

# Ethnic Diversity in Central Government Cabinets\*

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Why is there so much variation in the ethnic composition of cabinets? Previous work has focused on cabinet policy alignment, largely overlooking the role of identity-based characteristics like ethnicity. I theorize that country leaders make ethnic cabinet appointments to gain political support, both when country-level ethnic diversity is high and when ethnic groups rely on leader decisions in order to receive resources. Cabinet appointments offer leaders a way to distribute resources while creating a credible commitment to remove these resources if ethnic group support wanes. I introduce a new cross-national time-series dataset of cabinet minister names from 149 countries from 1967 to 2017. Using novel methods from computer science, I code the ethnicity of cabinet ministers' names and construct a cabinet diversity index for each country-year. After validating this measure, I find support for my hypothesis. Country leaders in reliant societies increase ethnic cabinet appointments seven to twenty-five percent over leaders in non-reliant societies. The results provide the first large scale cross-national analysis of the strategic ways in which leaders use cabinet seats to manage the distribution of resources.

Keywords: ethnicity, cabinet, power-sharing, patronage, resources.  
(8731 Words)

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Cabinet seats are some of the most powerful and consequential positions in any government. For this reason, considerable attention has been paid to the ways in which country leaders select individuals to serve on their cabinets. Leaders' are thought to select cabinet ministers that align closely with their policy positions (Neto, 2006). Cabinet representation also serves to distribute both prestige and resources to identity-based groups like women, regional factions, and ethnic minorities. These resources have important effects on citizens and their engagement in politics (Wolak and Juenke, 2019). While identity-based cabinet representation is a highly salient political topic, our understanding about why there is variation in ethnic cabinet diversity within countries over time has been limited to studies of relatively few cases (e.g., Opalo, 2011). Using new cross-national time-series data on ethnic cabinet diversity, I argue that country leaders strategically diversify their cabinets when they believe that doing so will provide them with political advantages. This theory provides new insights into why countries with relatively stable ethnic minority populations have wildly fluctuating ethnic cabinet diversity over time.

Though policy alignment is an important explanation for why certain cabinet ministers are selected, recent research has argued that identity-based factors like gender also play an key role (Jacob, Scherpereel and Adams, 2014). Country leaders can find qualified, policy aligned individuals of either gender to serve in their cabinet. This means that leaders can increase womens' representation without sacrificing policy preferences. Less is known about the role of other identity-based characteristics, such as ethnicity, in cabinet appointments (Franceschet and Thomas, 2015). This is a major gap in our understanding of the dynamics of the cabinet appointment process because ethnicity is often central to understanding political interactions (Fearon, 2003). Existing work on ethnic cabinet appointments is confined to a limited number of cases and to post-conflict societies (Francois, Rainer and Trebbi, 2015). One reason that ethnic cabinet appointments are understudied is the lack of large scale cross-national time-series data. This challenge has prevented us from developing and testing theories about why ethnic cabinet appointments are more or less prevalent in similarly diverse

contexts and how ethnic and gender cabinet diversity may differ.

I argue that leaders increase ethnic cabinet diversity to gain political support, both when country-level ethnic diversity is high and when they believe that ethnic groups rely on them for resources. When the government distributes mostly private goods without adhering to unbiased distribution criteria, ethnic groups depend on the country leader in order to receive resources. This enables country leaders to use ethnic cabinet appointments as a credible commitment to provide resources to certain ethnic groups in exchange for maintaining a positive relationship with the country leader. Since private goods are distributed without set criteria, if the ethnic group falls out of favor with the country leader, it risks losing the resources provided by the cabinet appointment. In contexts where predominately private goods are distributed, I hypothesize that leaders who choose to distribute goods in a biased way will make more ethnic cabinet appointments than leaders who use unbiased distribution criteria. Leaders believe that making these appointments represents a commitment to provide resources to appointed ethnic groups so long as the ethnic groups support the regime. In doing so, I add a new dimension to the debate over ethnic diversity and private goods provisions by identifying ethnic cabinet diversity as an important and overlooked factor (Lee, 2018; McDonnell, 2016; Wimmer, 2016).

To test this theory, I compile a new dataset of cabinet ministers in 149 countries from 1967 to 2017. I introduce and validate an ethnic name classification system from computer science that helps me create a country-year index of cabinet diversity. With these data, I find support for my hypothesis that leaders increase the ethnic diversity of their cabinets to gain political support — when country-level ethnic diversity is high and when ethnic groups are reliant on leaders for resources. When private goods are prevalent, leaders who distribute resources without adhering to unbiased criteria increase the diversity of their cabinet by seven to twenty-five percent over leaders who have chosen to adhere to such criteria. The results suggest that non-gender identity-based factors play an overlooked role in the cabinet appointment process. Cabinet seats are used to manage the distribution of private goods to

different ethnic groups, and ethnicity can be a key factor in cabinet construction.

## Cabinet Diversity and Power-Sharing

Scholars have long realized the importance of cabinet ministers in shaping regime policies (Bertelli and Feldmann, 2006; Strom, Budge and Laver, 1994). Cabinet formation, in particular how the policy preferences of cabinet ministers align with those of the country leader, has been a key concern. Theories of cabinet formation transcend a country's regime type and level of democracy. Prime Ministers want to align their policy preferences with those individuals selected to be in the cabinet, but are constrained by coalition demands (Laver and Shepsle, 1990). Presidents have more leeway to select cabinet ministers, but they still must optimize policy goals and satisfy interest groups likely to be important in re-election campaigns (Escobar-Lemmon and Taylor-Robinson, 2009; Fischer, Dowding and Dumont, 2012). Previous work on these topics has assumed that the most important characteristic of the cabinet is how policy-aligned it is with members of a coalition government and with the country leader (Neto, 2006).

However, cabinet appointments represent more than a policy optimization problem (Franceschet and Thomas, 2015; Franceschet, Annesley and Beckwith, 2017). Scholars have expanded the conception of cabinet formation to introduce the idea that cabinet ministers are descriptive and substantive representatives of identity groups (Mansbridge, 1999) with a particular focus on gender (Jacob, Scherpereel and Adams, 2014; Krook and O'Brien, 2012). There is, therefore, some strategy involved in selecting cabinet ministers who align on policy preferences and who are able to represent identity groups. Leaders in both presidential and parliamentary systems retain substantial power to determine the descriptive characteristics of individuals in their cabinet (Blondel and Thiebault, 1988, 118).

Gender has been seen as the most important descriptive component in cabinet formation. Yet, ethnic considerations are often also salient in cabinet appointments (Chandra, 2012,

129; Htun, 2004). Ethnicity can intersect with parties in coalition, and ethnic identity is sometimes the main reason that citizens vote for particular candidates or parties (Chandra, 2004).<sup>1</sup> Given the political salience of ethnicity, it is important to understand its role in the cabinet appointment process.

Previous work related to ethnic cabinet appointments has specifically studied high violence contexts where ethnic power-sharing is assumed to be occurring (Francois, Rainer and Trebbi, 2015). The thinking here is that ethnic cabinet management is only necessary in post-conflict cases to prevent future violence. Outside of violent contexts, however, it is unclear how factors impacting leaders' incentives to expand support for their regime influence the diversity of cabinets (Hartzell and Hoddie, 2003; LeVan and Assenov, 2016; Mehler, 2009).

An emerging literature uses ethnic cabinet appointments as a proxy for the size of a leader's support coalition (Arriola, 2009; Opalo, 2011). Leaders use government benefits to attract members of diverse ethnic groups. This motivation prompts them to expand the size of their cabinets. Factors that influence a leader's willingness to appoint diverse leaders will correlate with cabinet-level features. However, the main variable of interest should be cabinet diversity, not cabinet size (Kroeger, 2017).<sup>2</sup> Thus, the relationship between the willingness and the ability of the leader to increase support for her regime and the ethnic diversity of cabinets deserves to be investigated in its own right. I develop a theory linking a way in which citizen support is cultivated — the interaction between private good provisions and resource distribution criteria — to the level of cabinet diversity.

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<sup>1</sup>Gender is rarely the single issue that determines citizens' vote choice (Htun, 2004), so we cannot assume that gender cabinet dynamics translate to ethnicity (Krook and O'Brien, 2010, 259).

<sup>2</sup>"Cabinet diversity" refers to the variation in name-based ethnicity classification present among cabinet ministers in a given country-year.

## Theory and Hypothesis

Country leaders play an important role in explaining why the prevalence of ethnic cabinet appointments varies. Leaders may appoint ethnically diverse cabinets because of their desire to reflect the ethnically diverse nature of their citizens and to demonstrate their commitment to ethnic inclusion. Providing ethnic groups with representation in line with their share of the population is equitable and may help signal a minimal commitment to members of these ethnic groups. Therefore, I expect that country leaders encapsulate country-level ethnic diversity in the cabinet to fulfill these inclusiveness and representational goals.

However, assuming that leaders of ethnically diverse countries will naturally create diverse cabinets misses a lot of heterogeneity in the ethnic cabinet composition of countries with relatively stable ethnic divisions. For example, though ethnic diversity in North Macedonia has remained consistent, the number of ethnic Albanians in the cabinet has varied from one to eight. All types of leaders have some discretion to increase or decrease the representativeness of their cabinets even if coalition dynamics are at play (Keiser et al., 2002). I argue that country leaders use this discretion to make ethnic cabinet appointments as a way to build support for their regime (Kramon and Posner, 2016).<sup>3</sup>

Diverse representation provides represented groups with an outlet to air grievances and to have a meaningful stake in controlling the future of the government (Hartzell and Hoddie, 2003; Johnson, 2005; LeVan and Assenov, 2016). Investment in government outcomes is thought to ease tensions between groups and to foster a sense of inclusion in the government. This sense of inclusion then expands support for the leader's regime.

Country leaders are driven to create minimal winning coalitions in order to retain control over important government functions (Mehler, 2009; Roessler, 2016). However, leaders must also balance their desire to keep extra ethnic groups out of the cabinet with the practical reality that deciding not to include certain groups may lead to internal turmoil or regime

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<sup>3</sup>This is true even among authoritarian leaders.

instability (Johnson, 2005, 54; Roessler, 2016). I argue that country leaders try to balance these constraints by making additional ethnic cabinet appointments when ethnic groups are particularly reliant on the country leader for resources. In these situations, ethnic groups have little choice but to support the country leader in order to increase the government benefits they receive. Likewise, country leaders can be relatively sure that targeted ethnic groups will provide support for their regime.

## **Fostering Reliance on the Country Leader**

When are ethnic groups particularly reliant on the country leader for government resources? Two conditions are important: the types of resources the government distributes and the criteria used for distribution. I argue that when the government distributes resources that can be targeted to specific groups and the criteria used for distribution are not based on programmatic standards, country leaders have a lot of latitude in how they distribute goods. This allows leaders to exploit ethnic groups' reliance on their decisions by making cabinet appointments that represent an agreement from the leader to provide goods to the group in return for the group's support.

To simplify the theoretical argument, I dichotomize the types of resources the government distributes and the criteria used for distribution. In reality and in the empirical analysis, I use a continuous measure of both the type of resources and the distribution criteria. For the former, I rely on the well-known distinction between public and private goods. Private goods are those that can be targeted either to individuals or to specific groups.<sup>4</sup> Public goods, on the other hand, are available to all. The important quantity is the relative proportion of private goods to the total amount of goods distributed or private good dependence.<sup>5</sup>

Leaders can distribute goods using either programmatic or non-programmatic criteria. Programmatic criteria are those set by the bureaucracy and strictly implemented in a formu-

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<sup>4</sup>Governments may lack resources to provide public goods to everyone; to address this, I control for GDP per capita in the empirical analysis.

<sup>5</sup>This follows Keefer (2007) in considering private and public goods as relative substitutes.

laic manner where those who are most in need or most deserving of resources are prioritized. Non-programmatic criteria are those where standards “are subverted by private, usually partisan” criteria (Stokes et al., 2013, 10). This means that leaders can be flexible in how they distribute resources, allowing them to prioritize certain individuals and groups for political gain.

While resource type can change over time, it is more difficult to shift the economic institutions that are set-up to allocate economic resources than it is to keep those institutions and to modify the criteria used to distribute resources (Baldwin and Huber, 2010). Thus, I consider resource type to be a more fundamental characteristic of a particular country context and focus on how shifting distribution criteria given private good dependence influences cabinet diversity.

Table 1 displays a simplified, dichotomous model showing how the interaction of these two conditions influences cabinet diversity. Note that resource type does not necessarily correlate with the way in which goods are distributed; the correlation using the measures described below is  $-0.19$ . I consider each cell in Table 1 in turn using a common example of allocating funding for education.

Table 1: Resource Type and Distribution Criteria on Cabinet Diversity

		Type	
		Private	Public
Criteria	Programmatic	–	–
	Non-Programmatic	↑	–

Interaction between resource type and distribution criteria on cabinet diversity. – indicates no relationship with cabinet diversity whereas ↑ indicates a positive relationship.

Consider a context where mainly private goods are distributed. If criteria used to distribute these goods are programmatic, then the bureaucracy develops an equitable and transparent system to allocate private goods to citizens (Besley and Coate, 1991). The leader wishes to appoint cabinet ministers who are qualified to disburse private goods in a fair and



equitable manner. Belonging to a certain ethnic group does not bear on whether a cabinet minister tends to distribute private goods equitably.

In a scenario typical to many country contexts, a government may establish programs wherein certain individuals are selected to receive financial assistance with school fees. Providing one family with school fee assistance uses money that could have provided another family with similar assistance.<sup>6</sup> A programmatic approach to school fee distribution might be to appoint an education minister who would apportion school fee assistance in an unbiased manner using fair criteria for selecting who receives the assistance.

Now consider switching to non-programmatic criteria for good distribution. Leaders can use these more flexible criteria to target private goods at particular groups. Ethnicity is a natural way to disburse private goods because it is often geographically concentrated, relatively easy to identify, and has an existing party or leadership structure that can convey these goods to citizens (Alesina, Baqir and Easterly, 1999; Habyarimana et al., 2007). Groups chosen to receive private goods are reliant on the country leader for the good distribution to continue (Muno, 2010).

In the school fee example, leaders using non-programmatic criteria will target a particular ethnic group and make an ethnically diverse appointment to the education ministry. The education minister is then enabled to provide disproportionate school fee assistance to co-ethnics. Co-ethnics need this assistance because public school funding is not available, so they must rely on the country leader to ensure that their co-ethnic education minister remains in office and in the country leader's favor.

When mostly public goods are distributed, the country leader has less influence over the good distribution process. Public goods are guaranteed to all citizens. This means that providing certain ethnic groups with cabinet seats does not change the distribution of public goods and, thus, has little impact on the ethnic groups' reliance on the leader. A leader using programmatic criteria has incentives not to target ethnic groups for cabinet seats both

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<sup>6</sup>Many governments have eliminated school fees for this reason (Harding and Stasavage, 2014).

because public goods make targeting difficult and because the leader believes in the equitable distribution of resources.<sup>7</sup>

Continuing the schooling example, access to free public schooling is a quasi-public good. Regardless of whether the country leader uses programmatic distribution criteria, schooling opportunities must be provided to all. Ethnic groups know that if they withdraw support from the country leader, their ability to send children to public school will continue. Thus, the ethnic group's reliance on the country leader for education resources is greatly reduced.

The dynamics present in education ministries throughout the world are not unique. Indeed, ethnic favoritism exists across issue areas (De Luca et al., 2018), and many types of government services can be provided in either public or private good dependent contexts (Clotfelter, 1977). Thus, there are many situations where ethnic groups rely on country leaders for resources.

## **Reliance Encourages Ethnic Cabinet Appointments**

In contexts where ethnic groups are reliant on the leader for goods, I argue that ethnic cabinet appointments formalize this relationship in a way that is beneficial both for the leader and for the ethnic group. A cabinet appointment represents a promise from the leader to the appointed ethnic group that they will receive government resources. Once appointed to the cabinet, ethnic group leaders gain some ability to direct financial resources to their ethnic group. This asset is valuable because the reliance on the country leader means that ethnic groups receive few resources through other means (Arriola, 2009; Zolberg, 1969).

Cabinet appointees serve at the pleasure of the country leader. By making an ethnic cabinet appointment, the country leader promises future resources to the ethnic group, but the ethnic group simultaneously knows that losing the support of the country leader means losing these resources. Such reliance implies that the country leader can use an ethnic cabinet appointment as a tool to encourage the ethnic group to support her regime (Manzetti

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<sup>7</sup>This mechanism does not preclude making norm-based ethnic cabinet appointments to reflect country-level ethnic diversity.

and Wilson, 2007). If the ethnic group fails to adequately support the country leader, the leader can remove some or all of the ethnic group’s representatives from the cabinet, thus decreasing the financial resources available to the ethnic group (De Luca et al., 2018; Franck and Rainer, 2012; Kramon and Posner, 2016).<sup>8</sup> Since financial resources in private good dependent societies governed by non-programmatic criteria are determined by the country leader, this threat is credible and helps ensure the ethnic group’s future support.

Therefore, reliance fosters an environment where country leaders use ethnic cabinet appointments to create credible threats. When we observe a country that is private good dependent with goods distributed non-programmatically, leaders will make ethnic cabinet appointments to formalize support for their regime. In this context, ethnic cabinet appointments are not reserved for those groups needed to create a minimal winning coalition. Country leaders also rely on ethnic groups to maintain regime stability, so leaders will target and appoint ethnic groups beyond what is required to obtain a minimal winning coalition. This relationship exists across different types of political institutions and ethnic cleavages.

One way to capture the dynamics of ethnic cabinet appointments is through cabinet diversity. Cabinet diversity refers to the proportion of ministers from different ethnic groups and ranges from 0, where only one ethnic group is represented in the cabinet, to 1, where all ethnic groups are represented equally.

**Hypothesis:** In private good dependent contexts, increasing non-programmatic distribution increases cabinet diversity.

## Research Design

The main research design challenge is conceptualizing and measuring cabinet diversity. To complement the private good and programmatic leader data, country-year measures of cabinet diversity are required. I introduce a new dataset on cabinet ministers, a new technique to

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<sup>8</sup>See Burgess et al. (2015) for a possible counter-example in terms of road construction.

assess the ethnicity of said ministers, and a new measure of cabinet diversity in order to evaluate the relationship between non-programmatic distribution criteria and cabinet diversity in private good dependent contexts.

## **Capturing Cabinet Diversity**

Ideally, we could measure the diversity of cabinets by figuring out the ethnicity of each cabinet minister. There are two challenges to this task. First, there may be a difference between ethnic self-identification and public perception of a cabinet minister's ethnicity. Many studies (e.g., Harris and Findley, 2014) have found that even co-ethnics cannot accurately determine the ethnic self-identification of individuals despite being provided information about the co-ethnic they are trying to identify. Thus, there may be a disconnect between a measure that searches for ethnic self-identification information and how the public actually perceives a cabinet minister's ethnicity. It is impossible to measure perceptions of a cabinet minister's ethnicity without contemporaneous survey data. Second, even if we try to capture ethnic self-identification, the amount of information available about a cabinet minister's self-identification varies. In some cases, ministers publicly announce their ethnic identity. Other cases require intensive archival research that only sometimes provides self-identification information.

Instead of trying to measure self-identification or to infer citizen perceptions of ethnicity, I argue that the names of cabinet ministers are the most consistent heuristic used worldwide to infer ethnicity. Citizens have limited information about government operations in general, and their knowledge about the cabinet is especially limited (Furnham and Gunter, 1983; Galston, 2001). Because of this, if country leaders want their ethnic cabinet appointments to be recognized, they must clearly indicate that a cabinet appointee belongs to a certain, politically relevant ethnic group. The most recognizable descent-based characteristic a leader can activate to signal ethnic identity is an individual's name (Chandra, 2004, 38). Learning the name of a cabinet official is a costless process (Chandra, 2004, 38). However, this means

that the country leader must be cognizant of the names of ethnic cabinet appointees in order to clearly indicate their ethnic membership in the relevant, politically salient ethnic group (Barth, 1981, 204). Indeed, country leaders select ministers with names that are immediately associated with politically relevant ethnic groups (Gaddis, 2017).<sup>9</sup> For these reasons, I use cabinet ministers' names as a proxy to measure ethnic cabinet diversity.

Name-based ethnicity classification has a long history in population science and medicine. Such methods have proven to be just as reliable as employing experts to hand code the ethnicity of individuals (Mateos, Webber and Longley, 2007). Recent technological advances have allowed for the inclusion of more fine grained ethnic categories without sacrificing accuracy.<sup>10</sup>

Admittedly, even the best ethnic name classification system will struggle in a context in which names provide little information about politically relevant ethnic divisions. In these cases, the ethnic name classifier will be uncertain about how to categorize a particular name. I address this concern by including data from as many countries as possible and relying on fixed effects to help take care of differences in the accuracy of ethnic name classification between countries and over time. Fixed effects will also help control for the prevalence of names with colonial influences or changes in name patterns as immigrants assimilate (Fouka, 2019). In SI.12, I explore several approaches to test the robustness of results in contexts where name classification may be more or less effective.

## **Cabinet Data Collection**

The first step in measuring cabinet diversity is to collect a list of cabinet members. Somewhat surprisingly, no systematic collection of cabinet member data exists. The only authoritative worldwide listing of cabinet members is the Central Intelligence Agency's (CIA) "Chiefs of State and Cabinet Members of Foreign Governments" (COS). I extract cabinet minister names and positions yearly from 1967 to 2017, making this study the first to use a complete

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<sup>9</sup>See the Supplemental Information (SI) 1 for supporting qualitative evidence from India.

<sup>10</sup>See SI.1.

cross-national time-series of cabinet ministers.<sup>11</sup>

After generating a list of 233,582 cabinet minister names, the next step is to determine the diversity of each country-year’s cabinet. I introduce a computer science algorithm called NamePrism that identifies the predicted probability of each cabinet minister’s name belonging to thirty-nine so called “name communities.”

NamePrism is a new ethnic name classifier from Ye et al. (2017) that has already garnered a lot of attention for its relative completeness compared to many other methods (see SI.2). The goal of NamePrism is to take the full name of an individual and to locate that name near other, similar names. To do this, the method relies on a training dataset of 74 million unique names from 118 countries. These names are linked based on the level of contact or social homophily with other individuals. All names in the training dataset are then placed in a name space, clustering names with more contact together. This clustering reveals thirty-nine “name communities” — groups of names of people who frequently interact with each other (see SI.4). This is not a perfect measure, and the name communities are used not to infer ethnicity but to represent the diversity of names in a cabinet. I include extensive robustness checks to help assure readers of the validity of this approach in SI.10 through SI.12.

When a new name is submitted to NamePrism, a Naive Bayes classifier locates the new name in the existing name space. NamePrism then measures the distance from the new name’s location to each of the thirty-nine name communities and generates predicted probabilities that the new name belongs to any one of these communities. I combine these predicted probabilities into a country-year measure of cabinet diversity using the Herfindahl-Hirschman index, a common measure of diversity (Tallman and Li, 1996, 187) that has been specifically used to measure ethnic diversity (Lancee and Dronkers, 2011). I use the resulting Herfindahl-Hirschman index to proxy for actual ethnic cabinet diversity.

To calculate the Herfindahl-Hirschman index, I take the thirty-nine predicted probabilities for each cabinet minister and sum them across cabinet ministers in a country-year. I

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<sup>11</sup>See SI.2 and SI.3 for details.

then divide the predicted probabilities by the number of cabinet ministers, square them, and subtract the sum of squares from 1. That is,  $1 - \sum_{i=1}^{39} p^2$  where  $p$  is the average predicted probability across ministers for each name community. Thus, each country-year is assigned a *Cabinet Diversity* score ranging from 0 to 1 where 1 is the highest level of diversity.<sup>12</sup>

Consider Abdul Bari Jahani, the Afghan Minister of Information and Culture in 2017. I put his name into NamePrism and learn that Jahani is 0.934 “Muslim-Persian” and various other proportions of the remaining thirty-eight name communities, all of which sum to 1. The name assigned to this name community, “Muslim-Persian,” need not be indicative of Jahani’s birthplace in order for this method to be accurate. Instead, I am interested in the diversity of names present in a cabinet. If all cabinet ministers’ names are predominately “Muslim-Persian,” then I know that the cabinet is not ethnically diverse. I sum the proportion of each ministers name belonging to each of the name communities and then find the average proportion for the cabinet. In the Afghan example, only some ministers names belong to the “Muslim-Persian” name community, so the average across cabinet ministers is 0.38. I then square and sum the name community averages to produce a cabinet diversity measure between 0 and 1 where 1 indicates equal representation of all name communities. This method also works in contexts where different ethnic groups’ names have the highest proportion in the same name community. In these cases, the other thirty-eight name communities provide variation that helps to distinguish ethnic group names.<sup>13</sup>

I validate the cabinet diversity score using Francois, Rainer and Trebbi (2015)’s hand coded dataset on cabinet minister ethnicity in fifteen African countries. This is a hard test because the NamePrism algorithm has the fewest of the thirty-nine name communities dedicated to African names, making name-based ethnicity classification difficult. Additionally, names are a proxy for self-reported ethnic identity which Francois, Rainer and Trebbi (2015) capture. The correlation between the NamePrism data and Francois, Rainer and Trebbi

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<sup>12</sup>I address measurement uncertainty by conducting robustness checks downweighting the importance of the majority group ethnicity in a given country; see Table SI.11.1.

<sup>13</sup>See SI.5 for the full example.

(2015) is 0.46, which is quite strong, indicating that NamePrism captures the diversity of names in these cabinets. See SI.11 and SI.12 for additional robustness checks.

A downside of using NamePrism is that we cannot know exactly which ethnic groups join or leave the cabinet when cabinet diversity changes. We might infer that certain situations lead to the inclusion of particular ethnic groups in the cabinet, but NamePrism can only measure whether cabinet diversity changes over time. Additionally, the country-year measure of cabinet diversity that NamePrism is capable of producing is different from a measure that definitively shows the number of cabinet seats a leader reserves for different ethnic groups. A general guideline is that a 0.05 increase in cabinet diversity represents an increase in one or two ethnic minority cabinet ministers (see SI.6).

To reiterate, NamePrism provides a proxy measure for ethnic cabinet diversity that relies on the social connectedness of names. NamePrism's cross-national coverage is better than existing approaches and is validated against hand coded ethnicity data. The approach is imperfect, but is still informative about the overall ethnic diversity present in cabinets. Ethnic categorization is difficult, and this study should be seen as the first attempt at examining cabinet diversity across such a large number of countries.

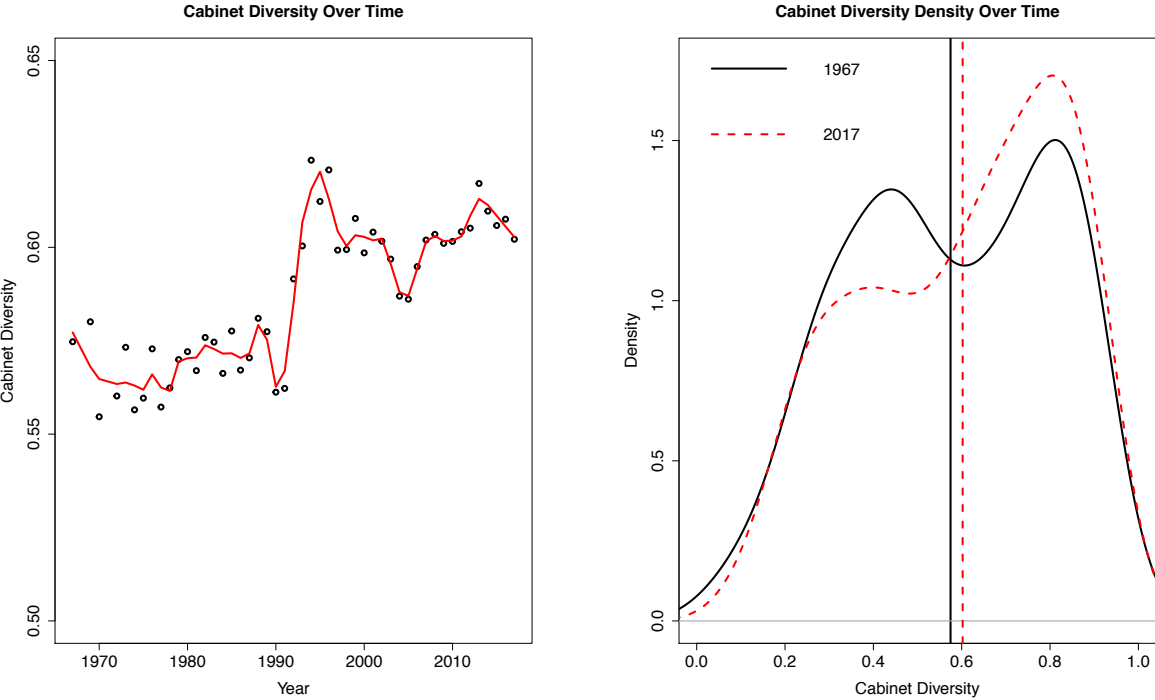
## How Diverse Are Cabinets?

Two trends in cabinet diversity are important for this analysis: the distribution of cabinet diversity and its range over time. Panel A of Figure 1 displays *Cabinet Diversity* over time. It is apparent that the breakup of the Soviet Union increased *Cabinet Diversity* in 1990. The overall increase in *Cabinet Diversity* of about 0.05 over the time series may be due to an emerging norm encouraging ethnic representation.

The distribution of *Cabinet Diversity* has changed substantially (Panel B). Over time, the proportion of cabinets with a diversity score below 0.5 has decreased. There is substantial variation in *Cabinet Diversity* within countries as well, with more than fifty countries changing cabinet diversity by at least 0.40 over the time-series (see SI.7).



Figure 1: Cabinet Diversity Over Time



(a) Cabinet Diversity

(b) Cabinet Diversity Density

A LOWESS smoother is used to construct the trend-line. Density plot shows similar mean cabinet diversity, but shifted distribution of cabinet diversity over time.

I measure country-level ethnic diversity using ethnolinguistic fractionalization for politically relevant ethnic groups (ELF).<sup>14</sup>

## Reliant Ethnic Groups and Cabinet Diversity

I focus on the impact that reliant ethnic groups have on cabinet diversity by modeling the interaction of non-programmatic distribution and private good dependence.

I use an index of *Non-Programmatic Distribution* that measures the prevalence of bribes, kickbacks, and special favors provided by the country leader or his designates. This measure from the Varieties of Democracy Project (V-Dem) is very commonly used and is scaled from 0 to 1 with a high value indicating a lot of non-programmatic distribution (Coppedge et al., 2018).<sup>15</sup> This index is one of the few that provides data on non-programmatic distribution over time; it correlates highly with other, similar measures.<sup>16</sup> The high correlation with other measures should provide additional confidence in the reliability of this measure.

As Muno (2010) recognizes, countries distributing predominately private goods must also have leaders distributing these goods using non-programmatic criteria in order to create ethnic group reliance on the leader for resources. I measure the relative prevalence of private compared to public goods using secondary school enrollment (Keefer, 2007). Public or private goods provision has typically been measured using single country financial (Alesina, Baqir and Easterly, 1999) or survey data (Habyarimana et al., 2007). Cross-national approaches have considered a basket of public goods and used factor analysis to create a public goods provision index (Baldwin and Huber, 2010). Of these approaches, only secondary school enrollment has been measured both cross-nationally and over time — panel data is required

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<sup>14</sup>ELF is from (Cederman, Wimmer and Min, 2010) and results are robust to other specifications and to measures of ethnicity politicization (see SI.11).

<sup>15</sup>I follow the Stokes et al. (2013) dichotomy between programmatic and non-programmatic distribution of goods. Both the traditional definitions of corruption and clientelism are wrapped up in this V-Dem variable (Hicken, 2011).

<sup>16</sup>This includes a V-Dem measure of executive bribes and favors at 0.96, a V-Dem measure of public sector corruption at 0.90, a V-Dem measure of executive embezzlement and theft, Transparency International's Corruption Perceptions Index at 0.83, and World Justice Project's executive branch officials using their office for public gain index at 0.81.

to test the hypothesis.

Schooling has been used extensively as a proxy for public good distribution. Alesina, Baqir and Easterly (1999), Chadha and Nandwani (2018), and Miguel and Gugerty (2005) all use indicators about public school enrollment, funding, and quality to measure public goods provisions. Further, An, Levy and Hero (2018), Baldwin and Huber (2010), and Lee, Lee and Borcharding (2016) all utilize an index of public goods provisions that includes measures of public school enrollment and quality along with measures of infrastructure, health, sanitation, and tax enforcement.

There is good reason to believe that secondary school enrollment measures relative private good dependence. Keefer (2007) establishes this link by finding that when private goods provisions are high, governments will be relatively unable to invest in public goods like public schooling because much of their budget is tied up in private goods provisions. Low investment in schooling means that fewer families are willing to pay the costs to send their children to poor quality schools (Keefer, 2007, 808). Thus, school enrollment is low. As the government becomes less dependent on private goods provisions, public funding frees up. A popular way to use public funds is to invest in school quality and access. Both of these factors will increase benefits and reduce costs of parents sending their children to school. We should therefore expect that decreasing relative private goods provisions are linked to increasing *School* enrollment.

In this analysis, I use a logged secondary school enrollment measure calculated as enrollment per 10,000 population from the Cross-National Time-Series (CNTS) dataset (Banks and Wilson, 2016). I expect that *School* moderates the effect of *Non-Programmatic Distribution* on *Cabinet Diversity*. I validate this measure by correlating it with Baldwin and Huber (2010)'s composite index of public goods provisions, which is not available in a time-series due to the data limitations mentioned earlier. I find that increasing secondary school enrollment is highly correlated (0.76) with increasing public goods provisions in the Baldwin and Huber index.

As described in the theoretical argument, there is not a high correlation between *Non-Programmatic Distribution* and *School* ( $-0.19$ ). In fact, there are many cases of programmatic and non-programmatic leaders in both private good and public good dependent contexts throughout the time-series.

## Controls

I include a variety of control variables to capture institutional, country, and leader variation that might explain both ethnic group reliance on the country leader and ethnic cabinet appointments. These include level of democracy, the size of the legislature, number of coups, the size of the leader’s ethnic group, whether the government is in a coalition, whether ethnic parties are competitive, the number of seats held by the largest party in the legislature, civil conflict, terrorist attacks, gross domestic product, population size, and cabinet size (see SI.8).

There are plausibly other factors, such as leader partisanship and specific constitutional requirements for ethnic representation, that may or may not (Eelbode et al., 2013) influence cabinet diversity. Reliable and comparable cross-national measures of these factors are not available; all models include country fixed effects and some models include a time trend to account for these unobserved variables.

## Estimation Strategy

The estimation strategy presented in the main text is an Ordinary Least Squares (OLS) model with country fixed effects and cluster robust standard errors. This is the most simple, appropriate model to test the aforementioned theory. Country fixed effects eliminate any discrepancies in the ways in which *Cabinet Diversity* is calculated between countries. Because of the long time-series in the data, this strategy then allows for modeling within-country change in *Cabinet Diversity* over time. I employ cluster robust standard errors by country, as errors within countries may be correlated. The panel is stationary and thus requires no further correction (see SI.9).

The model assumes that changes in independent variables and controls impact *Cabinet Diversity* after a one year lag. The one year lag is designed to capture leaders making ethnic cabinet appointments in response to high ethnic group reliance. This is an observational dataset, so I do not interpret the results as causal. I discuss endogeneity concerns in SI.10 by specifying a dynamic model that shows that a one year lag is sufficient to capture prior levels of private good dependence and leader use of non-programmatic distribution. SI.10 through SI.12 contain various robustness checks including using hand coded data on cabinet ethnicity.

## Ethnic Group Reliance Increases Cabinet Diversity

Model 1 in Table 2 is a static OLS model with fixed effects and cluster robust standard errors.<sup>17</sup> First we want to check whether country leaders appoint ethnically diverse cabinets when country-level ELF is high. The positive correlation between *Country ELF* and *Cabinet Diversity* shows that this is the case and implies that leaders seek to, at some level, demonstrate that their cabinet represents citizen ethnic diversity.

Figure 2 presents a marginal effects plot which eases the interpretation of these results and shows that the main Hypothesis is supported. When *School* is below the mean value, increasing *Non-Programmatic Distribution* has a significant and positive effect on *Cabinet Diversity*. A below mean value for *School* indicates that private goods are abundant in these country-years. The maximum effect size is 0.21, and it approaches 0.06 close to the mean value of *School*. Control variables have varying and usually substantively small significance on *Cabinet Diversity*, though country fixed effects do absorb much of the variation.

According to the OLS estimates, increasing *Non-Programmatic Distribution* increases *Cabinet Diversity* by between 0.06 and 0.21 depending on the level of private good dependence. To give some interpretation to these changes, I use simulations to translate *Cabinet Diversity* into cabinet seat change.

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<sup>17</sup>SI.10 contains the full model and the other marginal effect plot.

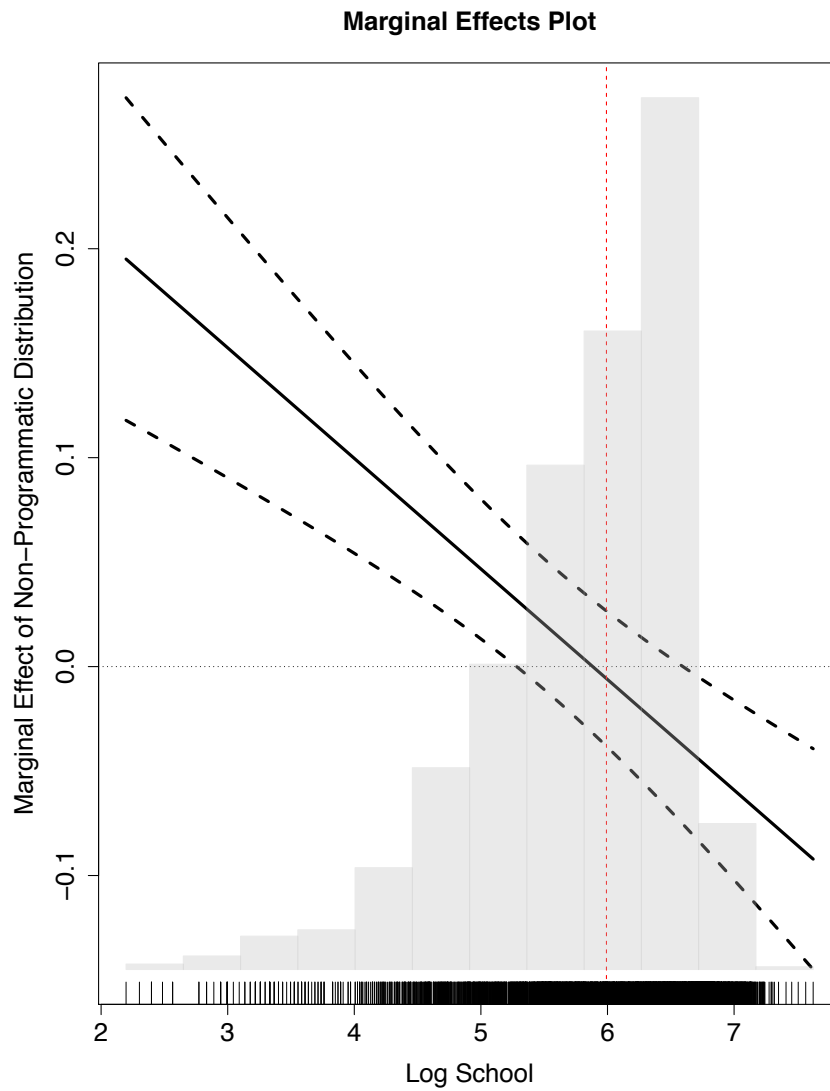
Table 2: Non-Programmatic Distribution and School on Cabinet Diversity

	<i>Dependent variable:</i>
	Cabinet Diversity
Country ELF <sub>t-1</sub>	0.083*** (0.026)
Non-Prog. Dist. <sub>t-1</sub>	0.311*** (0.062)
School <sub>t-1</sub>	0.013* (0.007)
Non-Prog. Dist. <sub>t-1</sub> x School <sub>t-1</sub>	-0.053*** (0.011)
Controls	✓
Country Fixed Effects	✓
Observations	3,180

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

OLS with country fixed effects. Cluster robust standard errors in parentheses.

Figure 2: Marginal Effects of Non-Programmatic Distribution



Vertical line indicates mean value. 95% Confidence Intervals.

The initial level of *Cabinet Diversity* impacts the ways in which different ethnic groups enter the cabinet. When *Cabinet Diversity* is low, few ethnic groups are represented in the cabinet, so any change in *Cabinet Diversity* will subtract cabinet ministers from the majority ethnic group and add ministers from the second largest ethnic group. Other ethnic groups are not involved. Simulations in SI.13 show that when *Cabinet Diversity* is low and increases by 0.06, the majority ethnic group loses two seats and the second and third largest ethnic groups split these two seats. When *Cabinet Diversity* is high and increases by 0.06, the three largest groups lose seats and successively smaller groups gain seats. A similar pattern occurs when *Cabinet Diversity* increases by 0.21, though the seat change is between six and seven seats.

Returning to the Afghanistan example, Afghan ethnic groups are highly dependent on government provided private goods (Sharan, 2011; Wilde and Mielke, 2013). Because of the regionally based tribal structure in Afghanistan and the country's rough terrain, goods are typically distributed to individual tribes (Johnson, 2009). Additionally, recent Afghan governments have been extremely weak, with the President controlling the distribution of resources. These two factors caused ethnic groups to rely heavily on and to push Afghan Presidents Karzai and Ghani to include them in their cabinets. Indeed, *Cabinet Diversity* increased from 0.76 in 2014 to 0.80 in 2017. This increase in *Cabinet Diversity* corresponded to losing three Tajik ministers (from 14 to 11) and gaining three Hazara ministers (from 2 to 5).<sup>18</sup> This represents a substantial improvement in Hazara power in the cabinet.

Like in many country contexts, cabinet seats in Afghanistan represent access to valuable resources and goods that cannot be easily obtained elsewhere (Englehart and Grant, 2015). The Afghan President retains significant power to disrupt ethnic group access to resources if he wishes. President Ghani has taken this approach by removing some previously powerful groups from the cabinet and including new groups in the hopes of building a broader base of political support (Shalizi and Johnson, 2015).

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<sup>18</sup>I normalize cabinet size to 2017 levels to account for cabinet size increasing between 2014 and 2017.



An overall swing of between two and seven seats as a result of high leader *Non-Programmatic Distribution* is quite large. This swing represents a change in between seven and twenty-five percent of the cabinet. Leaders willing to engage in non-programmatic distribution have significant ability to exploit private goods and to target ethnic groups with cabinet seats. These seats should increase support for the leader due to the fact that ethnic groups receiving cabinet seats must stay in favor with the country leader in order to preserve their allotment of private goods.

## Discussion and Conclusion

Leaders appoint ethnically diverse cabinets for two main reasons. First, I show that leaders consider country-level ethnic diversity when making ethnic cabinet appointments, likely in order to put forth a norm of inclusion that is both normatively and politically beneficial. Additional ethnic cabinet appointments are a function of how much ethnic groups depend on the country leader for resources. This second mechanism, operating through the combination of private good dependence and non-programmatic distribution criteria, increases ethnic cabinet diversity by between seven and twenty-five percent over countries with programmatic resource distribution. By arguing that resource allocation influences cabinet diversity, I add a new layer of nuance to existing studies about country-level diversity and resource distribution.

Descriptive representation is a key mechanism through which identity-based groups can gain voice, power, and influence in government decision-making, and cabinet seats are some of the most politically powerful government positions. This study shows that there are some similarities, but also notable differences, in the ways that country leaders conceptualize gender and ethnic cabinet diversity. Leaders are prompted to include both women and minority ethnic groups in their cabinets to espouse a norm of representing the population and producing a cabinet that looks like citizens. Such a norm does not magically appear;

activists and grassroots leaders of both ethnic and womens' movements work tirelessly to bring representational inequalities to the attention of country leaders.

Yet country leaders are becoming more willing to appoint gender diverse cabinets, and additional advocacy efforts could lead to more gender parity cabinets. Country leaders' react differently to ethnic cabinet diversity, creating ethnically balanced cabinets when it is strategically advantageous for them to do so. One explanation for this difference is simple: gender is largely a cross-cutting cleavage, whereas ethnicity often coincides with political party membership. Country leaders have a more difficult time creating a credible commitment to deprive women of private goods because doing so means directly impacting their political party. Even when ethnic groups function in an environment without ethnically homogeneous parties, they often have ethnic group organizations and leadership to which the majority of ethnic group members support or are a part of.

We should not view ethnically diverse cabinets as antithetical to progress toward the political integration of identity groups. While many ethnic groups struggle to break their reliance on country leaders for resources, a promising avenue for future change is the simple fact that supporting a country leader in exchange for a cabinet appointment does provide the ethnic group with some political power, however marginalized the group may be. As the gender in cabinets literature has shown, over time repeated inclusion in cabinets can provide important avenues for expressing voice and making some beneficial policy changes that reduce an ethnic group's reliance on country leaders for resources. By setting up this credible commitment, country leaders are playing a short game: attempting to increase their popularity for the next election. But the power of a cabinet appointment, marginalized or not, provides important leverage to increase the bargaining power of ethnic groups in the future. Thus, the norm of ethnic representation is likely to slowly eat away at the ability of leaders to withhold resources in exchange for political support, eventually reducing country leaders' tendencies to appoint ethnic minority ministers only for political gain.

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