The Divide Over Independence: Explaining Preferences for Secession in an Advanced Open Economy*

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April 1, 2020

Abstract

Anticipated trade, insurance, and fiscal shocks from independence structure preferences for secession independently from nonmaterial considerations. To test this claim, we draw from an original survey conducted in Catalonia before the 2017 regional election, which followed a suspended declaration of independence. Trade shocks produce differential effects depending on market specialization: Respondents working in sectors and at firms specializing in the host state market disproportionately oppose secession, whereas those specializing in foreign markets show no aversion to independence. Exclusion from public insurance strengthens preference for secession among the long-term unemployed. Support for secession also increases with skill levels but not because of expected postindependence factor returns. The skilled population show better understanding of the institutional design of interterritorial redistribution. In a context of autonomy retraction, this group is more skeptical of the accommodation of regional demands within the union. Overall, we advance an individual-level materialistic approach to the study of secession.

Keywords: Secession, Referendum, Trade Exposure, Material Interest, Fiscal Grievance

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1 Introduction

The number of states facing self-determination claims has increased steadily since 1960 (Cunningham and Sawyer, 2017). Self-determination, common in the former colonial world, regained momentum after the breakup of the USSR. In recent decades, referenda of independence have also reached advanced economies: first Quebec in 1980 and 1995, then Scotland in 2014. Far from exceptional, demands for self-determination are expected to proliferate because international economic integration reduces the relevance of country size (Alesina and Spolaore, 1997; Gancia, Ponzetto and Ventura, 2018).

Existing explanations of demands for self-determination highlight the role of economic disparities among territories (Bolton and Roland, 1997; Buchanan and Faith, 1987; Horowitz, 1985). Wealthier regions have more to gain from secession because it puts an end to subsidizing poorer regions (Collier and Hoe er, 2006; Hale, 2000; Sorens, 2005) and because wealthier regions can bear the adjustment costs of independence (Sambanis and Milanovic, 2014). By comparison, little is known about individual-level economic or "material" considerations explaining support for and opposition to secession. Previous accounts overwhelmingly emphasize the primary role of nonmaterial factors, including regional identity and language (Blais and Nadeau, 1992; Costa-Font and Tremosa-Balcells, 2008; Howe, 1998; Muñoz and Tormos, 2015; Rodon and Guinjoan, 2018); however, the impact that anticipated economic shocks from independence (e.g., exclusion from international trade treaties) may exert on individual preferences remains largely overlooked. We address this gap in the literature by uncovering individual economic motivations to support and oppose secession.

We argue that secession impacts individuals di erently depending on their exposure to the global economy, hence shaping their preferences for independence. Throughout, we assume that secession is likely followed by a temporary shock in international economic integration of the newly created state. Temporary trade shocks can result from multiple reasons—from renegotiating membership in trade agreements to mere uncertainty adjustment. Building on this assumption, we draw hypotheses about secession support based on individual-level

exposure to trade shocks. We characterize exposure in light of three standard trade models. According to the Heckscher-Ohlin model, the abundant factor benefits most from trade openness, hence it is particularly exposed to disruptions in global economic integration. By implication, high-skilled workers in a capital-intensive economy should oppose secession, everything else constant. The Ricardo-Viner model and the "New" New Trade theory (Melitz, 2003) generate di erent predictions: All else constant, workers in export-oriented *sectors* and *firms* have the most to lose from international economic disintegration.

We examine these hypotheses by studying the push for independence in Catalonia in 2017. In the last 10 years, this northeastern region of Spain experienced a marked growth in demand for self-determination and secession. The percentage of people in favor of independence rose steadily between 2006 and 2014 and has remained around 45% ever since. A series of events in fall 2017, including the organization of a referendum for independence not sanctioned by Spanish authorities, a declaration of independence, and the suspension of Catalan self-government, precipitated a snap regional election on December 21, 2017. We conducted an original online survey in the days preceding that election. The survey embedded various experimental and quasi-behavioral instruments that help us to learn about the material motivations to support and oppose independence while holding identity and a host of other controls constant.

The empirical analyses lead to two main findings: First, sector- and firm-level trade ties with Spain and skill levels are strong predictors of opposition to and support for independence, respectively. Individuals employed in sectors and at firms with strong ties with the rest of the Spanish market show systematic opposition to secession, presumably in anticipation of negative trade shocks following independence. We show that the e ect of trade ties with Spain works mainly through exports, not imports; that is, aversion to independence in Catalonia derives from the fear of losing access to Spanish consumers. Import penetration does not make respondents more or less likely to support independence, nor does individual exposure to foreign markets (European or the world). These findings call for a

nuanced interpretation of trade models once applied to the study of secession. In this particular framework, trade ties with the host state dominate preference formation. We examine three nonmutually exclusive reasons for this regularity: the relative market size of the host state vs. foreign markets, anticipated boycott by domestic consumers, and relatively low competitiveness of producers that specialize in the domestic economy.

Second, skill levels (measured by education and occupation) predict support for independence. This result is consistent with Alesina and Spolaore's (1997) account of frictionless secession, where territories may split from a state while remaining highly integrated in the global economy; however, if we allow for (temporary) shocks in international economic integration following independence, support for secession among the high-skilled is not necessarily obvious. To understand why skills predict secession support, we consider two main mechanisms: factor returns after independence and political knowledge.

Our data show no differences in the individual and sociotropic expected gains from independence by skill levels. The relationship between skills and secession support appears to be confounded by levels of *fiscal knowledge*. Specifically, the most skilled are disproportionately knowledgeable about the institutional structure of interterritorial redistribution of income in Spain, an enduring sensitive issue that intensified in light of recent "decentralization reversal" (Muro, 2015). Autonomy retractions are expected to undermine the central government's credibility to accommodate regional demands within the union, fueling secessionist demands (Siroky and Cuffe, 2015; Sorens, 2012). Consistently, we find that *fiscally knowledgeable* individuals—arguably better equipped to perceive and size fiscal autonomy retraction—disproportionately show skepticism about the accommodation of regional demands via constitutional reform and about the credibility of a hypothetical new fiscal agreement within the union. To dismiss endogeneity issues, we show that the effect of fiscal knowledge on belief formation also holds *within* the proindependence camp.

Our findings speak to two seemingly unconnected literatures: First, our research echoes core results in international political economy that highlight the importance of exposure

to international shocks in forging policy preferences toward trade openness (Scheve and Slaughter, 2001a), monetary policy (Frieden, 1991), and international redistribution (Bechtel, Hainmueller and Margalit, 2014) among others. Colantone and Stanig (2018) follow this approach to shed light on trade-related drivers of Brexit support. We uncover economic motivations of a related but potentially wider phenomenon: seceding from a state.

Second, our materialistic approach complements nonmaterial accounts, which have dominated the study of secession politics in comparative politics literature (Costa-Font and Tremosa-Balcells, 2008; Howe, 1998; Serrano, 2013). Identity matters, but so does economics, we claim. In addition, we provide an original individual-level microfoundation for the connection between the rise of proindependence demands and interterritorial redistribution grievances (Bolton and Roland, 1997; Horowitz, 1985; Sambanis and Milanovic, 2014).

Empirical findings have implications beyond our case of study. Material considerations derived from trade exposure should apply to any separatist region that is economically integrated within the host state and the international community. Examples can be found within and outside the OECD: from Flanders, Quebec, and the Venetto, to New Caledonia and, arguably, Hong Kong. Interterritorial redistribution grievances have an even broader scope because autonomy retraction is commonly used by central governments to crack down on proindependence movements (Siroky and Cu e, 2015). Our findings illuminate backlash e ects from autonomy loss with individual-level data.

We organize the article as follows: Section 2 elaborates on the connection between individual exposure to international economic (dis)integration and preference for secession. Section 3 introduces our case study. Sections 4 and 5 present our data and main results. Section 6 evaluates competing mechanisms for the tight connection between skills and support for secession. Section 7 concludes by elaborating on the scope conditions of our findings.

2   Secession and Material Interest

State partition may carry multiple individual-level economic consequences. We focus on those derived from individual exposure to international trade and from potential changes in tax pressure, public insurance, and public employment.

International Economic Integration.   Alesina and Spolaore (1997) claim that the opportunity cost of breaking apart from a large country is low if the new state can freely trade with other nations. They show that in a completely open economy the size of a country is irrelevant for economic activity because it does not determine the size of the market.

Illuminating as it is, Alesina and Spolaore's (1997) theoretical exercise does not account for any (short-term) economic shock caused by secession. These shocks can have multiple causes: for example, uncertainty about the terms of access to external finance, hence the ability to pay for basic public goods (e.g., retirement pensions) in case of revenue shortfalls; and uncertainty about the applicability of trade treaties and other international commitments originally signed by the host state. One way or another, secession costs may impact individuals differently depending on their exposure to the global economy, shaping preferences for secession in the same fashion that international exposure shapes preferences for trade openness or immigration.

Drawing from standard trade models, we can derive a set of predictions about who wins and who loses from a potential shock in international integration derived from secession. According to the Hercksher-Ohlin (H-O) model, high-skilled individuals—the abundant factor in an advanced economy—benefit most from participation in the international markets because they exploit their comparative advantage. Any anticipated trade shock following secession may discourage high-skilled individuals from supporting independence. By the same token, low-skilled individuals—the scarce factor—may be more supportive of secession in expectation of cuts in trade openness.[1]

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[1]See Lake (2009, p.13) for a similar conjecture.

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When factor mobility across sectors in the short run is low—as generally agreed (Hiscox, 2002)—trade gains and losses from independence may be assessed based on sector competitiveness rather than factor endowment—namely the Ricardo-Viner (R-V) trade model. Accordingly, individuals employed in export-oriented sectors should be wary of independence if they anticipate trade shocks following secession, whereas those employed in import-competing sectors should support independence in expectation of a reduction in trade openness. The "New" New Trade (NNT) points to differences in firm productivity in any given sector to explain varying degrees of internationalization (Melitz, 2003). Simply put, highly productive firms select into international trade because they can outcompete foreign producers, whereas uncompetitive firms specialize in the domestic economy. We can expect workers employed in highly productive, export-oriented firms to oppose secession to avoid any trade shock limiting access to foreign markets.

In sum, the three standard trade models offer different predictions about who is to lose from a trade shock derived from secession: high-skilled workers (O-H model), workers in export-oriented sectors (R-V model), and workers of export-oriented firms (NNT model).

Interterritorial Transfers.   The unequal distribution of income and heterogeneous preferences in large jurisdictional units provide an additional rationale in favor of its fragmentation. Separation is expected to bring tax and spending policy closer to the median voter of the newly created, more homogeneous state (Alesina and Spolaore 1997, Gancia et al. 2018).

Individual-level fiscal effects derived from secession depend on one's position within the local income distribution and the relative income of the local economy vis-à-vis the larger jurisdiction (Beramendi, 2007, 2012; Bolton and Roland, 1997). In order to generate hypotheses, we focus on those cases in which the region seeking independence is wealthier than the host state, and therefore, the median voter in the region is also wealthier than the median voter in the union. Anticipating a decrease in the tax burden, wealthier individuals in the secessionist territory should favor independence. By the same token, low-income individuals

may favor secession if that reduces transfers to poorer segments of the larger jurisdiction and tax money is spent locally. Together, tax pressure and spending considerations suggest a U-shaped relationship between income levels and support for independence.

Interterritorial redistribution shapes public insurance policy, too, namely how the union copes with market and social risk in different regions of the country (Alesina and Perotti, 1998; Beramendi, 2007, 2012). A wealthy new country may be able to provide more generous benefits than those offered by the union while tailoring public insurance systems to match local labor market conditions (e.g., differential exposure to world prices). Individuals who are currently unemployed and receive no welfare benefit from the central government might be particularly amenable to this form of reasoning. Namely, they may disproportionately attribute the responsibility for poor unemployment benefits (or lack thereof) to (perceived) inefficiencies in centralized policies within the union and, as a direct consequence, support secession with aspirations for a better public insurance system.

Other material interest. A new state might strain to finance retirement pensions, particularly if the terms of external finance reflect the absence of reputation in international credit markets (Tomz, 2007). Waiting for better times might be unaffordable for the elder population. Accordingly, support for secession should decrease with age as well as among individuals on welfare, particularly if provided by the central state. Finally, economic consequences of secession might be different for public employees, particularly if they work for the central government administration. This group might be concerned about keeping their jobs or seeing their career prospects curtailed were secession to occur.

3 The Politics of Secession in Catalonia

Catalonia is located in the northeast of Spain, right on the southern border of France. It represents 19.7% of the Spanish GDP and 16.22% of its population. With a per capita

income of €29,936, Catalonia is one of the wealthiest regions in Spain (€24,999).[2] As part of Spain, Catalonia has access to the European Single Market and the Euro Area as well as major international treaties like the World Trade Organization. Twenty-three percent of the Spanish industrial activity occurs in Catalonia, and 25.6% of Spanish exports are generated there. Altogether, Catalonia qualifies as an advanced open economy, deeply integrated in the international markets.

Catalonia's push for independence garnered international attention in fall 2017. Demands for self-determination and secession, however, originated ten years earlier. In 2006, Catalan citizens voted in favor of a new home-rule charter (*Estatut d'Autonomia*), previously approved by both the regional and national parliaments. In June 2010, a decision of the Spanish Constitutional Court curtailed the new charter and established that the definition of Catalonia as a "nation" included in the preamble had no legal e ect. The decision was perceived as an a ront by regional political parties and many citizens in Catalonia, and it helped the proindependence movement to gain momentum.

Amidst a severe and sustained economic crisis (2008–14), interregional redistribution became a major issue of contention between the Spanish and Catalan governments. The regional government requested further fiscal autonomy to balance the fiscal deficit with the larger jurisdiction. After negotiations failed, early regional elections were held in 2012. The resulting proindependence majority pledged to organize a referendum of independence within the next four years.

The referendum, framed by the Catalan government as nonbinding, was held in 2014. The vote was largely ignored by the Spanish government. Early regional elections followed in 2015 and a new proindependence parliamentary majority pushed for the organization of a second referendum. This time, the Catalan Parliament presented the vote as binding. The referendum took place on October 1, 2017, and unlike 2014, it was actively opposed by the Spanish authorities. Despite police intervention on election day, the voting went on. Turnout

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[2]Data correspond to 2016/7 FY. Sources are available in Appendix A.

reached 43%, and 92% percent of participants voted in favor of independence.

Events in the weeks after the referendum were convoluted. On October 27 the Catalan Parliament declared independence; the Spanish government dismissed the Catalan government, dissolved the Catalan Parliament, and imposed direct rule.[3] Immediately afterward, it called for snap regional elections to be held on December 21, 2017. Unionist and proindependence parties concurred although the leaders of the separatist parties and civil society organizations were on bail detention or had fled the country.

On the eve of this important election, we expect individuals to hold clear preferences about whether they favor or oppose independence. Specifically, in light of the decisive actions of the Spanish government and flight of major corporations in fall 2017, voters' uncertainty about the (short-term) economic costs of secession should decrease. To assess the impact of material interest on preferences for independence, we ran an original survey in the days before the snap regional election.[4]

4   Data and Measurement

We investigate individual-level determinants of secession support based on an original online survey conducted in Catalonia between December 15 and 21, 2017, election day. To avoid contamination e ects, we completed the field minutes before polling stations were closed and the exit poll results were released. We commissioned Netquest, a leading survey company in Spain, to implement the survey. To be eligible for the survey, respondents had to be Spanish nationals over 18 living in Catalonia. In total, we recruited 2,100 respondents.[5] We adopted a quota sample based on age, gender, and education. In addition, we apply entropy balancing (Hainmueller, 2012) to match our sample to the demographic margins from the voter population. Table A-1 shows the unweighted and weighted samples compared

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[3]Regional self-government was reestablished in June 2018.

[4]If under such exceptional circumstances voters were driven by nonmaterial considerations (e.g., emotions), then material interest should attenuate.

[5]This study was reviewed by the Human Subjects Review Committee at Yale University.

to the general population. We used the weighted samples for all subsequent analyses.

Support for independence is measured as a continuous variable and as a binary choice. In the continuous version we ask respondents how likely they would be to vote in favor of independence if a referendum were held in Catalonia (five categories). Immediately afterward, we ask them what their vote would be if the answers were Yes or No. The distribution of both variables appears in Table 1. Support for and opposition to independence are virtually tied, consistent with the outcome of the regional election: proindependence parties received 47.5% of votes.

Table 1 here

Measuring Material Interest.   We consider three sets of material interest that can shape preference for secession: individual returns derived from participating in the international economy, interpersonal redistribution considerations, and public insurance and public employment.

Under the H-O trade model, high-skilled individuals in a capital-intense economy would lose from any trade shock following secession. Following Scheve and Slaughter's (2001b) and Bechtel et al.'s (2014) example, we measure skills by levels of formal education.[6] Under the R-V model, employees in export-oriented sectors have the most to lose from international trade shocks whereas employees in import-competing sectors gain from interruptions in global economic integration. We record the sector in which our respondents are employed and match those with o cial two-digit sector-level export and import statistics. Because Spain is the main market of Catalan exports, we code export to and import from Spain and the rest of the world separately and normalize it to total sector production. We classify sectors into three groups based on the trade intensity: No Exports to/Imports from Spain/World; Low Exports to/Imports from Spain/World; and High Exports to/Imports from Spain/World.[7]

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[6]In appendix I, we measure skills by occupation. Results hold.

[7]Refer to Appendix A for details.

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The NNT theory focuses on firms. Under this framework, productive firms are expected to select into exports. Employees of firms that engage in international trade are particularly exposed to any trade shock following secession. To test the implications of the NNT model, we ask respondents how many clients and providers the firm they work for has in other parts of Spain and Europe (excluding Spain), separately.[8] Response categories are as follows: No Trade Ties with Spain/Europe; Weak Ties with Spain/Europe; and Strong Ties with Spain/Europe.

Our earlier discussion of material interest suggests that relative to the middle class, individuals in the upper and bottom tail of the income distribution would benefit from secession: the wealthy would pay lower taxes, and the poor benefit from local public spending. Our measure of Household Income allows us to test this nonlinear relationship between income level and secession support.

Unemployment and secession support surged during the worst years of the economic crisis in Catalonia. Figure A-3 plots the coevolution of both series. We conjectured that individuals might support secession if they anticipate an improvement in the public insurance system following secession: for example, more generous benefits. Individuals who are long-term unemployed and receive no benefit from the central government—which has exclusive powers over unemployment benefits in Spain—might be amenable to this logic. Drawing from the job status of our respondents, we generate the variable Unemployment, which takes three values: 0 for employed and inactive population, 1 for individuals who have been unemployed under 1 year, and 2 for those who have been unemployed more than 1 year. We also asked respondents whether they were recipients of any social benefit from the central government. To complete the list of covariates that speak directly to material interest, we record whether the respondents work for the national, regional, or local administration.

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[8]In designing the survey, we prioritized Europe over the world to measure trade ties outside Spain. Large European economies are the second largest market of Catalan exports, only after Spain.

Other Covariates. We seek to estimate the effect of material interest on support for independence conditional on regional identity; however, secession preference and regional identity are potentially endogenous. We take advantage of the heterogeneous origins of the Catalan population resulting from internal and foreign migration that preceded the rise of secession support in the 2010s. Between the mid 1940s and mid 1970s, Catalonia experienced various waves of migration from poorer regions of Spain. Along with low-skilled internal migrants, a number of public servants, and police officers from other parts of Spain settled permanently in Catalonia. Compared to older generations, first- and second-generation Catalans systematically exhibit lower adherence to Catalan identity. We exploit this property in the empirical analysis to overcome endogeneity issues.

To determine Catalan ancestry, we establish four categories: First-generation respondents, or individuals who immigrated from other regions of Spain or abroad; second-generation respondents, neither of whose parents are Catalan; respondents who have one Catalan parent; and respondents both of whose parents are Catalan. Ancestry correlates highly with self-reported measures of identity;[9] however, unlike any self-reported measure of identity, the place of birth is nonmanipulable.[10]

We consider a second measure for social orientations: Ideology, ranging from 0 (left) to 10 (right). Secession support might be interpreted as an expression of lack of solidarity with poorer regions in Spain in direct confrontation with a progressive, redistributive agenda. Were that the case, we should expect an overrepresentation of conservative voters among proindependence supporters. Finally, all models include controls for gender and age. We transform age, income, and education levels into categorical variables to allow us to identify nonlinearities while simplifying coefficient comparison. We also include a battery of province fixed effects to capture territorial variation in support of secession.[11]

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[9]The "Linz question," which offers five categories of identification (only Catalan; more Catalan than Spanish; as Catalan as Spanish; more Spanish than Catalan; only Spanish), correlates at 0.49 with Catalan Ancestry.

[10]In Appendix F, we use language of communication as proxy for regional identity. Results hold.

[11]Barcelona, Girona, Lleida, and Tarragona. In Table A-4 we dismiss systematic differences by municipality size.

5 Results

Table 2 reports results for the continuous nonbehavioral measure of preference for secession. Results in column 1 indicate that the relationship between Education Level and Secession Preference is positive, a result that seemingly challenges the H-O model. Because this result holds across specifications, we return to it in the mechanism section. Next we assess implications of the R-V trade model, according to which individuals in export-oriented sectors benefit from free trade, and those in import-competing sectors lose from it. Results in column 2 and 3 indicate an asymmetrical response to *sector-level* trade exposure. On the one hand, import competition does not seem to drive demands for secession. In other words, secession support does not seem to be grounded in protectionist feelings. On the other hand, exports seem to shape preference for remaining, but this applies only to exports to Spain (column 2). Results in column 4 and 5, where we examine *firm-level* implications derived from the NNT model, suggest an asymmetrical response as well. Respondents employed at firms with strong trade ties with Spain are less likely to favor secession (column 4). By contrast, employment at a firm with strong trade ties with Europe does not make respondents less supportive of secession. In the latter case, neither of the two measures, *weak* or *strong* trade ties with Europe, correlates with preference for secession. The point estimates are centered around zero and have large standard errors.

Table 2 here

Why does trade with Spain at the sector- and firm-level covary with opposition to secession whereas trade with Europe and the world does not? Three nonmutually exclusive explanations might be at play: First, Spain is the largest single market for Catalan exports. In 2017, interregional Catalan exports to Spain were valued at 39 billion Euros, and Catalan exports to Germany, France, Italy, Portugal, and the UK combined, 34 billion Euro (ACCIO, 2018). Second, notorious boycotts of Catalan products by Spanish consumers were organized in the recent past, which speak to the credibility of sustained boycotts in case of indepen-

dence.[12] Third, sectors and firms specializing in the domestic market might fundamentally di er from those that export to Europe and the world. Whereas highly competitive firms are selected into export activity, less productive firms tend to specialize in the domestic economy only (Melitz, 2003). Under this framework, sectors and firms specializing in the Spanish market would disproportionately struggle to remain afloat in the open market were Catalonia split from Spain and expelled from the customs union. Were an independent Catalonia to remain in the customs union, Catalan firms would still have to face "technical barriers to trade" (e.g., safety and labelling requirements) within the European Union (Chen and Novy, 2011). In either scenario, Catalan firms which now specialize in the Spanish market only would disproportionately su er from secession because of low competitiveness. Consistent with either of these three explanations, columns 6 shows that respondents employed at firms *lacking* strong ties with Europe express stronger opposition to secession as trade tries with Spain strengthen. Consistent with the third explanation, we find that employees at those firms express stronger preference for protectionist trade policy than individuals employed at firms with strong ties with Europe.[13]

Findings in columns 1–6 call for a nuanced interpretation of standard trade models once applied to preference for secession. Whereas workers employed in sectors and at firms that export to the rest of the world show no particular aversion (nor support) for independence, those whose business focuses on the host state show aversion to secede. The former type is likely productive enough to overcome (short-term) trade shocks and may have no reason to fear any boycott by foreign consumers. By contrast, workers in sectors and at firms that specialize only in the host state economy may face higher obstacles in outperforming international competitors and anticipate retaliation by their former consumers after independence. In other words, exposure to trade matters when it involves trade ties with the host state.

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[12]For boycotts in fall 2017 see "El 23% de los consumidores de fuera de Catalunya ya hacen boicot a productos catalanes." *La Vanguardia*, November 9, 2017.

[13]We ask respondents for levels of agreement with "Imports of foreign products should be limited to protect the national economy" (1, strongly disagree–5, strongly agree; avg.=2.94, std.dev.=1.02). Individuals employed at firms that have strong ties with Spain but lack strong ties with Europe score 3.05 on average, and those that have strong ties with Europe score 2.83, the difference being statistically different at 90%.

In Table 2 we also evaluate preference for secession as a function of anticipated fiscal and employment shocks. We find no evidence of a linear (or curvilinear) relationship between household income and preference for secession, which would speak to anticipated decrease in tax transfers and increase in public expenditure in case of secession, benefiting the higher and lower echelons on the income ladder, respectively.[14]

Keeping income constant, long spells in unemployment predict support for independence. As discussed above, some individuals might find the union's insurance system ine cient (i.e., it does not adapt to local conditions) and support independence in expectation of a better one outside the union. Respondents who are long-term unemployed and receive no benefit from the central state might be particularly amenable to this logic. Appendix C confirms that support for secession increases in the length of the unemployment spell conditional on not receiving a benefit from the central government. Long-term unemployed respondents who receive no benefit rank .67 points higher in support for independence relative to long-term unemployed on benefits. Consistent with the public insurance argument, we find that long-term unemployed who receive no benefit are also particularly optimistic about social benefits if secession materialized.[15] Together, this evidence o ers a suggestive microfoundation for the relationship traced in Figure A-3 between aggregate unemployment and secession support in Catalonia.

Next, we assess the e ect of government employment. Respondents employed by the central government seem to disproportionately oppose independence; however, results are subtler than initially thought. In our sample, 40% of central government employees were born outside Catalonia, whereas 90% of the regional/local government employees were born in Catalonia. The opposition of the former to independence might derive from nonmaterial attachment to Spain rather than economic calculus (i.e., independence curtails career advancement). That said, when asked about expected individual economic gains from seces-

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[14]See Table A-4 for alternative specifications of income effects. Results hold.

[15]In Appendix C we explore an alternative explanation: reemployability expectations following independence. We find no support for it.

sion, central government employees are more pessimistic than regional or local government employees and nongovernment employees (see Appendix E). This suggests that material considerations may be also at work among central government employees.

With regard to other controls, we find no aversion to independence as individuals approach retirement age, 65 in Spain. If any, the older cohort shows a strong preference for independence, a result repeated across models.[16] Second, results show that women are less favorable to independence, a result consistent with women's higher aversion to constitutional change in Spain (Verge, Guinjoan and Rodon, 2015). Third, our ideology measure suggests that independence supporters concentrate among individuals on the left side of the ideological spectrum. This result is consistent with Dinas (2012), who shows that Catalans associate conservative positions with political centralization. Finally, the nonmanipulable predictor of regional identity, Catalan Ancestry, carries a large (and approximately linear) impact on support for independence.

Figure 1 here

Figure 1 puts material interests into perspective. Estimates drawn from column 4 ("Full sample") are plotted in black. Consistent with previous literature, this figure confirms that identity-based considerations are a key driver of secession preferences. Keeping identity constant, we confirm that material calculations matter as well. Three aspects of economic integration with Spain—trade ties with Spain, central government benefits, and public employment—act as inhibitors of secession support. To the best of our knowledge, this is the first time that specific material considerations are uncovered by hard data.

Finally, we conjecture that material considerations are particularly relevant for business owners and self-employed individuals, who arguably have more at stake than regular employees and have richer information to anticipate the consequences of any trade shock following

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[16]This group is well-distributed in terms of key socioeconomic characteristics. We find an interesting difference in their perception of the state of civil liberties in Catalonia. Older cohorts show a worse evaluation of civil rights than younger ones, the difference being statistically significant. Recent events in Catalonia (e.g., police charges on October 1, and imprisonment of proindependence leaders) might be particularly sensitive for a generation who lived under autocratic rule.

independence. Consistently, the coe cient for Strong Trade Ties with Spain for this group of respondents, superimposed in gray in Figure 1, is twice as large as it is for the average respondent. Not coincidentally, Catalonia experienced significant capital flight during fall 2017, a phenomenon that publicly signaled trade and employment shocks in case of secession, potentially feeding back material interest in the general public.

Next, we assess how robust results are to measurement issues and a quasi-behavioral version of the outcome variable.[17]

5.1   Vote in a Referendum of Independence

The outcome variable in the preceding sections might not capture the nonlinearities of a yes–no direct question about independence at the ballot box. To address this issue, we asked respondents how they would vote in a referendum for independence:[18] 44.2% of them said they would vote against it, 43.2% would vote in favor, 5.5% would abstain, and 7.1% did not know. In columns 3 and 4 in Table 3 (probit and LPM, respectively), we regress the dichotomous outcome variable (yes vs. no) on a full model.[19] Results remain virtually identical: Education and Trade Ties with Spain remain strong predictors of secession preference, holding Catalan Ancestry constant.

Table 3 here

5.2   Quasi-behavioral Measure of Secession Preference

Stakes were high in fall 2017. At the time we ran our survey, self-government in Catalonia had been suspended, and key Catalan proindependence civil society leaders and politicians were in pretrial detention without bail or had fled the country. Following Bechtel et al. (2014), we included a final question in our survey in which we o ered respondents the

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[17]Refer to Appendix G for models considering expectations about exiting European institutions upon secession. Results hold.

[18]This question followed the continuous nonbehavioral outcome variable thus far analyzed.

[19]Results when abstainers are included in the No camp are the same.

possibility of sending on their behalf a nonanonymous letter to the would-be president of the Catalan Parliament, stating their preferred strategy to address the ongoing political crisis. Given the convulsive political context in which our survey was implemented, we expect this quasi-behavioral instrument to retrieve sincere preferences for secession. Specifically, we asked respondents to select one of the following messages:

On my behalf, please let the next president of the Catalan Parliament know that I want the new Parliament ....

1. *to cooperate with Spanish authorities to return part of its political and fiscal autonomy to the central government.*

2. *to adhere to the Estatut d'Autonomia of 2006.*

3. *to demand further political and fiscal autonomy to the Spanish government but not independence.*

4. *to keep working to achieve independence.*

Participation was voluntary, and 58% of respondents agreed to participate.[20] The four categories spanned the full spectrum of options (marginals in parenthesis): recentralization (9.6%), status quo (8.7%), further decentralization (40.51%), and independence (41.2%). The quasi-behavioral and continuous nonbehavioral measure correlate at 0.78.

Columns 5 to 8 in Table 3 report full models for the quasi-behavioral response. Because the linearity assumption is not obvious, we fit both OLS and ordinal probit models.[21] To assess the trade implications of secession in the behavioral framework, we employ the firm-level trade ties with Spain measure in columns 5 and 6, and the sector-level exports to Spain measure in columns 7 and 8.

Overall, results for the behavioral measure confirm those in previous specifications: holding Catalan Ancestry constant, high levels of education and trade ties with Spain remain strong predictors of support for and opposition to independence, respectively.[22]

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[20]Earlier in the questionnaire we asked respondents whether civil rights in Catalonia had improved or worsened in recent times. Individuals who thought that civil rights had improved substantially (a tiny proportion) or worsened substantially (a large proportion) were more likely to participate than individuals who had neutral opinions. We report a Heckman correction model in Appendix J. Results hold.

[21]Results hold with multinomial probit.

[22]In the less obvious OLS models, columns 6 and 8, the coefficient for *Sector Level Exports to Spain: High*

In the quasi-behavioral framework, household income turns statistically significant in favor of secession, the relation being approximately linear. Do wealthier individuals oppose interterritorial redistribution and consequently support independence, or does income speak to socioeconomic resources necessary to engage in costly political action? (Schlozman, Brady and Verba, 2018). To shed light on this question, we exploit an embedded item count technique or "list experiment" (Blair and Imai, 2012) in which we include a list of nonsensitive items to support independence—hence, asked only of secession supporters—along with a sensitive item listed only in the treatment group: *"I do not want my tax money to leave Catalonia."*[23] We divide respondents into high- and low-income groups and compare the average number of items in the treatment and control conditions.[24] Figure 2 shows that proindependence supporters do not want their tax money to be redistributed to other parts of Spain, but that preference is equally shared by high- and low-income respondents.[25] By implication, the income eﬀect shown in Table 3 seems to point to the socioeconomic resources required to participate in a costly political action, namely openly communicating to the would-be President of the Catalan Parliament one's position about independence in an unfriendly political context.

Figure 2 here

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holds the expected sign and is borderline with conventional 90% confidence interval. The effect of unemployment spell in columns 5–8 is null. Appendix C suggests that the effect of unemployment is ultimately contingent on social benefit status.

[23]The nonsensitive items are listed in Appendix H. When the sensitive question is not sensitive enough, the result of a list experiment is upward biased. Ours was not an obvious case. The rapid succession of events in fall 2017 did not allow time to pilot the list experiment; however, in order to assess the differential effect of interterritorial redistribution by income level, we can safely focus on the differences in the treatment condition.

[24]The low (high) income group includes individuals in the lower (upper) half of the income distribution: Categories 1–6 (7–13) in the original variable.

[25]These results mirror those of Balcells, Fernandez-Albertos and Kuo (2015).

6 Mechanisms

Results in the previous section uncover a link between individual exposure to economic disintegration and opposition to independence. We find that respondents employed at firms and sectors having strong ties with Spain—the largest market of Catalan exports—show strong preference for remaining. In contrast, we find unexpected results for skill levels, proxied by education. In a capital-intensive economy, highly skilled individuals are *a priori* most exposed to trade shocks—yet they disproportionately support secession in Catalonia. In Appendix I, we first discard measurement issues: An occupation-based skill measure yields the same results. Upon that confirmation, next we consider two competing mechanisms for the association between education and preference for secession.[26]

6.1 Mechanism Candidate #1: Education and Expected Returns from Secession

Highly educated respondents might anticipate greater individual and sociotropic gains from independence. Despite short-term adjustment costs, they might form expectations consistent with Alesina and Spolaore (1997): Namely, secession will lead to a larger internationalization of the local economy, thus maximizing returns to human capital. Figures 3a and 3b show the relation between expectations and education.[27] Results suggest that expected individual or sociotropic returns from independence are not statistically distinguishable across education levels.[28] The highly educated appear slightly more pessimistic about the sociotropic benefits of secession; however, intergroup differences are not statistically significant. In sum, our data are not consistent with Mechanism Candidate #1.

Figure 3 here

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[26]Appendix N examines and dismisses a third mechanism candidate: exposure to Catalan schooling.

[27]We asked respondents whether they would individually benefit from secession, or whether Catalonia as a whole would benefit from secession: No (0)–Yes (1). We specified no time frame.

[28]Expectations about the potential exit of European institutions do not change with levels of education either. Results available upon request.

6.2 Mechanism Candidate #2: Education and Fiscal Knowledge

Income redistribution among different jurisdictions of a union is a common driver of secession demands in wealthier units (Sambanis and Milanovic, 2014; Sorens, 2005). Interterritorial transfers are often perceived as unfair. This grievance is expected to increase following autonomy retraction (Siroky and Cuffe, 2015). In recent years, Catalonia, a net contributor to the Spanish Treasury, experienced gradual loss of fiscal powers. The last step in a sequence of autonomy retraction followed the October 1 referendum: Catalan self-government and fiscal autonomy was suspended *sine die*.[29] We conjecture that the effect of autonomy retraction on the formation of proindependence preference disproportionately affects individuals who have a better understanding of the institutional structure of interterritorial redistribution, hence equipped to identify and size fiscal autonomy loss. Individuals with higher levels of *fiscal knowledge* are overrepresented in the highly educated strata, plausibly explaining the tight connection between skills and proindependence support.

We examine this mechanism in four steps: First, we confirm that respondents with higher levels of education show higher levels of fiscal knowledge. Second, we evaluate whether the effect of education on support for secession attenuates when we control for *fiscal knowledge*, a result to be expected if the latter mediates the effect of education on support for independence. Third, we examine whether, in a context of autonomy retraction, those who are fiscally knowledgeable become more skeptical about fiscal and political accommodation within the union. Finally, in Appendix A-7 we dismiss an alternative explanation for the tight association between fiscal knowledge and proindependence support: strategic considerations—our initial expectation.

Education and fiscal knowledge. Spain is divided into 17 regions, belonging to either the general or the quota track. The two regions in the quota or *foral* track—the Basque Country and Navarra—are virtually financially sovereign.[30] The remaining 15 regions in the

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[29]See Muro (2015) and Appendix O for more details on the decentralization reversal in Catalonia.

[30]These regions contribute a quota to the Spanish treasury to cover basic state services (e.g., the military).

general track, Catalonia included, have limited fiscal discretion.[31] To measure levels of fiscal knowledge, we ask respondents to name the two regions in Spain under the quota track. This is a factual question not subject to interpretation and conveys information about a minimal understanding of the institutional design of interterritorial transfers. Thirty-nine percent of our respondents could not name either of the two *foral* regions; 26% named one, and 35% named both.[32] Figure 4 confirms that education and fiscal knowledge are indeed correlated.

Figure 4 here

Fiscal knowledge as mediator. Next, we study whether fiscal knowledge channels the e ect of skill levels, proxied by education, on proindendence support. We begin our analysis by examining whether the e ect of education attenuates or vanishes once we control for levels of fiscal knowledge, a change to be expected if fiscal knowledge mediates between education on preference for secession. We conduct the analysis for the nonbehavioral continuous and quasi-behavioral outcome variables, columns 1–4 and 5–8 in Table 4, respectively. Columns 1 and 5 set the benchmark models, respectively. They reiterate results above, namely the positive relationship between education levels and preference for secession. In columns 2 and 6 we control for our measure of fiscal knowledge. The two point estimates of the proposed mechanism are positive, statistically di erent from zero, and large. At the same time, in column 2 the point estimates of the High-High School category loses statistical significance and that for University/College Education attenuates over 25%. Attenuation is stronger in column 6, the quasi-behavioral model. The point estimate of University/College Degree decreases by two thirds and is no longer statistically di erent from zero.

Fiscal knowledge might not be randomly assigned. We consider three confounders that may simultaneously influence fiscal knowledge (the mediator) and secession preference (the outcome variable): proindependence environment, associational life, and party cues. First,

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[31]The 2016 OECD Fiscal Federalism Report ranked Spain last in terms of "regional fiscal autonomy" (i.e., subnational tax, spending, and budgeting autonomy) among 15 federal states (Blöchliger and Kim, 2016).

[32]All regions were listed on the screen, and respondents were to check two of them to move to the next screen.

we capture opportunities to learn about the fiscal system by computing the vote share of proindependence parties in the 2015 local election in the respondents' municipality. Presumably, respondents who are surrounded by proindependence voters should be more likely to learn about the current fiscal system—a major source of grievance. Second, political information might be transmitted via personal participation in civil society organizations or by interacting with individuals who participate in them. This channel seems particularly compelling in Catalonia, where the proindependence movement has excelled in mobilizing hundreds of thousands of supporters on a regular basis since 2012.[33] To control for this source of information acquisition, we compute the number of cultural and civic associations at the ZIP code level and match that information to our respondents' residence ZIP code. Association density and proindependence vote share are not individual-level variables. Thus, we create four indicator variables based on their quartile distribution and treat them as separate batteries of fixed effects.

Columns 3 and 7 in Table 4 report the point estimates for education (and fiscal knowledge) when we control for association density and the secession support environment of the respondent. As expected, the estimates of education further attenuate in the presence of controls that account for information selection. Meanwhile, the effect of fiscal knowledge remains strong when we adjust for the first two channels of information acquisition. Next, we consider a third one: Political party cues, proxied by vote intention in the upcoming regional election. Presumably, individuals pay attention to the parties for which they intend to vote; thus they are exposed to different informational cues. Political parties favoring independence are more likely to advertise the fiscal deficit of Catalonia with the rest of Spain than parties against independence. Columns 4 and 8 show that the magnitude of education coefficients further attenuates when we consider this third channel of information acquisition.[34]

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[33] Appendix K shows strong association between cultural associations and proindependent vote.

[34] In Appendix L, we further examine the role of fiscal knowledge as a mechanism candidate by conducting a subset analysis. Those results show that, for any given level of fiscal knowledge, the effect of education on secession support virtually vanishes. In Appendix M, we show that *general* political knowledge does not mediate the relationship between education and preference for secession.

Table 4 here

Fiscal knowledge and Grievances. Catalonia experienced gradual losses of fiscal autonomy in the last decade. Autonomy retractions are expected to feed resentment, limit the central government's ability to make credible commitments of accommodation, and foster support for independence (Siroky and Cu e, 2015; Sorens, 2012). Relatedly and specific to Spain, Muro (2015) contends that the "decentralization reversal" convinced proindependence parties that a political compromise with the central government was unlikely. Building on this scholarship, we conjecture that fiscal grievance maps on individual-level preferences differently. Those who are informed about the system of territorial transfers in Spain might be more susceptible to autonomy retractions—because they are better equipped to perceive and size autonomy losses—and, in turn, see independence as a possible way forward. We assess this possibility by drawing from two questions included in our original survey that address perceived *willingness* to compromise by the central government and the *credibility* of its promises.

Figure 5 here

Constitutional reform to accommodate Catalan demands would require a supermajority in the Spanish Parliament. We ask respondents how likely they think statewide political parties would accommodate Catalan demands by reforming the Spanish Constitution. Second, were a new fiscal charter for Catalonia agreed upon by Catalan and Spanish authorities, we ask respondents how likely they think the Spanish government would honor the terms of the agreement. To simplify the analysis, we divide respondents in two groups: Those who score 0 in the fiscal knowledge variable (low) vs. those who score 1 (medium) or 2 (high).[35] Figure 5a and 5b show results for the entire sample: As fiscal knowledge increases among the general public, so does skepticism about accommodation and credibility issues.

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[35] See Appendix P for results with the original three-category version of fiscal knowledge. Results hold.

Table 4 shows that fiscally knowledgeable individuals are more likely to favor secession. The relationship in 5a and 5b might be confounded by secession support; that is, proindependence supporters may disproportionately score high in fiscal knowledge and also be skeptical of political compromise. Figures 5c and 5d, which plot results for proindependence supporters only, refute selection issues. Keeping proindependence support constant, we see that skepticism increases and credibility decreases with fiscal knowledge.

These findings echo Muro's (2015) and Siroky and Cu e's (2015) reflections about the backlash e ects of autonomy retractions. These are likely to create resentment and lack of confidence in political compromise within the union, growing support for secession. Our results suggest that backlash e ects disproportionately a ect those who understand the institutional system of interregional transfers, hence can easily perceive and size fiscal retraction. Altogether, we find an association between skill levels and secession support plausibly because fiscally knowledgeable respondents, apparently the most pessimistic about political compromise, are overrepresented among the most educated.

7 Conclusion

Understanding the microfoundations of independence movements and comprehending the playing field where political entrepreneurs maneuver are crucial to identifying an ordered solution to this type of conflict. We have considerable understanding of the institutional and economic conditions under which these demands are likely to occur. By comparison, our understanding of the individual calculus that structures support and opposition to independence is somewhat limited. Borrowing from international political economy and its emphasis on material interest, we derived a set of hypotheses that connect preferences for secession to potential fiscal, employment, and trade shocks following independence in an open advanced economy. We have evaluated these expectations, drawing from an original survey conducted in Catalonia immediately before a snap election that was interpreted as a covert referendum

on independence.

Our analysis of the Catalan case o ers two insights that transcend the case study: First, individual economic loss from secession is a strong deterrent of individuals' willingness to secede. The risk of losing access to the host state market after secession weakens preference for secession particularly among respondents employed in sectors and at firms specializing in the domestic economy. Unsurprisingly, Madrid in 2017 and London in 2014 emphasized such costs when secessionist threats were highest in Catalonia and Scotland, respectively.[36] These findings, the first of their kind, show the e ectiveness of a calculated strategy conducted by central governments to preempt independence. More generally, they speak to the importance of accounting for material interest in explaining individual-level proindependence preferences in advanced open economies in the West and beyond. We hope to see a continuation of this materialistic approach in future studies of secessionism and self-determination.

Second, our findings shed light on the connection between grievance derived from intert-erritorial redistribution and preference for secession. In a context of autonomy retraction, individuals who are knowledgeable about the institutional structure of interterritorial redis-tribution—hence better equipped to identify and size fiscal retractions—show disproportional skepticism about fiscal accommodation within the union and as a result contemplate seces-sion as a possible way forward. This result o ers individual-level support to Siroky and Cu e's (2015) crossnational group-level analysis and is equally consistent with the back-lash consequences of the recent decentralization reversal identified by Muro (2015) in Spain. Provided that high-skill, high-knowledge individuals have disproportional access to and in-fluence over regional political elites relative to unskilled individuals, autonomy retraction by the central government might only shrink the room for a negotiated solution.

Altogether, conditional on identity-based motivations, our results show that material considerations matter in understanding preference formation in both the unionist and proin-

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[36]See, for example, "David Cameron: Scottish Independence Would Increase Cost of Mortgages and Hit Value of Savings," *The Telegraph*, August 24, 2014, on Scotland; or "Margallo afirma que Catalunya 'vagaría por el espacio' si se independiza," *La Vanguardia*, March 10, 2014, on Catalonia.

dependence camps of a secessionist territory. Shedding light on the elasticity and trade-o s between material and nonmaterial considerations seems a highly promising path to characterize the negotiation space of secessionist conflict.

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Table 1: Continuous and Binary Measures of Support for Independence

Continuous		Binary	
Most likely against	33.39	No	44.19
Likely against	11.68	Yes	43.23
Not in favor, not against	10.89	Abstain	5.52
Likely in favor	12.68	Don't Know	7.06
Most likely in favor	31.35		

Table 2: Preference for Secession: Continuous Outcome Variable

	(1)	(2)	(3)	(4)	(5)	(6)[†]
Low-High School	0.091	0.110	0.111	0.099	0.093	0.102
	(0.118)	(0.120)	(0.120)	(0.119)	(0.119)	(0.124)
High-High School	0.245**	0.266**	0.262**	0.239**	0.242**	0.217*
	(0.114)	(0.114)	(0.114)	(0.113)	(0.114)	(0.118)
University/College	0.353***	0.374***	0.371***	0.350***	0.343***	0.303**
	(0.115)	(0.115)	(0.115)	(0.115)	(0.115)	(0.119)
Sector-level Imports from Spain: Low		0.059				
		(0.097)				
Sector-level Imports from Spain: High		0.022				
		(0.154)				
Sector-level Exports to Spain: Low		-0.052				
		(0.099)				
Sector-level Exports to Spain: High		-0.223**				
		(0.112)				
Sector-level Imports from World: Low			0.042			
			(0.095)			
Sector-level Imports from World: High			0.021			
			(0.176)			
Sector-level Exports to World: Low			-0.077			
			(0.096)			
Sector-level Exports to World: High			-0.145			
			(0.162)			
Firm-level Trade Ties with Spain: Weak				0.047		-0.021
				(0.107)		(0.113)
Firm-level Trade Ties with Spain: Strong				-0.297***		-0.347***
				(0.115)		(0.131)
Firm-level Trade Ties with EU: Weak					-0.077	
					(0.105)	
Firm-level Trade Ties with EU: Strong					0.006	
					(0.130)	
Unemployed: Short-Term	-0.003	-0.006	-0.008	-0.062	-0.048	-0.079
	(0.199)	(0.201)	(0.201)	(0.204)	(0.204)	(0.205)
Unemployed: Long-Term	0.403**	0.380**	0.387**	0.351**	0.363**	0.340*
	(0.173)	(0.176)	(0.176)	(0.179)	(0.178)	(0.179)
Benefit from Central Government	-0.172*	-0.174*	-0.174*	-0.199*	-0.189*	-0.203*
	(0.101)	(0.101)	(0.102)	(0.105)	(0.103)	(0.108)
Public Employee: Central	-0.712**	-0.726**	-0.734**	-0.690**	-0.744**	-0.654**
	(0.333)	(0.340)	(0.340)	(0.333)	(0.332)	(0.333)
Public Employee: Local/Regional	0.062	0.041	0.033	0.030	0.080	0.094
	(0.205)	(0.215)	(0.215)	(0.204)	(0.207)	(0.215)
Income Category: Low	0.207*	0.239**	0.239**	0.204*	0.215*	0.239**
	(0.116)	(0.117)	(0.118)	(0.116)	(0.116)	(0.120)
Income Category: Middle	0.139	0.139	0.143	0.147	0.147	0.160
	(0.113)	(0.114)	(0.114)	(0.113)	(0.112)	(0.118)
Income Category: High	0.077	0.086	0.089	0.093	0.094	0.088
	(0.120)	(0.122)	(0.122)	(0.119)	(0.119)	(0.126)
Income Category: Very High	0.161	0.173	0.175	0.164	0.169	0.143
	(0.139)	(0.142)	(0.143)	(0.140)	(0.140)	(0.149)
Cohort: 30-39	0.044	0.046	0.053	0.064	0.066	0.083
	(0.118)	(0.118)	(0.118)	(0.117)	(0.117)	(0.125)
Cohort: 40-49	0.096	0.095	0.103	0.094	0.111	0.083
	(0.115)	(0.117)	(0.117)	(0.114)	(0.114)	(0.122)
Cohort: 50-59	0.106	0.151	0.156	0.097	0.115	0.076
	(0.124)	(0.126)	(0.125)	(0.124)	(0.124)	(0.134)
Cohort: ≥60	0.534***	0.546***	0.550***	0.491***	0.512***	0.491***
	(0.131)	(0.134)	(0.134)	(0.135)	(0.135)	(0.142)
Female	-0.130	-0.146*	-0.140*	-0.140*	-0.123	-0.143*
	(0.080)	(0.083)	(0.083)	(0.080)	(0.081)	(0.084)
Ideology	-0.288***	-0.286***	-0.286***	-0.286***	-0.289***	-0.288***
	(0.016)	(0.017)	(0.017)	(0.016)	(0.016)	(0.017)
2nd Generation	0.353***	0.353***	0.358***	0.356***	0.351***	0.388***
	(0.112)	(0.113)	(0.113)	(0.112)	(0.111)	(0.119)
3rd Gen., One Catalan Parent	1.009***	1.007***	1.010***	0.997***	1.002***	1.013***
	(0.114)	(0.115)	(0.116)	(0.114)	(0.114)	(0.120)
3rd Gen., Two Catalan Parents	1.638***	1.658***	1.660***	1.620***	1.632***	1.659***
	(0.102)	(0.103)	(0.103)	(0.102)	(0.102)	(0.108)
Constant	2.854***	2.822***	2.822***	2.933***	2.897***	2.937***
	(0.191)	(0.200)	(0.199)	(0.201)	(0.199)	(0.208)
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,100	2,047	2,047	2,100	2,100	1,878
R-squared	0.361	0.361	0.362	0.361	0.365	0.367

OLS coefficients shown with standard errors in parentheses (*** $p<0.01$, ** $p<0.05$, * $p<0.1$). Entropy weighting applied to match the voter population. The reference categories are as follows: Up to Secondary Education; Male; Cohort: 18–29; Income Category: Very Low; First-Generation Catalan; No Public Employee; No Benefit; Not Unemployed; No Trade Ties with Spain; No Trade Ties with Spain; No Exports to Spain; No Imports from Spain. Regressions also include dummy variables for Trade Ties with Spain: Missing.
[†]: In this column, respondents employed in a firm with strong ties with Europe are dropped.

Table 3: Vote in Referendum and Quasi-behavioral Measure

	Yes in Independence Referendum				Petition to Parliament			
	(1) Probit	(2) LPM	(3) Probit	(4) LPM	(5) oProbit	(6) OLS	(7) oProbit	(8) OLS
Low-High School	0.057	0.017	0.073	0.019	0.126	0.090	0.109	0.082
	(0.132)	(0.037)	(0.131)	(0.037)	(0.122)	(0.086)	(0.124)	(0.088)
High-High School	0.256**	0.068*	0.305**	0.077**	0.102	0.091	0.118	0.103
	(0.129)	(0.036)	(0.130)	(0.036)	(0.124)	(0.087)	(0.126)	(0.089)
University/College	0.293**	0.075**	0.326**	0.080**	0.234*	0.147*	0.234*	0.147*
	(0.127)	(0.035)	(0.127)	(0.036)	(0.124)	(0.086)	(0.127)	(0.089)
Firm-Level Trade Ties with Spain: Weak	0.047	0.010			0.199	0.116		
	(0.123)	(0.034)			(0.127)	(0.080)		
Firm-Level Trade Ties with Spain: Strong	-0.362***	-0.100***			-0.233*	-0.153		
	(0.131)	(0.037)			(0.132)	(0.096)		
Sector-Level Exports to Spain: Low			-0.021	-0.004			-0.072	-0.033
			(0.103)	(0.029)			(0.102)	(0.069)
Sector-Level Exports to Spain: High			-0.340***	-0.076**			-0.225*	-0.161
			(0.124)	(0.034)			(0.136)	(0.100)
Benefit from Central Government	-0.228**	-0.061*	-0.187*	-0.050	-0.090	-0.048	-0.078	-0.039
	(0.116)	(0.032)	(0.113)	(0.031)	(0.112)	(0.079)	(0.108)	(0.075)
Public Employee: Central	-0.881**	-0.247***	-0.968***	-0.263***	-0.828*	-0.602*	-0.946**	-0.672*
	(0.356)	(0.095)	(0.358)	(0.097)	(0.465)	(0.358)	(0.480)	(0.367)
Public Employee: Local/Regional	-0.107	-0.022	-0.142	-0.027	-0.054	-0.028	-0.070	-0.037
	(0.200)	(0.059)	(0.209)	(0.060)	(0.219)	(0.144)	(0.223)	(0.147)
Unemployed: Short-Term	-0.516**	-0.138**	-0.447**	-0.115**	-0.303	-0.170	-0.302	-0.172
	(0.224)	(0.059)	(0.221)	(0.057)	(0.249)	(0.192)	(0.246)	(0.190)
Unemployed: Long-Term	0.256	0.086	0.302	0.099*	0.367	0.261*	0.350	0.261*
	(0.209)	(0.059)	(0.213)	(0.059)	(0.230)	(0.149)	(0.234)	(0.154)
Income Category: Low	0.235*	0.057	0.271*	0.064*	0.150	0.114	0.136	0.095
	(0.137)	(0.038)	(0.139)	(0.038)	(0.137)	(0.097)	(0.139)	(0.099)
Income Category: Middle	0.174	0.051	0.167	0.046	0.209	0.177*	0.217	0.180*
	(0.130)	(0.036)	(0.130)	(0.036)	(0.143)	(0.100)	(0.145)	(0.101)
Income Category: High	0.089	0.028	0.067	0.019	0.574***	0.397***	0.564***	0.390***
	(0.132)	(0.037)	(0.133)	(0.037)	(0.130)	(0.087)	(0.133)	(0.090)
Income Category: Very High	0.198	0.055	0.201	0.055	0.317**	0.229**	0.331**	0.237**
	(0.164)	(0.046)	(0.165)	(0.046)	(0.153)	(0.109)	(0.156)	(0.112)
Cohort: 30-39	0.212	0.048	0.185	0.041	-0.098	-0.081	-0.075	-0.067
	(0.148)	(0.038)	(0.149)	(0.039)	(0.147)	(0.101)	(0.148)	(0.103)
Cohort: 40-49	0.272*	0.064*	0.262*	0.061	-0.033	-0.049	0.001	-0.031
	(0.144)	(0.037)	(0.145)	(0.037)	(0.144)	(0.103)	(0.146)	(0.104)
Cohort: 50-59	0.149	0.024	0.216	0.043	0.015	-0.011	0.024	-0.016
	(0.153)	(0.040)	(0.155)	(0.040)	(0.152)	(0.110)	(0.157)	(0.114)
Cohort: ≥60	0.558***	0.144***	0.630***	0.162***	0.295*	0.174*	0.308**	0.183*
	(0.168)	(0.042)	(0.166)	(0.041)	(0.153)	(0.101)	(0.152)	(0.102)
Female	-0.142	-0.044*	-0.178*	-0.051*	-0.017	-0.021	-0.037	-0.036
	(0.092)	(0.026)	(0.094)	(0.026)	(0.092)	(0.062)	(0.094)	(0.064)
Ideology	-0.294***	-0.081***	-0.294***	-0.081***	-0.223***	-0.148***	-0.221***	-0.148***
	(0.021)	(0.005)	(0.021)	(0.005)	(0.021)	(0.014)	(0.021)	(0.015)
2nd Generation Catalan	0.273**	0.086**	0.270**	0.083**	0.221*	0.192**	0.218*	0.192**
	(0.122)	(0.035)	(0.123)	(0.035)	(0.119)	(0.091)	(0.121)	(0.094)
3rd Gen., One Catalan Parent	0.966***	0.303***	0.980***	0.306***	0.616***	0.452***	0.610***	0.456***
	(0.127)	(0.036)	(0.128)	(0.037)	(0.125)	(0.091)	(0.127)	(0.092)
3rd Gen., Two Catalan Parent	1.584***	0.472***	1.637***	0.485***	1.126***	0.688***	1.150***	0.707***
	(0.124)	(0.033)	(0.127)	(0.033)	(0.129)	(0.083)	(0.130)	(0.084)
Constant	-0.040	0.485***	-0.122	0.463***		2.993***		3.020***
	(0.221)	(0.062)	(0.215)	(0.061)		(0.159)		(0.152)
Province FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,847	1,847	1,801	1,801	1,212	1,212	1,179	1,179
R-squared	-	0.364	-	0.361	-	0.297	-	0.289

Coefficients shown with standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1). Entropy weighting applied to match the voter population. The reference categories are as follows: Up to Secondary Education; Male; Cohort: 18-29; Income Category: Very Low; First-Generation Catalan; No Public Employee; No Benefit; Not Unemployed; No Trade Ties; No Exports; No Imports. Regressions also include dummy variables for Trade Ties with Spain: Missing.

Table 4: Mechanism Candidate #2. Fiscal Knowledge, Education, and Secession Preference

Dependent Variable:	Continuous Secession Preference				Quasi-behavioral Secession Preference			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Low-High School	0.099	0.095	0.080	0.058	0.090	0.068	0.099	0.094
	(0.119)	(0.117)	(0.115)	(0.079)	(0.086)	(0.085)	(0.086)	(0.079)
High-High School	0.239**	0.182	0.165	0.141*	0.091	0.027	0.025	-0.005
	(0.113)	(0.113)	(0.116)	(0.079)	(0.087)	(0.088)	(0.090)	(0.079)
University	0.350***	0.258**	0.230*	0.195**	0.147*	0.064	0.077	0.029
	(0.115)	(0.117)	(0.121)	(0.083)	(0.086)	(0.090)	(0.092)	(0.079)
Fiscal Knowledge: Medium		0.203**	0.267***	0.105		0.177**	0.191**	0.146**
		(0.100)	(0.100)	(0.070)		(0.076)	(0.076)	(0.071)
Fiscal Knowledge: High		0.403***	0.427***	0.149**		0.280***	0.290***	0.180***
		(0.093)	(0.093)	(0.068)		(0.075)	(0.076)	(0.069)
Constant	2.933***	2.849***	2.448***	4.387***	2.993***	2.946***	2.802***	3.512***
	(0.201)	(0.198)	(0.222)	(0.166)	(0.159)	(0.156)	(0.169)	(0.162)
ZIP code-level Association Density	No	No	Yes	Yes	No	No	Yes	Yes
Municipality-level Secession Support	No	No	Yes	Yes	No	No	Yes	Yes
Vote Intention	No	No	No	Yes	No	No	No	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,100	2,100	1,957	1,957	1,212	1,212	1,127	1,127
R-squared	0.365	0.373	0.403	0.709	0.297	0.310	0.352	0.506

OLS coe cients shown with standard errors in parentheses (*** $p<0.01$, ** $p<0.05$, * $p<0.1$). Entropy weighting applied to match the voter population. The benchmark models in column 1 and 5 reproduce column 4 in Table 2 and column 6 in Table 3, respectively. Controls are: Age, Gender, Ancestry, Province, Income, Trade Ties with Spain, Unemployment Spell, Government Employee, Benefits, and Ideology. The reference category for education is: Up to Secondary Education; and for Fiscal Knowledge is: Low.
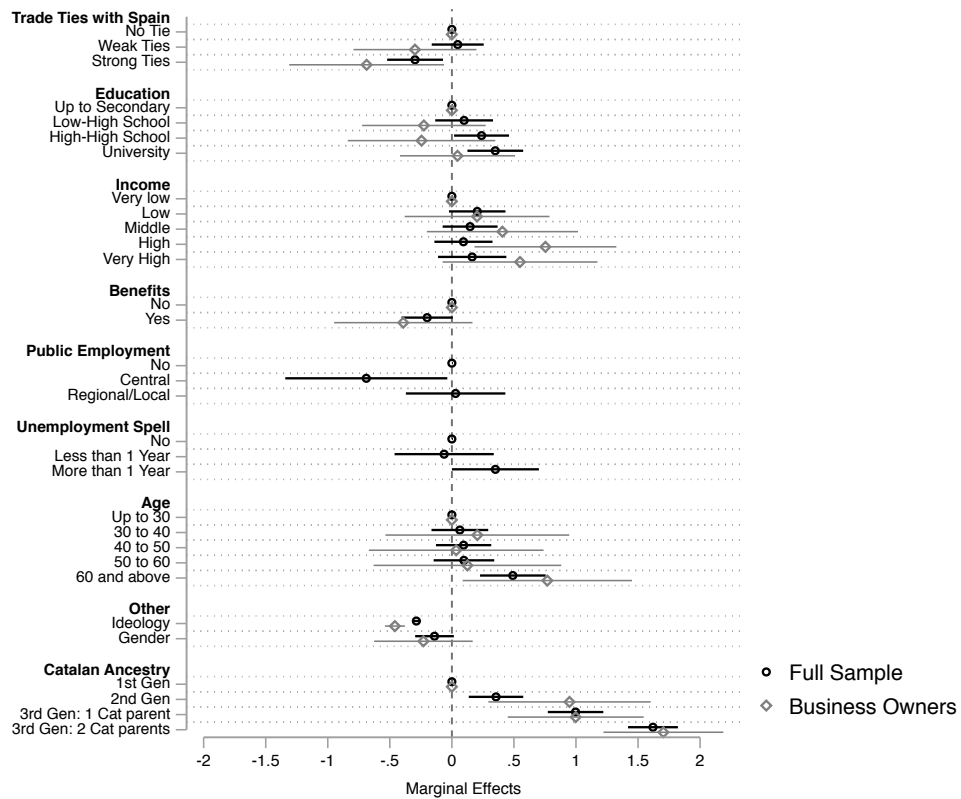
Figure 1: Support for Independence: Continuous Outcome Variable. Full sample model corresponds to Column 4 in Table 2, N=2,100. The business owners subsample is limited to business owners and self-employed, N=236. The latter model excludes the Unemployment and Public Employment controls by construction.
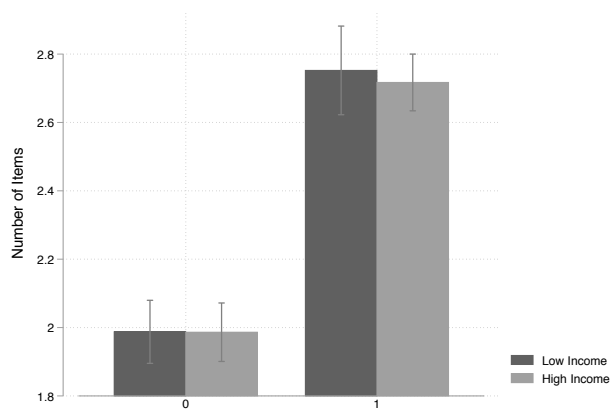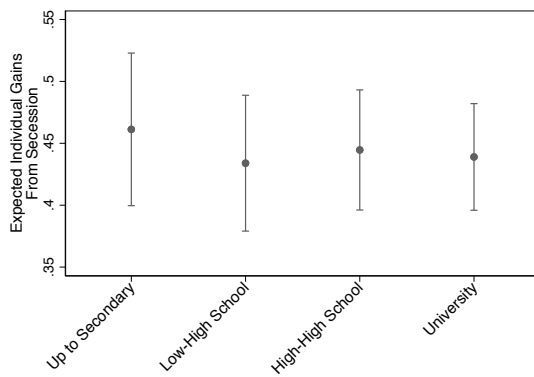
Figure 2: List Experiment of Territorial Redistribution. Of the four items, the sensitive one was *I do not want my tax money to leave Catalonia.*

(a) **Individual Gains from Secession**   (b) **Sociotropic Gains from Secession**
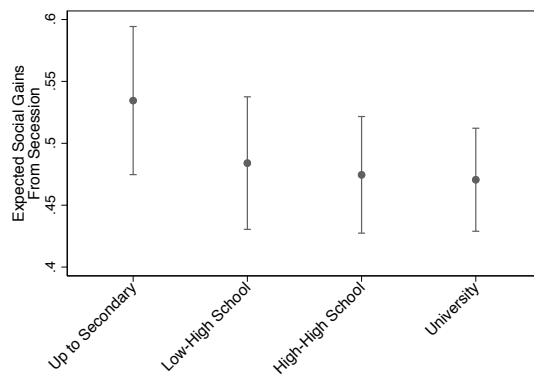
Figure 3: Mechanism Candidate #1: Expectations. These figures plot the partial correlation between expectations and education. Estimates drawn from an OLS model in which Expectations are regressed on Education, Age, Income, Ancestry, Unemployment Spell, Government Employee, Trade Ties with Spain, Ideology, Gender, and Welfare Benefits, plus Province fixed effects.
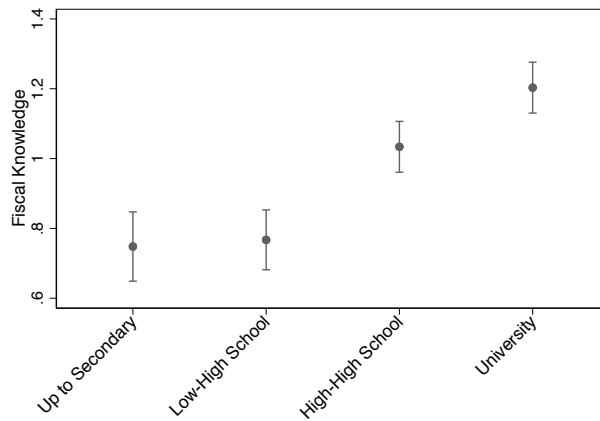
Figure 4: Mechanism Candidate #2: Fiscal Knowledge. This figure plots the partial correlation between education and fiscal knowledge. These estimates are drawn from an OLS model in which Fiscal Knowledge is regressed on Education, Age, Income, Ancestry, Unemployment Spell, Government Employee, Trade Ties with Spain, Ideology, Gender, and Welfare Benefits, plus Province fixed e ects.
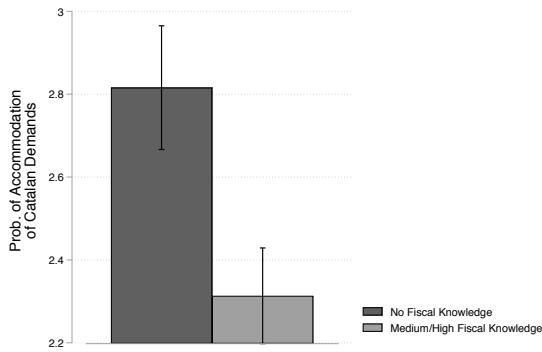
(a) All: Accommodation of Demands
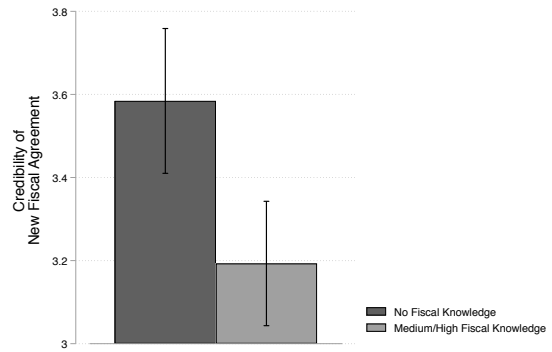
(b) All: Credibility of Fiscal Reform
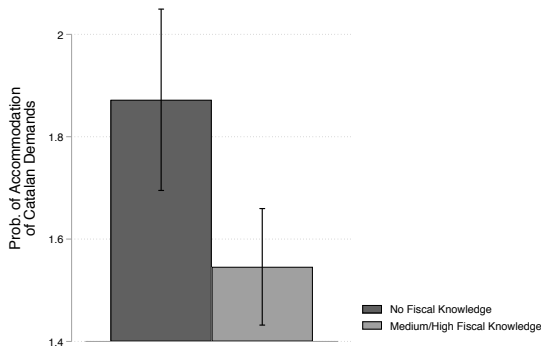
(c) Proindep: Accommodation of Demands
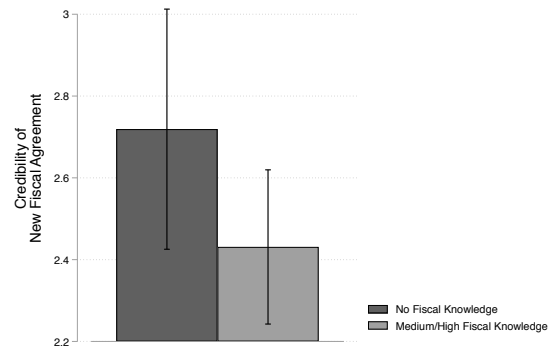
(d) Proindep: Credibility of Fiscal Reform

Figure 5: Willingness and Credibility of Accommodation. These figures report perceived likelihood of constitutional reform to accommodate regional demands (left) and confidence that a hypothetical new fiscal agreement is honored by central government authorities (right) for the whole sample (top) and proindependence supporters (bottom) by levels of Fiscal Knowledge.

Supplementary Online Appendices
The Divide Over Independence: Explaining Preferences for Secession in an Advanced Open Economy

These appendices contain materials, results and robustness checks that supplement the main text.

A Data Details

This appendix includes:

1 Table A-1, which shows population weighted and unweighted statistics. Entropy weights are computed based on age, gender, origin (i.e., Catalan born), and education attainment;

2. Table A-2, which reports descriptive statistics for all variables; and

3. Sources and coding details of selected variables.

Table A-1: Population and Survey Demographics (%).

Group	Population	Sample	Weighted Sample
Education			
Up to secondary	23.5	17.4	23.4
High School Lower Tier	35.4	18.4	35.3
High School Upper Tier	20.9	26.3	20.7
University	20.3	37.9	20.5
Age			
18 to 29	16.4	21.9	16.3
30 to 39	19.6	19.9	19.6
40 to 49	12.9	22.1	13.1
50 to 59	18.4	17.9	18.4
60 and above	32.7	18.2	32.6
Female	49.7	52.1	49.7
Born in Catalonia	64.9	82.3	65.1

Population values for Education, Age, Origin, and Gender are all drawn from Idescat (Catalan Institute of Statistics, last retrieved Jan 29, 2018). Age, Origin, and Gender are dated as of 2017; Education as of 2011 (most recent census).

Table A-2: Summary statistics (un-weighted sample).

Variable	Mean	Std. Dev.	Min	Max	N
Support for secession (1/5)	3.211	1.663	1	5	2100
Support for secession (0/1)	0.567	0.496	0	1	1847
Don't Send	0.423	0.494	0	1	2100
Recentralization	0.043	0.204	0	1	2100
Estatut 2006	0.043	0.204	0	1	2100
More Devolution	0.221	0.415	0	1	2100
Independence	0.269	0.444	0	1	2100
Up to secondary	0.174	0.379	0	1	2100
High School Lower Tier	0.184	0.387	0	1	2100
High School Upper Tier	0.263	0.441	0	1	2100
University	0.379	0.485	0	1	2100
Cohort: 18 to 29	0.219	0.414	0	1	2100
Cohort: 30 to 39	0.199	0.399	0	1	2100
Cohort: 40 to 49	0.221	0.415	0	1	2100
Cohort: 50 to 59	0.179	0.383	0	1	2100
Cohort: 60 and above	0.182	0.386	0	1	2100
Female	0.521	0.5	0	1	2100
1st Gen	0.17	0.376	0	1	2100
2nd Gen	0.244	0.429	0	1	2100
3rd Gen: 1 Cat parent	0.239	0.427	0	1	2100
3rd Gen: 2 Cat parents	0.347	0.476	0	1	2100
Ideology	3.294	2.215	0	10	2100
Income: Very low	0.2	0.4	0	1	2100
Income: Low	0.196	0.397	0	1	2100
Income: Middle	0.206	0.405	0	1	2100
Income: High	0.245	0.43	0	1	2100
Income: Very High	0.153	0.36	0	1	2100
Income: Employed	0.914	0.28	0	1	2100
Income: Unemployed < 1 Year	0.036	0.187	0	1	2100
Income: Unemployed > 1 Year	0.05	0.217	0	1	2100
Income: No	0.958	0.202	0	1	2100
Public employee: Central	0.009	0.095	0	1	2100
Public employee: Regional/Local	0.033	0.18	0	1	2100
Benefits from Central Government	0.249	0.433	0	1	2100
Individual benefits from secession	0.47	0.499	0	1	2100
Socio-tropic benefits from secession	0.526	0.499	0	1	2100
Political knowledge: No Fiscal Knowledge	0.394	0.489	0	1	2100
Political knowledge: Medium Fiscal Knowledge	0.242	0.429	0	1	2100
Political knowledge: High Fiscal Knowledge	0.364	0.481	0	1	2100
Accommodation of demands	2.325	1.551	1	7	2100
Credibility of fiscal reform	3.247	2.021	1	7	2100
Civil rights worsen	3.844	1.002	1	5	2100
Protectionism	2.938	1.022	1	5	2100
Continues next page...					

Table A-3: Summary statistics (un-weighted sample) continued.

Variable	Mean	Std. Dev.	Min	Max	N
... continues from previous page.					
Firm-Level Trade Ties with Spain: No Tie	0.5	0.5	0	1	2100
Firm-Level Trade Ties with Spain: Weak Ties	0.231	0.422	0	1	2100
Firm-Level Trade Ties with Spain: Strong Ties	0.159	0.365	0	1	2100
Firm-Level Trade Ties with Spain: Don't Know	0.11	0.313	0	1	2100
Firm-Level Trade Ties with Europe: No Tie	0.542	0.498	0	1	2100
Firm-Level Trade Ties with Europe: Weak Ties	0.207	0.405	0	1	2100
Firm-Level Trade Ties with Europe: Strong Ties	0.106	0.308	0	1	2100
Firm-Level Trade Ties with Europe: Don't Know	0.146	0.353	0	1	2100
Sector-Level Imports from Spain: No Tie	0.365	0.482	0	1	2047
Sector-Level Imports from Spain: Weak Ties	0.559	0.497	0	1	2047
Sector-Level Imports from Spain: Strong Ties	0.075	0.264	0	1	2047
Sector-Level Exports to Spain: No Tie	0.612	0.487	0	1	2047
Sector-Level Exports to Spain: Weak Ties	0.267	0.443	0	1	2047
Sector-Level Exports to Spain: Strong Ties	0.121	0.326	0	1	2047
Sector-Level Imports from World: No Tie	0.369	0.483	0	1	2047
Sector-Level Imports from World: Weak Ties	0.545	0.498	0	1	2047
Sector-Level Imports from World: Strong Ties	0.086	0.28	0	1	2047
Sector-Level Exports to World: No Tie	0.591	0.492	0	1	2047
Sector-Level Exports to World: Weak Ties	0.303	0.46	0	1	2047
Sector-Level Exports to World: Strong Ties	0.106	0.308	0	1	2047
Vote intention Regional Elections: ERC	0.213	0.41	0	1	2100
Vote intention Regional Elections: Junts per Cat	0.129	0.335	0	1	2100
Vote intention Regional Elections: PSC	0.083	0.276	0	1	2100
Vote intention Regional Elections: Cat en Comu	0.087	0.282	0	1	2100
Vote intention Regional Elections: Ciudadanos	0.156	0.363	0	1	2100
Vote intention Regional Elections: CUP	0.058	0.234	0	1	2100
Vote intention Regional Elections: PP	0.01	0.102	0	1	2100
Vote intention Regional Elections: Other	0.015	0.123	0	1	2100
Vote intention Regional Elections: Will not vote	0.025	0.157	0	1	2100
Vote intention Regional Elections: Blank vote	0.015	0.121	0	1	2100
Vote intention Regional Elections: Null vote	0.009	0.095	0	1	2100
Vote intention Regional Elections: I do not know	0.082	0.275	0	1	2100
Vote intention Regional Elections: I prefer not to answer	0.116	0.321	0	1	2100
Total associations in zipcode	171.858	128.041	0	603	1957
Percent vote for Proindependence Parties	35.3	11.221	10.46	80.939	1957

Sources and Additional Coding Details

The first paragraph of Section 3, *The Politics of Secession in Catalonia*, lists a series of statistics of the Catalan economy. Sources (with active url) are:

- Per capita GDP in Catalonia and Spain, as well as the percentage of Catalan GDP to Spanish GDP: Spanish National Institute of Statistics.

- Population: Spanish National Institute of Statistics.

- Catalan participation in Spanish industry: Spanish National Institute of Statistics.

- Catalan participation in Spanish exports: Spanish Ministry of Industry, Trade, and Turism.

- Total Sector Production: Input–output tables, Catalan Institute of Statistics.

- Trade Openness in Catalonia: Catalan Institute of Statistics.

Preference for Secession: Nonbehavioral Measure. The wording of this question was: *"Suppose that an internationally recognized referendum of independence was held in Catalonia: How likely would you vote against or in favor of independence?"* By appealing to an "internationally recognized referendum" we seek to overcome the reluctance to recognize a referendum for independence among those who oppose secession, who abstained massively in the unoﬃcial Oct 1 referendum. Our wording might legitimize and minimize the costs of secession, biasing results in favor of independence. This hypothetical is not supported by data. Our marginals compare to opinion polls conducted in fall 2017. The Catalan Center of Public Opinion published a poll about political attitudes on Oct 31, 2017, in which 48.7% of respondents supported independence (q.31). Support for proindependence parties in the Dec 21 snap election was 47.5%. In our survey, direct secession support is 43.2%, and 46.7% if we exclude abstainers. In sum, our wording does not upwards bias secession support. In addition, our quasi-behavioral measure dodges these concerns entirely and results hold.

Preference for Secession: Behavioral measure. The wording of this item in the questionnaire was as follows: *"Currently there is much discussion about whether the new Parliament should move forward to implement independence or back down and forget about secession. Should we inform, on your behalf, the would-be president of the Catalan Parliament about your opinion on this matter? This information notice would contain your full name."*

Household Income.   Household income categories are: Very Low (€ 750 or less- 1,200); Low (€ 1,201-1,700); Middle (€ 1,701-2,300); High (€ 2,301-3,550); Very High € (3,551-6,000 or more).

Education.   The four categories are: (1) *Up to secondary school*, which includes people with a primary education or below; (2) *Low-High School*: Lower tiers of high school, including people who have completed ten years of general education or a lower degree of vocational training; (3) *High-High School*: Higher tiers of high school, including people with twelve years of general education or a upper degree of vocational training; and (4) *College/University*.

Expectations.   The wording for the questions regarding expectations about returns and international consequences are:

- Individual return: "*Considering your individual economic situation, do you think that the benefits of secession will outweigh the costs of secession for you, personally?*" [Yes/No]

- Sociotropic return: "*Considering Catalonia's economic situation in general, do you think that the benefits of secession will outweigh the costs of secession for Catalonia?*" [Yes/No]

The questions about unemployment increasing and pensions being at risk after independence were worded as follows: "*How likely do you think the following consequences of a hypothetical independence are:*" [1:Least Likely–7:Most Likely]:

- "*Retirement pensions are lost.*"

- "*Unemployment increases.*"

The two questions about dropping European Institutions were part of a battery of outcomes that were preceded by the following wording: "*How likely do you think the following consequences of a hypothetical independence are:*" [1:Least Likely–7: Most Likely]:

- "*Dropping the European Union and the European Single Market.*"

- "*Dropping the Euro.*"

Accommodation and Compromise:

- *"How likely do you think it is that the major parties in Spain agree to reform the Spanish Constitution to accommodate Catalan demands?"* [1:not likely –7:very likely].

- *"Suppose that the Catalan and Spanish authorities negotiated a new political and fiscal regime for Catalonia. Do you think that Spain would honor the terms of that agreement?"* [1:It would honor it with certainty –7: It would dishonor it with certainty]. We reverse the scale of the original variable so that higher values point to higher skepticism.

Secession as Bargaining: *"Some people think that the most e ective way to gain further autonomy from the Spanish government is to keep pushing for independence. To what extent do you agree or disagree with this statement?"* [1:strongly agree –5:strongly disagree]. We reverse the scale of the original variable so that higher values point to higher agreement.

Firm-Level Trade Ties.   These variables proxy Ricardo-Viner sector model and the so-called "new, new theory" of trade and measure the respondent's subjective perception of levels of trade ties with the rest of Spain and the rest of European countries, separately. The question wording is: *"To what extent has your employer clients or suppliers in other parts of Spain (outside Catalonia)?"* and *"To what extent has your employer clients or supplies in other parts of the European Union (outside Spain)? The answer categories are:"*

- "No client/supplier in [Spain/European Union]": *No Tie.*

- "Some clients/supplier in [Spain/European Union]": *Weak Ties.*

- "Most clients/suppliers" and "All Clients in [Spain/European Union]": *Strong Ties.* We pull strong and very strong into the same category, as there is only 1% of respondents fall in the Very Strong category.

- "Don't Know": *Missing Ties.*

- "Don't Apply": This option is disproportionately chosen by individuals employed in the public administration and the education sector. These individuals are pooled in the *No Tie* category, as those are nontradable sectors.

The *No Tie* category includes also all individuals that are not in the labor market, and consequently are not asked this question in the first place. We assume that they cannot anticipate the trade shock to a job that they do not have. Results are robust to more disaggregated specifications.

Sector-level Exports/Imports as % of Total Sector Production. We asked respondents about their employment sector at the two-digit levels. We followed the 2009 National Classification of Economic Activities (CNAE), the Spanish equivalent of NACE Rev.2.1. For each two-digit CNAE sector, we computed export and import levels with Spain and the world, separately, as a percentage of total sector production. These data are drawn from sectoral input-output tables collected by Idescat, the Catalan Statistical Office. Two two-digit CNAE sectors cannot be cleanly matched to the Idescat data, which employs a slightly different industrial classification, hence the loss of 53 cases in models that include sector export/import controls.

Following Bechtel et al. (2014), we avoid linearity assumptions by creating a series of indicator variables. These scholars establish two thresholds to differentiate between levels of trade dependence in Germany. We use more modest thresholds to account for the lower trade dependence of the Catalan economy relative to Germany. Nontradable sectors are those that do not export/import; weak trade dependence sectors (or Sector-Level Exports to/Imports from Spain/World: Low) are those with trade dependence up to 25%; and strong trade dependence sectors (or Sector-Level Exports/Imports from to Spain/World: High) are those with trade dependence over 25%.

Based on this criterion, 13% of respondents are in the Sector-Level Exports to Spain: High category, and 6% are in the Sector-Level Imports from Spain: High. Figure A-1 shows the coefficient for Sector-Level Exports to Spain: High in a full model specification for different cutoffs in the 20 to 30% interval. As a sector becomes more export oriented in this interval, the magnitude of the coefficient grows in the expected direction. There are few high export sectors, hence confidence intervals grow as the threshold rises.
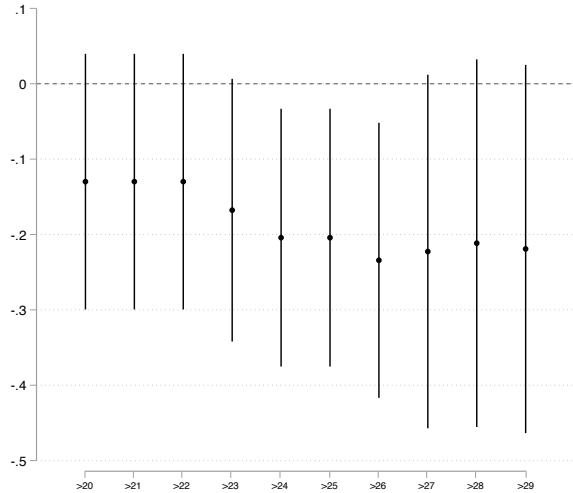
Figure A-1: Different thresholds to define "High" Sector-Level Exports to Spain.

7

Geographical Data.   Analysis in Table 4 control for zipcode-level association density and municipality-level secession support. We produce these variables by linking our respondents' selfreported zipcode to o cial statistics of civic and cultural organizations and election results for the 2015 regional elections. We cannot make this match for 73 respondents (out of 2,100), who report zipcodes that do not match o cial census. For each zipcode, we compute the total number of civil and cultural associations. O cial election results drawn from the Departament de Polítiques Digitals i Administració Pública are reported at municipality level, not at the zipcode level. Some zipcodes are shared between municipalities, preventing a clean matching 143 of our respondents are a ected by this problem, hence the reduction of cases in Table 4 from 2,100 to 1,957 cases.

Population data is drawn from the Anuari Estadístic de Catalunya. The data on Cultural and Civic Associations is drawn from the Departament de Justícia.

B Continuous Socio-Economic Controls

Table A-4 estimates the effect of income, education and age separately (columns 1 to 5). In addition, we add in columns 5 and 8 Job Status and Municipality Size, which is re-coded into five categories: Very Small (<10,000 inhabitants), Small (10,001-25,000), Medium (25,001-100,000), Large (100,001-500,000), and Very Large (>1,000,000).

Table A-4: Preference for Secession as a function of Income, Education, Age, Job Status and Municipality Size.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Income	0.023	0.075						
	(0.016)	(0.062)						
Income Squared		-0.004						
		(0.005)						
Income Category: Low			0.115				0.034	0.035
			(0.141)				(0.141)	(0.147)
Income Category: Middle			0.171				0.036	-0.031
			(0.142)				(0.148)	(0.154)
Income Category: High			0.071				-0.085	-0.095
			(0.142)				(0.151)	(0.155)
Income Category: Very High			0.226				-0.072	-0.076
			(0.165)				(0.183)	(0.189)
Low-High School				0.179			0.275*	0.306**
				(0.143)			(0.149)	(0.154)
High-High School				0.418***			0.471***	0.516***
				(0.130)			(0.142)	(0.147)
University				0.471***			0.603***	0.620***
				(0.125)			(0.146)	(0.152)
Cohort: 30-39					-0.076		0.161	0.158
					(0.134)		(0.140)	(0.145)
Cohort: 40-49					-0.004		0.278*	0.269*
					(0.129)		(0.143)	(0.148)
Cohort: 50-59					-0.172		0.155	0.067
					(0.136)		(0.152)	(0.156)
Cohort: ≥60					0.218		0.705***	0.635***
					(0.139)		(0.208)	(0.216)
Female							-0.109	-0.134
							(0.103)	(0.106)
Job Status: Part Time						-0.081	-0.009	-0.026
						(0.155)	(0.154)	(0.158)
Job Status: Retired						0.126	-0.209	-0.147
						(0.130)	(0.198)	(0.209)
Job Status: Unemployed						-0.010	0.052	0.032
						(0.163)	(0.167)	(0.173)
Job Status: Student						0.535***	0.677***	0.588***
						(0.171)	(0.194)	(0.199)
Job Status: Work-at-Home						-0.240	-0.112	-0.083
						(0.248)	(0.249)	(0.258)
Job Status: Other						-0.082	0.042	0.149
						(0.518)	(0.516)	(0.517)
Constant	2.806***	2.679***	2.844***	2.700***	2.921***	2.908***	2.383***	2.531***
	(0.109)	(0.181)	(0.101)	(0.108)	(0.094)	(0.069)	(0.210)	(0.251)
Province FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality Size	No	No	No	No	No	No	No	Yes
Observations	2,100	2,100	2,100	2,100	2,100	2,100	2,100	1,957
R-squared	0.010	0.010	0.010	0.020	0.016	0.016	0.040	0.045

Dependent Variable: Continuous nonbehavioral preference for secession. OLS coefficients shown with standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1). Entropy weighting applied to match the voter population. The reference categories are as follows: Up to Secondary Education; Male; Cohort: 18-29; Income Category: Very Low; Full-Time Employed; Municipality Size: Very Small.

C   Welfare and Unemployment

Individuals that are unemployed and receive no benefit from the central government might find the union's insurance system ine cient (i.e., it does not adapt to local conditions) and support independence anticipating a better one. We run a full model specification while interacting the Unemployment and Benefit variables:

$$y_i = \beta_1 \text{Unemployment Status}_i + \beta_2 \text{Benefit}_i + \beta_3(\text{Unemployment Status}_i \times \text{Benefit}_i) + X_i + \gamma_k + \epsilon_i$$

where y_i is, first, preference for secession, and second, levels of agreement with "Public Retirement Pensions are at Risk if Catalonia Gains Independence" (1-least risk, 7-most risk), our proxy about future insurance optimism;[37] X_i denotes a full vector of controls (Education, Trade Ties with Spain, Age, Gender, Income, Ideology, Ancestry, Government Employment), and γ_k province fixed e ects.

Results for β_1–β_3 for the secession support model (dark gray) and public pensions model (light gray) are reported in Figure A-2. Being Employed and Receiving No Benefit is the excluded category. Relative to this category, only those that are Long-term Unemployed and Receive No Benefit from the central government show a higher propensity to support independence and perceive a smaller risk in (i.e., are more optimistic about) the future public insurance system.

Next we consider an alternative explanation for the connection between long-term unemployment and support for independence: Expectations of reemployability after independence. Ideally, we would use a direct question about individual expected reemployability. In its absence, we approximate the latter by levels of agreement with "Unemployment will increase after independence." (1:highly unlikely–7:highly likely). If long-term unemployed are optimistic about future employability, we should expect a negative and statistically significant coe cient for this group. Results are reported in Table A-5. In column 1 we report marginal e ects for employment status: employment (baseline), short-term unemployed, and long-term unemployed. The coe cient for long-term unemployment is zero. The only non-null result is for short-term unemployed, who are disproportionately pessimistic about unemployment levels in case of secession. We also report the interactive model with benefits to explore any di erential e ect among the long-term unemployed who are excluded from public insurance under the union. This group (second row) are not particularly optimistic about unemployment levels in case of secession. The only non-null e ect is for the short-term unemployed, but again it goes against the reemployability hypothesis. Overall, our results for the association between support for secession and long-term unemployment are consis-

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[37]Ideally, expectations for unemployment benefits in an independent Catalonia should also be considered. Unfortunately, this information is not present in our survey.
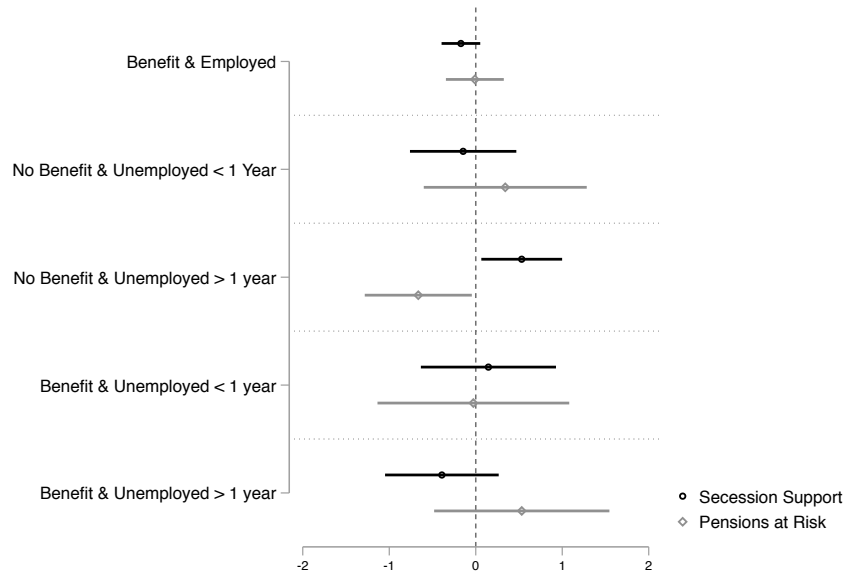
Figure A-2: **Two models: (1) Secession Support, and (2) Risk of Losing Pensions If Independence Happens as a function of Unemployment Status and Welfare Benefits.** Baseline category: Employed individual receiving no welfare benefit. Notice that the discussion in the main text focuses on the comparison between long-term unemployed without benefit (third row) vs. long-term unemployed with benefit (fifth row). Differences between long-unemployed without/with benefit in secession support is +.67 points (p=0.07) and in Pensions at Risk -1.01 (p=0.07). Full battery of controls not plotted.

Table A-5: Agreement with "Unemployment will increase following Independence"

	(1)	(2)
Unemployed: Short-Term	0.578**	0.807*
	(0.267)	(0.447)
Unemployed: Long-Term	-0.344	-0.324
	(0.283)	(0.358)
Benefit	0.202	0.232
	(0.152)	(0.163)
Benefit × Unemployed: Short-Term		-0.418
		(0.519)
Benefit × Unemployed: Long-Term		-0.043
		(0.533)
Constant	3.833***	3.807***
	(0.296)	(0.299)
Controls	Yes	Yes
Province FE	Yes	Yes
Observations	2,100	2,100
R-squared	0.277	0.278

OLS coefficients shown with standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1). Entropy weighting applied to match the voter population. Controls are: Age, Gender, Ancestry Province, Income, Trade Ties with Spain, Government Employee, and Ideology. The reference category for Unemployed: Employed, and Benefit: No Benefit.

tent with the public insurance explanation and inconsistent with expected reemployability (measured by expected unemployment levels after independence).

D   Secession Support and Unemployment Rate Over Time
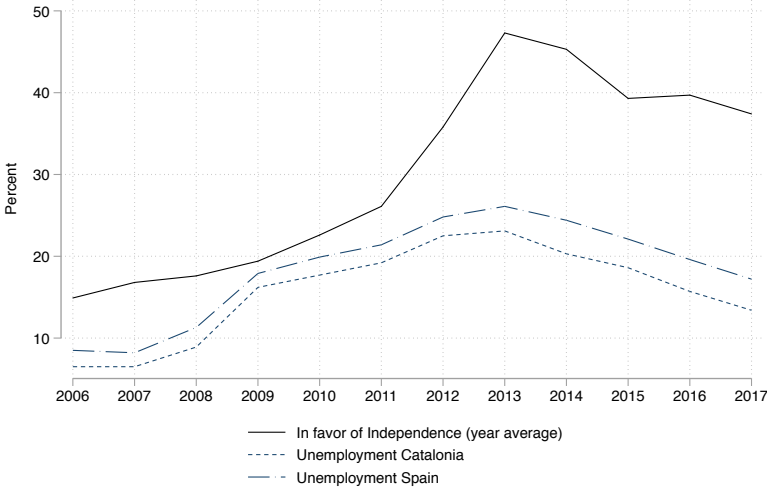
Figure A-3: Support for Independence and Unemployment Levels Before and After the 2008 Economic Crisis.

E Secession Support and Government Employment

This appendix resumes the discussion about the economic motivations to oppose independence among government employees. Table A-6 shows that central government employees are more pessimistic about *individual economic gains from secession* than regional/local government employees and non-government employees.

Table A-6: Responses to "Will you personally benefit economically from independence?" by Government Employment Status (Row %).

	Yes	No	Total
No Government Employee	44.45	55.55	2,011
Central government employee	30.81	69.19	19
Regional/local government employee	46.15	53.85	70

F   Language as a proxy of Regional Identity

Figure A-4 plots results for the nonhebavioral preference for secession when Language is used as a proxy of regional identity (Conversi 1997).[38] Our questionnaire included the following question: *Which language do you speak more frequently? Only Catalan; Catalan and Spanish; Only Spanish.* Figure A-4 shows that language use correlates with secession more strongly than ancestry. This result is expected if we conceive language as partially endogenous: namely those that favor independence are more likely to switch from Only Spanish to Spanish and Catalan/Only Catalan, and viceversa.
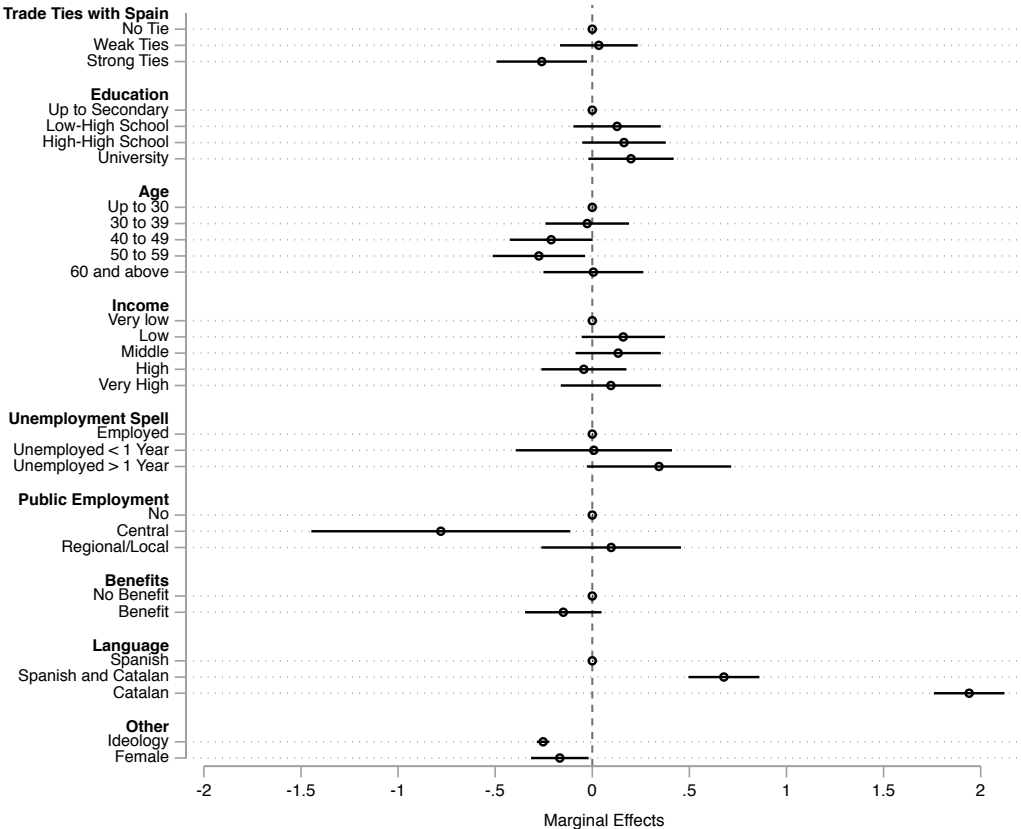

Figure A-4: Support for Independence: Nonbehavioral Continuous Response with **Main Language of Communication** (self-reported) as a proxy of Regional Identity.

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[38]Conversi, Daniele. 1997. *The Basques, the Catalans and Spain.* University of Nevada Press.

G   Expectations about Consequences of Secession for EU membership

The international economic consequences of secession are uncertain. The priors about those consequences may vary from one individual to another. De Vries (2018) shows that individuals form different beliefs about the gains from European disintegration relative to the status quo, and that beliefs drive support for remaining in the Union.[39] Walter et al. (2018) show that expectations about the consequences of a "foreign-policy referendum" guided intended voting behavior in the 2015 Greece bailout referendum.[40] In the Catalan context, Muñoz and Tormos (2015) and Muro and Vlaskamp (2016) show that manipulated expectations about the macro-economic consequences of secession, and EU membership, respectively, influence support for independence.[41] Outside a controlled set-up, however, it is difficult to overcome the endogeneity between expectations about the consequences of secession and preferences for independence. Even so, in high polarization contexts, effective belief manipulation is hard to achieve (see, for example, Muro and Vlaskamp (2016)). Because we draw from observational data, we treat expectations as a *bad control* (i.e. an endogenous covariate of preferences for secession, our dependent variable).

Next we add expectations about the international consequences of secession to our full model as an additional control. We asked respondents how likely it would be that secession would lead to Single Market and Euro area exit, separately. Responses ranged from 1 (least likely) to 7 (most likely). Columns 1 to 2 in Table A-7 confirm that expectations do matter: individuals with more pessimistic priors about the international consequences of secession are less likely to support independence. Expectations do not, however, trump the effect of material interest. The estimates for education levels, trade ties, welfare benefits, and public employment remain.

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[39]De Vries, Catherine E. 2018. *Euroscepticism and the Future of European Integration.* Oxford University Press.

[40]Walter, Stefanie, Elias Dinas, Ignacio Jurado and Nikitas Konstantinidis. 2018. "Noncooperation by Popular Vote: Expectations, Foreign Intervention, and the Vote in the 2015 Greek Bailout Referendum." *International Organization* 72(4): 969-994.

[41]Muro, Diego and Martijn C. Vlaskamp. 2016. "How do prospects of EU membership influence support for secession? A survey experiment in Catalonia and Scotland." *West European Politics* 39(6): 1115-1138

Table A-7: Preference for Secession as a function of material interest, expectations about consequences of secession for EU membership, and nonmaterial controls.

	(1)	(2)
Pr(Exit from European Single Market)	-0.354***	
	(0.019)	
Pr(Exit from Euro Area)		-0.338***
		(0.017)
Low-High School	0.106	0.106
	(0.103)	(0.096)
High-High School	0.188*	0.174*
	(0.097)	(0.094)
University/College	0.286***	0.222**
	(0.099)	(0.096)
Firm-Level Trade Ties with Spain: Weak	0.006	-0.004
	(0.092)	(0.090)
Firm-Level Trade Ties with Spain: Strong	-0.166*	-0.195*
	(0.098)	(0.105)
Benefit	-0.148*	-0.139*
	(0.090)	(0.084)
Public Employee: Central	-0.480*	-0.498
	(0.290)	(0.304)
Public Employee: Local/Regional	-0.010	-0.011
	(0.141)	(0.138)
Unemployed: Short-Term	0.027	-0.026
	(0.168)	(0.169)
Unemployed: Long-Term	0.208	0.113
	(0.133)	(0.141)
Income Category: Low	0.232**	0.144
	(0.095)	(0.097)
Income Category: Middle	0.124	0.060
	(0.095)	(0.092)
Income Category: High	0.149	0.058
	(0.101)	(0.098)
Income Category: Very High	0.146	0.002
	(0.147)	(0.139)
Cohort: 30-39	0.057	0.046
	(0.097)	(0.101)
Cohort: 40-49	0.136	0.112
	(0.105)	(0.103)
Cohort: 50-59	0.100	0.087
	(0.104)	(0.104)
Cohort: ≥60	0.298***	0.246**
	(0.115)	(0.107)
Female	-0.123*	-0.088
	(0.071)	(0.066)
2nd Generation Catalan	0.188*	0.095
	(0.099)	(0.098)
3rd Gen., One Catalan Parent	0.686***	0.598***
	(0.102)	(0.100)
3rd Gen., Two Catalan Parent	1.108***	1.004***
	(0.100)	(0.098)
Ideology	-0.187***	-0.194***
	(0.015)	(0.015)
Constant	4.467***	4.393***
	(0.188)	(0.172)
Province FE	Yes	Yes
N	2,100	2,100
R-squared	0.533	0.540

Coefficients shown with standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1). Entropy weighting applied to match the voter population. The reference categories are as follows: Up to Secondary Education; Male; Cohort: 18-29; Income Category: Very Low; First-Generation Catalan; No Public Employee; No Benefit; Not Unemployed; No Trade Ties; No Exports; No Imports. Regressions also include dummy variables for Trade Ties with Spain: Missing.

H List Experiment of Territorial Redistribution

The list experiment of interterritorial redistribution, asked only to proindependence supporters, reads as follows:

We want to know how many of the following reasons to support independence you agree with. Notice that we want to know how many, not which:

[Control and Treatment Groups]

1 *I feel part of a di erent political community.*

2 *I do not believe any promise made by the Spanish government.*

3 *Independence brings us closer to populist movements in Europe, such as the National Front in France and la Lliga Nord in Italy.*

[Only Treatment Group]

4 *I do not want my tax money spent outside of Catalonia.*

I Skill Levels and Support for Independence

If trade shocks from secession are anticipated, the relationship between education and support for independence is not obvious. According to the Heckscher-Ohlin model, skilled individuals would have the most to lose from secession if this was followed by drops in international integration. One possible explanation for this result might be that our education variable does not properly measure skill levels.

To test for this possibility, following Bechtel et al. (2014) we use a measure of skill levels adapted from O'Rourke and Sinnot (2001).[42] Participants in our survey reported their occupation from the CNO11 (two digits) list of occupations.[43] Respondents with elementary occupations fall in the category *skill level 1*; clerical support workers, service and sales workers, skilled agricultural, forestry and fishery workers, craft and related trades workers, and plant and machine operators, and assemblers fall in the category *skill level 2*; technicians and associate professionals have a *skill level 3*; and professionals and managers have a *skill level 4*.

In Table A-8 we regress preference for secession (in its behavioral and nonbehavioral versions) on the skill variable. We run separate regressions based on the same three categories in Bechtel et al. (2014): Individuals in labor force (full or part time), out of labor market, and retired. The subsample of individuals out of the labor market include: unemployed, retired, and public servants, who are not subject to the dynamics of the labor market. Preference for secession increases with individuals' skill levels, as they do with education levels. Importantly, they generally hold for the retired too, even though this group has nothing at stake in terms of factor returns. Altogether Table A-8 suggests that skill levels point to something else than factor returns, arguably fiscal knowledge.

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[42]O'Rourke, Kevin H. and Richard Sinnott. 2001. "What Determines Attitudes Towards Protection? Some Cross-Country Evidence." in *Brookings Trade Forum* ed. Susan M. Collins and Dani Rodrik. Washington, DC: Brookings Institute Press, 57-206.

[43]CNO11 is the 2011 Classification of Occupations of the Spanish Statistical Institute (Instituto Nacional de Estadística).

Table A-8: Support for Independence by Skill Level and Participation in the Labor Force

	Non-Behavioral Preference				Behavioral Preference			
	All	In Labor Force	Out of Labor Force	Retired	All	In Labor Force	Out of Labor Force	Retired
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Skill level 2	0.492***	0.370*	0.651**	1.017***	0.209	0.202	0.173	0.460*
	(0.177)	(0.223)	(0.261)	(0.347)	(0.132)	(0.152)	(0.205)	(0.260)
Skill level 3	0.640***	0.706***	0.543	0.672	0.260	0.276	0.235	0.589**
	(0.230)	(0.269)	(0.384)	(0.504)	(0.166)	(0.189)	(0.275)	(0.286)
Skill level 4	0.621***	0.600**	0.578*	0.821*	0.376**	0.343**	0.309	0.662**
	(0.209)	(0.255)	(0.333)	(0.423)	(0.150)	(0.166)	(0.252)	(0.302)
Constant	2.267***	2.253***	2.080***	1.190	2.753***	2.662***	2.916***	2.986***
	(0.224)	(0.271)	(0.368)	(0.918)	(0.170)	(0.194)	(0.291)	(0.390)
Observations	1,824	1,309	587	332	1,059	734	362	227
R-squared	0.031	0.028	0.051	0.076	0.048	0.054	0.064	0.138

OLS coefficients shown with standard errors in parentheses (*** $p<0.01$, ** $p<0.05$, * $p<0.1$). Entropy weighting applied to match the voter population. Controls include Income, Age, and Gender, and Province FE. Reference Category: Skill Level 1.

J   Heckman correction model for Behavioral Outcome Variable

In this appendix, we assess whether selection into our behavioral measure drives results in Table 3, Columns 5 to 8. To that end, we use a Heckman correction model. The ordinal probit Heckman routine run on a full model on Stata 15.1 fails to converge. To circumvent this problem, we make two changes to the full model specification: First, we drop Unemployment Spell, which is poorly distributed (few individuals are in the top category) and prevents model convergence. Second, we drop entropy weighting, which also prevents model convergence.

To facilitate comparison, Column 1 in Table A-9 replicates the analysis presented in Column 5 in Table 3 in the main text by running a weighted model excluding the Unemployment Spell variable. Results are virtually identical to those reported in the main text. In Column 2, we drop entropy weighting. Results, again, are virtually identical to those reported in Column 1. In Columns 3 and 4, we report the second and first stage, respectively, of the ordinal probit heckman model. The excluded variable in the selection stage (Column 4) is "Institutional Participation." This variable is 1 if our respondent intended to vote in the snap election of December 21, regardless of the party choice (evenly split between secessionist and unionist), and 0 otherwise. We assume that those that intend to cast a vote, hence channel their demands by institutional means, are more likely to participate in our behavioral game—communicating with the president of the Parliament.

The inverse mills ratio is -.857, and statistically significant at 90%. But selection does not affect coefficients in any substantial way, as reflected in Column 3. The role of education is the same: Highly educated individuals are more likely to send a prosecession petition. The role of income is similar once we correct for selection, although prosecession attitudes are mostly concentrated in the mid-high income group rather than the highest class. Ancestry, and strong trade ties with the Spanish Economy remain important to explain support and opposition to independence, respectively. Overall, the Heckman framework offers similar results to those reported in Table 3 in the main text.

Table A-9: Heckman Correction Model for Behavioral Outcome Variable

	oProbit Petition (1)	oProbit Petition (2)	Ordinal Probit Heckman	
			2nd Stage Petition (3)	1st Stage Selection (4)
Low-High School	0.133	0.085	0.015	0.062
	(0.126)	(0.111)	(0.122)	(0.101)
High-High School	0.099	0.175	0.159	-0.103
	(0.124)	(0.108)	(0.119)	(0.096)
University	0.240*	0.285**	0.305**	-0.215**
	(0.125)	(0.112)	(0.122)	(0.096)
Trade ties with Spain: Weak	0.187	0.067	0.025	0.038
	(0.124)	(0.100)	(0.089)	(0.079)
Trade ties with Spain: Strong	-0.245*	-0.212**	-0.185*	0.012
	(0.130)	(0.108)	(0.097)	(0.089)
Income Category: Low	0.128	0.083	0.046	-0.052
	(0.138)	(0.107)	(0.139)	(0.099)
Income Category: Middle	0.195	0.216*	0.185	-0.140
	(0.143)	(0.112)	(0.140)	(0.099)
Income Category: High	0.541***	0.437***	0.326**	-0.108
	(0.129)	(0.111)	(0.141)	(0.098)
Income Category: Very high	0.294*	0.341***	0.196	0.036
	(0.155)	(0.128)	(0.136)	(0.109)
Benefit	-0.109	-0.125	-0.142*	0.055
	(0.111)	(0.090)	(0.085)	(0.078)
Public Employee: Central	-0.849*	-0.850**	-0.499	-0.372
	(0.464)	(0.398)	(0.372)	(0.310)
Public Employee: Local/Regional	-0.079	-0.187	-0.191	0.071
	(0.218)	(0.185)	(0.173)	(0.159)
Cohort: 30-39	-0.064	0.047	0.032	-0.043
	(0.150)	(0.112)	(0.115)	(0.092)
Cohort: 40-49	0.006	0.149	0.166	-0.150
	(0.143)	(0.114)	(0.110)	(0.092)
Cohort: 50-59	0.074	0.169	0.145	-0.084
	(0.151)	(0.120)	(0.112)	(0.097)
Cohort: $\geq$60	0.355**	0.415***	0.227	0.157
	(0.149)	(0.122)	(0.144)	(0.109)
2nd Gen.	0.212*	0.270**	0.163	0.078
	(0.120)	(0.108)	(0.131)	(0.097)
3rd Gen: One Catalan Parent	0.607***	0.654***	0.432***	0.177**
	(0.127)	(0.108)	(0.101)	(0.089)
3rd Gen: Two Catalan Parent	1.101***	1.155***	0.814***	0.199**
	(0.129)	(0.106)	(0.112)	(0.085)
Ideology (L-R)	-0.221***	-0.224***	-0.148***	-0.033***
	(0.021)	(0.016)	(0.014)	(0.013)
Female	-0.007	-0.013	0.136*	-0.288***
	(0.092)	(0.074)	(0.072)	(0.062))
Intention to vote				0.389***
				(0.059)
Constant				0.201
				(0.188)
Province FE	Yes	Yes	Yes	Yes
Weights	Yes	No	No	No
Observations	1,212	1,212	2,100	2,100

OLS coe cients shown with standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1). The reference categories are as follows: Up to Secondary Education; Male; Cohort: 18-29; and Income Category: Very Low.
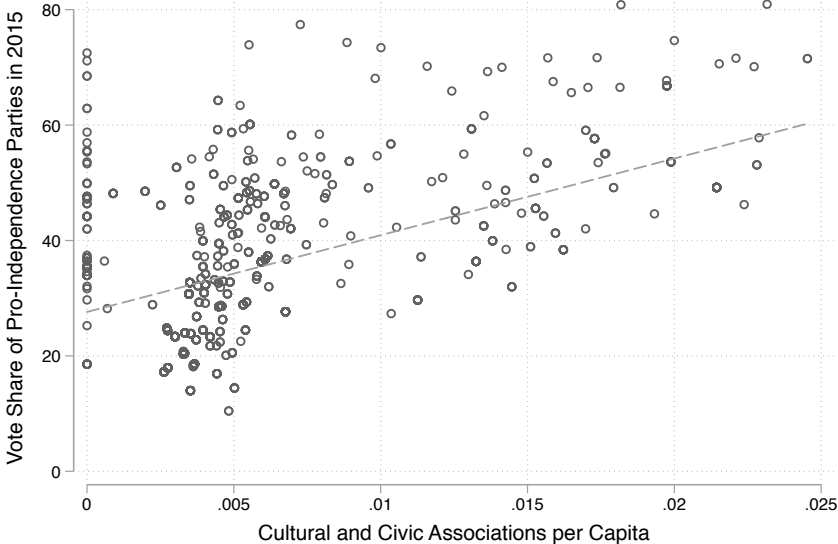
K Associational Life and Proindependence Vote

Figure A-5: Per Capita Cultural and Civic Associations vs. Share of Proindependence Vote in 2015 Local Elections, both indexed at municipality level. Association data winsorized at top 95% to eliminate abnormal values.

L Fiscal Knowledge as Mediator: Subset Analysis

In this Appendix we conduct subset analysis to investigate whether fiscal knowledge channels the e ect of education on secession preferences. For each given level of fiscal knowledge, we assess the relationship between education and preference for secession. Columns 1 –3 in Table A-10 shows that the e ect of education virtually vanishes within each level of fiscal knowledge—a result that one would expect if the latter mediated the e ect of education on secession preference. Columns 4–6 show that the e ect of education also goes away when we focus on the quasi-behavioral measure of secession preference.

Table A-10: Fiscal knowledge: Subset Analysis.

Dependent Variable:	Nonbehavioral Preference for Secession			Behavioural Preference for Secession		
	Fiscal Knowledge			Fiscal Knowledge		
	Low	Medium	High	Low	Medium	High
	(1)	(2)	(3)	(4)	(5)	(6)
Low-High School	-0.131	0.340	0.126	-0.056	0.178	0.075
	(0.158)	(0.237)	(0.214)	(0.136)	(0.144)	(0.133)
High-High School	0.203	0.339	0.004	0.136	-0.123	0.077
	(0.157)	(0.212)	(0.207)	(0.129)	(0.155)	(0.141)
University	0.126	0.425*	0.321	0.106	-0.022	0.217
	(0.169)	(0.222)	(0.208)	(0.148)	(0.147)	(0.139)
Constant	2.626***	2.410***	3.904***	2.934***	2.706***	3.458***
	(0.274)	(0.402)	(0.364)	(0.228)	(0.296)	(0.216)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	827	509	764	452	300	460
R-squared	0.337	0.434	0.388	0.319	0.473	0.303

OLS coefficients shown with standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1). Entropy weighting applied to match the voter population. Regressions also include dummy variables for Trade Ties with Spain: Missing (coefficients not shown here). Controls included but not reported are Ancestry, Gender, Age, Province, Income, Unemployment Spell, Government Employee, Benefits, Ideology, and Trade Ties. The reference category for education is: Up to Secondary Education.

M   Fiscal vs. General Political Knowledge

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We assess to what extent results are driven by general political knowledge or knowledge specific to the institutional design of interterritorial redistribution. To address this question, we consider two additional information measures: An easy one and a hard one. First, we asked respondents the name of the Minister of Finance (as of December 2018), Mr. Cristóbal Montoro. Under the tenure of this Minister, the Spanish government imposed direct control of the Catalan treasury. He was a salient political figure. Consistently, 85% of respondents rightly identified the Minister from a list of four names. Next, we requested respondents to name the coalition partner of Angela Merkel's government in the past legislature,[44] and 31% of respondents correctly named the Social Democrats.

Table A-11 examines whether the e ect of education attenuates or vanishes once we control for other forms of knowledge. Column 1 serves as benchmark, hence no knowledge covariate is considered. Column 2 and 3 in Table A-11 include the easy and hard measures of General Political Knowledge, respectively. Neither measure is statistically di erent from zero, neither they attenuate the influence of education on preference for secession, unlike knowledge of the institutional design of interterritorial redistribution (column 4).

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[44]We listed the following possibilities: the Greens, the Liberals, the Social Democrats, Merkel's government was single party, and Don't Remember. Respondents were to choose one.

Table A-11: Assessing the Effect of other forms of Political Knowledge in Mediating the Effect of Education

	(1)	(2)	(3)	(4)
Low-High School	0.099	0.097	0.103	0.095
	(0.119)	(0.119)	(0.119)	(0.117)
High-High School	0.239**	0.233**	0.243**	0.182
	(0.113)	(0.113)	(0.113)	(0.113)
University	0.350***	0.339***	0.359***	0.258**
	(0.115)	(0.116)	(0.116)	(0.117)
Knowledge: Spanish Minister		0.085		
		(0.102)		
Knowledge: German Government Coalition			-0.058	
			(0.088)	
Knowledge: Fiscal Transfers, Middle				0.203**
				(0.100)
Knowledge: Fiscal Transfers, High				0.403***
				(0.093)
Constant	2.933***	2.883***	2.944***	2.849***
	(0.201)	(0.212)	(0.200)	(0.198)
Controls	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Observations	2,100	2,100	2,100	2,100
R-squared	0.365	0.365	0.365	0.373

OLS coefficients shown with standard errors in parentheses (*** $p<0.01$, ** $p<0.05$, * $p<0.1$). Entropy weighting applied to match the voter population. The reference categories are as follows: Up to Secondary Education; Male; Knowledge of Fiscal Transfers: Low. Controls include: Income, Age, Gender, Ancestry, Ideology, Unemployment Length, Benefit, and. Trade Ties with Spain.

N Mechanism Candidate #3: Internal Migration and Catalan Schooling

Starting in the 1860s, a mass influx of low-skilled workers and public servants from other parts of Spain settled permanently in Catalonia. In 1950, the Catalan population was 3,240,313. In 20 years, as a result of internal migration, the population increased by 40%. The new settlers worked in the local manufacturing industry and lived on the outskirts of Barcelona and other cities in relatively poorer neighborhoods with lower quality public services.[45] Conditions improved over the years, but differences persist to date. Based on the household socioeconomic conditions, second generations might have had fewer opportunities to attend universities than the native population. The education coefficient might capture social extraction in ways that our Catalan ancestry and income variables cannot. To address this possibility, Columns 1 and 2 in Table A-12 depict separate analyses for first- and second-generation Catalans. Within each group, the effect of education persists.

During the Franco regime, Catalan was banned from the public sphere, including education. The Catalan school system changed radically starting in the early 80s, following democratic transition. In 1983, the Catalan Parliament passed the Law of Language Normalization, which sanctioned a model of schooling promoted by one of the political parties that better represented Spanish immigrants in Catalonia, the Socialist Party of Catalonia (PSC), the local branch of the Spanish Socialist Party (PSOE). The PSC advocated for an assimilation system that made no distinction among students with different home languages and, therefore, different social extraction. This system sought to preempt any social fracture between native Catalans and migrants from other parts of Spain (Lo Cascio 2008).[46] Building from this consensus, CiU, the ruling regional party in Catalonia between 1980 and 2003, made instruction in Catalan compulsory. Proponents of this strategy sought to expand the use of Catalan language and foster integration of immigrants and their descendants (Keating 1996).[47]

Clots-Figueras and Masella (2013) have shown that years of compulsory education in Catalan influence both individuals identification with Catalonia and their preferences for independence.[48] If the effect of education was driven by exposure to instruction in Catalan and the Catalan school system, we should expect no effect of education among Spanish

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[45]Solé, Carlota. 1981. La Integración Sociocultural de los Inmigrantes en Cataluña. Madrid:Centro de Investigaciones Sociológicas.

[46]Lo Cascio, Paola. 2008. *Nacionalisme i Autogovern: Catalunya, 1980-2003.* Barcelona: Editorial Afers.

[47]Keating, Michael. 1996. *Nations Against the State: The New Politics of Nationalism in Quebec, Catalonia and Scotland.* Hampshire: Macmillan Press.

[48]Clots-Figueras, Irma and Paolo Masella. 2013. "Education, Language and Identity." *The Economic Journal* 123(570):332-357.

immigrants who settled in Catalonia *after* their school years. To test this, we work with a subsample of respondents who were born in other parts of Spain and settled in Catalonia when they were more than 25 years old. We assume that at that age the likelihood of going to school is negligible. Column 3 in Table A-12 shows that for this group, who was never exposed to Catalan schooling, education levels are also a strong predictor of support for independence.

To further explore the influence of Catalan schooling on preferences for independence, we conduct an additional analysis inspired by Clots-Figueras and Masella (2013). We divide our sample into two groups based on their exposure to the Catalan school system. To establish exposure, we divide individuals between those who were born before and after 1970. By 1983, the first year the reform was implemented, those born before 1970 had already completed compulsory schooling and were thus entirely educated under the Francoist education system, which had banned Catalan. This is our control group. Generations born after 1970 were treated by the Catalan school system at least one year.[49] Table A-13 confirms that for those generations educated after the 1983 reform was implemented, education is an important driver of support for independence.[50] Table A-13 shows as well that the results for the control group are mixed: results for education for the nonbehavioral variable are null. When we focus on the behavioral measure, however, we observe that those who attained higher levels of education before the 1983 reform—and who could not have feasibly been exposed to Catalan schooling—also lean towards independence. Combined, these results suggest that Catalan schooling may magnify the e ect of education but also that education independently shapes preferences for secession—arguably because the more educated are more knowledgeable of the system of interregional transfers.

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[49]The intensity of the treatment may be bigger for those born after 1983 because they were fully exposed to schooling in Catalan; however, to investigate our mechanism, we are mainly interested in those who were not treated at all, that is, those in the control group.

[50]Using individual household data, Hierro (2015) shows that the effect of Catalan schooling decreases in the younger generation once one accounts for residential segregation because of internal immigration and parents' identification. See Hierro, María José. 2015. "Crafting identities in a multinational context: evidence from Catalonia." *Nations and Nationalism* 21(3):461-482.

Table A-12: Effect of Education on Secession Preference for First and Second Generations, and for individuals who went to school in other Spanish regions.

	Subsample		
	First Gen. Catalan	First and Second Gen. Catalan	First Gen. with No Catalan Schooling
	(1)	(2)	(3)
Low-High School	0.252	0.194	0.893
	(0.255)	(0.175)	(0.729)
High-High School	0.441*	0.447***	0.634
	(0.234)	(0.168)	(0.528)
University	0.438*	0.290*	1.019**
	(0.228)	(0.167)	(0.478)
Constant	3.185***	3.344***	2.255***
	(0.372)	(0.281)	(0.802)
Controls	Yes	Yes	Yes
Province Fixed Effects	Yes	Yes	Yes
Observations	357	869	121
R-squared	0.257	0.236	0.265

Coefficients shown with standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1). Entropy weighting applied to match the voter population. The reference categories are as follows: Up to Secondary Education; Male; Knowledge of Fiscal Transfers: Low. Controls include: Income, Age, Gender, Ancestry, Ideology, Unemployment Length, Benefit, and Trade Ties with Spain.

Table A-13: The Effect of Education Before and After the 1983 Reform

	Before Reform			After Reform		
	(1)	(2)	(3)	(4)	(5)	(6)
	Nonbehavioral OLS	Behavioral OLS	Behavioral oProbit	Nonbehavioral OLS	Behavioral OLS	Behavioral oProbit
Low-High School	0.042	0.166	0.223	0.168	0.256	0.288
	(0.186)	(0.123)	(0.166)	(0.200)	(0.161)	(0.195)
High-High School	0.056	0.119	0.089	0.634***	0.459***	0.557***
	(0.186)	(0.121)	(0.169)	(0.186)	(0.154)	(0.191)
University	0.026	0.219**	0.339**	0.796***	0.534***	0.698***
	(0.164)	(0.108)	(0.164)	(0.179)	(0.150)	(0.187)
Constant	2.068***	2.483***		1.887***	2.371***	
	(0.322)	(0.264)		(0.273)	(0.231)	
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Municipality Size FE	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	737	461	461	1,105	612	612
R-squared	0.270	0.179	-	0.184	0.142	-

Coefficients shown with standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1). Entropy weighting applied to match the voter population. The reference category is Up to Secondary Education. Controls include: Age, Gender, Municipality Size, and Ancestry.

O   Gradual Autonomy Retraction

Catalonia is one of the wealthiest regions in Spain and a net contributor to the Spanish treasure. Grievance about the fiscal deficit in this region precedes the economic crisis of 2008, but it was exacerbated as a result of recent autonomy retractions:[51] Beginning in 2011, Spain experienced an important "decentralization reversal" as part of a comprehensive austerity package implemented by a conservative executive (Muro 2015). Fiscal consolidation forced regions in the general track to assume a budget deficit reduction disproportional to its contribution, which added further economic distress to the regions. In 2012, the Spanish government created a new public bank to bail out regional treasuries and achieve austerity goals. Catalonia, a highly indebted region, was its largest client. The automatic adjustment to sociodemographic changes of the general track, due in 2014, was postponed *sine die*. The postponement deepened the regional budget deficits (AIRef 2016).[52] Starting in 2015, the Catalan government was required to submit a copy of all expenditures on a monthly basis to the Spanish Treasury for its approval. The rationale behind this decision was to prevent the Catalan government from using taxpayers' money to organize a referendum for independence.[53] Starting in September 2017, the monitoring was conducted on a weekly basis. Following the October 1 referendum, the Spanish government assumed direct control over Catalonia, and fiscal autonomy was completely suppressed. In June 2018, six months after the snap regional election, Catalan fiscal autonomy was mostly resumed.

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[51]The size of this deficit, somewhere between 4% and 8% of the Catalan GDP, is highly contested because it depends on various accounting assumptions. See, for example, "Hacienda: el déficit fiscal catalán es de 9.900 millones," *La Vanguardia*, August 9, 2017; or "La Generalitat cifra el déficit fiscal catalán en 16.570 millones en 2014, el 8,4%," *La Vanguardia*, December 4, 2017.

[52]As of November 2019, the general track has not been updated. The full source is: AIReF. 2016. "Informe sobre los Presupuestos Iniciales de las Administraciones Públicas para 2016." Working Paper 2016 Autoridad Independiente the Responsabilidad Fiscal.

[53]"Rajoy Takes Over Catalonia's Finances." *Ara*, Nov 11, 2015.

P Accommodation and Credibility vs. Three-Category Fiscal Knowledge

The Basque Country *foral* model is an aspirational fiscal agreement for Catalonia. Navarra is rarely mentioned in public discourse. A score of zero implies that the respondent is unaware that the Basque Country is in the quota track, a qualitatively different result from not knowing that Navarra is as well. Based on this reflection, Figures 5a–5d in the main analysis plot differences between those who know no province in the foral system vs. those who know at least one.

Figure A-6 shows that scoring 0 in the fiscal measure variable is qualitatively different from scoring 1 and 2 in terms of skepticism. Both in the pooled sample and among proindependence supporters, we see that those that lack even minimal notions of the institutional structure of regional transfers are less skeptical of the possibility of accommodation and see a fiscal agreement as more credible.

(a) All: Accommodation of Demands

(b) All: Credibility of Fiscal Reform

(c) Proindep: Accommodation of Demands

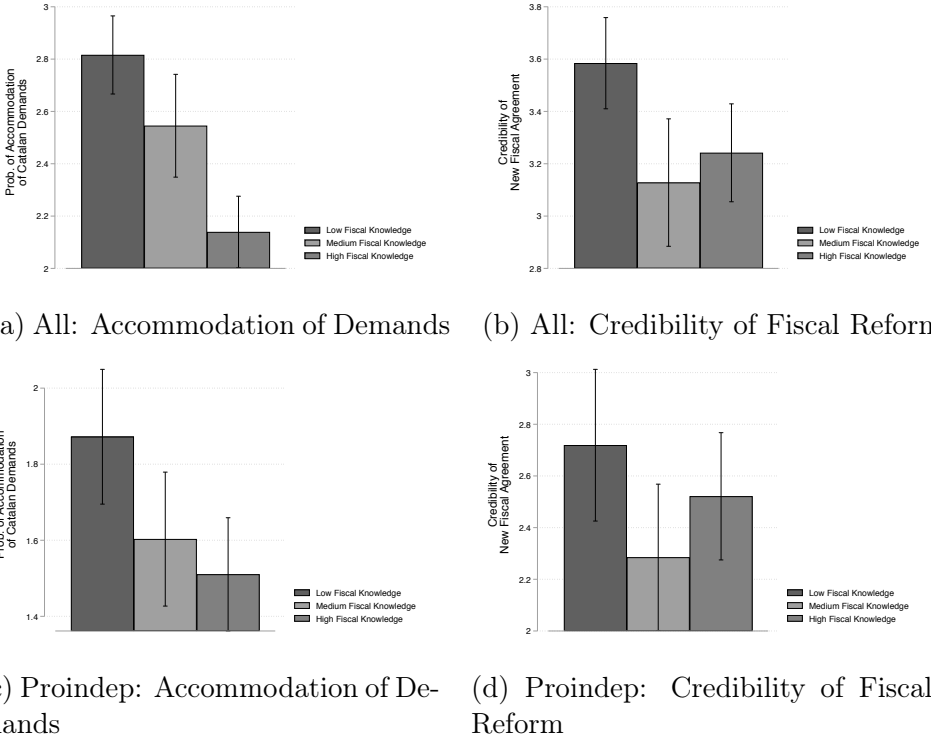(d) Proindep: Credibility of Fiscal Reform

Figure A-6: Willingness and Credibility of Accommodation. These figures report perceived likelihood of a constitutional reform to accommodate Catalan demands (left) and confidence that a hypothetical new fiscal agreement is honored by Spanish authorities (right) for the full sample (top) and proindependence supporters (bottom) by levels of fiscal Knowledge (three categories).

Q   Fiscal Knowledge and Strategic Calculus

Individuals with high levels of fiscal knowledge might be highly sophisticated and see the push for independence as a strategy to extract concessions from the central government. The *push for independence*, so to speak, would deliver concessions otherwise unachievable via ordinary demands. This strategic calculus has been associated with regional political elites (Jenne 2014).[54] We ask respondents for levels of agreement with "Some people think that pushing for independence is the most effective way to gain further political and fiscal devolution."

Figure A-7a shows that those fiscally knowledgeable do appreciate the use of secession demands as a means to extract political and fiscal concessions within the union. This association, however, vanishes within the proindependence camps, as shown in Figure A-7b. Fiscally knowledgeable proindependence supporters are not more (or less) likely to appreciate the push for independence as an effective strategy than non-fiscally knowledgeable proindependence supporters. The use of this strategy is shared by all proindependence supporters regardless of fiscal knowledge. In sum, the push for independence strategy might exist but it is not disproportionately followed by respondents with high fiscal knowledge.
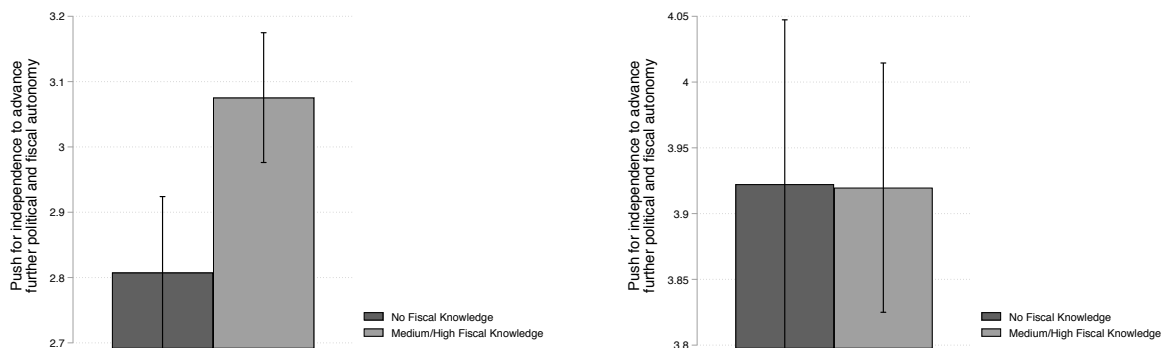
(a) All: Secession as Bargaining   (b) Proindep: Secession as Bargaining

Figure A-7: Secession as Bargaining. These figures shows levels of agreement with "Some people think that pushing for independence is the most effective way to gain further political and fiscal devolution" by Levels of Fiscal Knowledge for the full sample (left) and proindependence supporters (right).

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[54]Jenne, Erin K. 2014. *Ethnic Bargaining: The Paradox of Minority Empowerment.* Cornell University Press.