downgrades are rare during educational elites' first year in office

	Downgrade	No Change	Upgrade
Moody's ratings			
Non-EE	12.99% (n=30)	76.19% (n=176)	10.82% (n=25)
EE	0.00% (n=0)	90.70% (n=39)	9.30% (n=4)
Diff	−12.99%**	14.51*	−1.52
S&P's ratings			
Non-EE	16.81% (n=38)	69.91% (n=158)	13.27% (n=30)
EE	7.69% (n=3)	87.18% (n=34)	5.13% (n=2)
Diff	−9.12%+	17.27%*	−8.14%+
Fitch ratings			
Non-EE	11.66% (n=19)	73.01% (n=119)	15.34% (n=25)
EE	3.33% (n=1)	83.33% (n=25)	13.33% (n=4)
Diff	−8.32+	10.32	−2.01

$+ p < 0.1$; $* p < 0.05$; $** p < 0.01$

Note: Significance determined using two-tailed t-tests; *EE*, educational elite

advantage expresses itself in lower odds of a downgrade. While educational elites are no more likely than non-educational elites to receive upgrades during their first year in office, they are far less likely to receive downgrades. Between 1963 and 2015, Moody's never downgraded a developing country during an educational elite's first year in office. This stands in contrast to non-educational elites, 13% of whom presided over downgrades during their first year in office. And while S&P's and Fitch ratings do occasionally downgrade educational elites during their first year, this phenomenon is rare compared to the downgrades given to non-educational elites during their first year in office. These findings suggest that CRAs give educational elites the benefit of the doubt, forgoing downgrades that they more freely assign to countries without educational elites at the helm.

7 Conclusions

An exciting new research agenda in international politics has underlined the importance of political leadership for patterns of democratization, war and military disputes, economic development, amongst other arenas of politics. This scholarship offers a needed corrective to work across comparative politics, political economy, and international relations that has tended to focus on institutions and macroeconomic factors. One obstacle to continuing this progress is the uneven availability of information on leaders themselves. As surveyed in Section 2, extant datasets on leadership can offer little information on developing countries and non-democracies. Furthermore, when they can reach further back in time or do include poorer countries, they offer little in the way of fine-grained information about leaders' social, educational, and professional backgrounds.

In this paper, we introduce TED, a new dataset on international leaders that offers three major steps forward for the study of leadership. First, it offers a longer time series than most extant datasets. Second, it contains data on a much broader cross-section of countries, facilitating the study of non-democracies and poorer countries often excluded from inquiry. Finally, it offers more detailed data on the professional credentials of heads of government, including detailed information on their education and work experiences.

We believe that TED offers new perspectives on the role of international leaders in global politics, which can spark new studies in comparative democratization, economic development, and international political economy. We first rely on describing trends in the backgrounds of world leaders since 1945. More recent leaders study abroad more often than did their predecessors, and their educational destination is most commonly the United States. They are also more likely to obtain graduate degrees and attend prestigious global universities. Former military officers, by contrast, have become rarer in the global leadership pool. Leaders more likely come to office with expertise in technocratic fields. More educated and technocratically inclined leaders more likely come from affluent families and right-leaning parties. They also more likely gain political power under democratic rule.

Our second demonstration of TED's utility comes in an analysis of a core feature of the international political economic system: the ability of credit ratings agencies (CRAs) to price accurately the risk of default in sovereign borrowing in bond markets. Here, we see both the theoretical and empirical potential for the study of leadership. Previous research has not systematically evaluated whether CRAs may prefer certain types of leaders, focusing instead on macroeconomic indicators and institutional analysis. Yet anecdotal evidence suggests that leadership may well affect the international community's judgment of country risk. This is precisely the circumstance in which TED can augment our knowledge. We argue that CRAs more likely to attend to the identity of political leaders, following their own implicit biases regarding what constitutes a competent leader with orthodox attitudes towards debt provision, especially when they distrust the economic data they receive or are unsure of the broader political environment. Consistent with that argument, we find that leaders educated at elite universities indeed tend to earn higher ratings for their countries, even when we control for a host of macroeconomic and political confounds and account for the non-random selection of countries into the ratings system. This educational advantage is strongest in developing countries, as our informational argument would predict. Furthermore, this advantage seems at least partially rooted in CRAs' expectations of leaders' future performance in office, as opposed to their actual results.

In short, our analysis suggests that TED can make possible new empirical tests that further our understanding of how, when, and why international leadership matters. We hope that future work will take advantage of these rich data and suggest two areas where TED could be immediately useful. First, the study of democratization could benefit deeply from the systematic examination of how leaders affect democratic governance. Do particular kinds of leaders tend to preside over advances in democracy? Gift and Krcmaric (2017) answer in the affirmative for Western-educated leaders, but TED offers new, fine-grained ways to test this relationship. Relatedly, why do democracies more likely bring more educated leaders to power? Second, the study of financial and political crises could benefit from attention to leadership. Do technocrats, globally connected elites, and more educated leaders more likely take power after crises, as Harvard-educated Miguel de la Madrid Hurtado did in Mexico at the dawn of the debt crisis in 1982 or Ellen Johnson Sirleaf did after Liberia's bloody civil war in 1997? Why or why not? Do leaders with less education more likely tend to plunge their countries into crisis? Finally, are other ratings efforts by the international community affected by the identity of the leader? What is the impact of leadership on these processes? In each of these areas TED offers scholars the ability to estimate new models and test different causal mechanisms. We hope that future scholars will make use of these data to ask these questions and propose yet others.

1) The order of the authors is chosen alphabetically.

Data availability The datasets created for and analyzed for this study, as well as all replication code, are available in the corresponding author's Dataverse repository, https://www.dataverse.harvard.edu/dataverse/ted/.

Declarations

Conflict of interest / competing interests statement The authors declare the absence of any conflicts of interest and of any competing interests.

References

Alexiadou, D., & Gunaydin, H. (2019). Commitment or Expertise? Technocratic appointments as political responses to economic crises. *European Journal of Political Research, 58*(3), 845–865.

Alexiadou, Despina, William Spaniel, and Hakan Gunaydin. 2021. "When technocratic appointments signal credibility." *Comparative Political Studies*. Online First. https://doi.org/10.1177/0010414021 1024288

Allison, Paul D. 2009. "Linear fixed effects models." In *Fixed effect regression models*. Sage Publications, pp. 7–27.

Altdörfer, M., De las Salas Vega, C. A., Guettler, A., & Löffler, G. (2019). The case for a european rating agency: Evidence from the eurozone sovereign debt crisis. *Journal of International Financial Markets, Institutions and Money, 58*(1), 1–18.

Archer, C., Biglaiser, G., & DeRouen, K. (2007). Sovereign bond ratings and democracy: The effects of regime type in the developing worlds. *International Organization, 61*(1), 341–365.

Barceló, J. (2018). Are western-educated leaders less prone to initiate militarized disputes. *British Journal of Political Science, 50*(2), 535–566.

Baturo, A. (2016). Cursus honorum: personal background, careers and experience of political leaders in democracy and dictatorship—new data and analyses. *Politics and Governance, 4*(2), 138–157.

Beaulieu, E., Cox, G. W., & Saiegh, S. (2012). Sovereign debt and regime type: Re-considering the democratic advantage. *International Organization, 66*(4), 709–738.

Bertsou, E., & Caramani, D. (2022). People haven't had enough of experts: technocratic attitudes among citizens in nine european democracies. *American Journal of Political Science, 66*(1), 5–23.

Besley, T., Montalvo, J. G., & Reynal-Querol, M. (2011). Do educated leaders matter? *The Economic Journal, 121*, 205–227.

Besley, T., & Reynal-Querol, M. (2011). Do democracies select more educated leaders? *American Political Science Review, 105*(3), 552–566.

Bhatia, A. V. (2002). *Sovereign credit ratings methodology: An evaluation*. IMF Working Paper. URL: https://www.imf.org/en/Publications/WP/Issues/2016/12/30/Sovereign-Credit-Ratings-Methodology-An-Evaluation-16092.

Biglaiser, G., & Staats, J. L. (2012). Finding the 'democratic advantage' in sovereign bond ratings: The importance of strong courts, property rights protection, and the rule of law. *International Organization, 66*(3), 515–535.

Carnes, N., & Lupu, N. (2016). What Good is a college degree? Education and leader quality reconsidered. *The Journal of Politics, 78*(1), 35–49.

Cheibub, J. A., Gandhi, J., & Vreeland, J. R. (2010). Democracy and dictatorship revisited. *Public Choice, 143*(1), 67–101.

Chwieroth, J. (2007). Neolibeal economists and capital account liberalization in emerging markets. *International Organization, 61*(2), 443–463.

Coppedge, M., Gerring, J., Knutsen, C. H., Lindberg, S. I., Teorell, J., Altman, D., Bernhard, M., Cornell, A., Fish, M. S., Gastaldi, L., Gjerløw, H., Glynn, A., Hicken, A., Lührmann, A., Maerz, S. F., Marquardt, K. L., McMann, K., Mechkova, V., Paxton, P., et al. (2021). *V-Dem Codebook v11.1*. Varieties of Democracy (V-Dem) Project.

Cox, G. W., & McCubbins, M. D. (2015). Just who put you in charge? We did: CRAs and the politics of ratings. In A. Cooley & J. Snyder (Eds.), *Ranking the World: Grading States as a Tool of Global Governance* (pp. 39–59). Cambridge University Press.

Cruz, C., Keefer, P., & Scartascini, C. (2016). *Database of political institutions codebook, 2015 update (DPI2015)*. Inter-American Development Bank http://199.79.166.39/res/dpi/DPI2015%20Codebook.pdf

Dreher, A., Fuchs, A., Kammerlander, A., Kaplan, L., Robert, C., Unfried, K.. 2020. *The Political Leaders' Affiliation Database (PLAD)*. Harvard Dataverse, V5. https://doi.org/10.7910/DVN/YUS575.

Dreher, A. (2006). Does globalization affect growth? Evidence from a new index of globalization. *Applied Economics, 28*(10), 1091–1110.

Dreher, A., Lamla, M. J., Lein, S. M., & Somogyi, F. (2009). The impact of political leaders profession and education on reforms. *Journal of Comparative Economics, 37*, 169–193.

Dreher, A., & Shu, Y. (2020). The alma mater effect: does foreign education of political leaders influence UNGA voting? *Public Choice, 185*(1), 45–64.

Elkhoury, M. (2009). Credit rating agencies and their potential impact on developing countries. In *Compendium on debt sustainability and development*, ed. United Nations Conference on Trade and Development. United Nations, pp. 165–189.

Ellis, C. M., Horowitz, M. C., & Stam, A. C. (2015). Introducing the LEAD data set. *International Interactions, 41*(4), 718–741.

Ferri, G., Liu, L.-G., & Stiglitz, J. E. (2003). The procyclical role of rating agencies: Evidence from the East Asian crisis. *Economic Notes, 28*(3), 335–355.

French, K. R., & Poterba, J. M. (1991). Investor diversification and international equity markets. *American Economic Review, 81*(2), 222–226.

Fuchs, A., & Gehring, K. (2017). The home bias in sovereign ratings. *Journal of the European Economic Association, 15*(6), 1386–1423.

Fuhrmann, M., & Horowitz, M. (2015). When leaders matter: Rebel experience and nuclear proliferation. *The Journal of Politics, 77*(1), 72–87.

Gerring, J., Oncel, E., Morrison, K., & Pemstein, D. (2019). Who rules the world? A portrait of the global leadership class. *Perspectives on Politics, 17*(4), 1079–1097.

Gift, T., & Krcmaric, D. (2017). Who democratizes? Western-educated leaders and regime transitions. *Journal of Conflict Resolution, 61*(3), 671–701.

Goemans, H. E., Gleditsch, K. S., & Chiozza, G. (2009). Introducing archigos: A data set of political leader. *Journal of Peace Research, 46*(2), 269–283.

González-Rozada, M., & Yeyati, E. L. (2008). Global factors and emerging market spreads. *The Economic Journal, 118*(533), 1917–1936.

Gygli, S., Haelg, F., Potrafke, N., & Sturm, J.-E. (2019). The KOF globalisation index – revisited. *Review of International Organizations, 14*(3), 543–574.

Hallerberg, M., & Wehner, J. (2012). The educational competence of economic policymakers in the EU. *Global Policy, 3*, 9–15.

Hallerberg, M., & Wehner, J. (2020). When do you get economists as policy makers? *British Journal of Political Science, 50*(3), 1193–1205.

Hayo, B., & Neumeier, F. (2014). Political leaders socioeconomic background and fiscal performance in Germany. *European Journal of Political Economy, 34*, 184–205.

Henisz, W. (2000). The institutional environment for economic growth. *Economics and Politics, 12*(1), 1–31.

Hollyer, J. R., Peter Rosendorff, B., & Vreeland, J. R. (2011). Democracy and transparency. *Journal of Politics, 73*(4), 1191–1205.

Horowitz, M., Potter, P., Sechser, T., & Stam, A. (2018). Sizing up the adversary: Leader attributes and coercion in international conflict. *Journal of Conflict Resolution, 62*, 2179–2203.

Horowitz, M., & Stam, A. (2014). How prior military experience influences the future militarized behavior of leaders. *International Organization, 68*, 527–559.

Horowitz, M., Stam, A., & Ellis, C. (2015). *Why Leaders Fight*. Cornell University Press.

Jones, B. F., & Olken, B. A. (2005). Do leaders matter? National leadership and growth since WWII. *Quarterly Journal of Economics, 120*(3), 835–864.

Kaplan, S. B. (2017). Partisan technocratic cycles in Latin America. *Electoral Studies, 45*, 219–229.

Keene, E. (2012). Social status, social closure and the idea of Europe as a 'Normative Power'. *European Journal of International Relations, 19*(4), 939–956.

Kogut, B., & Muir MacPherson, J. (2008). The decision to privatize: Economists and the construction of ideas and policies. In B. A. Simmons, F. Dobbin, & G. Garrett (Eds.), *The global diffusion of markets and democracy*. Cambridge University Press.

Kotakorpi, K., & Poutvaara, P. (2011). Pay for politicians and candidate selection: An empirical analysis. *Journal of Public Economics, 95*(8), 877–885.

Mattern, J. B., & Zarakol, A. (2016). Hierarchies in world politics. *International Organization, 70*(3), 623–654.

Mendelberg, T., McCabe, K. T., & Thal, A. (2016). College socialization and the economic views of affluent Americans. *American Journal of Political Science, 61*(3), 606–623.

Moody's Investor Services. (2015). *Ratings Methodology: Sovereign Bond Ratings*. https://www.moodys.com/Pages/HowMoodysRatesSovereigns.aspx.

Nelson, S. C. (2017). *The currency of confidence: How economic beliefs shape the IMF's relationship with its borrowers*. Cornell University Press.

Nyrup, J., & Bramwell, S. (2020). Who governs? A new global data set on members of cabinets. *American Political Science Review, 114*(4), 1366–1374.

Reinhart, C. M. (2002). Default, currency crises, and sovereign credit ratings. *World Bank Economic Review, 16*(2), 151–170.

Reinhart, C. M., & Rogoff, K. S. (2009). The aftermath of financial crises. *American Economic Review, 99*(2), 466–472.

Rios-Figueroa, J., & Stanton, J. K. (2014). An evaluation of cross-national measures of judicial independence. *Journal of Law, Economics, and Organization, 30*(1), 104–137.

Saiegh, S. M. (2005). Do countries have a "Democratic Advantage"? Political institutions, mulilateral agencies, and sovereign borrowing. *Comparative Political Studies, 38*(4), 366–387.

Sinclair, T. (2005). *The new masters of capital: American bond rating agencies and the politics of creditworthiness*. Cornell University Press.

Standard & Poor's. (2011). *Sovereign government rating methodology and assumptions*. https://www.standardandpoors.com/en US/web/guest/ratings/ratings-criteria/–/articles/criteria/governments/filter/sovereigns.

Teorell, J., Sundström, A., Holmberg, S., Rothstein, B., Pachon, N. A., & Dalli, C. M. (2021). *The quality of government standard data set, version Jan21*. University of Gothenburg: The Quality of Government Institute http://www.qog.pol.gu.se

Tversky, A., & Kahneman, D. (1974). Judgement under uncertainty: Heuristics and biases. *Science, 185*(4157), 1124–1131.

Vernazza, D. R., & Nielsen, E. F. (2015). The damaging bias of sovereign ratings. *Economic Notes, 44*(2), 361–408.

Wade, R., & Veneroso, F. (1998). The asian crisis: The high debt model versus the wall street-treasury-IMF complex. *New Left Review, 228*, 3.

Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT Press.

Yalta, A. T., & Yasemin Yalta, A. (2018). Are credit rating agencies regionally biased? *Economic Systems, 42*(4), 682–694.

Yarhi-Milo, K. (2014). *Knowing the adversary: Leaders, intelligence and assessment of intentions in international relations*. Princeton University Press.