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Nicholas Sambanis¹ and Branko Milanovic²

Abstract

Why do groups want to secede and where is demand for self-determination most likely to arise? We argue self-determination demand is moderated by the projected economic costs of policy autonomy. The trade-off between income and sovereignty implies that, other things being equal, richer regions are more likely to demand more autonomy. This trade-off suggests that relative regional income is a key predictor of autonomy demands. We show evidence of this using new data collected at the level of second-tier administrative sub-divisions in 48 decentralized countries. Consistent with a demand-and-supply model of self-determination, we find that levels of policy autonomy are positively correlated with relative regional income, regional population share, natural resource endowment, and regional inter-personal inequality. Ethnically distinct regions have lower sovereignty, which could explain higher levels of conflict in these regions, but this association is conditional on controlling for the interactive effects between ethnic distinctiveness and regional inter-personal inequality.

Keywords

secession, self-determination, decentralization, inequality

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Introduction

Demands for policy autonomy by regionally concentrated ethnic groups claiming the right to self-determination account for more than a third of all civil wars since 1945. These wars—and many more incidents of lower level violence—have been fought over a wide range of unmet autonomy demands by groups that feel different from the rest of the nation and want the freedom to provide group-specific public goods within their territory. There is ongoing scholarly debate on the relative weight of economic versus political explanations for ethno-nationalist conflict. This article contributes to the debate by identifying economic correlates of regional demands for autonomy.

We focus on any demand that can affect the supply of group-specific public goods, including citizenship, education, security, or other public services consistent with decentralized decision making. We argue that economic factors should influence all such demands because of a basic trade-off between income and sovereignty that has been articulated by both economists and sociologists (see Hechter, 2001; Milanovic, 2000; Spolaore, 2008). Because self-determination involves the production of costly public goods, richer groups or regions are more likely to make such demands because they can afford to cover the costs.

The economic variables that we focus on—relative income and regional inequality—cannot explain all ethnic conflict. There is strong evidence that political factors—specifically political exclusion of peripheral ethnic groups—increase the risk of ethnic conflict (Cederman, Wimmer, & Min, 2010). Perceived social distance also matters (Horowitz, 1985). However, within a given political system and controlling for social distance, relative income and other measures of social status can affect autonomy demand. We focus on economic factors that influence the feasibility and desirability of autonomy: inter-group (inter-regional) inequalities in income can make some groups better able to afford autonomy. Status differences across groups can also provide a psychological foundation for autonomy demand by increasing inter-group conflict and reducing the degree to which social groups identify with the nation (Horowitz, 1985; Sambanis & Shayo, 2013).

In this article, we abstract from individual-level psychological mechanisms and follow an approach consistent with economic theories of secession, where the focus is on the feasibility of autonomy demands. The usual approach is to model an individual's ability to "exit" as an increasing function of his or her income (Buchanan & Faith, 1987). Claims for greater decentralization in tax-and-spend powers for regions follow a similar logic. In Tiebout's (1957) classic model, the decentralized provision of public

goods is an efficient response to competition among sub-national governments over investment, firms, or residents in the presence of heterogeneous preferences (see also Panizza, 1999). Using country-level data, Oates (1972) showed that if economies of scale for the production of public goods are not too large, then decentralization can lead to more efficient allocation of resources by targeting public goods provision to the preferences of local communities, which should reduce social conflict (see also Hechter, 2001).

The economic logic for decentralization as a conflict resolution strategy seems plausible, but it can also backfire leading to ever-growing sovereignty demands (Hechter, 2001). It can do so by empowering institutions at sub-national levels of government or by granting regional parties control over policy areas, allowing them to mobilize support for more self-determination (Brancati, 2006; Riker, 1964; Weingast, 1995).

The lack of scholarly consensus on the effects of decentralization on conflict reflects the broader lack of consensus on the causes of conflict over self-determination. A review of this literature suggests that claims over sovereignty or autonomy are more likely when the distribution of costs and benefits of continued political integration are unequal across regions (see Bolton, Roland, & Spolaore, 1996); when state institutions exclude ethnic minorities (Buhaug, Cederman, & Rod, 2008); when cultural differences divide nations (De Winter & Tursan, 1998; Hechter, 2001; Rokkan & Unwin, 1983); when ethnic minorities are territorially concentrated (Goddard, 2006; Smith, 2001; Toft, 2003); when economic inequalities generate group-specific grievances reinforced by political discrimination (Gurr, 2000; Gurr & Moore, 1997; Horowitz, 1985); when regional modes of production and economic specialization coincide with ethnic cleavages and reinforce inter-group or inter-regional economic inequality (Brustein, 1988; Meadwell, 1991); when the center supplants indirect for direct rule (Hechter, 2001, 1975; Melson & Wolpe, 1970); when economic benefits of integration decline relative to secession;¹ when ethnic and class cleavages are not cross-cutting, encouraging polarization (Horowitz, 1985); when there is a history of government discrimination against minorities (Buhaug et al., 2008); when there is minimal locational inter-dependence among production sectors in an economy (Buchanan & Faith, 1987); when elites manipulate federal institutions to pursue separatist agendas;² or when decentralization weakens the central government's ability to provide defense for its citizens or regime change weakens the center relative to the regions (Treisman, 1997).

We contribute to this large literature in three ways. First, we argue that the demand for sovereignty (or, more broadly, autonomy) is not explained only by country-level variables, which is a main focus of the extant literature. Regional characteristics also matter, so we analyze data on second-tier

administrative sub-divisions of countries.³ Second, we argue that all demands for autonomy should share a common foundation in economic inequality so we analyze both violent and non-violent movements for self-determination. Third, unlike the rest of the literature, we do not premise our analysis on an assumption that separatism has different causes than more limited demands for autonomy, such as regionalism. Differences in the form and scope of autonomy demands might arise endogenously as a result of interactions with the state. Our data allow us to test if economic factors underlie all autonomy demands.

The article is organized in four sections beyond the introduction. “A Model of the Demand for Sovereignty” section presents an economic model of the demand for self-determination, explaining conflict as arising from a discrepancy between observed and desired autonomy. The “Data” section describes the data. The section “Results” presents the results of our data analysis. The final section concludes with a discussion of theoretical and policy implications.

A Model of the Demand for Sovereignty

In most general terms, demands for sovereignty (we use the term as a synonym for self-determination or autonomy) are an increasing function of differences between a region and the rest of the country, represented by a central government (“the center”). These differences can be economic, political, cultural, or historical.⁴ Drawing on the large literatures on decentralization, nationalism, and ethnic conflict, we capture theoretical insights in Equation 1, which describes the sources of regional difference, leading to autonomy demand:

$$S_{ij}^* = f(s_{ij}, F_{ij}, R_{ij}, I_j, G_{ij}, H_{ij}, P_j), \quad (1)$$

In this reduced-form model, S_{ij}^* is the desired level of sovereignty of region i in country j ; s_{ij} is the share of the region in total country income; F_{ij} is an index of regional ethno-religious or cultural difference from the rest of the country; R_{ij} is the regional endowment in natural resources; I_j is the degree of economic inequality between regions (a country-level variable); G_{ij} is regional inter-personal inequality; H_{ij} is the historical basis for regional difference; and P_j is a country-level variable capturing political institutional determinants of sovereignty demand (e.g., regime type; degree of regional political power vis-à-vis the center). All variables except I_j and P_j are region-specific.

Our analysis makes several assumptions. First, we assume that centralized and decentralized systems will differ with respect to the prevalence, type, and intensity of autonomy demands, so we limit our analysis to decentralized countries.⁵ If decentralization satisfies local-regional demands for policy autonomy, then we should see less unmet autonomy demand in countries with a positive level of decentralization as compared with centralized countries.⁶ Decentralization implies the horizontal redistribution of resources from richer to poorer regions to create incentives for poorer regions to remain in the system. This institutional feature should generate different patterns of autonomy demand in decentralized relative to centralized systems.

Second, we assume that policy independence is desirable—more freedom is better. In practice, the trade-off between income and sovereignty should constrain autonomy demands (Hechter, 2001).⁷ A region may want the freedom to decide matters related to language use, education, taxation, environmental standards, and so on; but rights come at a price and may require less economic integration with the rest of the country, thereby lowering regional per capita income or regional growth rates.

Third, we assume that there are increasing returns to scale in the production of sovereignty (Hale, 2000; Hechter, 2001; Spolaore, 2008). The per capita cost of public goods production such as defense declines with group size, so it does not make sense to be a sovereign nation of one. Our last two assumptions imply that there is a natural limit to sovereignty, so very small or very poor regions cannot make credible sovereignty claims. Next, we specify how the variables listed in Equation 1 affect autonomy demand.

“Size” Variables: Income and Population

California in the United States, Shanghai in China, Punjab in India—these are all regions that are both rich relative to the nation-wide average and populous. The logic of the sovereignty-income trade-off suggests that they will demand a high level of autonomy because the trade-off is not as steep for them. These regions often form the core of a decentralized system, but the non-economic benefits (security, prestige) they derive from membership in a larger state will moderate their demand for sovereignty so they will not push for the expulsion of smaller, poorer regions.⁸

Smaller but rich regions should also demand a high degree of policy autonomy if they are net transfer donors. Examples are Catalonia in Spain, Gujarat in India, or the Baltic republics in the former Union of Soviet Socialist Republics (USSR). These cannot be core regions, because their population is small as is their share in total income, but they still face a less sharp income-sovereignty trade-off than smaller and poorer regions, which will accept a

low degree of autonomy. If transfers flow their way, smaller regions will be content to remain part of a decentralized system. The position of populous, but relatively poor, regions is ambiguous. Their large population may lead them to claim rights to a higher measure of autonomy, but they may also be willing to accept less freedom in exchange for resource transfers. Because it is the product of per capita GDP and population size (both normalized by the country averages) that determines demand for sovereignty, we hypothesize that

Hypothesis 1 (H1): Autonomy demand should increase with the regional share of total country income (s_{ij}).

Ethno-Cultural Differences

Ethnic or other cultural differences between regional groups and the rest of the country are a source of regional distinctiveness and can generate conflict with the center over the allocation of public goods or if regional groups are politically excluded.⁹ If individuals identify more with their ethnic group or region rather than the nation, this can reduce investments in state capacity and increase inter-group conflict. We do not focus on sources of social identification in this article, but if a vast body of literature on ethnicity, nationalism, and identity politics is right, then ethnic differences *within* a region should impede that region's ability to organize demands for sovereignty. By contrast, ethnic homogeneity *within* a region combined with ethnic difference *between* regions results in a high degree of regional difference (F_{ij}) and should enhance autonomy demands.

For a given level of F_{ij} , regions with larger groups should demand more sovereignty because it is easier for them to provide public goods. But group size is not enough. We must also consider the territorial concentration of ethnic groups (Hechter, 2001; Horowitz, 1991). A key difference between ethnic groups and nations is that nations are concentrated in a region that they see as their homeland, which can fuel sovereignty demands.¹⁰ Thus, we hypothesize that

Hypothesis 2 (H2): Ethnically different regions should demand more autonomy.

Inequality

A common claim in the literature is that high levels of inequality lead to conflict. The usual measure of inequality in quantitative studies of conflict is the Gini coefficient (inter-personal income inequality) at the country level and

some studies have also looked at horizontal (inter-group) inequality. We are mainly concerned with inequality within a given region as a factor affecting region-wide collective action against the state.

High within-region income inequality (G_i) can have two different effects. First, it may hinder collective action in pursuit of regional autonomy or independence because the costs and benefits of such actions are likely to accrue unequally to social groups within the region. Thus, high G_i would undermine social cohesion, reducing demand for autonomy. Alternatively, high G_i may assist agenda-setting elites to push for more autonomy by tapping into a class cleavage, increasing regional demands. Both hypotheses are plausible but point in different directions. Our regression analysis will try to adjudicate between them. Using household survey data from 876 regions in 48 countries (available for a single year between 1998 and 2003), we are able to measure inter-personal income inequality for sub-national regions.

Equation 1 also includes inter-regional inequality (I_j or inequality between average regional incomes), which may affect regional demands for two reasons. First, high I_j implies larger inter-regional transfers from richer to poorer regions, which should give rich regions incentives to exit or push poor ones to secede if rich regions insist on low transfers. Second, if inter-regional inequality maps on to regional ethnic differences, elites of ethnic minorities in poorer regions could organize demands for secession as the group's self-esteem will continue to suffer as long as it is perceived as a "backward" group (see Horowitz, 1985). Inter-regional inequality may thus provide both push and pull factors for exit.

Natural Resources

Consistent with the logic of the income-sovereignty trade-off, we would expect the prospect of controlling valuable natural resources and trading them on the global market to increase autonomy demands in resource-rich regions. The greater the importance of natural resources in regional GDP, the greater should be the region's demand for greater control over its resource wealth.¹¹ Aceh in Indonesia, Scotland in the United Kingdom, and Katanga in the 1960s Congo are examples.

Hypothesis 3 (H3): Resource-rich regions will demand more autonomy.

Other Factors: History, Path-Dependence, Political Institutions

Historical contingencies and previous conflict experience (H_{ij}) can also shape a region's sense of difference, fueling nationalist demands. Autonomy demand may be greater in regions that experienced a period of independent

statehood before being conquered; or among groups that have been systematically excluded from governance or denied sources of economic opportunity; or in repressive states with low levels of state legitimacy and low national identification. Democratic institutions can facilitate the organization of demands for self-determination as can democratic transitions. These factors can generate historically contingent path-dependent sources of difference in regions' autonomy (e.g., Swiss cantons differ with respect to their reliance on direct democracy and their use of referendums; Finland under the Russian Empire had a relatively powerful regional parliament; Catalonia and the Basque country in Spain both successfully claimed greater political rights and gained permanent concessions).

Inter-regional differences in political institutions are likely to be small, as most decentralized countries have uniform treatments of the degree of autonomy of their regions. We therefore do not focus explicitly on them and assume that they should be reflected in the underlying socio-economic characteristics of the regions. We capture country-level differences of this type by controls for country-level unobserved variables.

Desired Autonomy and Conflict

Equation 1 represents a long-term relationship, where S_{ij}^* is the desired level of autonomy that may not be immediately—or always—achieved. What we observe is actual autonomy (S_{ij}). When there is a discrepancy between desired and actual autonomy, there should be conflict of varying intensity, ranging from protests to separatist war. Thus, the discrepancy between desired and actual sovereignty (D_{ij}) is a latent variable that we can proxy by the observable level of conflict. Conflict implies that D_{ij} is greater than 0 and as D_{ij} increases, conflict (C_{ij}) intensity should increase.

This relationship is shown in Figure 1: Along the 45-degree line, actual autonomy is an exact measure of desired autonomy, because $S_{ij}^* = S_{ij}$. Regions will be located either on the 45-degree line or to the right of it, where $S_{ij}^* > S_{ij}$. Desired autonomy can never be less than observed autonomy in equilibrium: Regions that do not want independence can give it back to the center and should not incur costs to fight over *excess* autonomy. Observed autonomy proxies desired autonomy with error—it is a downward-biased estimate of desired autonomy. We can approximate the bias with a measure of conflict. If conflict in Chechnya and Palestine is intense, this is because the difference between actual and desired autonomy is large and this would be represented by a point such as A in Figure 1 (notice the large vertical distance from the 45-degree line). By contrast, Corsica and Wales, where there is less intense conflict, may be at a point such as B.

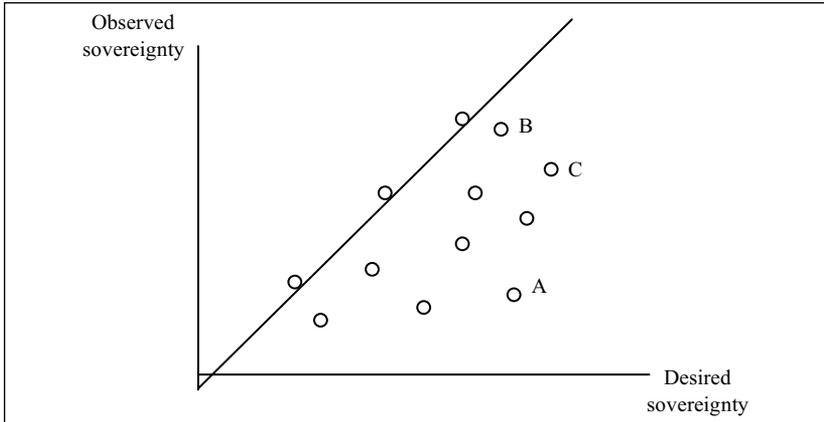


Figure 1. Observed autonomy (S) as an estimate of desired autonomy (S^*).

In the model, desired autonomy equals actual autonomy plus conflict (C_{ij}). Thus,

$$S_{ij}^* = S_{ij} + C_{ij}. \quad (2)$$

Combining Equations 1 and 2, we get the relationship that we estimate empirically:

$$S_{ij} = f(s_{ij}, F_{ij}, R_{ij}, I_j, G_{ij}, H_{ij}, P_j) - C_{ij} + \varepsilon_{ij}, \quad (3)$$

where ε_{ij} is a random error term and all the other terms are as explained before. It is the presence of conflict that allows us to detect a discrepancy between desired and actual autonomy. By construction, conflict enters Equation 3 with a negative sign—so greater autonomy should reduce conflict.

A complication in estimating such a model is that conflict is determined endogenously by the interaction of factors influencing autonomy demand and supply. In a sense, conflict is the “price” of freedom. Like a classic supply and demand model, price (in this case, conflict) can be estimated via instrumental variables regression. We do not believe that a valid instrument for conflict can be found in a cross-country setting and no prior study of the effects of decentralization (or other forms of autonomy) on any number of outcomes has proposed a valid instrumental variables approach to estimate the causal effect of (expected or actual) conflict on decentralization or vice

versa. Thus, we are limited in our ability to make causal claims, but we can use this model to estimate Equation 3 and identify the correlates of observed levels of sovereignty proxied by fiscal autonomy. We would interpret a negative correlation between conflict and actual autonomy levels as a plausibility test of the model in Figure 1.

Data

Because autonomy claims are made on behalf of regions, we use primary administrative sub-divisions (provinces, states, republics, departments) of decentralized countries as our units of analysis. All countries with multi-tiered political systems or unitary systems with significant economic decentralization for the regions are included.¹² Per our earlier discussion, we expect autonomy demand to be qualitatively different in decentralized countries as opposed to countries with no norms or practices of regional self-governance. Moreover, key economic variables in our model—including our dependent variable—are not meaningful for regions with no administrative authority to tax and spend.

Forty-eight countries meet our decentralization threshold, yielding a total of 876 regions. We have one observation per region for the period from the mid-1990s to the early 2000s. The number of regions in each country ranges from 2 in Serbia-Montenegro to 89 in Russia. We correct for this imbalance in the regression analysis by using weights that are equal to the inverse of the number of regions in each country so that countries with many regions do not disproportionately influence the results.

The dominant approach in the conflict literature has been to use country-year data, but this often fails to establish a close connection between theory and evidence. For example, a civil war in a resource-rich country might suggest a causal connection between resource wealth and war, but the war may occur in a part of the country without resources. By disaggregating the data to sub-national regions, we can get closer correspondence between theory and evidence.

Other studies focus on ethnic groups to get closer to the agents seeking autonomy. This approach has promise but also some limitations. First, it is not clear which are the relevant groups to study. In most cases, linguistic groups are chosen, but racial, religious, or regional cleavages may be salient in different countries and autonomy demands may be organized around such groups. Without a theory that specifies which social cleavage is activated by conflict, group-centered empirical approaches are directionless. Second, claims for self-determination are often made by regional groups that are not considered “ethnic” or aggregations of several ethnic groups represented by

an umbrella organization and such cases are usually omitted from ethnic group databases. Third, ethnic groups demanding sovereignty usually have a geographical referent in mind and existing political boundaries are often useful in establishing such a geographical referent.

For these reasons, we find it advantageous to use administrative regions as our units of analysis. These are governance units that can help groups organize autonomy claims. As a practical matter, many of our explanatory variables, such as income and inequality, are simply hard to measure at the ethnic group level. Although some group-level studies of separatism use measures of inter-group economic inequality, the household income data that are necessary to construct such measures are usually not available.¹³ To our knowledge, ours is the first study that uses data from household surveys for a large number of countries to compute intra- and inter-regional income differences.

Despite these advantages, the regional data approach has some limitations. One limitation is that some theoretically important country-level determinants of regional autonomy demand cannot be captured addressed in an analysis that exploits variation at the regional level. We are limited to controlling for country-level differences via country-fixed effects in the regression analysis. A different problem arises in those cases where groups making self-determination claims have homelands extending across two or more administrative regions. In such cases, the same sovereignty claim might apply to two or more adjacent regions and none of these regions—taken individually—might have the characteristics that our theory would associate with excess sovereignty demand. A third problem might arise in large regions that include two or more groups making competing (possibly recursive) sovereignty claims. Although such cases are limitations of the regional approach, we can include appropriate right-hand-side controls in robustness tests to make sure that these special cases do not change the substantive results.¹⁴

Measuring Actual Policy Autonomy or Prospective Sovereignty

We use the share of regional expenditures that can be financed out of regional revenues as a proxy for autonomy/independence. This is an economic measure that assumes that political autonomy is more meaningful if regions can finance expenditures out of their own revenues, hence establishing a degree of independence from the center. Regions that spend a lot out of central government transfers are less independent in that they are uncertain whether they can fund their future spending deficits, because from year to year, the center might adjust the transfer amount.

Although this measure is not perfect, it is an advance over previous studies that use only decentralization in expenditures at the country level to measure similar concepts of regional independence.¹⁵ Moreover, economic and political measures of decentralization are highly correlated (see Diaz-Cayeros, n.d.; Treisman, 1997). This is confirmed by simple bivariate correlations. Using data from the Polity III database (Jaggers and Gurr 1996), we coded three binary variables denoting the level of centralization (federal, semi-federal, and centralized) and correlated each indicator with an economic decentralization index—the size of regional expenditures as a share of total government expenditures (this index is compiled by Fisman & Gatti, 2002). Economic decentralization data are averaged for each country for the period 1980-1995, and political decentralization is measured for the year 1994. The Pearson correlation between a binary variable identifying all federal systems¹⁶ and a variable denoting economically decentralized countries (identified as countries with a decentralization level above the sample mean) is positive and highly significant, Pearson $\chi^2(1) = 6.88$. A lesser significant relationship emerges for semi-federal systems, and a highly significant negative relationship emerges between politically centralized and economically decentralized countries. These results suggest that there is a strong correlation between economic and political decentralization and that even though our empirical analysis is based on an economic measure of decentralization, it should also apply to political decentralization.¹⁷

We are able to code this variable (share of regional expenditures financed out of regional revenues) for 602 regions.¹⁸ The ratio ranges from almost 0 to 1 with a median level of 0.65, pooling all regions and countries. In some cases, the ratio is above 1, but we truncate the index because any value above 1 indicates effective autonomy.

Conflict Over Self-Determination

Because some of the same motivating factors could underlie all demands for self-determination, our primary measure of conflict includes both violent and non-violent demands without specifying a narrow range of scope for such demands. Conflict (C_{ij}) is coded as a binary variable, taking the value of 1 if any self-determination claims are made and 0 otherwise.¹⁹

Conflict is coded at the regional level based on information on claims by ethnic or other groups that are active in a given region.²⁰ We match group claims to the regions where the groups are politically active. In most cases, autonomy claims are non-violent. We code a different binary variable that identifies violent claims, most of which involve low-level armed conflict. In a few cases, we code separatist war. Out of 221 regions with conflict, there is violence in 46 regions.

Two issues arise due to the inclusion of non-violent claims: We risk counting even small groups with little popular support, and it is difficult to establish the start and end dates of non-violent movements. Our approach is to flag cases that are potentially ambiguous and discuss them in detail in an online supplement, explaining why some of these cases can be dropped. We drop groups if our sources suggest that the groups are too small (e.g., Koryaks and Itel'men in Russia's Kamchatskaya oblast); if claims are made by fringe political organizations with extremely low levels of support within the group or region (e.g., the Lusatian Sorbs in Germany's Saxony and Brandenburg regions); or if the group is too diffuse, representing a loose association of a regionally based identity group (e.g., Southerners in South Carolina in the United States). Some remaining cases can still be considered ambiguous and can be dropped in robustness tests.

Finally, in a few regions, we find two or more competing movements for self-determination (e.g., Aborigines and Torres Strait Islanders in Australia's Queensland province; Fleming and Walloon in the Brussels region of Belgium). Our approach is to include those cases but flag them in the dataset so they can be dropped in robustness tests because the logic of competing or recursive sovereignty movements in the same region might be different from the one posited in our model. We treat in analogous fashion cases where the same group is active in adjoining regions because our region-based ethnic concentration variable might not capture the effect of ethnic difference on autonomy demand. These could be cases where the group category is too broad (e.g., Aborigines), and we have no data on smaller sub-groups; or the group is large and has a historical homeland that does not map onto current administrative boundaries.

Income and Inequality

We measure per capita *disposable income* using household surveys, which gives us a fully comparable statistic across regions and countries. Previous country-level studies used lesser precise measures, such as the difference between the richer and poorer region's GDP, and the measures were usually available only at the country level. GDP data include income from production of natural resources that might not remain in the region and is thus less useful for a test of our hypothesis that wealthier regions will demand more sovereignty: A region may appear rich because it has oil, whereas its residents are in reality poor. By contrast, we measure the actual income level of people living in each region.²¹

Relative regional income is the ratio of regional mean per capita income to nation-wide mean per capita income. Income matters in relative terms: Are

residents in a given region richer than their co-nationals in other regions? The lowest relative regional income is 0.08 in Magadan Oblast in Russia and the highest is 2.8 in Moscow. We also compute the income share of each region (the share of total regional income in total national income), which ranges from near 0 for Lakshadweep in India²² to 0.83 for England in the United Kingdom.

Using these household income data, we compute income Gini coefficients for each region, measuring within-region inter-personal income inequality. Economic regions in Armenia and Slovak republic all have low levels of inequality and the highest Gini coefficient values are in Brazil, Colombia, and some regions of Nigeria, Senegal, and South Africa.

Natural Resources

Ideally, we would want to know the value of all territorially concentrated tradable resources in each region. Any number of primary commodities could be important for the local or national economy (coffee in Burundi and Colombia, diamonds in Sierra Leone and South Africa, natural gas in Indonesia and Russia). The ideal measure is thus the share of total national resources for each region, but we could compute such a measure only for a few countries and a small number of agricultural commodities, minerals, and precious stones due to the paucity of data on the location of different commodities and the lack of region-level breakdowns of the total dollar value of production or trade in these commodities. Thus, our analysis of the link between resource wealth and sovereignty demand is inevitably limited. We use a binary variable that identifies all regions with exploited or unexploited oil and natural gas reserves and look for a correlation between that measure and demand for sovereignty.

Regional Ethnic Difference

To measure regional ethno-cultural differences from the rest of the country, we identify all groups larger than 1% of the country's population and collect data on the size of as many of these as possible at the country and region level. To identify groups, we need to make a judgment about the most relevant social cleavage in each country. In most cases, linguistic cleavages are the most politically relevant, but in some countries, the cleavages are religious or sectarian.

Regional difference is coded as follows: For each region, we identify the dominant group (A) as the largest group in the region that is not the national majority and collect information on what share of the country-wide

population of group A lives in that region as opposed to other regions of the country. We also collect information on other (non-A) national minority groups living in the region. A region is coded “different” if (a) most of its inhabitants belong to group A (a *national* minority) and (b) most of A’s members live in the region.

Ideally, these data would fill a matrix with one dimension giving ranges of the share of group A inside the region and the other dimension giving ranges of A’s share of the regional population. The intensity of demands for autonomy should be proportional to the degree of regional difference. But such a matrix can only be coded for a few countries with high-quality census data. Switzerland is an example. Several Swiss regions are dominated by a (national) ethnic minority: Fribourg, Geneva, Jura, Neuchatel, Valais (Sion), and Vaud (Lausanne) are all dominated by French speakers, with regional population percentages in the 60% to 88% range. However, French speakers are not territorially concentrated, so the degree of “regional difference” from the rest of the country is not large for any of those regions. Because high-quality data do not exist for most countries, we consulted other government documents and secondary sources to code a simpler version of the ethnic difference variable. For all regions in our sample, we code the variable *ethcon* equal to 1 if (a) 70% or more of a national minority group lives in the region and (b) makes up the regional majority; *ethcon* is coded 0 otherwise.

A complication is that a national minority might be territorially concentrated across several administrative regions. Thus, we might code these regions as not ethnically different from the country whereas in reality, the broader territory is different from the rest of the country. We deal with such cases by coding another binary variable (*minregmaj*) that identifies all regions where a national minority makes up more than 50% of the regional population without considering the concentration dimension, that is, we ignore element (a). We also code a binary variable identifying all regions in which the same group is seeking sovereignty (*same_group*) as in another (adjacent) region and another variable identifying all adjoining regions with active sovereignty demand movements (*sd_adjoin*). We use these additional variables in robustness tests since ethnic group boundaries sometimes spill over administrative boundaries.

Democracy and Political Institutions

Sudden regime change can generate autonomy demand, especially following the collapse of an authoritarian regime, as social groups exercise their greater political freedom. Instability or dissolution of the center implies greater autonomy by peripheral regions. When the German Reich collapsed and

democracy was ushered in at the end of World War I, Germany quickly (and temporarily) reverted to a number of independent states. Similar was the fate of the Russian Empire in 1917-1921: All its constituent parts became suddenly independent, some without having previously considered independence. Although Soviet power later managed to bring many back into the fold by crushing resistance in Georgia, Armenia, and the Ukraine, a few were gone for good (Finland, Poland) and several others remained independent for a few decades (Moldova, the Baltic republics). The recent break-up of the Soviet Union is another example of sovereignty demands unleashed by democratization, as is Spain, where regions renegotiated their position in the union after the end of the Franco's rule. Although democracy and instability are important variables for a theory of sovereignty demand, they apply equally to all regions of a given country so we do not analyze them in this article but capture them with country-fixed effects.²³

Results

Because conflict is the equilibrating mechanism in the model, a causal argument about its effect on autonomy can only be made with an instrumental variables approach. This problem of endogeneity arises in some form in every study of the relationship between conflict and autonomy, or decentralization and any other policy outcome because changes in the level of decentralization are likely to reflect the government's expectations about how they will affect the risk of conflict or the policy outcome in question. The standard approach in the literature is to assume exogeneity as the exclusion restrictions for instruments are almost never satisfied in this context.

Although we acknowledge—and cannot resolve—this endogeneity problem, it might not affect our results severely because the center's decision to accommodate regional demands is likely to depend more on country-wide factors and less on region-specific factors, which we focus on. We have argued that regional demands depend more on region-specific factors but, in deciding how to react, the center must also consider the country-wide effects of its policies. Its reaction might influence autonomy demand in other regions; thus, in countries with many possible claimants (many regions with groups that might demand more autonomy), the center may be unwilling to grant autonomy to any region. If the supply of autonomy or sovereignty depends on country-wide factors more than regional demand, then the endogeneity problem is lessened (although it is not resolved, because in deciding whether to make a claim, each region might also take into account the center's reaction in light of other regions' actions).

The lack of a valid instrument implies that we cannot make causal claims about autonomy *demand*. But our data do allow us to establish

whether a correlation exists between *observed* (actual) autonomy and regional characteristics that we have argued should shape demand. Despite its limitations, our approach has value because no other study has identified the determinants of region-level autonomy while controlling for a wide set of confounding factors.

A first look at the data reveals that, on average, regions with conflict have only slightly lower levels of autonomy than regions without conflict and the difference is not statistically significant. Indeed, we can find regions with violent conflict and above-average levels of autonomy or prospective sovereignty (Aceh in Indonesia, Basque country in Spain, Tabasco region in Mexico, and Mindanao in Philippines). This can be consistent with our model: The presence of conflict means that there is still unmet demand for autonomy even at levels of autonomy that are higher on average relative to other regions and countries.

We regress our dependent variable—a measure of economic decentralization of the regions—on the full set of covariates that we discussed above, while controlling for country-fixed effects to capture unobserved country-level differences in the overall level of decentralization as well as other dimensions of country-level heterogeneity. We weigh observations by the inverse of the number of regions in each country so that countries with many sub-divisions do not dominate the results. Table 1 includes the results.

The model in Column 1 follows closely Equation 3. As expected, we find that both higher regional per capita income (relative to the country-wide mean) and higher regional population are associated with greater observed sovereignty consistent with H1. So is the presence of natural wealth in the region, which is consistent with our H3. Inequality within region is also positively associated with observed autonomy.²⁴

Conflict over autonomy has the expected negative sign, but it is not statistically significant. It is possible that the relationship between conflict and observed autonomy is not linear and it may be conditional on other regional characteristics, something that we consider in Models 3 and 4. When we interact conflict with our measure of regional inequality (Model 3), the effect of conflict increases and becomes statistically significant. The coefficient remains negative and significant in the fully interacted Model 4.

It is interesting that more ethnically distinct regions are not associated with higher levels of observed autonomy. In fact, the coefficient for the ethnic distinctiveness variable is negative and becomes much larger and statistically significant if we drop European countries and other Western democracies (United States, Canada, Australia) in column 2. Central governments' treatment of regions with large populations of ethnic minorities may be different across regime types or levels of economic development with more autonomy

Table 1. OLS Regression of Observed Autonomy on Determinants of Autonomy Demand.

	1	2	3	4
Relative regional income	.136** (.024)	.141** (.027)	.141** (.024)	.329** (.084)
Regional population share	.419** (.10)	.361* (.139)	.40** (.10)	.440** (.10)
Regional ethnic distinctiveness (binary)	-.054 (.04)	-.120* (.057)	-.039 (.04)	-.560** (.19)
Oil or natural gas in region	.063** (.017)	.036 (.024)	.066** (.017)	.066** (.017)
Regional Gini (within-region inter-personal inequality)	.003* (.0015)	.005** (.002)	.002 (.002)	.005* (.002)
Conflict over sovereignty (binary)	-.005 (.016)	-.008 (.022)	-.141** (.051)	-.107* (.051)
Interaction: Conflict and regional Gini	—	—	.003** (.001)	.003* (.001)
Interaction: Ethnic distinctiveness and regional Gini	—	—	—	.016** (.006)
Interaction: Relative regional income and regional Gini	—	—	—	-.005* (.002)
Constant	-.345** (.104)	-.448** (.089)	-.307** (.104)	-.427** (.119)
Country-fixed effects	Yes	Yes	Yes	Yes
Observations (regions)	515	351	515	515
F-test for model (<i>p</i> -value)	.000	.000	.000	.000
Adjusted R ²	.82	.82	.82	.83

Shown are coefficients with standard errors in parentheses. Regressions include country-fixed effects and regional weights. Significance levels of 95% and 99% are indicated by one and two asterisks, respectively. Relative income share and population share are fractions (all regions sum to a national total of 1). Relative regional income is mean regional income divided by mean national income (both calculated from household surveys). Regional Gini, also calculated from household surveys, is expressed in percentages (ranges from 0 to 100). OLS = ordinary least squares.

granted to such regions in mature liberal democracies. This relationship does not contradict our H2: The negative relationship between actual autonomy and regional ethnic distinctiveness is likely to increase autonomy demand, and unmet demand should result in conflict. Indeed, a regression of our conflict variable on ethnic distinctiveness and other covariates reveals a positive and statistically significant correlation, yet the coefficient drops by half and becomes statistically non-significant if we exclude Western democracies (see online supplement).²⁵

In Models 3 and 4, we add interaction terms to the model. The signs and significance levels of coefficients on relative income, population share, and regional resources are not affected, but the effects of regional inequality seem concentrated in regions with positive levels of conflict. The effect of inter-personal income inequality on autonomy may be contingent on a positive level of conflict, increasing the actual level of regional autonomy in those regions where elites demonstrate that they are able to tap into the underlying structure of inequality to organize claims over self-determination. The mechanisms underlying this result are not clear and warrant further study.

To explore further the idea that the effect of regional inequality may be conditional on other factors, in Model 4, we add an interaction term between regional inequality and ethnic distinctiveness and another interaction between regional inequality and regional income. Regional distinctiveness is now negative and statistically significant, but its interaction with regional inequality is positive indicating that, in those regions where high levels of inequality coincide with high levels of ethnic distinctiveness, there are higher observed levels of autonomy. This is probably because of a perception by the center that it is harder for ethnic elites in these regions to mobilize support for self-determination claims against the central government as the expected benefits of greater autonomy are unlikely to be shared equally among the regional population. Indeed, this is confirmed in a regression of our measure of conflict on the covariates from Model 4, where we see a positive coefficient for the ethnic difference variable but a negative and significant coefficient for regional inequality interacted with ethnic distinctiveness (see online supplement). In light of the obstacles to group mobilization created by income inequality, the center is more likely to offer highly unequal ethnically distinct regions more autonomy.²⁶

Finally, in Model 4 we also see that the interaction between regional income and inequality is negative, which suggests that the demand for more autonomy in richer regions is dampened by high levels of inequality. A plausible explanation that warrants further investigation is that the need for greater redistribution in these regions generates incentives for elites to surrender some of their authority to the center so that the center would carry the burden of redistribution.

Conclusion

The analysis in this article points to several important relationships not previously shown in cross-country studies of decentralization and autonomy demand. Using disaggregated data with regions as units of observation and controlling for country-specific fixed effects, we find that richer, more populous, and resource-endowed regions are more likely to enjoy higher degrees of autonomy. This is consistent with our hypotheses about the determinants of autonomy demand. Richer, larger regions are in a position of power vis-à-vis other regions in the country and are better able to provide public goods to their citizens so they can make more credible threats of “exit” to demand more policy freedom from the center.

Ethnic difference at the level of the region can affect observed levels of autonomy via its expected effect on conflict which, in turn, is likely to be contingent on the level of income inequality. We find that the relationship

between ethnic distinctiveness and autonomy is mediated by the level of regional income inequality. One of our key findings is that inequality in more ethnically distinct regions increases observed levels of autonomy. The mechanism underlying this result should be explored in further studies. A plausible explanation is that the presence of inequality in the region diminishes the perceived risk of ever-growing demands by regional elites, who should face barriers in mobilizing support across different income levels of regional population. The perception of a ceiling for regional demands might motivate the center to be more accommodating with granting regions fiscal autonomy.

Furthermore, we show that inequality mediates the effect of other covariates, such as regional income and regional conflict. The relationship between inequality and autonomy demand is therefore complex and contingent on regional characteristics. To our knowledge, this is the first direct test of the role that income inequality at the regional level plays in the determination of levels of autonomy and conflict over self-determination. Our study reveals some of the complicated pathways through which inequality affects conflict and opens the way to theorizing about that relationship.

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Notes

1. Richer regions can demand independence if they believe they are better off without supporting poorer regions. Poorer regions may also demand autonomy as a strategy to extract concessions from the center. See Hechter (1975); Rokkan and Unwin (1983); Horowitz (1985); Ragin (1979); Nielson (1980).

2. See Meadwell (1991) and Bunce (1999) with reference to Yugoslavia. On elite incentives in regional parties and movements as they bargain over representation at the center, see Sorens (2005). For a discussion of the “pull” of Europe, with regional parties proliferating as a result of the process of European integration and the availability of regional development assistance from the European Union’s structural funds, see Keating, Loughlin, and Deschouwer (2003).
3. Another approach is to study ethnic groups, but groups seeking autonomy usually have geographical referents in mind and autonomy claims are often made by groups that are not coded as ethnic or by aggregations of ethnic groups who share a common attribute that separates them from the rest of the nation along a dimension that is usually not coded ethnic and an approach focusing on ethnic groups would miss those cases.
4. We assume that autonomy demands cannot be entirely constructed by elites if conditions are unfavorable and that the existence of such demands reflects some underlying fundamental disparities between center and periphery that autonomy could reasonably address. Our model would have no explanatory power if autonomy claims could be entirely strategic, unrelated to an underlying, observable gap between desired and actual regional autonomy.
5. Because the simple dichotomy between unitary and federal systems has been questioned, we include all countries with any level of decentralization.
6. The opposite can also be true: Institutional differences in decentralized countries can empower regional elites who can demand more autonomy (Bunce, 1999; McAdam, McCarthy, & Zald, 1996, p. 146; Treisman, 1997). Either way, decentralized countries are likely different from fully centralized ones.
7. On this trade-off, see Milanovic (2000), who modeled a concave transformation curve of sovereignty into income, implying decreasing returns to sovereignty.
8. We do not consider the effect of supranational institutions on rich regions’ demand for sovereignty. If sub-national regions can gain independence and then become integrated in a supranational conglomerate such as the European Union (EU), that could counter-act the sovereignty-income trade-off. EU membership imposes some sovereignty restrictions, but regions can become net *recipients* of subsidies as weaker members of the conglomerate compared with being rich members of a relatively poorer country. Slovenia is a good example.
9. On political exclusion as a cause of ethnic conflict, see Cederman and Girardin (2007); Buhaug, Cederman, and Rod (2008); and Cederman, Wimmer, and Min (2010).
10. State incentives to gerrymander districts to shape electoral preferences by creating relatively homogeneous demographics are rooted in this logic. It follows that internal administrative borders that structure our analysis could be endogenous to prior regional claims and conflict with the center. This does not present a problem for our empirical analysis because we condition our results on a given set of internal borders.
11. The potential for conflict becomes clear when we look at the supply side of autonomy: The greater the importance of regional resources to *national* GDP, the less likely is the center to allow the regions to keep their resource wealth.

12. The list includes all countries that are not identified as having centralized systems in Polity III database, and we add countries according to other criteria and our own research to expand the period coverage of Polity III. The coding procedure is explained at length in online supplement. Coding notes for this dataset are too lengthy to present here and will be posted online on publication. All variables are coded for a single year, and that year was determined by available economic data on regional taxes and revenues and the date of the household surveys that we use for regional income and regional inequality.
13. However, a recent study presents a creative way to indirectly measure intergroup inequality. See Cederman, Weidmann, and Gleditsch (2011).
14. We code regions with more than one sovereignty movement; adjacent regions with the same sovereignty movement; groups that are not the majority in any single region but are concentrated in two or more adjacent regions; and we check how these cases influence the results of the analysis.
15. On decentralization measures and concepts, see Fisman and Gatti (2002) and Treisman (1997). The results we present are substantively the same for federal systems and for unitary systems with some degree of regional fiscal independence. Our analysis could be extended to different political measures of sovereignty, such as a region's freedom to choose its own secondary school curriculum, its freedom to use local languages in teaching, and so on. Another fairly common measure of sovereignty demand is the vote share of ethno-regional parties (see De Winter & Tursan, 1998; Gordin, 2001; Sorens, 2005). But voting could be strategic, and that measure limits analysis to electoral democracies with developed regional parties. Party strength as a measure of ethno-political interest in autonomy is also mostly applicable to advanced industrialized countries (see Levi & Hechter, 1985).
16. With semi-federal and centralized systems combined coded 0, and federal systems as defined in the Polity III database.
17. We collected data on the degree of political autonomy of the regions but the measure is too coarse and there is little within-country variation so we do not use this measure in the analysis.
18. Data for this variable come from national statistical yearbooks and the variable is coded for the year for which we have household survey data on income or the closest year, in a few cases before the year income is measured. We treat the 0-1 index as a continuous variable. The results presented later are robust to the use of Tobit regression, which accounts for the truncation of the variable at 1 (see online supplement).
19. Conflict was coded on the basis of encyclopedic sources (Degenhardt, 1988; Minahan, 1996), news archives (Keesings, Lexis-Nexis), and country case studies. We are not limited by the sample selection problems that arise in the Minorities at Risk (MAR) database or other comparable sources because we collect data for all countries in our sample and not just those with a significant level of minority discrimination. Our data include both violent and non-violent conflict of different magnitude. We have data on small groups (such as

- the Friulians in Italy) and non-violent groups in developed democracies (such as the Lombardians in Italy) that would be excluded from MAR and other datasets of conflict over self-determination.
20. Aggregations of groups are flagged in the data (*broadgroup* = 1) so we can check whether demands in adjacent states reflect claims by a single umbrella group that is further sub-divided in smaller groups that can also make claims of their own. For example, in Mexico, several studies code claims made by “Mayans,” but there is sufficient heterogeneity among Mayan claims such that we can code separately claims made by Nahuatl, Tzotzil, Mixteco, and other Mayan groups.
 21. A small problem with household survey data may occur in advanced industrialized countries in which unemployment income or pensions are partly covered through central transfers.
 22. Data for India are for rural areas. Urban and rural income data are reported in separate surveys. We selected the rural data as more directly relevant to the question at hand and because they cover a much greater percentage of India’s population.
 23. That said, there is no significant difference in the mean level of sovereignty across regime type and no significant correlation of regime type and conflict over sovereignty (see results in the online supplement). The effect of other covariates (e.g., population) on sovereignty is slightly different across regime types. Regime type is coded on the basis the Polity IV database (Marshall & Jaggers, 2000), taking a 5-year average for the period from 1995 to 2000.
 24. The results we report in Table 1 are robust to the addition of controls to address some of the coding complexities identified in the previous section. Results hold if we drop regions with competing sovereignty movements (two or more minorities claiming the same region as their own); if we drop cases where the same group is dominant in several adjoining regions, or regions in which the groups making claims are broad aggregations of several sub-groups and our data do not allow us to establish whether all regions with substantial populations from these sub-groups have sovereignty claims (e.g., Aborigines in Australia or Native Americans in the United States). Controlling for regions with a land border does not affect the results. The results are also robust to the addition of a control for border regions that might be more prone to self-determination movements partly due to the influence of irredentist groups across the border and partly because of contagion effects from neighboring conflicts. See the online supplement for the full range of robustness tests.
 25. Our coding of ethnic distinctiveness is restrictive and only 24 regions are coded different from the rest of the country. If we replace ethnic distinctiveness in Model 1 with a variable identifying regions in which a national minority constitutes more than 50% of the regional population, we find that the coefficient for such a variable is negative and strongly significant (see online supplement).
 26. However, the increase in the Gini has to be more than 30 points to overturn the negative coefficient associated with ethnic distinctiveness.

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