Minorities in dictatorship and democracy*

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Abstract

How does the level of democracy in a country affect the government's treatment of ethnic minorities? I find that, on average, when the largest ethnic group in a society exceeds half of the population, ethnic minorities are treated better in autocracies and full democracies than in semi-democratic countries. The intuition is that under autocracy a leader needs little popular support, and therefore a coalition of several minorities can rule. By contrast, in a semi-democracy, the leader needs the support of more people, so a coalition of small ethnic groups is insufficient; the largest group is enough and no other groups are necessary. Finally, highly democratic countries require broad support, and most ethnic groups get benefits. My model is based on the Baron-Ferejohn bargaining game and my empirical tests use the Ethnic Power Relations dataset.

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Introduction

This paper finds that in states where the largest ethnic group exceeds half of the population, autocrats often favor minorities. An autocrat is likely to include small groups if she represents one of them. If an autocrat represents a large ethnic group, minorities will be excluded. In a semi-democracy, they are very likely to be excluded, regardless of the group the leader belongs to. In a full democracy, minorities will be more likely to be included than in a semi-democracy. To make the analysis meaningful, in this paper minority rights are not included in the definition of democracy, and democracy is understood in the electoral sense.

I explain the regularity above using the logic of winning coalitions (Riker and Ordeshook 1973, Bueno de Mesquita et al 2005). The winning coalition is a group of people whose support a leader needs to stay in power. In my model, a state is more democratic if it has a larger winning coalition. For the purposes of this paper, the winning coalition size is assumed to be exogenous. In an autocracy, the winning coalition is small, so a leader may build her support base from several minority groups. Due to their small size, minorities have worse outside options to form a coalition than other groups do. This makes them favorable coalition partners for a dictator since they demand relatively little in return for loyalty. Thus, we should observe a lot of autocracies where a dictator provides benefits to minorities and has their members in the inner circle.

A prominent example is Syria. Syria under the Assads was an autocracy that treated ethnic minorities relatively well. The core supporters of Hafiz al-Assad were his fellow Alawites and representatives of other small religious groups (Zisser 1999). Such minorities as Christians, Druze and Isma'ili Shias were widely tolerated in this generally repressive regime (Minority Rights Group 2017).

Another side of the coin is that when the dictator's own group is large enough, she will rely on them and require no coalition partners. So, in autocracies, the outcome for minorities depends on whether the dictator comes from a small or large group. In other words, the outcome for minorities in dictatorships is volatile. It is well-known that many dictators are brutal to small groups. The model simply shows that often autocrats favor minorities and provides micro-foundations for this fact.

There are regimes where the winning coalition is of medium size. In those regimes, leaders have to win elections, but intimidation, vote-buying, and fraud play a large role. Parliaments and courts cannot strictly constrain the executive. In this situation, several minorities cannot rule alone. However, the leader of the largest group can appeal to her coethnics only and control the state. The model predicts that, contrary to the autocratic case, in such a regime minorities will be excluded regardless of who the leader is.

Turkey may serve as an example. The country had a polity score between 6 and 8 from the early 1990s to 2015. The Kurds have faced arbitrary arrest, torture, and displacement. Up to now, they have often been denied the freedom of expression and political participation. Moreover, Kurdish members of parliament are sometimes arrested and sentenced to prison (The Guardian 2011). Their media outlets and activists are targeted by the authorities. Armenians in Turkey feel insecure as well. Armenian schools, businessmen, and religious institutions have received threats, and many intellectuals from the community were put on trial for expressing anti-government views (Minority Rights Group 2017).

To give another example, Sri Lanka had a polity score of 6 in the late

1970's and 5 in the 1980's, on a scale of -10 to 10. The country has had a long and destructive civil war between the Singhalese, who constitute a 75% majority, and the Tamils, who comprise roughly 25%. The Tamils wanted independence as the government was not recognizing their language as official and seizing their lands in favor of the Singhalese (Minority Rights Group 2017).

In a full democracy, the winning coalition is very large. Aside from winning the votes, the leader cannot pass laws that are turned down by courts and needs the consent of the parliament. Changing rules of the Constitution often requires the parliamentary supermajority. Moreover, mass demonstrations of the citizens may endanger the government's survival. Because the leader needs broad support, even small groups need to be included in sharing the benefits. Western European states, which are the most democratic, are the most tolerant to minorities. To give an example outside of the West, in India, quotas in the government and public administration are reserved for the lower castes (The Economist 2012).

Two examples demonstrate how the change of the regime type affects minority rights. First, consider the consequences of regime change in Ivory Coast. The economic opportunities in the country attracted a significant number of migrants. The longtime president-dictator Félix Houphouët-

Boigny encouraged immigration and allowed foreigners to hold double citizenship. The end of his tenure saw political unrest. In 1990, the first parliamentary elections happened, and in 1993, after Houphouët-Boigny's death, Konan Bedie became president. The country's shift to democracy turned out bad for minorities. Bedie announced a policy of reserving land ownership for Ivorite people, thus discriminating against foreigners, and tried to bar them from voting. The next president, Laurent Gbagbo, was able to restrict foreigners from voting through a discriminatory identity card policy. Subsequent violence against foreigners and clashes between different Ivorian ethnic groups led to a civil war in 2002 (The Economist 2002).

Before Siad Barre came to power and after independence (1960-1969), Somalia was a republic where each clan pursued its own interests. The largest clans had the most influence. Unlike Barre's rule, the government made no effort to end the discrimination against minorities (Lewis 2004). Siad Barre, though blamed for human rights violations, proved to be a relatively good option for minorities. During his rule, the historically marginalized Gaboye people were able to get government and military jobs (Mbanaso and Korieh 2010). His government did not discriminate against the Benadiri minority. The lands of Bantu, though, were confiscated in favor of bigger clans. Still, the situation for minorities after Siad Barre proved far worse. All the three groups became victims of violence and looting on behalf of larger and more powerful clans (Minority Rights Group 2017).

As a result of this logic, minorities may support dictators and are not enthusiastic about democracy. In the Syrian civil war, ethnic and religious minorities supported Bashar Assad, justly fearing violence from terrorist groups within the opposition. Even though opposition leaders promised to be fighting for an inclusive state, their promises were not credible (Berti and Paris 2014).

In India in 1932, Bhimrao Ramji Ambedkar pressed the British government to create separate electorates and reserved seats for Dalits, which could increase their political power. Gandhi took a stark position against these measures and went on a hunger strike (Tridip 2019). More broadly, the Dalit movement, led by Ambedkar, did not ally with the Indian National Congress during and after the colonial period (Omvedt 1994). Greater cooperation between the two movements could have made the way to independence easier. However, Ambedkar, as the Dalit leader, did not entrust the National Congress to solve the minorities' problems and expected discrimination to continue in the independent state unless Dalits secure their rights (Omvedt 1994).

Shulman (2005) finds that in Ukraine, people who identify as Eastern

Slavs are less likely to favor democracy. Language, geographical, or income differences do not explain this variation. Similarly, Dowley and Silver (2002) find that Russians in Ukraine are far less proud to be citizens of the country compared to Ukrainians and are far less confident in the legal system and the parliament. It may be that, similar to the Indian case, the Russians in Ukraine fear the infringement of their rights even though the country is democratic.

1 Literature

Several theoretical papers study the link between democracy and minority rights. Mukand and Rodrik (2015) build a model where both the regime type and minority rights protection are endogenous and depend on the preferences of the rich elite, the poor majority, and minorities. This paper's approach is different from mine, since I study the impact of institutions on minority welfare, and thus assume that the regime type is exogenous. Fernandez and Levy (2008) model redistribution between groups in the society in democracy and look at the impact of diversity on the amount of redistribution. Trebbi et al (2015) model transfers between ethnic groups in Africa made by leaders under the revolution constraint. These two papers only analyze redistribution given a single regime type, unlike my study which compares different regime types. However, these papers are similar to mine in that they model groups in the society as actors seeking to maximize their share of resources.

On the empirical side, Sorens (2010) finds that more executive constraints and more competitive political participation decrease the likelihood of discrimination, however, a more competitive executive selection increases it. Contrary to that and to my results, Fox and Sandler (2003) find that repression against minorities is least likely in semi-democracies. One criticism of the latter finding is that the authors use the Minorities at Risk dataset which includes groups only if they are at risk, thus creating a bias. In line with my study, using the Ethnic Power Relations dataset Beiser and Metternich (2016) find that smaller ethnic groups tend to choose other minorities as coalition partners.

Bueno de Mesquita et al (2005) propose the concept of the winning coalition as key to the way leaders redistribute resources. In their model, the winning coalition is a group of people whose support the leader needs to stay in power. The size of the minimum winning coalition is exogenous and determined by the political regime type, with more democratic regimes corresponding to larger coalitions. The leader's goal is to keep her winning coalition loyal by providing private and public goods, while at the same time trying to spend as little resources as possible. My model uses the same taxonomy of political regimes, which is convenient for analyzing distributive politics.

2 Model

Environment

Consider a society that consists of one large group of voters and $m \geq 2$ small groups of the same size. The large group has share $k > \frac{1}{2}$, so each small group has share $s \equiv \frac{1-k}{m} < k$. I assume that the largest group has more than 50% since in such a society it is easy to distinguish the largest group from the minorities. Each group is a unitary actor. The groups have to divide a dollar among themselves. The division is implemented if a winning coalition of size $w > s$ votes for it. Define $r \equiv \frac{w}{s} - 1$, the number of minorities that a minority proposer needs in order to complete a winning coalition. The minimum winning coalition size w is exogenous. The voting procedure is as follows.

The political process

At each time period, one group is randomly selected to propose the division of the dollar to other players. The selections are independent and the group's probability to be chosen equals its share of the population. This assumption is justified by the fact that larger groups are more likely to occupy a monopoly or dominant position in a central government. This fact is established by running a regression in the Ethnic Power Relations dataset (Cederman, Min and Wimmer 2009). After a proposal has been made, all other players vote Yes or No. If the size of those who voted Yes, including the proposer, is greater than or equal to w, the game ends and the proposal is implemented. Otherwise, the game is repeated and the resource is discounted by δ, where $0 < \delta < 1$. The model is a version of a classic Baron and Ferejohn bargaining game (1989). The total size of players required to pass a decision, w, is interpreted as the level of democracy. If w is high, more people are needed to pass a decision, so the regime is more democratic. If w is small, the converse is true, so the regime is more autocratic. Assume $w > \frac{1-k}{m}$, so that a single minority group cannot rule alone. The latter simplifying assumption does not change the results in a significant way.

Timing

The sequence of play is as follows.

1. A proposer is randomly selected, with the probability for each group to be selected equal to its share of the population.

2. The selected player proposes a division of a dollar.

3. The remaining players vote Yes or No.

4. If the total size of those who voted Yes, including the proposer, is greater than or equal to w, the proposal is implemented. Otherwise, the prize is discounted and the game goes to stage 1.

Type of equilibria

I am looking for stationary subgame perfect equilibria. In such an equilibrium, the actions in each time period are independent of what happened in the previous periods and only depend on the identity of the proposer. Restricting attention to such equilibria is reasonable because players behave in the same way in the same situation. As Eraslan (2013) shows such equilibria always exist in a class of games that includes ours, and moreover, the payoffs are unique. I look for equilibria in which all minorities have the same expected payoff and show that such an equilibrium exists.

Payoffs

Define v_{maj} to be the ex-ante expected payoff of the majority and v_{min} - the expected ex-ante payoff of the minority. These are not normalized by the group size. As I show later, this has no implications for the comparative statics. These payoffs are the measure of minority welfare.

How to solve for the equilibrium

The subgame stationary equilibrium means that the equilibrium strategies do not depend on the history of the game. Knowing that we can compute each player's expected utility from the continuation of the game. Obviously, it does not depend on the time period. The expected utility from the continuation of the game is equal to the utility from voting No on a proposal. Hence, a proposer who wants to obtain the vote of player i offers i exactly her expected continuation payoff. A proposer thus selects a winning coalition W such that the sum of the expected continuation payoffs of players in W is the smallest possible. Clearly, in such an equilibrium the game ends in the first round. I refer the reader to the original Baron and Ferejohn (1989) paper for a more thorough exposition.

Proposition 1: In the unique equilibrium, as the size of the winning coalition w changes from the minimum to the maximum value, the expected ex-ante payoff of each minority player first stays constant, then drops and stays constant, then increases.

Proof: See Appendix A.

The following graph is obtained by simulations and illustrates the comparative statics. The proof is for the general case. The same applies to all proofs and graphs in this paper.

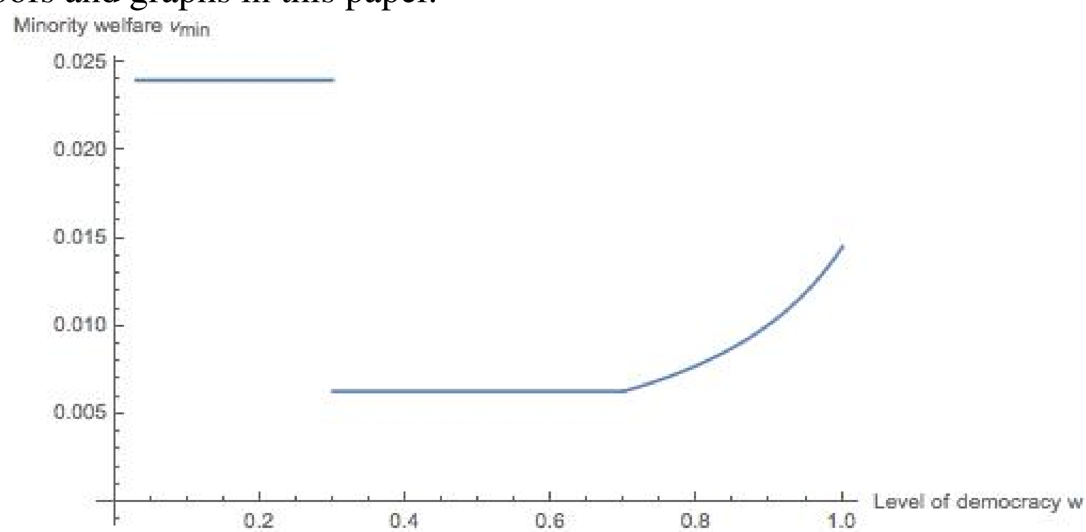

Figure 1 - Minority payoff in a Baron-Ferejohn model with a proportional recognition rule, as a function of democracy w. Calibration parameters: $m = 10$, $k = 0.7$, $\delta = 0.8$.

Intuition Consider the case when $w < 1-k$, so either a coalition of minorities or the largest group alone can form a winning coalition. The largest group has a high expected ex-ante payoff from turning down an offer. So, it is a better choice for a minority proposer to make an offer to a coalition of minorities because they will demand less. As the minimum winning coalition size w increases, this calculation stays true, until w is greater than $1-k$, so a coalition of minorities cannot be winning anymore. Thus, as $w < 1-k$, the payoffs are the same regardless of w. Suppose w exceeds $1-k$. In this case, a minority proposer chooses the largest group as a coalition partner, paying a lot, while the largest group rules alone if it becomes the proposer. The reason the largest group accepts an offer from a minority is that the resource is discounted after each round, so the bargaining range is not empty.

Finally, if $w > k$, the largest group cannot rule alone. So, if the largest group is the proposer, it makes offers to minority groups. If a minority becomes the proposer, it makes an offer to both the largest group and several other minorities. As w increases, more minorities are needed to complete the winning coalition, so their expected ex-ante payoff grows.

Robustness

To show that the result is robust to the choice of the model, I analyze three other bargaining models where the same set of players have to divide a dollar. Their detailed analysis is in the Appendix. First, I solve the Baron-Ferejohn model with equal recognition probabilities. Second, I solve the Baron-Ferejohn model where the players simultaneously offer prices for their votes to the proposer. Finally, I analyze the Shapley value. The Shapley value and the Baron-Ferejohn model with equal recognition probabilities both predict a U-shaped relationship between the level of w and the payoff of a minority group (See Figures 3 and 4). The Baron-Ferejohn model where the players simultaneously offer prices for their votes predicts a relationship in which the expected payoff is first constant, then drops and stays constant, then jumps up at $w = 1$, which corresponds to unanimity (See Figure 5). Thus, all models make a similar prediction to the main model. For a detailed discussion, solutions, and figures, see Appendix A.

3 Empirics

3.1 Hypothesis

There is a U-shaped relationship between the level of democracy and the level of ethnic minority welfare in societies where the largest ethnic group exceeds half of the population.

3.2 Data

The unit of analysis is a country-year. I use data from the Ethnic Power Relations project (Cederman, Min, and Wimmer 2009) to measure the government representation of ethnic minorities. I use the Polity IV Data Series (Gurr et al 2002) and the Database of Political Institutions (Scartascini, Cruz and Keefer 2018) to measure the level of democracy.

In different regressions, I consider groups with size below 10%, 20%, or 30% of the population as minorities. I consider countries where the largest ethnic group exceeds half of the population because my theory describes them. There are 79 countries in which groups below 10% of the population exist and the largest ethnic group exceeds half of the population. There is a total of 3917 country-years, of which there are 895 in Western countries, 229 in Sub-Saharan Africa, 820 in Eastern Europe, 190 in North Africa and the Middle East, and 743 in Asia. Sub-Saharan Africa is relatively little-represented because many countries in this region do not have a majority above 50%. Other regions are well-represented.

3.3 Key variables

Minority welfare

I consider groups under 10%, 20%, and 30% of the population as minorities and run separate regressions for them. As a measure of minority welfare in a given country, I use the ratio of the number of minorities in the central government divided by the total number of minorities in the country. The inclusion in the central government is based on the variable *egip* from the Ethnic Power Relations dataset. I use ratios because the political regime type can depend on the number of minority groups.

The comparative politics literature suggests that government inclusion is a valid measure for the amount of public goods that an ethnic group receives. For instance, Posner and Kramon (2016) find that in Kenya, having a coethnic as president or minister of education increases the amount of schooling children acquire. Similarly, Franck and Rainer (2012) find a strong evidence of ethnic favoritism in education and healthcare in a sample of 18 countries in Sub-Saharan Africa. Finally, Duflo (2005) concludes that ethnic quotas in India increase redistribution in favor of scheduled castes.

Democracy

Democracy is understood in this paper as the minimum winning coalition that a leader must build to stay in power. To measure it, I use the indices for executive constraints from the Polity IV series (Gurr et al 2002) and the Database of Political Institutions (Scartascini, Cruz and Keefer 2018).

The executive constraints variable in Polity IV (XCONST) measures executive constraints of different type, say, by legislatures, notables, or the military. The variable is discrete and ranges from 1 to 7. The variable for executive constraints (EIEC) in the Database of Political Institutions is also discrete and also ranges from 1 to 7. It measures the competitiveness and freedom of executive elections. For both variables, higher values correspond to stronger constraints.

Control variables

The control variables are GDP per capita, growth, the share of the largest ethnic group in the population, ethnic fractionalization, years as a colony, oil production per capita, the dummy for the ongoing civil war, and regime change in the past 3 years. All of these variables come from EPR.

3.4 Regression type

The levels of executive constraints and minority representation vary little within the same country. So, it is hardy possible to use a fixed-effects regression. Instead, I use the random-effects and pooled OLS regression. In the pooled OLS regression, I include regional fixed effects and display robust standard errors.

3.5 Results

The index for executive constraints in the Database of Political Institutions is robustly associated with the share of included minorities. The linear term has a negative sign and the quadratic term has a positive sign, which creates a U-shaped relationship. The result is robust to including random effects. The results are presented in Tables 1 - 6 in Appendix B. Figures 2A - 2C below plot the data and fit it using a quadratic function.

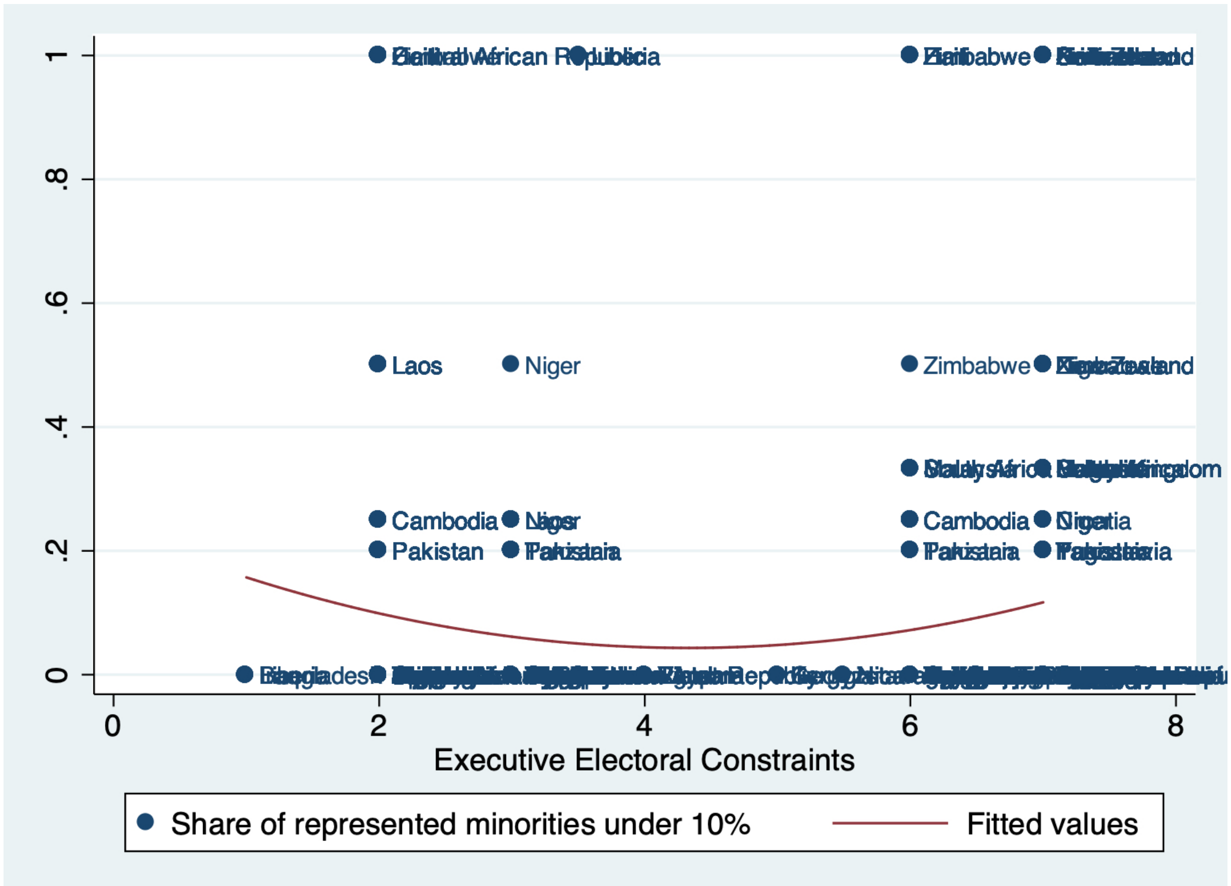

Figure 2A The vertical axis is the ratio of minorities represented in the central government to the total number of minorities. The horizontal axis is the index for Executive Electoral Constraints from the Database of Political Institutions. Minorities are defined as ethnic groups below 10% of the population. Data is for countries with a majority group above 50% of the population and ranges from 1975 to 2010. The quadratic function fits the data.

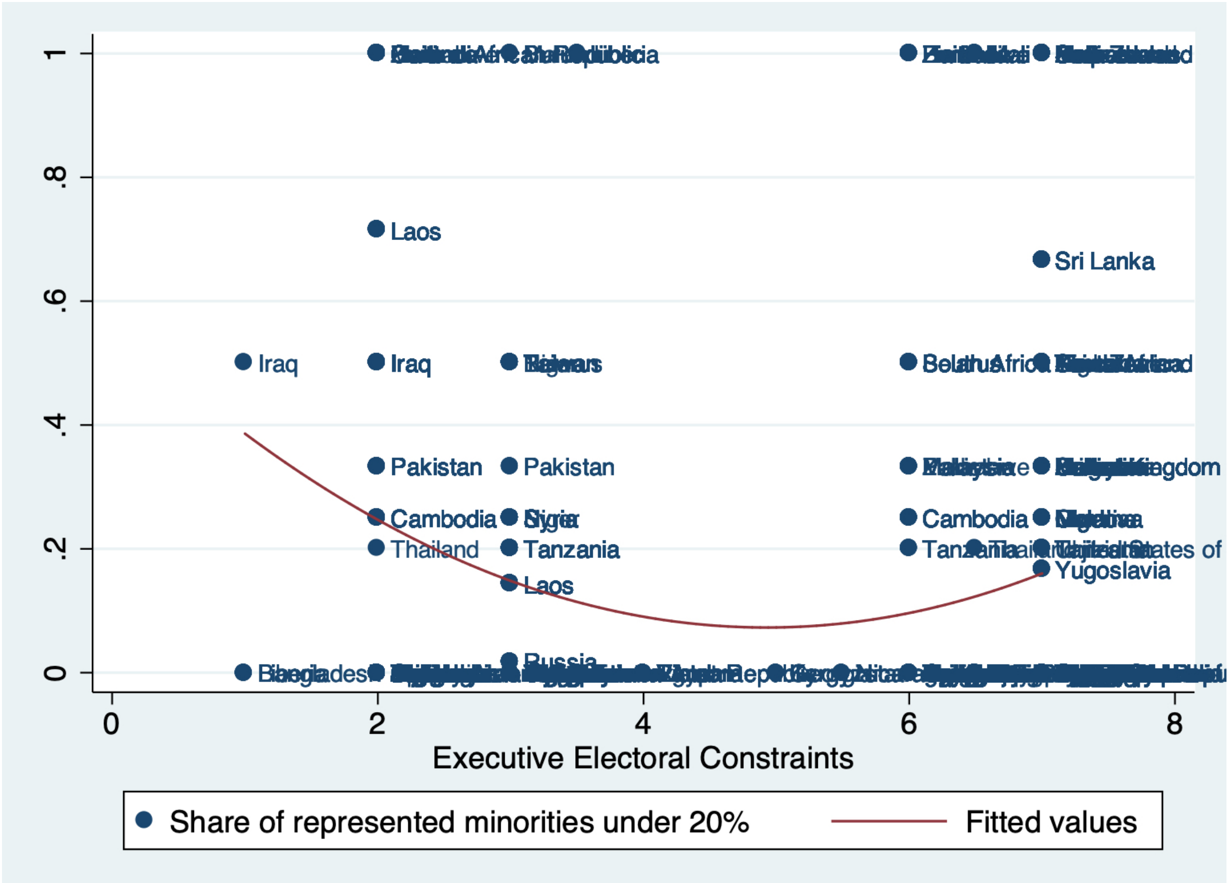

Figure 2B The vertical axis is the ratio of minorities represented in the central government to the total number of minorities. The horizontal axis is the index for Executive Electoral Constraints from the Database of Political Institutions. Minorities are defined as ethnic groups below 20% of the population. Data is for countries with a majority group above 50% of the population and ranges from 1975 to 2010. The quadratic function fits the data.

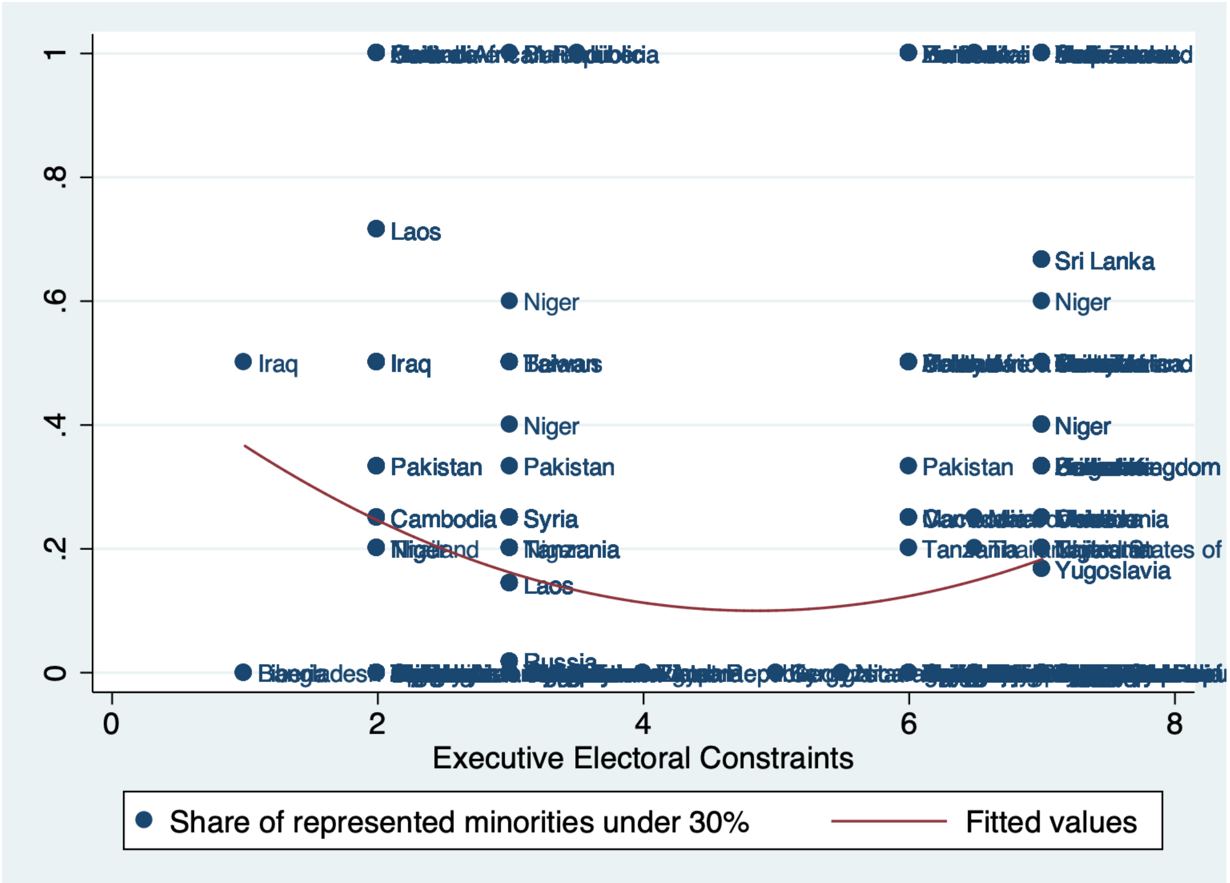

Figure 2C The vertical axis is the ratio of minorities represented in the central government to the total number of minorities. The horizontal axis is the index for Executive Electoral Constraints from the Database of Political Institutions. Minorities are defined as ethnic groups below 30% of the population. Data is for countries with a majority group above 50% of the population and ranges from 1975 to 2010. The quadratic function fits the data.

The index for executive constraints in the Polity series is robustly associated with the share of included minorities under 20 and 30%, but not 10%. The result is not robust to including random effects. The results are presented in Tables 7 and 8 in Appendix B.

4 Conclusion

This paper shows a U-shaped effect of democracy on the welfare of minorities in countries with a large majority ethnic group. On average, minorities are better-off in autocracies than in semi-democracies. Full democracies are more favorable than the latter as well. Of course, there are dictators who are brutal to minorities. Still, there are many cases when they include small groups into their winning coalition. This outcome occurs if the dictator herself comes from a small group that cannot rule on its own. Therefore, if a dictator who includes minorities loses power, these groups can face bad consequences, as in the examples of Bashar al-Assad in Syria and Siad Barre in Somalia.

Another implication concerns semi-democracies. The leader in such countries needs to build a large winning coalition, so relying only on minorities is not enough. On the other hand, the support of the largest ethnic group is sufficient, so minorities are not needed. Regardless of the leader's identity, minorities will be excluded and discriminated. For instance, Turkey and Sri Lanka are semi-democracies that exhibit long-lasting ethnic tensions.

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Appendix A

Proof of Proposition 1

Let $w < 1 - k$. Then the only possible equilibrium is the one in which each minority proposer makes an offer to r other minorities. To see why this is true, consider such an equilibrium. Each minority gets:

$$v_{min} = \delta[s(1 - rv_{min}) + (m-1)s\frac{r}{m-1}v_{min}] = \delta s$$

The majority gets $v_{maj} = \delta k$ since it proposes to itself. Now, this is an equilibrium iff:

$$1 - r\delta s \geq 1 - \delta k \Rightarrow r \leq \frac{k}{s} \Rightarrow \frac{w}{s} - 1 \leq \frac{k}{s} \Rightarrow \frac{w-k}{s} \leq 1$$

which is true since $w < 1-k < k$. There are no other equilibria given these values of parameters by Eraslan's Theorem.

Let $1-k < w < k$. Then each minority proposes to the majority, and the majority proposes to itself, therefore

$$v_{maj} = \delta(k + (1-k)v_{maj}) \Rightarrow v_{maj} = \frac{\delta k}{1 - \delta + \delta k}$$

and

$$v_{min} = \delta s(1 - v_{maj}) = \frac{(1-\delta)\delta s}{1 - \delta(1-k)} < \delta s$$

Finally, let $w > k$. Then the payoffs are given by:

$$v_{min} = \delta(s(1 - v_{maj} - rv_{min}) + k\frac{(w-k)}{(1-k)}v_{min} + (m-1)s\frac{rv_{min}}{m-1})$$

and

$$v_{maj} = \delta(k(1 - (w-k)v_{min}) + (1-k)v_{maj})$$

which gives:

$$v_{min} = -\frac{(-1+\delta)\delta(-1+k)s}{-1+k+\delta(1+k(-2+w))+\delta^2(-1+k)k(-1+s)(k-w)}$$

The derivative $\frac{dv_{min}}{dw}$ is positive given the relevant parameter values.

The Baron-Ferejohn model with equal recognition probabilities.

Consider the same model as the main model, but in which recognition probabilities are equal for all players.

Proposition 2: The expected ex ante payoff of a minority first decreases, then stays constant and then increases as the level of democracy w changes from the minimum to the maximum value.

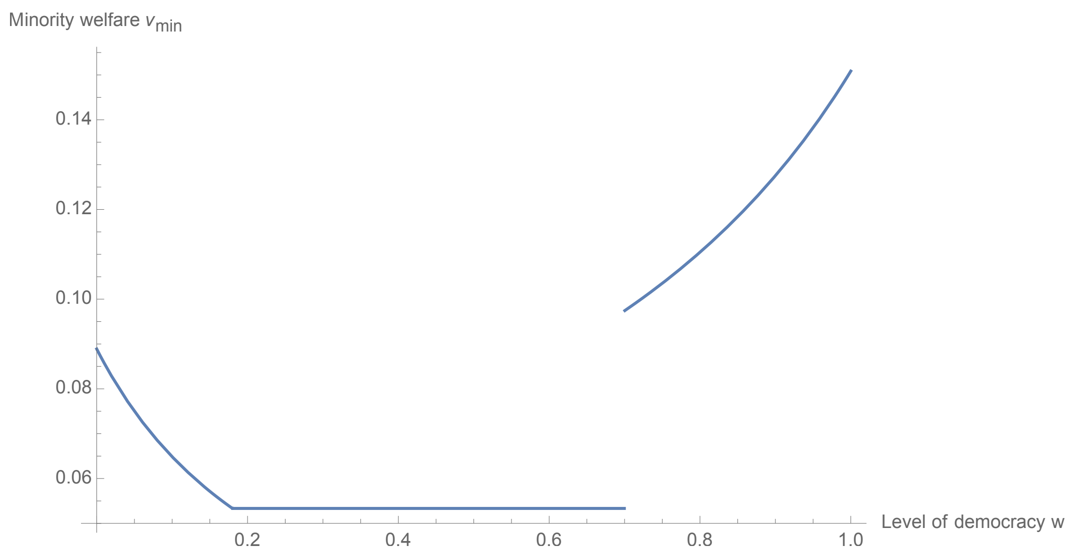

Figure 3: The level of democracy w and minority welfare v_{min}. Calibration values are: $\delta = 0.8$, $m = 10$,$k = 0.7$

Proof:

Lemma: The subgame stationary payoffs are given by

Condition	Payoff
$w < \text{Min}\{\frac{(1-k)(2-\delta)}{m(1-\delta)}, 1-k\}$	$v_{maj} = \frac{\delta(1-k-mw)}{1-k(m-1)-m(1+w)}, v_{min} = \frac{\delta(k-1)}{1+k(m-1)-m(1+w)}$
$\text{Min}\{\frac{(1-k)(2-\delta)}{m(1-\delta)}, 1-k\} < w < k$	$v_{maj} = \frac{\delta}{m(1-\delta)+1}, v_{min} = \frac{\delta(1-\delta)}{m(1-\delta)+1}$
$w > k$	$v_{maj} = \frac{\delta(1+m+k(-1+(-1+\delta)m)-\delta mw)}{1-(-1+\delta)m^2+k(-1+(-2+\delta+\delta^2)m+(-1+\delta)m^2)-m(-2+\delta+\delta^2 w)}$, $v_{min} = \frac{(-1+\delta)\delta(-1+k)(1+m)}{1-(-1+\delta)m^2+k(-1+(-2+\delta+\delta^2)m+(-1+\delta)m^2)-m(-2+\delta+\delta^2 w)}$

Proof: The model breaks down into several cases depending on which winning coalitions can be formed. I compute the payoffs for the interesting case when $w < 1-k < k$ and omit the algebra for the other cases due to their simplicity.

Let $w < 1-k < k$. Then a winning coalition can consist of the majority, of $\frac{w}{s}$ minorities, or of 1 minority plus the majority. Obviously, since $k > 1-k > w$, the majority does not invite anyone into the coalition if it becomes a proposer. The minority player who becomes the proposer has two options: to make an offer to the majority or to $r \equiv \frac{w}{s} - 1$ other minorities.

Consider a mixed equilibrium in which the minority makes an offer to the majority with probability p and to $\frac{w}{s} - 1$ other minorities with probability $1-p$. The minority proposer must be indifferent between proposing to the minorities or the majority. The payoffs and probability of making an offer to the majority are given by a system of equations:

$$v_{maj} = \frac{\delta}{m+1}(1 + mpv_{maj})$$

$$v_{min} = \frac{\delta}{m+1}(1 - pv_{maj} - (1-p)rv_{min} + (m-1)\frac{r}{m-1}(1-p)v_{min})$$

$$v_{maj} = rv_{min}$$

which reduces to

$$v_{maj} = \frac{\delta(1-k-mw)}{1-k(m-1)-m(1+w)}$$

$$v_{min} = \frac{\delta(k-1)}{1+k(m-1)-m(1+w)}$$

$$p = \frac{-2+2k+mw}{\delta(-1+k+mw)}$$

For this to be an equilibrium, it must be true that $0 < p < 1 \Rightarrow$

$$w > \frac{(k-1)(\delta-2)}{m(1-\delta)}$$

It is easy to verify that there is no equilibrium in which minorities propose only to minorities. If this were true, the majority would get a SSP payoff of

$$v_{maj} = \frac{\delta}{m+1}$$

since it would propose to itself. Each minority would get

$$v_{min} = \frac{\delta}{m+1}\left(1 - rv_{min} + (m-1)\frac{r}{m-1}v_{min}\right) = \frac{\delta}{m+1} = v_{maj}$$

Each minority proposer then would prefer to propose to the majority instead of r minorities, so this can not be an equilibrium.

Suppose that each minority proposer makes an offer to the majority. Then the payoffs are given by the system:

$$v_{maj} = \frac{\delta}{m+1}(1 + m v_{maj})$$

and

$$v_{min} = \frac{\delta}{m+1}(1 - v_{min})$$

which yields:

$$v_{maj} = \frac{\delta}{m(1-\delta)+1}$$

and

$$v_{min} = \frac{\delta(1-\delta)}{(m(1-\delta)+1)}$$

Since, by Eraslan's Theorem (2013), the SSP payoffs given a set of parameters are unique, this is an equilibrium when

$$w < \frac{(k-1)(\delta-2)}{m(1-\delta)}$$

If $1-k < w < k$, then every winning coalition includes the majority, so each minority proposer makes a proposal to the majority. If $w > k$, then every winning coalition includes the majority and $(w-k)/s$ minorities. Setting up systems of equations as in the first example and solving them gives the payoffs for the remaining cases.

Taking derivatives shows that the minority welfare v_{min} decreases in w if

$$w \leq \mathrm{Min}\{\tfrac{(k-1)(\delta-2)}{m(1-\delta)}, 1-k\}$$

is constant if

$$\mathrm{Min}\{\frac{(k-1)(\delta-2)}{m(1-\delta)}, 1-k\} < w \leq k$$

and increases otherwise.

Since

$$\frac{\delta(k-1)}{1+k(m-1)-m(1+w)} \mid_{w=\frac{(k-1)(\delta-2)}{m(1-\delta)}} = \frac{\delta(1-\delta)}{m(1-\delta)+1} \mid_{w=\frac{(k-1)(\delta-2)}{m(1-\delta)}}$$

and

$$\frac{(-1+\delta)\delta(-1+k)(1+m)}{1-(-1+\delta)m^2+k(-1+(-2+\delta+\delta^2)m+(-1+\delta)m^2)-m(-2+\delta+\delta^2 w)} \mid_{w=k}=$$

$$= \frac{\delta(1-\delta)}{m(1-\delta)+1} \mid_{w=k}$$

and

$$\frac{\delta(k-1)}{1+k(m-1)-m(1+w)} \mid_{w=1-k<\frac{(k-1)(\delta-2)}{m(1-\delta)}} > \frac{\delta(1-\delta)}{m(1-\delta)+1} \mid_{w=1-k<\frac{(k-1)(\delta-2)}{m(1-\delta)}}$$

there are no discontinuous upward jumps.

The Baron-Ferejohn model with a formateur accepting proposals

Consider the following modification of the Baron-Ferejohn model. At each round, a formateur is randomly selected, with each player having an equal chance of being drawn. Next, all other players simultaneously announce the prices for their votes. Next, the formateur selects a set S of players. If S is a winning coalition, the formateur gets a payoff of 1 and pays the prices of all players in S. Otherwise, the game is repeated and the payoffs are discounted by δ[1]. I will now solve this game and show that it provides a prediction that is similar to the main model. Again, I restrict attention to

[1] To the best of my knowledge, this model was not considered before. It was suggested to me by Daniel Treisman.

subgame stationary equilibria.

Proposition 3: As w increases from the minimum to the maximum value the expected ex ante payoff of the minority first stays constant, then drops and stays constant, then jumps up at $w = 1$, which corresponds to unanimity.

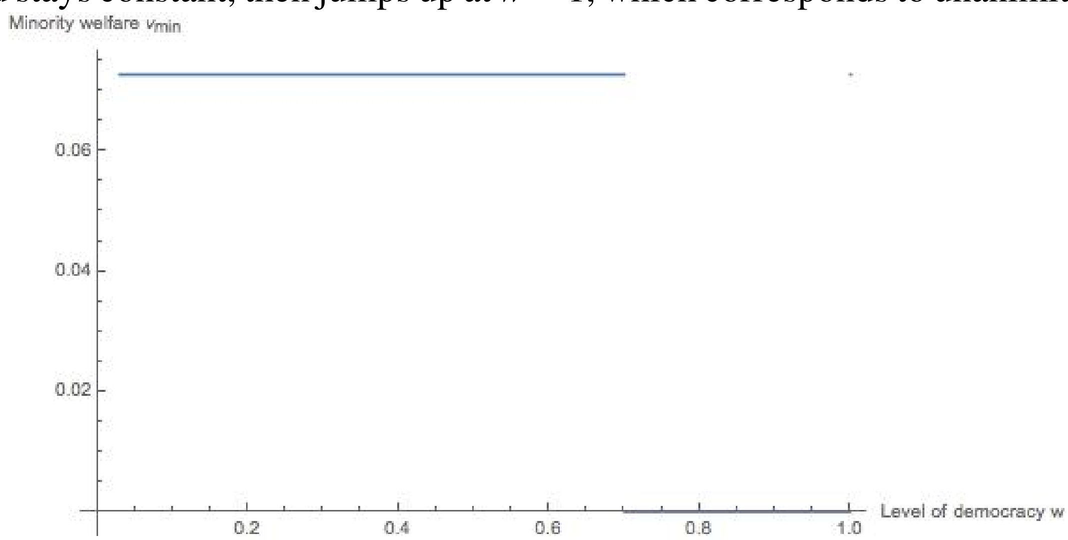

Figure 4 - Minority payoff in a Baron-Ferejohn model with a formateur receiving proposals, as a function of democracy w. Calibration parameters: $m = 10$, $k = 0.7$, $\delta = 0.8$.

Proof: Since the formateur can select S that is not winning, she can pass on the move.

Claim 1. Let $w < 1 - k$. Then the formateur gets the whole surplus.

Proof:

The fact is trivial if the majority player is proposing. Let i be a minority formateur. Define p_{maj} as the vote price of the majority player and $p_{min,j}$ as the price of the generic minority player. Let W be the set of winning coalitions and M - the set of minority players. The formateur chooses the cheapest winning coalition or passes the move. Suppose that the Claim is not true and that the formateur does not pass the move.

$$\text{Min}_{S/\{i\}\subset W/\{i\}} \sum_{j\in S} p_j > 0$$

Hence both the price of the majority and of the cheapest winning coalition of minorities are positive. Formally, $p_{maj} > 0$ and

$$\text{Min}_{S/\{i\}\subset M\cap W/\{i\}} \sum_{j\in S} p_j > 0$$

Now, in equilibrium

$$p_{maj} \leq \text{Min}_{S/\{i\}\subset M\cap W/\{i\}} \sum_{j\in S} p_j$$

because otherwise the formateur selects the cheapest coalition of minorities and the majority gets nothing. Moreover,

$$p_{maj} = \text{Min}_{S/\{i\} \subset M \cap W/\{i\}} \sum_{j \in S} p_j - \varepsilon$$

where ε is very small and positive. Otherwise, the majority could increase the price of her vote and still be included in the winning coalition. Now, consider a member of the cheapest winning coalition. If she decreases her price by 2ε, the formateur selects the cheapest coalition of minorities instead of the majority. Therefore,

$$p_{maj} > \text{Min}_{S/\{i\} \subset M \cap W/\{i\}} \sum_{j \in S} p_j$$

Hence, the LHS and RHS cannot both be positive, we are done if the formateur does not pass the move. Suppose she does pass the move. Then by stationarity so do all minority formateurs. So, the minority formateur gets the payoff of 0. Therefore, $p_{maj} \geq 1$, since otherwise the formateur can get $1 - p_{maj} > 0$ by accepting the majority's proposal. Now, if this is an equilibrium, the majority gets an expected continuation payoff of

$$v_{maj} : v_{maj} = \delta[\frac{1}{m+1} + \frac{m}{m+1} v_{maj}] = \frac{\delta}{1 + m(1-\delta)} < 1$$

Clearly, the majority could pick $p_{maj} = 1 - \varepsilon$ where ε is very small and get accepted. Hence, $p_i = 0$ for any i are the unique equilibrium prices of votes. So, the expected continuation payoff of the minority is $v_{min} = \frac{\delta}{m+1}$.

Let now $1 - k < w \leq k$. The majority, again, chooses itself as a winning coalition. Define v_{maj} and $v_{min,j}$ as the expected continuation payoffs of the majority and generic minority, respectively. They are time-invariant by the stationarity assumption. Since the only winning coalitions that are played in equilibrium consist of just the majority, or the majority plus one minority, the minorities only earn their payoffs in case they serve as formateurs. Now, consider a minority player j that is the formateur. Let the majority price be p_{maj}. If j rejects, the only time she will be able to earn a positive payoff in the future will be the same strategic situation. That is, the next round in which i is a formateur. Hence, i accepts any p_{maj}, so $p_{maj} = 1$. So, $v_{min} = 0$.

Let $k < w < 1$. Then all winning coalitions contain some minorities and the majority. If the majority is a formateur, all minorities announce a price of 0. Otherwise any minority player not included in the winning coalition can gain by reducing her price. If a minority is a formateur, then all other minorities set 0 prices by the same logic. As in the case when $1 - k \leq w < k$, the majority sets a monopoly price of 1. Again, $v_{min} = 0$.

Finally, let $w = 1$. This is unanimity rule, so all players are essential. There is a family of silly equilibria in which at least one player posts a very high price, and all formateurs pass the move. Assume however that $\sum_i p_i \leq 1$. Because all players are now equivalent and we assume stationarity, all prices must be the same, so $p_i = p_j$ for any i, j. Since a formateur must agree on the proposals, it must be that:

$$1 - mp_i = \delta(\frac{1}{m+1}(1 - mp_i) + \frac{m}{m+1}p_i) = \frac{\delta}{m+1} \Rightarrow p_i = \frac{1}{m} - \frac{\delta}{m(m+1)}$$

Since $mp_i = 1 - \frac{\delta}{m+1} < 1$, this set of prices is feasible. Hence

$$v_{min} = \delta(\frac{1}{m+1}(1 - mp_i) + \frac{m}{m+1}p_i) = 1 - mp_i = 1 - (1 - \frac{\delta}{m+1}) = \frac{\delta}{m+1}$$

The Shapley value

The Shapley value is a way to assign payoff to players in a cooperative setting. That is, the game specifies the payoff that each coalition of players can achieve, but not the structure of the game. Since the value is given axiomatically and does not assume any protocol of interaction, this approach has an advantage over the Baron-Ferejohn model. The Shapley value always exists and is unique. I will invoke the computational method and various properties in the proof and refer the reader to Winter (2002) for a thorough exposition.

I will keep the notation from the main model and the assumption that the majority is larger in size than all minorities together. The Shapley value is easier to compute using the number of votes versus shares. I assume that each minority group has 1 vote. I also add several new variables. Define $n \equiv \frac{m}{1-k}$ as the total number of votes available, $q = n - m$ as the amount of votes the majority group has, and $W = wn$ as the number of votes in the minimum winning coalition. Now I will prove that in our setting the prediction of the Shapley value is the same as of the Baron-Ferejohn model (though in general they are not the same).

Proposition 4: In the Shapley value, as the level of democracy W changes from the minimum to the maximum value, the payoff of a minority first decreases, then drops and stays constant, and then increases.

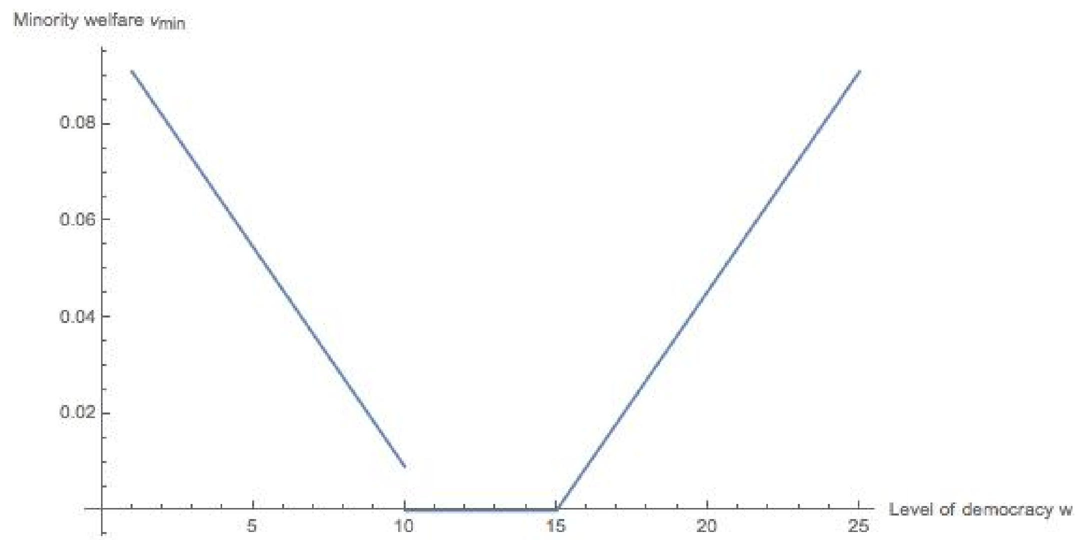

Figure 5: Minority payoff in the Shapley value, as a function of democracy W. Calibration parameters: $m = 10, q = 15$.

Proof: First, note that by Anonymity and Efficiency properties of the Shapley value:

$$v_{min} = \frac{1 - v_{maj}}{m}$$

Now, the payoff of a player in the Shapley value of a simple game is the probability that her vote is pivotal given that players are entering a coalition in a random order. Let $W < m$. Hence, the majority player makes a coalition winning (becomes pivotal) iff her position is from 1 to W. The number of such orderings is

$$W \times m!$$

while the total number of orderings is

$$(m+1)!$$

So, the probability of being pivotal for the majority player is

$$v_{maj} = \frac{W \times m!}{(m+1)!} = \frac{W}{m+1}$$

Hence the payoff of each minority player is

$$v_{min} = \frac{1 - v_{maj}}{m} = \frac{1+m-w}{m(1+m)}$$

which decreases in w.

Let $m < W < q$. Then, obviously, $v_{maj} = 1$ and $v_{min} = 0$.

Let $W \geq q$. Then the majority is pivotal if her position is from $W - q + 1$ to $m + 1$. There are $m+1-(W-q+1)+1 = m-W+q+1$ such positions and $m!$ orderings of minorities which correspond to each, which gives

$$(m - W + q + 1)m!$$

combinations. Since there are $(m+1)!$ possible orderings, the probability for the majority to be pivotal is:

$$\frac{(m-W+q+1)m!}{(m+1)!}=\frac{m-W+q+1}{m+1}$$

Hence the minority payoff is

$$v_{min}=\frac{1-v_{maj}}{m}=\frac{w-q}{m(1+m)}$$

So, similar to the Baron-Ferejohn case, the utility of a minority first decreases, then stays constant, then increases in the level of democracy.

Appendix B

Table 1. The effect of Executive Electoral Constraints on the share of minorities under 10 percent in the Central Government. A pooled OLS model.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Executive Electoral Constraints	-0.0773***	-0.0472	-0.0498	-0.0833**	-0.0558*	-0.0815**	-0.0645*
	(0.0175)	(0.0259)	(0.0261)	(0.0284)	(0.0264)	(0.0284)	(0.0280)
Executive Electoral Constraints, squared	0.00953***	0.00539*	0.00570*	0.00916**	0.00641*	0.00883**	0.00733*
	(0.00189)	(0.00267)	(0.00270)	(0.00294)	(0.00272)	(0.00294)	(0.00290)
GDP per capita	0.00440***		-0.00315**	-0.00386***	-0.00270*	-0.00276*	-0.00264*
	(0.000987)		(0.00117)	(0.00116)	(0.00121)	(0.00121)	(0.00119)
Linguistic fractionalization	0.0586		0.0753***	0.132***		0.152***	
	(0.142)		(0.0190)	(0.0208)		(0.0209)	
Years since last war	-0.00119***			0.000738**		0.000605	-0.0000952
	(0.000308)			(0.000269)		(0.000315)	(0.000223)
Percent of years under either colonial or imperial rule	-0.202*			0.181***		0.193***	
	(0.0790)			(0.0324)		(0.0323)	
Size of largest group, in percent	-0.503***			0.109*		0.105*	-0.0570
	(0.132)			(0.0445)		(0.0444)	(0.0365)
Oil production per capita	-0.00765				-0.0144***	-0.0205***	-0.0157***
	(0.00511)				(0.00233)	(0.00272)	(0.00244)
Ongoing war dummy, lagged	0.0557***				-0.00254	0.00470	
	(0.00969)				(0.0109)	(0.0130)	
Regime change over the past 3 years						0.00350	-0.00132
						(0.0141)	(0.0136)
Observations	2746	2758	2758	2752	2752	2746	2752

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2. The effect of Executive Electoral Constraints on the share of minorities under 20 percent in the Central Government. A pooled OLS model.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Executive Electoral Constraints	-0.0818**	-0.155***	-0.155***	-0.191***	-0.137***	-0.185***	-0.173***
	(0.0280)	(0.0333)	(0.0332)	(0.0328)	(0.0342)	(0.0334)	(0.0327)
Executive Electoral Constraints, squared	0.00887**	0.0161***	0.0161***	0.0196***	0.0139***	0.0189***	0.0175***
	(0.00290)	(0.00343)	(0.00343)	(0.00339)	(0.00353)	(0.00347)	(0.00338)
GDP per capita	-0.00277*		0.00277*	0.00391**	0.00369**	0.00427**	0.00488***
	(0.00120)		(0.00135)	(0.00136)	(0.00141)	(0.00142)	(0.00141)
Linguistic fractionalization	0.152***		-0.110***	-0.0863**		-0.0778*	
	(0.0208)		(0.0258)	(0.0322)		(0.0323)	
Years since last war	0.000600			-0.000770**		-0.000542	-0.00121***
	(0.000322)			(0.000293)		(0.000336)	(0.000245)
Percent of years under either colonial or imperial rule	0.192***			0.173***		0.182***	
	(0.0324)			(0.0345)		(0.0346)	
Size of largest group, in percent	0.105*			0.0581		0.0571	0.0907*
	(0.0444)			(0.0511)		(0.0511)	(0.0396)
Oil production per capita	-0.0206***				-0.00738	-0.00789*	-0.00783*
	(0.00272)				(0.00385)	(0.00387)	(0.00391)
Ongoing war dummy, lagged	0.00492				0.0378**	0.0279	
	(0.0127)				(0.0135)	(0.0156)	
Regime change over the past 3 years						-0.000729	-0.00605
						(0.0161)	(0.0161)
Observations	2746	2758	2758	2752	2752	2746	2752

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3. The effect of Executive Electoral Constraints on the share of minorities under 30 percent in the Central Government. A pooled OLS model.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Executive Electoral Constraints	-0.185***	-0.122***	-0.118***	-0.155***	-0.111**	-0.155***	-0.135***
	(0.0331)	(0.0344)	(0.0345)	(0.0342)	(0.0350)	(0.0345)	(0.0341)
Executive Electoral Constraints, squared	0.0189***	0.0132***	0.0127***	0.0166***	0.0119**	0.0167***	0.0143***
	(0.00343)	(0.00354)	(0.00356)	(0.00353)	(0.00361)	(0.00357)	(0.00352)
GDP per capita	0.00427**		0.00309*	0.00354**	0.00298*	0.00334*	0.00394**
	(0.00141)		(0.00135)	(0.00136)	(0.00142)	(0.00142)	(0.00141)
Linguistic fractionalization	-0.0778*		-0.0400	-0.0795*		-0.0854*	
	(0.0323)		(0.0266)	(0.0343)		(0.0345)	
Years since last war	-0.000541			-0.000594*		-0.000577	-0.000982***
	(0.000341)			(0.000300)		(0.000350)	(0.000252)
Percent of years under either colonial or imperial rule	0.182***			0.204***		0.203***	
	(0.0346)			(0.0343)		(0.0345)	
Size of largest group, in percent	0.0571			-0.147**		-0.146**	-0.112**
	(0.0511)			(0.0545)		(0.0546)	(0.0407)
Oil production per capita	-0.00788*				0.00833*	0.00451	0.00429
	(0.00388)				(0.00334)	(0.00343)	(0.00338)
Ongoing war dummy, lagged	0.0279				0.0124	-0.00150	
	(0.0154)				(0.0140)	(0.0164)	
Regime change over the past 3 years						0.00298	-0.00513
						(0.0163)	(0.0164)
Observations	2746	2758	2758	2752	2752	2746	2752

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4. The effect of Executive Electoral Constraints on the share of minorities under 10 percent in the Central Government. A random effects model.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Executive Electoral Constraints	-0.280***	0.0144	0.0168	-0.0387**	0.0194	-0.0381**	-0.0438**
	(0.0368)	(0.0136)	(0.0137)	(0.0134)	(0.0137)	(0.0134)	(0.0134)
Executive Electoral Constraints, squared	0.0290***	-0.000898	-0.00123	0.00449**	-0.00154	0.00438**	0.00524***
	(0.00383)	(0.00146)	(0.00146)	(0.00144)	(0.00147)	(0.00144)	(0.00144)
GDP per capita	0.000821		0.00184**	0.00119	0.00203**	0.000869	0.00220**
	(0.00139)		(0.000659)	(0.000747)	(0.000667)	(0.000754)	(0.000724)
Linguistic fractionalization	-0.106**		0.176	0.232*		0.223*	
	(0.0355)		(0.100)	(0.110)		(0.111)	
Years since last war	0.000994**			-0.000505*		-0.000111	-0.000441*
	(0.000376)			(0.000217)		(0.000236)	(0.000219)
Percent of years under either colonial or imperial rule	0.212***			-0.281***		-0.270***	
	(0.0343)			(0.0607)		(0.0610)	
Size of largest group, in percent	-0.464***			-0.0977		-0.132	-0.0774
	(0.0566)			(0.101)		(0.101)	(0.0989)
Oil production per capita	-0.0214***				-0.00243	-0.00160	-0.00230
	(0.00354)				(0.00415)	(0.00390)	(0.00393)
Ongoing war dummy, lagged	-0.0175				0.0200**	0.0340***	
	(0.0169)				(0.00716)	(0.00741)	
Regime change over the past 3 years						-0.00487	-0.00281
						(0.00614)	(0.00615)
Observations	2746	2758	2758	2752	2752	2746	2752

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5. The effect of Executive Electoral Constraints on the share of minorities under 20 percent in the Central Government. A random effects model.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Executive Electoral Constraints	-0.0377**	-0.0265	-0.0223	-0.0799***	-0.0157	-0.0791***	-0.0841***
	(0.0134)	(0.0177)	(0.0177)	(0.0177)	(0.0177)	(0.0177)	(0.0177)
Executive Electoral Constraints, squared	0.00434**	0.00446*	0.00390*	0.00991***	0.00310	0.00977***	0.0105***
	(0.00144)	(0.00190)	(0.00190)	(0.00191)	(0.00190)	(0.00190)	(0.00190)
GDP per capita	0.000879		0.00306***	0.00499***	0.00358***	0.00455***	0.00586***
	(0.000754)		(0.000852)	(0.000977)	(0.000857)	(0.000985)	(0.000949)
Linguistic fractionalization	0.223*		0.158	0.176		0.160	
	(0.110)		(0.119)	(0.127)		(0.128)	
Years since last war	-0.0000920			-0.00191***		-0.00130***	-0.00190***
	(0.000235)			(0.000286)		(0.000311)	(0.000288)
Percent of years under either colonial or imperial rule	-0.269***			-0.209**		-0.189*	
	(0.0608)			(0.0743)		(0.0748)	
Size of largest group, in percent	-0.133			-0.192		-0.246	-0.184
	(0.101)			(0.129)		(0.129)	(0.125)
Oil production per capita	-0.00146				-0.00613	-0.00671	-0.00741
	(0.00390)				(0.00534)	(0.00513)	(0.00516)
Ongoing war dummy, lagged	0.0336***				0.0528***	0.0546***	
	(0.00739)				(0.00926)	(0.00978)	
Regime change over the past 3 years						-0.0111	-0.00774
						(0.00810)	(0.00813)
Observations	2746	2758	2758	2752	2752	2746	2752

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6. The effect of Executive Electoral Constraints on the share of minorities under 30 percent in the Central Government. A random effects model.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Executive Electoral Constraints	-0.0782***	-0.0273	-0.0231	-0.0816***	-0.0144	-0.0787***	-0.0867***
	(0.0177)	(0.0183)	(0.0183)	(0.0183)	(0.0181)	(0.0182)	(0.0183)
Executive Electoral Constraints, squared	0.00965***	0.00469*	0.00412*	0.0102***	0.00306	0.00980***	0.0109***
	(0.00190)	(0.00196)	(0.00196)	(0.00197)	(0.00195)	(0.00195)	(0.00197)
GDP per capita	0.00456***		0.00310***	0.00458***	0.00362***	0.00412***	0.00558***
	(0.000984)		(0.000879)	(0.00101)	(0.000881)	(0.00102)	(0.000983)
Linguistic fractionalization	0.160		0.189	0.181		0.161	
	(0.127)		(0.124)	(0.135)		(0.137)	
Years since last war	-0.00126***			-0.00177***		-0.00113***	-0.00173***
	(0.000310)			(0.000296)		(0.000320)	(0.000298)
Percent of years under either colonial or imperial rule	-0.188*			-0.260***		-0.236**	
	(0.0746)			(0.0781)		(0.0788)	
Size of largest group, in percent	-0.249			-0.340*		-0.399**	-0.316*
	(0.129)			(0.134)		(0.134)	(0.131)
Oil production per capita	-0.00638				-0.00438	-0.00490	-0.00540
	(0.00513)				(0.00548)	(0.00528)	(0.00535)
Ongoing war dummy, lagged	0.0536***				0.0534***	0.0586***	
	(0.00976)				(0.00949)	(0.0100)	
Regime change over the past 3 years						-0.0102	-0.00659
						(0.00832)	(0.00841)
Observations	2746	2758	2758	2752	2752	2746	2752

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7. The effect of Executive Constraints (Polity) on the share of minorities under 20 percent in the Central Government. A pooled OLS model.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Executive constraints (Polity IV)	0.00234	-0.0333***	-0.0312**	-0.0276**	-0.0330***	-0.0288**	-0.0316**
	(0.00866)	(0.00966)	(0.00964)	(0.00960)	(0.00982)	(0.00974)	(0.00982)
Executive constraints squared (Polity IV)	-0.000295	0.00433***	0.00364***	0.00293**	0.00370***	0.00299**	0.00354**
	(0.000978)	(0.00109)	(0.00109)	(0.00109)	(0.00111)	(0.00110)	(0.00111)
GDP per capita	0.00108		0.00523***	0.00687***	0.00553***	0.00714***	0.00735***
	(0.00100)		(0.00104)	(0.00105)	(0.00108)	(0.00111)	(0.00108)
Linguistic fractionalization	0.155***		-0.0613**	-0.0239		-0.0206	
	(0.0164)		(0.0208)	(0.0258)		(0.0259)	
Years since last war	0.000345			-0.000680*		-0.000578	-0.00108***
	(0.000300)			(0.000266)		(0.000314)	(0.000232)
Percent of years under either colonial or imperial rule	0.130***			0.148***		0.154***	
	(0.0248)			(0.0249)		(0.0254)	
Size of largest group, in percent	0.160***			0.111**		0.111**	0.0953**
	(0.0353)			(0.0394)		(0.0399)	(0.0302)
Oil production per capita	-0.0114***				-0.00396*	-0.00445**	-0.00454**
	(0.00155)				(0.00154)	(0.00155)	(0.00157)
Ongoing war dummy, lagged	0.00326				0.0234*	0.0143	
	(0.0106)				(0.0105)	(0.0125)	
Regime change over the past 3 years						0.0145	0.0117
						(0.0126)	(0.0125)
Observations	4323	4402	4399	4399	4323	4323	4399

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8. The effect of Executive Constraints (Polity) on the share of minorities under 30 percent in the Central Government. A pooled OLS model.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Executive constraints (Polity IV)	-0.0283**	-0.0265**	-0.0255**	-0.0187	-0.0275**	-0.0209*	-0.0234*
	(0.00973)	(0.00962)	(0.00963)	(0.00963)	(0.00974)	(0.00974)	(0.00980)
Executive constraints squared (Polity IV)	0.00293**	0.00358***	0.00287**	0.00187	0.00312**	0.00210	0.00269*
	(0.00110)	(0.00109)	(0.00110)	(0.00109)	(0.00111)	(0.00111)	(0.00111)
GDP per capita	0.00711***		0.00567***	0.00685***	0.00570***	0.00694***	0.00702***
	(0.00111)		(0.00103)	(0.00104)	(0.00108)	(0.00110)	(0.00108)
Linguistic fractionalization	-0.0200		0.0249	0.0186		0.0182	
	(0.0258)		(0.0213)	(0.0267)		(0.0269)	
Years since last war	-0.000599			-0.000523		-0.000529	-0.000972***
	(0.000315)			(0.000267)		(0.000315)	(0.000234)
Percent of years under either colonial or imperial rule	0.153***			0.172***		0.175***	
	(0.0254)			(0.0248)		(0.0253)	
Size of largest group, in percent	0.112**			-0.0395		-0.0409	-0.0902**
	(0.0398)			(0.0400)		(0.0406)	(0.0304)
Oil production per capita	-0.00461**				0.00229	0.000554	0.000604
	(0.00156)				(0.00153)	(0.00144)	(0.00149)
Ongoing war dummy, lagged	0.0155				0.0113	-0.00299	
	(0.0123)				(0.0107)	(0.0128)	
Regime change over the past 3 years						0.0128	0.00892
						(0.0127)	(0.0126)
Observations	4323	4402	4399	4399	4323	4323	4399

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$